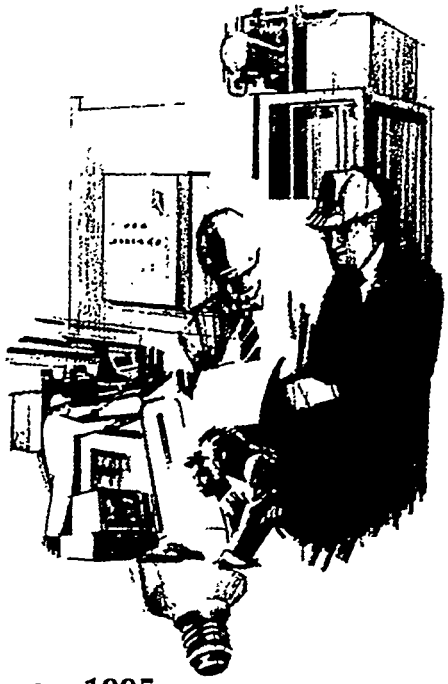
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UC-350

# Fort Irwin Integrated Resource Assessment

## Volume 3: Sitewide Energy Project Identification for Buildings and Facilities



February 1995

Prepared for the U.S. Department of Energy
Federal Energy Management Program
under Contract DE-AC06-76RLO 1830

Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
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# Fort Irwin Integrated Resource Assessment

## Volume 3: Sitewide Energy Project Identification for Buildings and Facilities

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# Abstract

The U.S. Army Forces Command (FORSCOM) has tasked the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP), supported by the Pacific Northwest Laboratory,[a] to identify, evaluate, and assist in acquiring all cost-effective energy projects at Fort Irwin. This is part of a model program that PNL is designing to support energy-use decisions in the federal sector.

This report provides the results of the fossil fuel and electric energy resource opportunity (ERO) assessments performed by PNL at the FORSCOM Fort Irwin facility located near Barstow, California. It is a companion report to Volume 1, *Executive Summary*, and Volume 2, *Baseline Detail*.

The results of the analyses of EROs are presented in 16 common energy end-use categories (e.g., boilers and furnaces, service hot water, and building lighting). A narrative description of each ERO is provided, along with a table detailing information on the installed cost, energy and dollar savings; impacts on operations and maintenance (O&M); and, when applicable, a discussion of energy supply and demand, energy security, and environmental issues. A description of the evaluation methodologies and technical and cost assumptions is also provided for each ERO. Summary tables present the cost-effectiveness of energy end-use equipment before and after the implementation of each ERO and present the results of the life-cycle cost (LCC) analysis indicating the net present value (NPV) and savings-to-investment ratio (SIR) of each ERO.

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[a] Pacific Northwest Laboratory is operated for the U.S. Department of Energy by Battelle Memorial Institute under Contract DE-AC06-76RLO 1830.

# Summary

The U.S. Army Forces Command (FORSCOM) has tasked the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP), supported by the Pacific Northwest Laboratory (PNL), to identify, evaluate, and assist in acquiring all cost-effective energy projects at Fort Irwin. This is part of a model program that PNL is designing to support energy-use decisions in the federal sector. This report describes the methodology used to identify and evaluate the energy resource opportunities (EROs) at Fort Irwin, provides a life-cycle cost (LCC) analysis for each ERO, and prioritizes the EROs based first upon whether or not they have a positive net present value (NPV) and second upon their savings to investment ratio (SIR). The SIR (the ratio of present value of the total savings to the present value of the installed cost) is used to prioritize EROs and is only applied to projects deemed cost-effective by nature of their positive NPV. EROs with negative NPVs, therefore, will not have an associated SIR measurement. Analysis results are presented in sixteen common energy end-use categories (e.g., boilers and furnaces, service hot water, and building lighting).

The Fort Irwin analysis made use of the newly developed Facility Energy Decision Screening (FEDS) software. The FEDS software is designed to identify, characterize, and assess individual energy projects. At this point in the software development, the FEDS software analyzes most major building end uses (heating, cooling, lighting, envelope insulation, and service hot water), including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads) providing specific cost, energy (and demand) charges, and life-cycle cost information, by cost-effective technology. The remaining EROs (motors, transmission and distribution, vehicles, etc.) are analyzed using manual (hand) calculation methods.

The use of two analysis methods complicates reporting of summary results. The FEDS software calculates its own baseline energy consumption based on 30-year average weather data, while the manual calculations use information developed in Volume 2, *Baseline Detail*. This results in some inconsistencies in reporting summary results between the two calculation methods. Further details on the FEDS software and the summary results are provided in Sections 1 and 3.

As illustrated in Table S.1, the present value (PV) of the installed cost of all EROs constituting the minimum LCC efficiency resource (i.e., cost-effective) at Fort Irwin is approximately $23.9 million in 1994 dollars (1994$). The PV of the energy and demand, O&M, and Replacement savings associated with This investment is approximately $87.3 million, for an overall NPV of $63.6 million.

Table S.2 provides a breakdown and summary of the cost-effective energy resource at Fort Irwin. The electric utility supplier, Southern California Edison Company (SCE), has stated that Fort Irwin can participate in their rebate program. Therefore, this analysis was completed using all applicable SCE rebates. Rebate amounts are included in the economic assumptions and results of each ERO section. If no cost-sharing with the utility can be arranged, the economic analysis can be redone at any time.

**Table S.1.** Total Savings, Cost, and NPV (1994$)

| Total Present Value of Installed Cost | Total Present Value of All Savings | Total Net Present Value |
|---|---|---|
| 23,908,628 | 87,274,447 | 63,625,347 |

**Table S.2.** Summary of the Cost-Effective Energy Resource at Fort Irwin (1994$)

| ERO Category | Present Value of Installed Cost | Present Value of Energy and Demand Savings | Present Value of O&M Savings | Present Value of Replacement Savings | Present Value of Total Savings | Total Net Present Value |
|---|---|---|---|---|---|---|
| Lights (Level-2)[a] | 4,393,028 | 17,464,385 | 0 | 4,184,358 | 21,648,743 | 17,255,714 |
| Vehicles | 2,047,000 | 5,662,859 | 6,475,790 | 0 | 12,138,649 | 10,091,649 |
| Envelope | 1,400,907 | 11,619,936 | 0 | -789,727 | 10,830,209 | 9,429,302 |
| Roof (Level-2)[a] | 2,005,349 | 8,131,276 | 0 | 0 | 8,131,276 | 6,125,922 |
| Fam. Hsg. HVAC | 7,086,917 | 12,291,871 | 281,903 | -241,994 | 12,331,780 | 5,244,863 |
| Lighting Controls | 180,827 | 2,512,676 | 719,268 | 0 | 3,231,943 | 3,051,116 |
| Motors | 1,362,331 | 4,051,014 | -4,133 | -504,490 | 3,542,390 | 2,180,059 |
| HVAC | 279,627 | 2,565,025 | 0 | -126,243 | 2,438,782 | 2,159,155 |
| Trans. & Dist. | 2,543,519 | 2,242,172 | -109 | 2,147,346 | 4,389,410 | 1,845,890 |
| Hot Water (Level-2)[a] | 188,447 | 1,743,372 | 0 | 0 | 1,743,372 | 1,554924 |
| Wall (Level-2)[a] | 907,261 | 1,840,887 | 0 | 0 | 1,840,887 | 933,622 |
| Central Chillers | 354,000 | 1,273,017 | -25,831 | 0 | 1,247,186 | 893,186 |
| DHW & A/C | 118,124 | 1,001,673 | -32,719 | -53,507 | 915,446 | 797,322 |
| Wells | 210,500 | 718,156 | -4,305 | 51,131 | 764,981 | 554,481 |
| A/C | 90 | 539,429 | -1,550 | 0 | 537,879 | 537,789 |
| Heating | 235,202 | 700,930 | 0 | 22,215 | 723,146 | 487,944 |
| Controls | 150,400 | 532,652 | 0 | -68,127 | 464,525 | 314,125 |
| Cooling (Level-2)[a] | 165,900 | 274,395 | 0 | 0 | 274,395 | 108,496 |
| Heating (Level-2)[a] | 13,016 | 45,366 | 0 | 0 | 45,366 | 32,352 |
| Totals:[b] | 23,908,628 | 72,211,089 | 7,408,314 | 4,620,963 | 87,2474,447 | 63,625,347 |

Notes:
(a) Data of this level of detail are not normally available from FEDS Level-2. All values from the Level-2 software are approxiamate, and are shown only to represent the magnitude of the savings from each end use.
(b) These totals are the sum of the manual EROs and the output from the Level-2 software. They will not necessarily be the sum of the numbers above.

The operations and maintenance (O&M) savings are a reflection of the incremental cost difference between the cost of maintaining the existing equipment and that of maintaining new or retrofitted equipment. Because maintenance costs of new or retrofitted equipment are often the same as the costs to maintain the existing equipment, this incremental maintenance cost is often zero.

Accompanying Table S.2 is Table S.3, which presents a breakdown and summary of both the energy and demand savings for the first-year and full implementation of the cost-effective energy resource at Fort Irwin. The "NA's" in the table reflect that: the FEDS model does not report first year savings, it works strictly on a life cycle cost basis. Any difference between first year and full implementation results are due to replace on failure EROS, which FEDS does not consider.

For EROs analyzed by the FEDS Level 2 software (Level-2), lighting EROs represent the greatest efficiency resource, accounting for over $17.3 million of the total $63.8 million NPV and $4.4 million of the total $24.7 million installed cost. The remaining ERO categories have NPVs ranging from $6.1 million to $0.9 million, except for cooling and heating EROs, which are only marginally cost-effective with NPVs of $108,496 and $32,352 respectively.

Table S.3. Summary of the Energy and Demand Savings

| ERO Category | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implement Energy Savings (MBtu) | Full Implement Demand Savings (kW-mo) | Annualized Energy and Demand Savings (1994 $) |
|---|---|---|---|---|---|
| Lights (Level-2)[a] | NA | NA | 34,815 | 2,487 | 1,014,144 |
| Fam. Hsg. HVAC | 76,678 | 15,226 | 76,678 | 15,226 | 713,785 |
| Envelope | 21,862 | 17,099 | 21,862 | 17,099 | 674,766 |
| Roof (Level-2)[a] | NA | NA | 45,939 | 621 | 472,181 |
| Vehicles | 14,638 | -180 | 14,638 | -180 | 328,840 |
| Hot Water (Level-2)[a] | NA | NA | 40,609 | 20 | 242,457 |
| Motors | 7,814 | 7,343 | 7,814 | 7,343 | 235,241 |
| HVAC | 15,058 | 1,690 | 15,058 | 1,690 | 148,950 |
| Lighting Controls | 5,992 | 0 | 5,992 | 0 | 145,910 |
| Trans. & Dist. | 2,203 | 3,708 | 6,076 | 7,223 | 130,202 |
| Wall (Level-2)[a] | NA | NA | 10,653 | 123 | 106,898 |
| Central Chillers | 1,099 | 2,110 | 1,099 | 2,110 | 73,924 |
| DHW & A/C | 4,345 | 2,198 | 4,345 | 2,198 | 58,167 |
| Wells | 0 | 1,097 | 0 | 1,097 | 41,703 |
| Heating | 4,682 | 727 | 4,713 | 742 | 40,703 |
| Cooling (Level-2)[a] | NA | NA | 962 | 143 | 35,400 |
| A/C | 935 | 1,129 | 935 | 1,129 | 31,324 |
| Controls | 1,508 | 2,186 | 1,508 | 2,186 | 30,931 |
| Heating (Level-2)[a] | NA | NA | -71 | 0 | 3,976 |
| Totals: | 156,813 | 54,331 | 293,623 | 61,256 | 4,529,501 |

Notes:
(a) The NAs in the table for Level-2 results reflect that FEDS does not consider replace-on-failure options.

For non-building EROs, vehicles represent the greatest efficiency resource, accounting for $10.1 million of the total $63.8 million NPV and over $2 million of the total $24.7 million installed cost. The remaining non-building ERO categories have NPVs ranging from $9.4 million to $314,125.

Tables S.4 and S.5 present the breakdown and summary of the total fuel balance at Fort Irwin. Table S.4 shows the energy consumption and savings predicted by the Level-2 software, for those EROs currently analyzed by Level-2. Table S.5 shows the energy consumption and savings predicted for the EROs not covered by Level-2. The existing energy consumption in Table S.4 is calculated by Level-2 based on a thirty year average weather file, while the energy data in Table S.5 is for FY90, as reported in the Volume 2, Baseline Detail companion report to this document. Total fuel use after ERO implementation was determined, where possible, by subtracting the total fuel savings from the total existing fuel use. The "NAs" in the table reflect that there are no demand charges for fossil fuels. Note that electric demand is reported as peak kWs by Level-2 but as kW-months for the manual EROs. Since peak demand is charged monthly, kW-months were used to properly track demand charges. The FEDS software does this calculation internally, reporting the difference in the demand for the peak month and the cost savings for the entire year.

**Table S.4.** Fuel Balance at Fort Irwin: Level-2 EROs

| | Existing | | Resulting | | Net Conservation | |
|---|---|---|---|---|---|---|
| Fuel Type | Energy Use (MBtu) | Demand (kW) | Energy Use (MBtu) | Demand (kW) | Energy Use (MBtu) | Demand (kW) |
| Chilled Water | 24,085 | NA | 20,118 | NA | 3,969 | NA |
| District Hot Water | 9,238 | NA | 1,558 | NA | 7,680 | NA |
| Electricity | 304,170 | 30,097 | 254,607 | 26,523 | 49,562 | 3,574 |
| Propane | 209,098 | NA | 138,080 | NA | 71,018 | NA |
| Totals | 546,591 | 30,097 | 414,363 | 26,523 | 132,229 | 3,574 |

**Table S.5.** Fuel Balance at Fort Irwin: Manual EROs

| | Existing | | Conservation | | New Load | | Resulting | | Net Conservation | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fuel Type | Energy Use (MBtu) | Demand (kW-mo) | Energy Use Reduction (MBtu) | Demand Reduction (kW-mo) | Increased Energy Use (MBtu) | Increased Demand (kW-mo) | Energy Use (MBtu) | Demand (kW-mo) | Energy Use Reduction (MBtu) | Demand Reduction (kW-mo) |
| Diesel | 516,808 | | 3,116 | | 0 | | 513,692 | | 3,116 | |
| Electricity | 272,217 | 399,251 | 43,427 | 58,042 | 1,962 | 180 | 230,753 | 341,389 | 41,465 | 57,862 |
| Gasoline | 81,245 | | 81,245 | | 0 | | 0 | | 81,245 | |
| Natural Gas | 0 | | 0 | | 68,784 | | 68,784 | | -68,784 | |
| Propane | 225,780 | | 102990 | | 0 | | 122,790 | | 102990 | |
| Totals | 1,096,050 | 399,251 | 230,778 | 58,042 | 70,746 | 180 | 936,018 | 341,389 | 160,032 | 57,862 |

For building EROs (analyzed by Level-2), the estimated annual electricity consumption at Fort Irwin is 89,143 MWh. Estimated electrical demand is 30,097 kW. Full implementation of all electric EROs results in a reduction of 14,525 MWh and 3,574 kW. This represents a reduction of approximately 16.3% over total electricity consumption, and 11.9% over site-wide demand. The estimated annual propane consumption at Fort Irwin is 209,098 MBtu. Full implementation of all propane EROs results in net conservation of 71,018 MBtu. This represents net conservation of 34.0% of total consumption. The end uses of chilled water and district hot water were not broken out by fuel. The estimated annual chilled water use is 2,007,034 ton-hours. Full implementation of all chilled water EROs results in a reduction of 330,720 ton-hours, or 16.5% of total consumption. The estimated annual district hot water use is 9,238 MBtu. Full implementation of all district hot water EROs results in a reduction of 7,680 MBtu, or 83.1% of total consumption.

For non-building EROs, the estimated annual electricity consumption at Fort Irwin is 79,779 MWh. Estimated electric demand is 399,251 kW-mo (sum of the peak demands for each month). Full implementation of all electric EROs results in a reduction of 12,152 MWh and 58,042 kW-mo. This represents a reduction of approximately 15.2% over total electricity consumption and 14.5% over site-wide demand. The estimated annual fossil fuel consumption (natural gas, #2 fuel oil, propane, gasoline, and diesel) at Fort Irwin is 823,833 MBtu. This total excludes any diesel and gasoline used for vehicles not addressed through EROs. Full implementation of all fossil fuel EROs results in conservation of 187,351 MBtu and a new load of 68,784 MBtu, for a net reduction of 118,567 MBtu. This represents conservation of 22.7% of total consumption, new load of 8.3%, and an overall decrease of 14.4%.

Another way to assess the energy project opportunities is to bundle the EROs by building set. A total of 98 different buildings sets were identified at Fort Irwin. Table S.6 lists the top-ten conservation projects at Fort Irwin, ranked by net savings of the combined EROs for that building set. Also included in the table are the total annual energy and demand savings, first costs of the installed ERO, and the savings to investment ratio (SIR).

**Table S.6.** Summary of Energy and Cost Savings Aggregated by Building Set

| Building Set | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Value of Energy Savings | Value of Demand Savings | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| FH Duplex 01 | 3.5 | 11,353 | 2,462 | $136,150 | $69,627 | $1,107,932 | $3,702,924 | $2,619,960 |
| FH Detached 01 | 5.0 | 4.639 | 1,899 | $63,832 | $30,029 | $598,269 | $2,868,276 | $2,246,378 |
| Administration 09 | 3.3 | 3.709 | 254 | $72,594 | $27,017 | $752,207 | $2,468,683 | $1,933,705 |
| FH 3 or more 02 | 2.6 | 14,425 | 2,524 | $178,774 | $159,247 | $876,083 | $2,199,434 | $1,631,549 |
| Administration 03 | 3.4 | 2,425 | 137 | $45,248 | $14,462 | $342,290 | $1,175,987 | $1,106,009 |
| Shops 04 | 13.3 | 388 | 30 | $7,602 | $3,085 | $85,401 | $1,134,504 | $1,062,354 |
| FH Duplex 03 | 2.6 | 11,303 | 46 | $69,987 | $4,687 | $488,746 | $1,290,527 | $1,010,499 |
| Recreation 02 | 14.6 | 96 | 5 | $1,552 | $441 | $68,076 | $991,341 | $934,389 |
| FH 3 or more 03 | 2.9 | 4,835 | 54 | $40,886 | $5,750 | $306,248 | $894,407 | $822,314 |
| School/Training 02 | 7.7 | 924 | 81 | $19,365 | $8,614 | $91,388 | $701,634 | $742,742 |

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# Abbreviations and Acronyms

| | |
|---|---|
| AAFES | Army/Air Force Exchange Service |
| A/C | air conditioning |
| AHU | air-handling unit |
| ASHRAE | American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. |
| BLCC | Building Life-Cycle Cost software |
| Btu | British thermal unit |
| CBECS | Commercial Building Energy Consumption Survey |
| CF | compact fluorescent |
| CFC | chlorofluorocarbon |
| cfm | cubic feet per minute |
| CFR | Code of Federal Regulations |
| CNG | compressed natural gas |
| CVR | conservation voltage reduction |
| d | day |
| DEH | Directorate of Engineering and Housing |
| DEIS | Defense Energy Information System |
| DHW | domestic hot water |
| DOE | Department of Energy |
| DOD | Department of Defense |
| DOS | disk operating system |
| DSM | demand-side management |
| EE | energy efficient |
| EEF | energy efficient ballast |
| EEM | energy efficient motor |
| EIA | Energy Information Administration |
| ELC | electronic ballast |
| EMCS | energy management control system |
| EPA | Environmental Protection Agency |
| ERO | energy resource opportunity |
| ESCO | energy services contractor |
| EUI | end-use intensity |
| FEDS | Facility Energy Decision Screening software |
| FEMP | Federal Energy Management Program |
| FO2 | fuel oil No. 2 |
| FORSCOM | Forces Command |
| gal | gallon |
| h | hour |
| hp | horsepower |
| HPS | high pressure sodium |
| HTHW | high temperature hot water |
| HVAC | heating, ventilation, and air conditioning |
| Hz | Hertz |
| IES | Illuminating Engineering Society |
| IRA | Integrated Resource Assessment |
| kBtu | thousand British thermal units |
| kcf | thousand cubic feet |
| kVA | kilovolt-amperes |

| | |
|---|---|
| KVAR | reactive demand, kilovolt-amperes |
| kW | kilowatt |
| kWh | kilowatthour |
| lb | pound |
| LCC | life-cycle cost |
| LED | light emitting diode |
| Level-1 | Facility Energy Decision Screening Level 1 software |
| Level-2 | Facility Energy Decision Screening Level 2 software |
| LPA | liquid pressure amplification |
| LPG | liquid propane gas |
| LPS | low pressure sodium |
| LST | local standard time |
| LTSM | Lighting Technology Screening Matrix |
| M | million |
| mo | month |
| MBtu | million British thermal unit |
| MBtuh | MBtu's per hour |
| MH | metal halide |
| MW | million watts |
| MWh | million watthours |
| NBS | National Bureau of Standards |
| NG | natural gas or National Guard |
| NIST | National Institute of Standards and Technology |
| NTC | National Training Center |
| NPV | net present value |
| O&M | operations and maintenance |
| °F | degrees Fahrenheit |
| PCBs | polychlorinated biphenyls |
| PCF | permanent compact fluorescent |
| PF | power factor |
| PNL | Pacific Northwest Laboratory |
| psi | pounds per square inch |
| PV | present value |
| PX | post exchange |
| RECS | Residential Energy Consumption Survey |
| REF | parabolic reflector |
| ROI | return on investment |
| RPL | real property list |
| rpm | revolutions per minute |
| SCE | Southern California Edison Company |
| SIR | savings to investment ratio |
| SHGF | solar heat gain factor |
| TES | thermal energy storage |
| T&D | transmission and distribution |
| VAV | variable air volume |
| VSD | variable speed drive |
| W | watt |
| WSEO | Washington State Energy Office |
| yr | year |

# 1.0 Introduction and Identification of Energy Projects

The number of conceivable energy conservation measures, fuel-switching opportunities, and renewable energy projects at a federal site is very large. PNL uses two methods to select, evaluate, and prioritize these energy resource opportunities (EROs). These methods and the selection criteria are described in Section 1.1. Section 1.2 details the technical assumptions behind the FEDS assessment at Fort Irwin. The top-ten energy saving projects at Fort Irwin are described in Section 1.3, and pertinent information on Fort Irwin buildings is provided in Section 1.4. The balance of this report is organized as follows. Section 2 covers the technical characteristics of each ERO considered and analyzes its cost and performance. Section 3 provides the results of the LCC analysis and ERO prioritization process. Section 4 lists the references, and Appendix A provides the electricity cost calculations used in the report.

## 1.1 Selection of Energy Resource Opportunities

The first method PNL uses in the selection of EROs is the Facility Energy Decision Screening (FEDS) model. FEDS is a multi-level software tool designed to provide a comprehensive approach to fuel-neutral technology-independent integrated (energy) resource planning and acquisition. There are currently two levels of FEDS: Level-1 and Level-2. Level-1 is a menu-driven, DOS-based software program designed for facility energy managers as a screening tool. Level-1 assesses the likelihood of cost-effective energy projects based on high-level facility inputs and numerous assumptions. The output of Level-1 is used to assess an installation's overall energy conservation potential from the perspectives of potential energy savings, potential cost savings, and estimated investment requirement.

Level-2 is also a DOS-based software program that can be used by facility energy managers to identify, characterize, and assess individual energy projects. However, Level-2 goes to the next level of detail, providing explicit information on energy and cost savings, as well as the estimated investment requirement for specific technology retrofits. Level-2 is the appropriate analysis to follow positive Level-1 results, and typically a Level-2 input file is initiated from a Level-1 input file. Level-2 allows the user to enter installation-specific data inputs to replace the inferred default values from Level-1. These inputs form "building sets," which are groups of buildings similar in use, age, construction type, fuel use, fuel availability, or other definable characteristics. By developing building sets based on detailed facility data, Level-2 tailors the analysis to the installation and provides more accurate and detailed economic findings.

At this point in the software development, Level-1 and Level-2 analyze most major building end uses (heating, cooling, lighting, envelope insulation, and service hot water) including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads), and provide specific cost, energy (and demand changes), and life-cycle cost information, for cost-effective technologies.

The second method PNL uses addresses those EROs not specifically analyzed by the FEDS software. This analytical approach is a three-step manual-calculation process which has been developed by PNL to make ERO selection, evaluation, and prioritization a manageable process. The steps in the manual process are the following:

- **Preliminary Screening**. Select promising EROs from a master list, considering the site's mission, building stock, end-use equipment characteristics, utility characteristics, climate, energy costs, and other local conditions that affect ERO viability, and recommendations from site staff.

- **Cost and Performance Analysis.** Establish, with a reasonable degree of accuracy, the technical and economic feasibility of each ERO that passed the preliminary screening. An analysis is performed comparing the operating and economic performance of the existing equipment and the ERO. Where applicable, impacts on energy security and the environment are included in the analysis.

- **Life-Cycle Cost Analysis and Prioritization.** Perform a life-cycle cost analysis and rank EROs by net present value (NPV), so that a package with the optimal return on investment can be defined. If any utility cost-sharing or rebate programs exist, they can be included within this evaluation step.

The life-cycle cost (LCC) analysis and prioritization step used in both the Level-2 and manual methods is required by and complies with federal law (CFR 436, Part 10). All federal agencies are required to evaluate the LCC of alternative technologies when making energy investments. An LCC evaluation computes the total long-run costs of alternative actions, and identifies the action that maximizes the NPV of the energy investment. Section 3.1 details the process by which LCCs are calculated, explains how these calculations are used in the identification of projects, and introduces a method for prioritizing a list of alternative actions.

The process that was used for preliminary selection of EROs is described below. After that, a master list of screened and selected EROs is presented.

### 1.1.1 Manual ERO Preliminary Selection Criteria

The manual ERO selection process tests the applicability of a long list of EROs (see the master list of EROs in Table 1.1) using criteria that can be applied with relatively little "hard data." This step filters out EROs that are unlikely to be economically feasible and are unlikely to have significant, persistent energy impact at the site. The 13 screening criteria used to characterize and select possible EROs are listed below.

- **Low Incidence.** EROs that apply to end-use equipment representing a very small fraction of site energy use may be eliminated. However, such EROs may be retained in cases where the end use is concentrated rather than diffuse, or where it has been previously identified in a detailed audit, and the ERO passes the other criteria without difficulty.

- **Economic Feasibility.** A preliminary assessment of economic feasibility can often be made if the utility will commit to an incentive or cost-sharing level in advance. EROs whose costs and performance are well established and fairly uniform across applications can then be screened with respect to the utility's marginal cost of energy and/or capacity.

- **Technical Feasibility.** In some cases conditions at the site will preclude implementation of a certain ERO. Conditions that make retrofit difficult or use patterns that complicate operations or maintenance of the end-use equipment in question may result in elimination of an ERO prior to formal analysis.

- **Primarily Operations and Maintenance (O&M).** A measure that is little more than a no- or low-cost change in O&M activity will generally be rejected as inappropriate to the integrated resource acquisition program. The measures of interest to the program are capital-intensive measures that are difficult, programmatically, for the site personnel to implement on their own. Cases where there is a significant cost to develop new O&M procedures or to procure special instruments and tools may be considered.

- **Mission-Critical.** End-use equipment that serves critical mission functions may not be accessible for retrofit or replacement, or its operation may be so important to critical mission objectives that any modification in the service is not tolerable.

- **Site Preference.** The site may have particular objections to certain EROs, based on O&M or other infrastructure support requirements, or based on unfavorable past experience with similar measures. In cases where the ERO appears to be very attractive in other respects, it may be analyzed in the belief that the savings might support a reevaluation of the measure.

- **Insufficient Data.** In some cases the performance or operational characteristics of existing end-use equipment is unknown, and the cost to determine these characteristics cannot be justified. This is not a technical- or implementation-cost grounded rejection and should not deter the site energy manager and/or contractor from further analysis and, if appropriate, implementation of the ERO concerned.

- **Complexity.** In some cases the complexity of the analysis precludes the analysis of an ERO as part of a high-level, comprehensive site-assessment program.

- **Immature Technology.** Some retrofits require equipment that has not achieved sufficient market acceptance or penetration in the federal sector to be considered reliable and effective. The persistence of savings and the sensitivity of savings to O&M, and the propensity for equipment to degrade in energy performance while continuing to provide service, are factors that could disqualify a technology. Such measures will usually not be considered.

- **Other ERO-Dependent Measures.** A measure may be rejected because it depends on one or more other EROs that have been rejected or whose feasibility is too uncertain. It may also be rejected because it has already been implemented in most or all of the existing end-use opportunities.

- **EROs Handled by FEDS Level-2.** The Level-2 software is used to analyze groups of related building-level EROs. Since Level-2 takes into account interactive effects between the EROs, it is difficult to analyze (without compromising the Level-2 results) other building EROs that Level-2 does not currently consider.

- **Discussion Only.** Some retrofits are deemed not cost-effective without extensive analysis due to experience at another, similar installation, insufficient data, immature technology, etc. However, in some cases installation personnel request that the ERO be included in the analysis. In these cases the ERO may be included as "discussion only," where the ERO is discussed, but no formal energy, cost, or life-cycle analysis is included.

- **Tenant Owned.** In some cases the end use equipment under consideration is owned by a tenant organization not controlled by the installation energy program. The most frequent case for this criteria is appliances in family housing units.

### 1.1.2 Master List of Screened and Selected EROs

A master list of generic conservation measures, aggregated from a variety of sources, was used as an origination point in the identification of energy resource opportunities at Fort Irwin. This master list is presented in Table 1.1. For each ERO listed there is an indication of whether it passed the preliminary screening process and whether it was analyzed by Level-2 or by manual-calculation. If the ERO did not pass, a brief explanation is provided.

## Table 1.1. Master List of Energy Resource Opportunities at Fort Irwin

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| FANS AND FAN MOTORS | | | |
| Align sheaves | Align sheaves and shafts; replace belt with high-efficiency belt(s). | N | This is primarily an O&M measure |
| Reduce hours | Install clock, EMCS switch or other control means to reduce operating hours. | N | Insufficient data |
| Reduce speed | Reduce fan speed by adjusting sheave diameter and reduce motor size accordingly. | N | Insufficient data |
| Efficient motor | Replace existing motor with high-efficiency model. | Y | |
| Two-speed motor | Replace existing motor with two-speed motor and controller. | N | Use alternate ERO - variable-speed drive |
| Variable inlet vane | Install variable inlet vanes and control to provide reduced air flow when appropriate. | N | Most fans are single zone |
| Variable-speed drive | Install variable frequency motor drive and control to modulate airflow; also reduce motor size if appropriate. | Y | |
| Variable-speed electronic-ally commutated motor | Replace existing motor with variable-speed electronically commutated permanent magnet motor and control; also reduce motor size if appropriate. | N | Use alternate ERO - variable-speed drive |
| $CO_2$ sensor | Install $CO_2$ sensors for ventilation control to reduce heating of outside air and average (over time) air volume moved by fans. | N | Intermittent application due to non-human critical loads in many facilities |
| Duct transitions | Redesign duct transitions to reduce friction loss by using turning vanes, long radius turns and gradual changes in cross-sectional area. | N | No high SP systems; insufficient data on low SP systems |
| Duct cross-section | Increase duct cross-section to reduce friction loss. | N | No high SP systems; insufficient data on low SP systems |
| Face velocity | Redesign filters, coils, etc., to reduce friction loss by operating at lower face velocities. | N | No high SP systems; insufficient data on low SP systems |
| Downsize motors | Replace existing motor with energy efficient motor properly sized for the load. | Y | Discussion only |
| PUMPS AND PUMP MOTORS | | | |
| Align shafts | Align shafts and replace coupling with high-efficiency coupling. | N | This is primarily an O&M measure |
| Reduce hours | Install clock, EMCS switch or other control means to reduce operating hours. | N | Most pumps operate on demand |
| Efficient motor | Replace motor with high-efficiency model. | Y | |
| Trim impeller | Replace (or trim) impeller and reduce motor size to match actual load. | Y | Discussion only |
| Two-speed motor | Replace existing motor with two-speed motor and controller. | N | Use alternate ERO - variable speed drive |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Variable-speed drive | Install variable frequency motor drive and control to modulate fluid flow; also reduce motor size if appropriate. | Y | |
| Variable-speed, electronically commutated motor | Replace existing motor with variable- speed electronically commutated permanent magnet (VS ECM) motor and control; also reduce motor size if appropriate. | N | Use alternate ERO - variable speed drive |
| Adjust VSD setpoint | Adjust VSD control setpoint for lower speed operation. | N | Low incidence |
| Pipe transitions | Redesign system with long radius elbows and other low-loss type fittings to reduce friction loss. | N | Insufficient data |
| Pipe size | Redesign system with increased pipe diameter to reduce friction loss. | N | Insufficient data |
| Fittings | Redesign filters, heat exchangers, valves, etc., to reduce friction loss by operating at lower velocity. | N | Insufficient data |
| Circulating pump control | Check, repair, and/or install automatic control systems to control parallel circulating pumps so that only one pump operates at a time. | N | Low incidence |
| REFRIGERATION (residential/barracks) | | | |
| Efficient refrigerator | Replace existing residential and barracks refrigerators with high-efficiency model meeting DOE 1993 Appliance Efficiency Standard. | Y | |
| LIFT STATION heating/ventilation | | | |
| Thermostat | Replace on/off control of electric resistance heater control with thermostatic control. | N | Not applicable |
| Ventilation heat recovery | Install air-to-air heat exchanger to preheat ventilation air by recovering sensible and latent heat from exhaust. | N | Immature technology |
| Methane sensor control | Provide methane sensor to operate ventilation fan only when needed to prevent excess methane concentrations. | N | Immature technology |
| Insulate walls | Install moisture-resistant insulation to above-grade walls and roof (consider this ERO only after thermostat and ventilation heat recovery or methane sensor). | N | Must be preceded by ventilation control ERO |
| RESIDENTIAL LIGHTING (interior and exterior) | | | |
| Upgrade incandescent to permanent compact fluorescent (PCF) fixture | Upgrade incandescent fixture to permanent compact fluorescent fixture. | Y | FEDS Level-2 |
| Replace incandescent with PCF fixture | Replace incandescent fixture with new compact fluorescent fixture. | Y | FEDS Level-2 |
| Upgrade fluorescent to T8 | Upgrade fluorescent to high-efficiency T8 or similar system. | Y | FEDS Level-2 |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Replace fluorescent with new fixture | Replace fluorescent fixture with new high-efficiency T8 (or comparable) fixture. | Y | FEDS Level-2 |
| COMMERCIAL LIGHTING | | | |
| Upgrade fluorescent to T8 | Upgrade fluorescent fixture to high-efficiency T8 or similar system. | Y | FEDS Level-2 |
| Replace fluorescent with new fixture | Replace fluorescent fixture with new high-efficiency T8 (or comparable) fixture. | Y | FEDS Level-2 |
| De-lamp | Replace, modify or move/remove fixtures to reduce lighting density to level that provides correct illumination. | Y | FEDS Level-2 |
| Upgrade incandescent to PCF fixture | Upgrade incandescent fixture to permanent compact fluorescent fixture. | Y | FEDS Level-2 |
| Replace incandescent with PCF fixture | Replace incandescent fixture with new compact fluorescent fixture. | Y | FEDS Level-2 |
| Upgrade mercury to high- pressure sodium (HPS) | Replace mercury vapor lamps and ballasts with high-pressure sodium lamp and ballast (or replace entire fixture). | Y | FEDS Level-2 |
| Upgrade incandescent exit signs | Upgrade incandescent exit signs with light emitting diode (LED) or fluorescent exit signs. | Y | FEDS Level-2 |
| Replace incandescent exit signs | Replace incandescent exit signs with LED or fluorescent exit signs. | Y | FEDS Level-2 |
| Occupancy sensors | Install occupancy sensors to control lights. | Y | |
| Time clocks or photocells | Install time clocks or photocells to control lights. | N | Occupancy Sensors preferred. |
| EMCS control | Install EMCS or add field panel and necessary relays to control lights via EMCS system. | N | Local control preferred |
| Auto-transformer lighting controller | Install controller to modulate voltage delivered to lighting circuits. | Y | Discussion only |
| EXTERIOR LIGHTING | | | |
| De-lamp | Remove or disconnect bulbs or ballasts to reduce lighting density to level that provides reduced but satisfactory illumination. | N | Few overlit areas, little application. |
| Zoned security lamp circuits | Rewire building exterior light circuits into zones so that night work lights and security lights are under separate control. | N | Few overlit areas, little application. |
| Motion detectors | Install motion detectors in series with security light time clock switch so that selected zones are off except when activated by motion detectors. | N | No application |
| Reprogram time clocks | Reprogram existing time clock to turn off or reduce light level at low traffic hours. | N | Primarily and operation and maintenance (O&M) measure |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Install time clocks | Install programmable time clock to turn off or reduce light level at low traffic hours. | N | No application |
| Zoned streetlamp circuits | Rewire streetlight circuits into zones and provide programmable time clock to turn off or reduce light level at low traffic hours. | N | No application |
| Mercury to HPS | Replace mercury vapor lamps and ballasts with high-pressure sodium lamp and ballast (or replace entire fixture). | N | Most streetlighting is already HPS |
| Incandescent to compact fluorescent | Replace incandescent light fixture with compact fluorescent fixture. | N | No application |
| Incandescent to HP sodium | Replace incandescent fixture with high-pressure sodium fixture. | N | Most streetlighting is already HPS |
| OCCUPANCY-BASED CONTROLS (see also FAN, HVAC) | | | |
| Occupancy sensor, restroom | Install occupancy sensor to control lights and exhaust fan in restroom. | N | Technical feasability |
| Occupancy sensor, other | Install occupancy sensor to control lights in hallway, lunchroom, office, conference room, or other intermittently occupied area. | N | Insufficient data |
| Daylight sensor | Install daylight sensor to control lights in hall, foyer, or other area that has windows and low ambient light requirement. | N | Insufficient data |
| Daylight sensor, security | Install daylight sensor to control security light(s) in area that has windows. | N | Low incidence |
| Night setback | Install time clock to schedule fan, thermostat set point, and air-conditioner operation. | Y | |
| $CO_2$ sensor control | Install $CO_2$ sensor to control air-handler and ventilation fans. | N | Not applicable |
| Countdown timer | Install countdown timer to control air-handler and ventilation fans during normally unoccupied hours. | N | Not applicable |
| Occupied mode via EMCS | Implement unoccupied schedules for fans and air-conditioning via EMCS; override during normally unoccupied hours. | N | Not applicable |
| ELECTRIC DEMAND CONTROL | | | |
| Water heater control | Install controls to shed electric water heater loads in rotating blocks during peak demand periods. | N | Low incidence |
| Shed A/C loads | Install controls to shed air-conditioning loads in rotating blocks during peak demand periods. | N | Insufficient data |
| Well pump control | Transfer lift station and well pumps to emergency generators during peak. | N | Insufficient data |
| Run motors at low speed | Install controls to operate existing variable speed pumps and fans at low speed during peak demand periods. | N | Insufficient data |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Peak shave generator loads | Install controls to automatically transfer existing diesel generator loads to generator power during peak demand periods. | N | Not allowed under current rate schedule |
| Feed grid from generators | Install controls and switches to feed existing generator output to grid; operate during high demand periods to reduce peak demand. | N | Not allowed under current rate schedule |
| Add water storage capacity | Install water storage tank to avoid pumping during peak periods. | Y | |
| SERVICE HOT WATER | | | |
| New Conventional Gas Water Heater (76%, 80%, 85% efficient) | Replace existing gas water heater with a new conventional gas water heater model. | Y | FEDS Level-2 |
| High Efficiency Gas Water Heater (94% efficient) | Replace existing gas water heater with high-efficiency (well-insulated) model. | Y | FEDS Level-2 |
| Tank insulation with R-11 wrap | Add insulating blanket to provide additional tank insulation. | Y | FEDS Level-2 |
| Tankless heater | Replace tank type water heaters with instant/tankless unit. | N | Not cost-effective |
| Low-flow shower heads | Low-flow shower head restricts the volume of water passing through. | Y | FEDS Level-2 |
| Lower hot water temperature | Reduced water temperature reduces energy lost in various hot water-consuming processes including showers, dishwashers, laundries, etc. | Y | FEDS Level-2 |
| Insulate service hot water pipes | Typically, service hot water pipes are copper. Insulation is usually 1/2-inch glass fiber, and the temperature of the water is usually 140 °F. | Y | FEDS Level-2 |
| Fuel switch to electric | Fuel switch from thermal distribution loop to electric water heater. | Y | FEDS Level-2 |
| Fuel switch from electric | Install boiler to switch from electric to LPG water heating. | Y | FEDS Level-2 |
| A/C desuperheater | Recover heat from air-conditioner by installing water-cooled desuperheater and controls. | Y | |
| Refrigeration desuperheater | Recover heat from refrigerators by installing water-cooled desuperheater and controls. | N | Insufficient data |
| Aquastat controller | Install "smart" controller to reset water heater temp. setpoint during periods of low use. | Y | |
| TRANSMISSION & DISTRIBUTION | | | |
| Phase balance | Improve phase balance of feeders and main transformers by moving loads among phases. | N | Phase balance is satisfactory |
| Efficient transformers | Replace transformers with high-efficiency models. | Y | |
| Reduce transformer size | Reduce transformer size to match load, thus reducing standby loss and reactive power consumption. | N | Insufficient data |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Conservation voltage reduction | Reduce set point on auto-tap-changing transformer to maintain minimum acceptable voltage at end of feeder. | Y | |
| Passive power factor correction | Install capacitor banks to provide passive power factor correction. | Y | |
| Switched power factor correction | Install capacitor banks, power factor transducers and automatic switches to provide active power factor correction. | N | Use alternate ERO - Passive PF correction |
| RESIDENTIAL HVAC | | | |
| Whole house fan | Install whole house fans to reduce or eliminate the use of window air-conditioning. | N | Insufficient data |
| Efficient furnace motor | Replace furnace fan motor with high-efficiency motor. | Y | |
| 2-speed furnace motor | Replace furnace fan motor with 2-speed motor. | N | Insufficient data |
| Ventilation heat recovery | Install air-to-air heat exchanger to reduce infiltration and recover heat from ventilation air. | N | Insufficient data |
| Efficient air-conditioner | Replace air-conditioner with high-efficiency unit. | Y | |
| Efficient heat pump | Replace heat pump with high-efficiency unit. | Y | |
| Heat pump | Replace nat. gas furnace and DX A/C system with heat pump. | Y | |
| Fuel switch from electric | Switch from electric to NG by installing I.C. engine-driven heat pump. | Y | |
| RESIDENTIAL APPLIANCES | | | |
| Efficient washer | Replace clothes washer with high-efficiency (water miser) unit. | N | Tenant-owned |
| Efficient dryer | Replace clothes dryer with high-efficiency unit. | N | Tenant-owned |
| Fuel switch dryer | Replace electric clothes dryer with natural gas unit. | N | Tenant-owned |
| Efficient dishwasher | Replace dishwasher with high-efficiency (water miser) dishwasher. | N | Low incidence |
| Microwave oven | Provide microwave oven to reduce use of convection oven. | N | Insufficient data on cooking end use |
| FREEZE PROTECTION | | | |
| Thermostat | Provide thermostatic control (especially water storage tanks) of resistance heaters to eliminate continuous operation. | N | Not applicable |
| Cooling towers | Install thermostatically controlled resistance heaters to cooling tower catch basins to eliminate use of circ. pumps for freeze protection. | N | Insufficient data |
| Insulate | Add insulation to pipes and tanks that have thermostatically controlled resistance heaters. | N | Not applicable |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| BOILERS | | | |
| Preheat combustion air | A gas-to-air heat exchanger, or a heat pipe, used for transferring heat of exhaust gases to the primary combustion air. | N | Cost-effective for boilers >60 MBtu/hr capacity; insufficient resource |
| Feedwater economizer | A gas-to-water heat exchanger consisting of feedwater tubes located in the path of the exhaust stream. Economizer can also be employed to heat domestic hot water, space heating water, or process hot water. | N | Cost-effective for boilers >3 MBtu/hr capacity |
| Provide maintenance of economizers | Both gas side and water side deposits can reduce the effectiveness of the heat transfer surfaces. Periodic cleaning of the economizer will assist in maintaining high heat recovery efficiencies. | N | Too few boilers currently have economizers; insufficient resource. |
| Air atomizing burner | Proper atomization of fuel oil is critical to ensure complete combustion with minimum excess air. Air-atomizing burners use steam or air for atomization, minimizing excess air and unburnt combustibles, and improving boiler efficiency. | N | Low incidence |
| Low Excess Air Burners for Oil Burners | Burners provide optimal fuel spray and air flow patterns to achieve both complete combustion and a stable flame. | N | Low incidence |
| Boiler tune-up | An annual tune-up is simple, can be generally accomplished within a day, and basically involves adjusting fuel-air ratios at optimal levels at various load conditions. | N | Boiler EROs calculated by FEDS Level-2 |
| Flue gas analyzer | A combination of flue gas analyzers and regular tuning can assist in maintaining optimal boiler efficiency. A typical analyzer will monitor $O_2$, $CO_2$, CO, and exhaust temperature. | N | Boiler EROs calculated by FEDS Level-2 |
| Barometric damper | Installing an automatic damper will reduce the standby loss in a boiler or a furnace. When the burner is off, the damper closes to minimize heat loss through the stack. | N | Boiler EROs calculated by FEDS Level-2 |
| Automatic electric damper | Installing an automatic damper will reduce the standby loss in a boiler. When the burner is off, the damper closes to minimize heat loss through the stack. | Y | FEDS Level-2 |
| Outside/supply air temperature reset controller | Install controller to reset the steam or hot water supply temperature based on a predetermined schedule. Operating at lower temperature reduces heat (and leaking steam) losses. | N | Insufficient data |
| New conventional boiler | When the retrofit cost of an existing boiler is uneconomical, boiler replacement may be considered. | Y | FEDS Level-2 |
| Pulse-condensing boiler | Pulse or condensing boilers have an instantaneous efficiency of over 90% and a seasonal efficiency that is 8% points higher than conventional units. | Y | FEDS Level-2 |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Fire-tube turbulators | Turbulators improve overall combustion efficiency in fire-tube boilers. Efficiency increases due to better heat transfer and lower stack temperature. | N | Not generally cost- effective; insufficient resource |
| Continuous boiler blowdown system with heat recovery | Continuous boiler blowdown has the potential to reduce blowdown losses through control of blowdown rate. | N | Considered for boilers >6 MBtu/hr capacity |
| Fuel switch from propane to natural gas | Switch boiler fuel from propane use to natural gas. | N | Natural gas not available |
| Fuel switch from fuel oil to LPG | Switch boiler fuel from oil use to LPG. | N | No fuel oil used on site |
| BOILER AUXILIARIES & CENTRAL DISTRIBUTION SYSTEMS | | | |
| Periodic inspection of steam traps | Steam traps need to be inspected at least once a year. The inspection program would 1) identify the types, location and number of various steam traps, 2) maintain some spare parts and spare traps of each kind, and 3) repair and replace traps on a routine basis. | N | Insufficient data |
| Pipe insulation | Insulation could be applied to all hot and cold pipes which are either uninsulated, or whose insulation is deteriorated and is currently ineffective. | N | Insufficient data |
| Heating of fuel oil | Depending on the viscosity of fuel oil at ambient temperature, oil may need to be heated. | N | Low incidence |
| Insulate hot fuel-oil pipes | Lines leading the fuel oil from the heater to the burner may be insulated to (i) minimize energy loss, and (ii) ensure that the oil viscosity is maintained within acceptable limits at the burner. | N | Low incidence |
| Repair leaking HTHW or steam lines | Leaking HTHW or steam lines are a major source of energy loss. The leak rate in lb/h is a function of the steam (HTHW) pressure and diameter and shape of the orifice through which it leaks. | N | Small length of lines. No known leaks of any size. |
| Heat recovery heat exchanger | Various forms of waste heat can be recovered through appropriately sized heat exchanger systems. | N | Not applicable |
| Insulate condensate storage tanks | Tanks need to be insulated to prevent heat loss. Since condensate tank temperatures can be as high as 180 °F, proper insulation is critical for minimizing heat loss. | N | Small capacity, little application. |
| VSD feedwater pump | Install variable-speed drive to feedwater pump controlled by steam drum water level. | Y | |
| VSD combustion fan | Install variable-speed drives for combustion air and stack fans controlled by firing rate and static pressure at firebox. | Y | |
| Check valves | Repair leaking condensate return check valves. | N | Insufficient data |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| CHILLERS | | | |
| Repair check valves | Repair leaking check valves in lead-lag pumps. | N | Insufficient data |
| Condenser water reset | Add controls to reset condenser water temperature on outdoor temperature. | Y | |
| Chilled water reset | Add controls to reset chilled water temperature on chiller load. | Y | |
| Parallel compressors | Add smaller, efficient compressor to obtain efficient operation under light-to-moderate load. | Y | |
| Efficient chiller | Replace chiller with high-efficiency unit. | Y | FEDS Level-2 |
| Fuel switch to natural gas engine driven chiller | Replace electric chiller with natural gas engine driven chiller to utilize low gas rates and eliminate demand charges. | N | A/C EROs calculated by FEDS Level-2 |
| Thermal energy storage system | Install thermal energy storage system for peak shaving/shifting to avoid high demand charges. | Y | |
| PACKAGE HVAC (including split units) | | | |
| Expansion valve control | Install improved expansion valve control; Replace capillary tube if necessary. | N | Low incidence |
| Improve liquid return | Replace liquid return with larger line or install pump ("liquid pressure amplification"). | Y | Discussion only |
| Parallel compressors | Add smaller, efficient compressor to obtain efficient operation under light-to-moderate load. | N | Insufficient data |
| Efficient new unit | Replace package or split unit with high-efficiency unit. | Y | FEDS Level-2 |
| Precooling/reheating heat pipe for latent load | Install heat pipe to reduce coil load while maintaining latent capacity by precooling mixed air and reheating supply air. | N | Insuffient data |
| Reduce A/C hours | Install clock, EMCS switch or other control means to reduce operating hours and peak coincident load of air-conditioner. | N | Insufficient data |
| SWIMMING POOLS | | | |
| Direct fired make-up air | Install direct-fired make-up air heater in air-supported pool enclosures. | N | No application at site |
| Heat pump dehumidification | Install dehumidifying heat pump to reduce ventilation load of enclosed pool. | N | Insufficient data |

## Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| ENVELOPE | | | |
| Insulate attic ceilings | Batt-type fiberglass insulation and blown-in fiberglass or cellulose are most frequently used as ceiling insulation. | Y | FEDS Level-2 |
| Insulate walls | Insulate with rigid, non-rigid, poured-in, or blown-in insulation. For a wood frame wall or a cavity wall, remove top strip of siding or drill holes in sheathing or inside gyp-board and completely fill each stud space with blown-in insulation. | Y | FEDS Level-2 |
| Insulate slab-on-grade perimeter | To insulate the slab, it will be necessary to dig around the building up to the depth of the frost line or the footing, whichever is shallower. | N | Not applicable |
| Insulate floor above crawl space | Fiberglass batt or blanket insulation is ideally suited for insulating floors above crawl spaces. Typically, the insulation is hung using a wire mesh, nails, and staples. Vapor barrier is installed against the floor surface prior to installation of the insulation. | Y | |
| Storm windows/doors and multi-glazed windows | Storm windows create a "dead-air" space for insulation and also reduce infiltration. Multi-glazed windows replace existing windows. | Y | Double-pane |
| Movable Window Insulation | Install insulated roller-shade with edge seals in all large windows. | N | Not applicable |
| Tinted/reflective window film or screen | Window tinting or micro-louver screens can be applied to an existing window to reduce solar heat gain. | Y | shade screens |
| Insulate supply and return ducts | Add fiberglass insulation to supply and return ducts. | Y | |
| Weatherstripping | Install weatherstripping to door and window perimeters to provide a tight seal limiting or eliminating infiltration. | Y | E |
| Caulking | A bead of caulk could be applied to seams in building structures where air can infiltrate. | Y | |
| Radiant barrier | Install radiant barrier in attic. | N | Low incidence |
| SPACE HEATING | | | |
| New conventional furnace (76% efficient) | Replacement is cost effective if existing furnaces are old and inefficient. | Y | FEDS Level-2 |
| Pulse-condensing furnace (93% efficient) | Replacement is cost effective if existing furnaces are old and inefficient. | Y | FEDS Level-2 |
| Infrared (radiant) heaters | Provide spot or space heating by overhead infrared heating system to provide comfort with lower air temperature and corresponding lower envelope conduction and infiltration loss; also reduces energy used to power fans and pumps. | Y | |
| Space unit heaters | Replace old space heater with a new space heater. | N | Use alternate ERO - infrared heaters |

Table 1.1. (contd)

| ERO Name | ERO Description | Passed Preliminary Screening (Y/N) | Comment |
|---|---|---|---|
| Electric baseboard heaters | Baseboard unit provides more uniform heating due to placement at base of exterior walls where heat loss occurs. | N | Not applicable |
| Install programmable thermostat with setback controls | Electronic thermostats provide the means to set back temperature when the space is unoccupied or a greater deviation from normal set point temperature can be tolerated. | Y | |
| Fuel switch from propane to natural gas | Switch space heating fuel use from propane to natural gas. | Y | Family housing case study |
| Fuel switch from fuel oil to natural gas | Switch space heating fuel use from fuel oil to natural gas. | N | No fuel oil used |
| TRANSPORTATION | | | |
| Conversion of fleet vehicles to compressed natural gas (CNG) | Replacement of gas and diesel Air Force and GSA (General Services Administration) fleet with CNG models to reduce fuel costs and emissions. | Y | |

## 1.2 Assumptions

The FEDS assessment at Fort Irwin represents baseline conditions as of mid-1993. Much of this baseline information was used as input to the FEDS Level-2 model. The major assumptions underlying the FEDS assessment are described below.

a) *FEDS* - FEDS software version 2.01 released in February 1994 was used in the Fort Irwin assessment. FEDS uses the information provided by the user to internally generate descriptions of protoypes of each building type selected by the user. The default values of the parameters used to describe the prototypes are inferred from the input data; for instance, the climate zone is used in conjunction with the building type, vintage, and size to infer parameters relating to the building construction characteristics. This information is then used to infer the most likely heating equipment types for each used supplied heating fuel type. Sources for the inferences about the building characteristics are mostly derived from the following sources:

- 1986 NBECS and 1987 RECS building characteristics data
- ELCAP commercial and residential end-use load and building characteristics data
- ASHRAE standard design and construction practices.

b) *Energy costs (electricity and propane)* - Fort Irwin purchases its electricity from Southern California Edison (SCE). At the time the FEDS analysis was conducted, the particular rate structure was under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate rider. The current rate structure is due to change in 1997. Details of the rate schedule are presented in Appendix A.

c) *Propane* - Propane is supplied to Fort Irwin through a competitive contract. The cost for propane at the time of this assessment was 47.3 cents per gallon.

d) *Life-cycle cost* - The 1994 discount rate of 3.1% (NIST 1993) was used in this analysis. This rate is a reflection of the discount rate for U.S. Treasury Bonds and varies slightly from year-to-year. The relative ranking of EROs with positive NPVs (see Table 3.5) should not be affected to a large extent from this variable discount rate. For consistency in this analysis, installed costs are in 1994 dollars, and the fuel escalation rates are determined with the appropriate 1994 index by fuel type (NIST 1993).

## 1.3 Identification of Building Set Energy Projects

The results of the FEDS analysis at a federal facility can be used in a variety of ways to identify specific energy efficiency improvement projects. For example, an energy project could be a basewide application of an individual technology retrofit measure, such as the replacement of all motors with high-efficiency, variable-speed motors. Or, it could be an aggregation of several energy efficiency technology improvements bundled together but applied to a particular building or set of buildings with the same general characteristics, such as age and function. The advantage of bundling individual EROs is that it is possible to include some measures that by themselves would not be economical. But bundled together with other more economical EROs applied to the same building set at the same time, the economics become more attractive overall and a greater level of efficiency improvement is achieved.

In the case of Fort Irwin, the latter approach is the preferred approach. To accomplish this energy project identification, the results of the FEDS analysis (both manual and software derived) were combined into a single spreadsheet file for analysis. The steps followed in this process were:

a) Import ASCII file with raw results into spreadsheet program or other analysis tool. Although Microsoft EXCEL(r) was used in this analysis, any other standard spreadsheet program is acceptable.

b) Sort data by building category and retrofit technology to group all potential EROs by building category.

c) Calculate composite economic parameters and energy savings results to generate subtotals for each building type.

d) Rank building type by predetermined selection criteria to identify most cost-effective projects to be implemented. Any number of parameters could be used to rank the building sets, or a combination of parameters, both economic or energy savings. In the case of Fort Irwin, the combined net savings of all individual EROs applied to the building set was used as the single ranking criteria.

e) Finalize the ranked list, taking into consideration base mission-critical issues impacting the selection process, and/or preferred projects based on external factors, such as utility DSM participation.

In the selection process used at Fort Irwin, we assumed that there were no critical base mission issues or external factors to alter the initial ranking of energy projects.

Within each individual building energy project, the typical EROs usually involved lighting retrofits, envelope upgrade measures, hot water conservation measures, and HVAC system improvements. The order in which these measure are installed in a building is critical because of the interactive effects between measures such as lighting and the HVAC system load requirements. The preferred order of completing the

individual tasks is first address those measures that apply to the building envelope, followed by service hot water. The lighting retrofits are completed only after considering the interactive effect of more efficient lighting (reduced internal heat gains) on the heating loads on the HVAC system to make sure that the system can meet the new heating loads. The HVAC system should be improved last, once a new building baseline operation is established and the new heating/cooling loads are known for the building in its new-energy efficient configuration.

As long as conditions at the federal facility remain relatively unchanged over time, then the existing FEDS output files can be used to identify new energy projects. However, if conditions change, or significant energy improvements are made, then it is recommended that the FEDS assessment be repeated with updated baseline information to derive new energy projects.

## Building Set Energy Projects

The procedures described above for identifying energy projects were applied to the database of information generated from the FEDS analysis. The table below lists the top energy conservation projects at Fort Irwin, ranked by net savings of the combined EROs for that building set. Also included in the table are the total annual energy and demand savings, first costs of the installed ERO, and the savings-to-investment ratio (SIR).

| Building Set | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Value of Energy Savings | Value of Demand Savings | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| FH Duplex 01 | 3.5 | 11,353 | 2,462 | $136,150 | $69,627 | $1,107,932 | $3,702,924 | $2,619,960 |
| FH Detached 01 | 5.0 | 4,639 | 1,899 | $63,832 | $30,029 | $598,269 | $2,868,276 | $2,246,378 |
| Administration 09 | 3.3 | 3,709 | 254 | $72,594 | $27,017 | $752,207 | $2,468,683 | $1,933,705 |
| FH 3 or more 02 | 2.6 | 14,425 | 2,524 | $178,774 | $159,247 | $876,083 | $2,199,434 | $1,631,549 |
| Administration 03 | 3.4 | 2,425 | 137 | $45,248 | $14,462 | $342,290 | $1,175,987 | $1,106,009 |
| Shops 04 | 13.3 | 388 | 30 | $7,602 | $3,085 | $85,401 | $1,134,504 | $1,062,354 |
| FH Duplex 03 | 2.6 | 11,303 | 46 | $69,987 | $4,687 | $488,746 | $1,290,527 | $1,010,499 |
| Recreation 02 | 14.6 | 96 | 5 | $1,552 | $441 | $68,076 | $991,341 | $934,389 |
| FH 3 or more 03 | 2.9 | 4,835 | 54 | $40,886 | $5,750 | $306,248 | $894,407 | $822,314 |
| School/Training 02 | 7.7 | 924 | 81 | $19,365 | $8,614 | $91,388 | $701,634 | $742,742 |

Additional energy projects listed in order of net savings are identified below. A more detailed description of the energy projects for the top-ten projects is presented in the sections that follow.

| Building Set | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Value of Energy Savings | Value of Demand Savings | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Barracks 07 | 5.8 | 1,344 | 23 | $28,510 | $2,245 | $133,575 | $776,329 | $733,694 |
| Storage 02 | 4.7 | 1,371 | 159 | $25,044 | $2,813 | $124,683 | $587,277 | $693,411 |
| Barracks 02 | 2.4 | 3,412 | 55 | $35,154 | $5,633 | $389,579 | $943,181 | $692,926 |
| Warehouse 07 | 5.2 | 1,015 | 87 | $20,997 | $9,183 | $137,338 | $713,877 | $637,164 |
| FH Duplex 02 | 5.7 | 2,814 | 1,243 | $41,126 | $22,658 | $175,615 | $887,265 | $608,142 |

## 1. Family Housing Duplex 01

The top-ranked building set energy project at Fort Irwin focuses on 108 family housing duplexes built in the 1960s. The major retrofit measures identified include building envelope weatherization, installation of sun screens on all south facing windows, lighting retrofits, and additional insulation in the walls and ceiling. Details of the retrofit measures and the energy and economic impacts are shown in the table below. The preferred order of completing the individual tasks is shown in this and subsequent tables for the remaining building sets. In general, it is best to first address those measures that apply to the building envelope, followed by service hot water. The lighting retrofits are to be done only after considering the interactive effect of the reduced internal heat gains on the heating loads on the HVAC system.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Envelope | Caulking and weather stripping | 1.1 | 16.2 | 1971 | 1295 | $54,608 | $884,771 | $830,164 |
| Envelope | Install window screens on NW side of buildings | 4.5 | 3.8 | 113 | 204 | $27,001 | $131,160 | $76,372 |
| Envelope | Install window screens on SE side of buildings | 8.7 | 2.0 | 405 | 246 | $56,703 | $181,386 | $55,215 |
| Envelope | Install window screens on SW side of buildings | 2.4 | 7.3 | 164 | 303 | $22,681 | $193,989 | $143,521 |
| Roof | Increase roof insulation from R-11 by adding R-30 insulation | 6.6 | 2.9 | 1 | 1 | $262,367 | $753,863 | $491,496 |
| Wall | Existing wall insulation is R-0 (No wall insulation.). Use blow in insulation to increase wall insulation by R-6.5 | 7.3 | 2.6 | 1 | 1 | $227,405 | $591,832 | $364,427 |
| Hot Water | Wrap old LPG tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures | 0.5 | 8.4 | 6234 | 0 | $17,038 | $143,436 | $126,398 |
| Lights | Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 1.2 | 14.8 | 282 | 12 | $14,710 | $171,180 | $203,631 |
| Lights | Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps | 4.1 | 4.4 | 61 | 3 | $9,293 | $31,585 | $31,627 |
| Lights | Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps | 3.8 | 4.6 | 450 | 20 | $71,003 | $234,747 | $257,258 |
| Cooling | Replace existing electric package air conditioners with high efficiency split systems | 4.9 | 1.1 | 1672 | 377 | $345,124 | $384,975 | $39,851 |
| Total | | | 3.5 | 11353 | 2462 | $1,107,932 | $3,702,924 | $2,619,960 |

## 2. Family Housing Detached 01

The next ranked energy project at Fort Irwin is directed at the 1960s vintage single-family detached housing. As with the similar vintage duplexes, the major cost-effective conservation measures include building envelope weatherization, installation of sun screens on all south facing windows, lighting retrofits, and adding insulation to the walls. Details of the retrofit measures and the energy and economic impacts are shown in the table below.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Envelope | Caulking and weather stripping | 4.5 | 3.8 | 103 | 186 | $24,679 | $119,880 | $69,803 |
| Envelope | Install window screens on NW side of buildings | 1.3 | 13.5 | 1803 | 1184 | $59,959 | $809,304 | $749,345 |
| Envelope | Install window screens on SE side of buildings | 8.7 | 2.0 | 370 | 225 | $51,804 | $165,715 | $50,445 |
| Envelope | Install window screens on SE side of buildings | 2.4 | 7.3 | 151 | 279 | $20,877 | $178,563 | $132,108 |
| Wall | Existing wall insulation is R-0. No wall insulation. Use blow in insulation to increase wall insulation by R-6.5 | 14.8 | 1.3 | 1 | 1 | $209,504 | $276,790 | $67,286 |
| Roof | Increase roof insulation from R-11 by adding R-30 insulation | 2.9 | 6.8 | 1 | 1 | $158,833 | $1,072,696 | $913,862 |
| Hot Water | Wrap old LPG tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures | 1.8 | 2.6 | 1730 | 0 | $15,098 | $39,816 | $24,718 |
| Lights | Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 1.5 | 11.7 | 170 | 8 | $8,905 | $75,580 | $95,225 |
| Lights | Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps | 4.3 | 4.1 | 273 | 12 | $42,984 | $118,279 | $131,907 |
| Lights | Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps | 5.6 | 3.1 | 37 | 2 | $5,626 | $11,654 | $11,679 |
| Total | | | 5.0 | 4639 | 1899 | $598,269 | $2,868,276 | $2,246,378 |

## 3. Administration 09

This building set includes a subset of the newer administration buildings added to Fort Irwin between 1984 and 1990. The energy savings potential from implementing energy projects in these buildings amounts to over 3700 MBtu per year and net savings of $1.9 million. The packages of conservation measures include lighting retrofits, hot water conservation measures, and additional ceiling insulation.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing roof insulation is R-30. Increase insulation by R-19. | 13.4 | 1.4 | 1 | 1 | $88,158 | $120,120 | $31,962 |
| Hot Water | Wrap existing electric hot water heater tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures | 0.3 | 18.1 | 38 | 4 | $418 | $7,564 | $7,146 |
| Lights | Replace existing 2 20 watt incandescent exit sign with LEDs exit sign | 2.7 | 6.7 | 153 | 5 | $15,968 | $73,195 | $90,435 |
| Lights | Replace existing 2' x 4' 4 40 watt T12 fluorescent lamps and standard ballast with 3 32 watt T8 lamps, electronic ballast, and new reflectors | 4.8 | 3.8 | 3517 | 244 | $647,663 | $2,267,804 | $1,804,162 |
| Total | | | 3.3 | 3709 | 254 | $752,207 | $2,468,683 | $1,933,705 |

## 4. Family Housing 3 or More 02

This particular building set covers the multi-family housing (3 units or more) built between 1983 and 1985. Full implementation of the most life-cycle cost-effective energy conservation measures indicated below would result in an estimated savings of 14,000 MBtu annually. Net savings would be $1.6 million. As with the previous family housing project, the conservation measures focus on hot water conservation, lighting retrofits, and additional ceiling insulation.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Envelope | Weatherization, caulking and weather stripping | 2.4 | 7.2 | 554 | 364 | $34,480 | $248,702 | $214,222 |
| Envelope | Install window screens on NW side of buildings | 4.5 | 3.8 | 79 | 143 | $18,975 | $92,170 | $53,668 |
| Envelope | Install window screens on SE side of buildings | 8.7 | 2.0 | 284 | 173 | $39,846 | $127,465 | $38,801 |
| Envelope | Install window screens on SW side of buildings | 2.4 | 7.3 | 115 | 213 | $15,939 | $136,322 | $100,856 |
| Hot Water | Replace older propane water heater system with 85% efficient units, insulate pipes, install low flow shower heads and faucet aerators, and lower tank temperatures | 0.5 | 2.0 | 7917 | 0 | $18,926 | $38,194 | $19,267 |
| Lights | Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 1.4 | 12.5 | 731 | 32 | $38,187 | $356,042 | $440,282 |
| Lights | Replace 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps | 4.1 | 4.3 | 158 | 7 | $24,123 | $80,122 | $80,231 |
| Lights | Replace 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps | 4.2 | 4.2 | 1169 | 52 | $184,318 | $518,933 | $584,026 |
| Cooling | Replace existing electric package air conditioners with high efficiency split systems | 2.3 | 1.2 | 3417 | 1540 | $501,290 | $601,485 | $100,195 |
| Total | | | 2.6 | 14425 | 2524 | $876,083 | $2,199,434 | $1,631,549 |

## 5. Administration 03

This building set includes 42 of the oldest administration buildings still in use at Fort Irwin. Built between 1944 and 1946, the energy conservation potential in these buildings is significant. The majority of energy savings are from lighting retrofits. The rest is from the hot water conservation package and additional ceiling insulation. Net savings are estimated to be $1.1 million, and annual energy savings total 2400 MBtu per year. Details of the specific conservation measures are listed in the table below.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing ceiling is a suspended ceiling with 0 insulation. Increase ceiling insulation by R-11. | 5.5 | 3.7 | 1 | 1 | $19,934 | $73,396 | $53,462 |
| Hot Water | Wrap tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature. | 1.1 | 4.3 | 126 | 0 | $675 | $2,893 | $2,217 |
| Lights | Replace existing 75 watt incandescent ceiling fixture with 27 watt compact fluorescent fixture | 0.7 | 26.9 | 63 | 4 | $1,735 | $36,131 | $45,027 |
| Lights | Replace 2 60 watt incandescent ceiling fixture with 2 13 watt compact fluorescent fixture | 1.3 | 14.2 | 31 | 2 | $1,945 | $22,622 | $25,715 |
| Lights | Replace 60 watt incandescent ceiling fixture with 13 watt compact fluorescent fixture | 1.7 | 10.7 | 31 | 2 | $2,547 | $22,622 | $24,584 |
| Lights | Replace existing incandescent exit signs with LED unit | 3.3 | 5.4 | 527 | 18 | $54,987 | $184,475 | $243,847 |
| Lights | Replace existing 2 x 4 40 watt T12 and standard ballast with 2 x 4 3 32 watt T8 lamps, electronic ballast and reflectors | 3.7 | 4.9 | 880 | 58 | $100,504 | $437,189 | $388,869 |
| Lights | Replace existing 1 x 4 2 40 watt T12 lamps and standard ballast with 1 x 4 2 32 watt T8 lamps and electronic ballast | 4.0 | 4.6 | 70 | 5 | $10,009 | $39,605 | $35,536 |
| Lights | Replace existing 2 x 4 2 40 watt T12 lamps and standard ballast with 2 x 4 2 32 watt T8 lamps and electronic ballast | 4.4 | 4.1 | 226 | 15 | $32,112 | $113,918 | $100,866 |
| Lights | Replace existing 2 x 4 4 40 watt T12 lamps and energy efficient ballast with 2 x 4 3 32 watt T8 lamps, electronic ballast and reflectors | 4.5 | 4.0 | 205 | 14 | $30,151 | $104,355 | $91,159 |
| Lights | Replace standard ballast in existing 1 x 4 2 34 watt T12 lamps fixtures with electronic ballast | 5.6 | 3.2 | 152 | 10 | $33,272 | $81,220 | $74,494 |
| Lights | Replace existing 1 x 8 1 75 watt T12 lamp, standard ballast fixture with 1 x 8 1 60 watt, T12, energy efficient ballast, and reflector | 13.1 | 1.4 | 113 | 8 | $54,419 | $57,561 | $20,233 |
| Total | | | 3.4 | 2425 | 137 | $342,290 | $1,175,987 | $1,106,009 |

## 6. Shops 04

The two vehicle maintenance shops built in 1952 are a significant target for an energy efficiency improvement project. The net savings resulting from implementing the measures listed below are estimated to be $1.1 million with an aggregate SIR of 13.3.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing ceiling insulation is R-5. Increase insulation by R-19 | 0.8 | 26.8 | 1 | 1 | $31,037 | $830,340 | $799,303 |
| Wall | Existing wall insulation is R-0. Use blow in insulation to increase by R-6.5 | 5.9 | 3.7 | 1 | 1 | $20,147 | $73,797 | $53,650 |
| Hot Water | Wrap existing LPG hot water heater tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature | 1.6 | 3.0 | 14 | 0 | $109 | $323 | $214 |
| Lights | Replace existing 1000 watt mercury vapor pendent mounted lamps fixtures with wall mounted, 400 watt high pressure sodium fixtures | 1.1 | 16.0 | 169 | 13 | $6,612 | $102,961 | $98,855 |
| Lights | Replace 60 watt incandescent lamps with 13 watt compact fluorescent lamps | 1.3 | 14.0 | 8 | 1 | $501 | $5,709 | $6,528 |
| Lights | Replace 2 x 4 3 40 watt T12 fluorescent lamps with 3 32 watt T8 and electronic ballast | 2.0 | 9.1 | 3 | 0 | $349 | $2,894 | $2,817 |
| Lights | Replace 100 watt incandescent ceiling lights with pendant mount, 50 watt, high pressure sodium lamps | 2.0 | 8.9 | 7 | 1 | $676 | $4,888 | $5,357 |
| Lights | Replace 1 x 8, 4 75 watt, T12 fluorescent lamps with pendant mount, 135 watt, low pressure sodium lamps and fixtures. | 2.6 | 7.1 | 118 | 9 | $10,682 | $73,415 | $64,750 |
| Lights | Replace 1 x 4 2 40 watt T12 fluorescent lamps, and standard ballast with 1 x 4 2 32 watt, T8 lamps with electronic ballast. | 2.9 | 6.3 | 6 | 0 | $805 | $4,479 | $4,251 |
| Lights | Replace existing 250 watt mercury vapor pendent mounted lamps fixtures with pendant mounted, 90 watt low pressure sodium fixtures | 3.9 | 4.7 | 26 | 2 | $3,722 | $17,811 | $13,751 |
| Lights | Replace exit signs with 2 20 watt lamps with self luminous exit signs | 5.3 | 3.4 | 19 | 1 | $3,513 | $8,263 | $8,381 |
| Lights | Replace existing 1 x 8, 1 75 watt T12 fluorescent lamps and standard ballast with 1 60 watt, T12 lamps with energy efficient ballast and reflectors. | 11.1 | 1.6 | 16 | 1 | $7,248 | $9,624 | $4,497 |
| Total | | | 13.3 | 388 | 30 | $85,401 | $1,134,504 | $1,062,354 |

## 7. Family Housing Duplex 03

The new family housing duplexes built in 1990 are also a significant target for energy efficiency improvements. For these new residential structures, the measures to be installed include the hot water conservation package, replacement of incandescent lamps with compact fluorescent, and adding additional ceiling insulation.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing ceiling insulation is R-7. Increase insulation by R-19. | 15.5 | 1.2 | 1 | 1 | $314,380 | $382,884 | $68,504 |
| Hot Water | Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature. | 0.4 | 17.5 | 10311 | 0 | $18,797 | $328,507 | $309,710 |
| Lights | Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 1.2 | 15.7 | 103 | 5 | $5,378 | $67,011 | $78,875 |
| Lights | Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps. | 3.6 | 5.0 | 827 | 37 | $130,459 | $474,983 | $521,056 |
| Lights | Replace 1 x 4 2 40 watt T12 lamps and standard ballast with 2 32 watt lamps and electronic ballast. | 6.1 | 2.9 | 40 | 2 | $10,877 | $23,708 | $20,904 |
| Lights | Replace 1 x 4 2 34 watt T12 lamps with standard ballast with electronic ballast. | 7.8 | 2.3 | 21 | 1 | $8,855 | $13,434 | $11,450 |
| Total | | | 2.6 | 11303 | 46 | $488,746 | $1,290,527 | $1,010,499 |

## 8. Recreation 02

This particular building set is composed of the gymnasium built in 1958, the outdoor pool buildings (1969) and the bowling alley (1967). The biggest energy efficiency improvements come from the lighting retrofits and additional ceiling insulation. Significant savings are also available from the hot water conservation package. Net savings from implementation of all efficiency improvements is estimated to be $0.9 million. The composite SIR is 14.9.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing roof insulation is R-0. Suspended ceiling, Increased insulation by R-30 | 0.8 | 23.4 | 1 | 1 | $38,692 | $906,694 | $868,002 |
| Wall | Existing wall insulation is R-7. Use blow in insulation to increase by R-2.4 | 8.2 | 2.3 | 1 | 1 | $21,108 | $48,445 | $27,337 |
| Hot Water | Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature | 1.3 | 3.6 | 18 | 0 | $114 | $412 | $298 |
| Lights | Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 0.7 | 23.7 | 5 | 0 | $134 | $2,360 | $3,050 |
| Lights | Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps. | 2.2 | 8.3 | 40 | 2 | $3,307 | $21,449 | $24,021 |
| Lights | Replace existing 2 20 watt exit lights with LED exit signs | 3.4 | 5.0 | 4 | 0 | $434 | $1,283 | $1,751 |
| Lights | Replace existing 2 x 4 4 34 watt T12 lamps and standard ballast with 3 40 watt T12 lamps and electronic ballast | 3.4 | 5.1 | 6 | 0 | $737 | $2,898 | $3,043 |
| Lights | Replace existing 2 x 4 2 34 watt T12 lamps and standard ballast with electronic ballast | 5.6 | 3.2 | 11 | 1 | $2,361 | $5,565 | $5,087 |
| Lights | Replace existing 1 x 4 2 34 watt T12 lamps and standard ballast with electronic ballast | 6.2 | 2.8 | 4 | 0 | $945 | $1,905 | $1,714 |
| Heating | Add electrically powered damper to boiler flue to reduce stack losses | 8.0 | 1.4 | 6 | 0 | $244 | $330 | $86 |
| Total | | | 14.6 | 96 | 5 | $68,076 | $991,341 | $934,389 |

## 9. Family Housing 03 or More 03

This residential family housing building set consists of 59 multi-family units built in 1990. Total building area is 496,000 square feet. The greatest energy improvements are from replacement of the existing incandescent lamps with compact fluorescent (1200 MBtu annual energy savings) and an increase in ceiling insulation of R-19. Net savings resulting from full implementation of all measures in the project would be approximately $0.8 million. The SIR is 2.9.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Existing roof insulation is R-30. Increase by R-19 | 16.3 | 1.1 | 1 | 1 | $139,587 | $160,259 | $20,672 |
| Hot Water | Wrap existing tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature. | 1.2 | 5.5 | 3618 | 0 | $20,856 | $115,251 | $94,395 |
| Lights | Replace existing 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 1.3 | 13.3 | 432 | 19 | $22,576 | $227,440 | $277,242 |
| Lights | Replace existing 60 watt incandescent ceiling lamps with 13 watt compact fluorescent lamps. | 3.9 | 4.6 | 691 | 30 | $108,968 | $353,613 | $392,096 |
| Lights | Replace existing 100 watt incandescent ceiling lamps with 2 15 watt compact fluorescent lamps. | 4.9 | 3.7 | 93 | 4 | $14,261 | $37,844 | $37,909 |
| Total | | | 2.9 | 4835 | 54 | $306,248 | $894,407 | $822,314 |

### 10. School/Training 02

This building set includes 15 individual buildings constructed between 1984 and 1990 that are used for training purposes. The total floor area for the building set is 37,000 ft$^2$. The recommended energy efficiency improvements include the hot water conservation package, lighting retrofits, and additional ceiling insulation. The net savings for implementing these project is estimated to be $0.7 million with a 7.7 SIR.

| End Use | Retrofit Measure/Technology | Simple Payback | SIR | Annual Energy Savings (MBtu) | Annual Demand Savings (kW) | Present Value of Installed Cost Savings | Present Value of Energy and Demand Savings | Net Savings |
|---|---|---|---|---|---|---|---|---|
| Roof | Increase existing ceiling insulation by R-38 | 4.3 | 4.2 | 1 | 1 | $26,977 | $114,430 | $87,453 |
| Hot Water | Wrap existing electric hot water tank with insulation, insulate pipes, install low flow shower heads and faucet aerators, lower tank temperature. | 0.1 | 25.1 | 39 | 4 | $197 | $4,947 | $4,750 |
| Lights | Replace 75 watt incandescent ceiling lamps with 27 watt compact fluorescent lamps | 0.9 | 20.5 | 639 | 58 | $26,337 | $435,164 | $512,894 |
| Lights | Replace incandescent exit signs with LED exit signs | 2.9 | 6.2 | 63 | 2 | $6,546 | $27,115 | $34,183 |
| Lights | Replace existing 2 x 4 4 40 watt T12 lamp, standard ballast fixture with 3 32 watt T8 lamps, electronic ballast, new reflectors | 4.2 | 4.3 | 182 | 16 | $31,331 | $119,978 | $103,462 |
| Total | | | 7.7 | 924 | 81 | $91,388 | $701,634 | $742,742 |

## 1.4 Building Information

The number of buildings, building number and total floor area for each building set at Fort Irwin are listed in the following table. Additional information on each specific building can be extracted from the Fort Irwin Real Property List.

Building identification number and average age of buildings in each building set used in the FEDS Level-2 analysis

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| ADMIN-01 | 4 | 1949 | 10,961 | 00365, 00466, 00615, 06201 |
| ADMIN-02 | 6 | 1987 | 25,651 | 00100, 00152, 00826, 00828, 06252, 07600 |
| ADMIN-03 | 42 | 1945 | 85,723 | 00157, 00236, 00241, 00243, 00372, 00425, 00426, 00428, 00429, 00433, 00437, 00439, 00441, 00443, 00444, 00445, 00451 00452, 00453, 00454, 00458, 00464, 00479, 00483, 00510, 00520, 00526, 00527, 00528, 00529, 00539, 00543, 00544, 00551 00554, 00564, 00570, 00578, 00579, 00580, 00583, 00813 |
| ADMIN-03a | 1 | 1946 | 2,000 | 00521 |
| ADMIN-04 | 1 | 1944 | 13,612 | 00237 |
| ADMIN-05 | 16 | 1953 | 59,798 | 00101, 00408, 00411, 00415, 00436, 00442, 00488, 00497, 00498, 00499, 00504, 00508, 00513, 00524, 00549, 00930 |
| ADMIN-06 | 2 | 1967 | 18,263 | 00279, 00281 |
| ADMIN-06a | 2 | 1966 | 5,152 | 00320, 00604 |
| ADMIN-07 | 3 | 1985 | 61,704 | 00130, 00248, 00988 |
| ADMIN-07a | 2 | 1986 | 15,002 | 00983, 00985 |
| ADMIN-08 | 4 | 1984 | 84,128 | 00255, 00256, 00257, 00258 |
| ADMIN-09 | 55 | 1988 | 257,040 | 00011, 00136, 00154, 00156, 00158, 00182, 00230, 00239, 00316, 00383, 00385, 00402, 00500, 00502, 00503, 00505, 00506 00507, 00546, 00548, 00550, 00561, 00563, 00565, 00566, 00567, 00569, 00571, 00573, 00575, 00577, 00582, 00587, 00590 00591, 00592, 00593, 00594, 00595, 00596, 00597, 00598, 00599, 00653, 00654, 00655, 00656, 00657, 00658, 00662, 00867 00931, 00932, 00933, 00940 |
| | | | | |
| BARRACKS-01 | 1 | 1953 | 6,265 | 00448 |
| BARRACKS-02 | 32 | 1953 | 198,952 | 00014, 00102, 00103, 00104, 00412, 00413, 00414, 00416, 00417, 00418, 00419, 00420, 00421, 00422, 00423, 00434, 00440 00487, 00489, 00491, 00493, 00494, 00511, 00512, 00514, 00516, 00518, 00519, 00523, 00530, 00534, 00540 |
| BARRACKS-03 | 2 | 1965 | 52,208 | 00098, 00099 |
| BARRACKS-04 | 3 | 1967 | 127,677 | 00226, 00273, 00275 |
| BARRACKS-05 | 1 | 1989 | 4,032 | 00028 |
| BARRACKS-06 | 6 | 1985 | 43,560 | 00105, 00106, 00107, 00108, 00110, 00111 |
| BARRACKS-07 | 9 | 1987 | 243,239 | 00249, 00250, 00251, 00252, 00261, 00262, 00264, 00265,00267 |
| | | | | |
| CHAPEL-01 | 2 | 1948 | 3,444 | 00212, 00233 |
| CHAPEL-02 | 1 | 1968 | 15,930 | 00315 |

Ft. Irwin FEDS Level-2 Building Set Summary

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| | | | | |
| CLINIC-01 | 1 | 1987 | 12,820 | 00171 |
| CLINIC-02 | 4 | 1944 | 8,304 | 00235, 00242, 00245, 00478 |
| | | | | |
| CLUBS-01 | 1 | 1960 | 6,300 | 20018 |
| CLUBS-02 | 2 | 1943 | 16,109 | 00021, 00202 |
| CLUBS-03 | 1 | 1989 | 25,062 | 00037 |
| | | | | |
| COMMISSARIES-01 | 1 | 1988 | 56,500 | 00920 |
| | | | | |
| DINING HALLS-01 | 4 | 1962 | 6,556 | 00449, 00975, 11012, 12002 |
| DINING HALLS-02 | 10 | 1987 | 13,520 | 06012, 06013, 06027, 06028, 06042, 06043, 06058, 06059, 70311, 70616 |
| DINING HALLS-03 | 7 | 1946 | 19,052 | 00431, 00447, 00468, 00476, 00535, 00560, 00819 |
| DINING HALLS-04 | 1 | 1967 | 13,379 | 00222 |
| DINING HALLS-05 | 1 | 1988 | 3,520 | 00323 |
| DINING HALLS-06 | 1 | 1984 | 10,860 | 00254 |
| | | | | |
| ELECTRONICS-01 | 5 | 1961 | 796 | 05005, 06202, 06220, 06230, 06250 |
| ELECTRONICS-02 | 3 | 1984 | 3,728 | 05006, 06212, 16150 |
| ELECTRONICS-03 | 1 | 1970 | 4,771 | 00013 |
| | | | | |
| EXCHANGE FACS-01 | 2 | 1987 | 5,660 | 00034, 00317 |
| EXCHANGE FACS-02 | 3 | 1957 | 12,067 | 00404, 00430, 00909 |
| EXCHANGE FACS-03 | 1 | 1963 | 18,567 | 00308 |
| EXCHANGE FACS-04 | 1 | 1988 | 42,957 | 00918 |
| | | | | |

Ft. Irwin FEDS Level-2 Building Set Summary

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| FII-3 or more-01 | 36 | 1966 | 179,781 | 01716, 01718, 01720, 03306, 03308, 03309, 03311, 03313, 03317, 03318, 03319, 03320, 03321, 03322, 03323, 03324, 03325, 03326, 03328, 03420, 03421, 03521, 03523, 03524, 03624, 03626, 03627, 03628, 03629, 03630, 03632, 03633, 03634, 03635, 03636, 03637 |
| FII-3 or more-02 | 125 | 1984 | 839,604 | 03680, 03681, 03682, 03683, 03684, 03685, 03687, 03689, 03690, 03691, 03692, 03693, 03694, 03695, 03699, 03700, 03701, 03702, 03704, 03705, 03712, 03713, 03715, 03716, 03718, 03720, 03721, 03722, 03723, 03724, 03725, 03726, 03727, 03728, 03730, 03731, 03732, 03733, 03737, 03738, 03742, 03743, 03744, 03745, 03746, 03747, 03748, 03750, 03752, 03800, 03801, 03802, 03803, 03804, 03805, 03806, 03807, 03809, 03811, 03812, 03813, 03814, 03815, 03816, 03818, 03820, 03821, 03822, 03823, 03824, 03825, 03826, 03827, 03828, 03829, 03831, 03832, 03833, 03834, 03835, 03837, 03839, 03840, 03841, 03842, 03843, 03844, 03845, 03846, 03848, 03850, 03851, 03852, 03853, 03854, 03855, 03856, 03857, 03858, 03860, 03861, 03862, 03863, 03864, 03865, 03866, 03867, 03868, 03869, 03870, 03871, 03872, 03880, 03881, 03882, 03883, 03884, 03885, 03886, 03890, 03891, 03893, 03895, 03897, 03898 |
| FII-3 or more-03 | 59 | 1990 | 496,370 | 04040, 04049, 04050, 04054, 04059, 04067, 04071, 04078, 04084, 04086, 05010, 05015, 05016, 05028, 05030, 05040, 05043, 05045, 05046, 05048, 05052, 05056, 05059, 05060, 05061, 05068, 05072, 05081, 05084, 05088, 05089, 05094, 05103, 05104, 05108, 05109, 05114, 05115, 05117, 05118, 05119, 05120, 05121, 05123, 05124, 05126, 05129, 05132, 05133, 05134, 05135, 05136, 05139, 05140, 05141, 05142, 05143, 05144, 05145 |

1.29

Ft. Irwin FEDS Level-2 Building Set Summary

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| FH-Detached-01 | 286 | 1961 | 195,800 | 01824, 01826, 01828, 01830, 01832, 01834, 01836, 01838, 01839, 01841, 01842, 01843, 01844, 01901, 01905, 01908, 01909, 02000, 02001, 02002, 02004, 02005, 02006, 02008, 02010, 02012, 02100, 02101, 02102, 02103, 02104, 02105, 02106, 02107, 02108, 02109, 02110, 02111, 02207, 02209, 02300, 02301, 02302, 02303, 02304, 02305, 02306, 02307, 02308, 02310, 02312, 02313, 02314, 02400, 02401, 02402, 02403, 02404, 02405, 02406, 02407, 02408, 02409, 02410, 02411, 02412, 02413, 02414, 02415, 02416, 02417, 02418, 02419, 02420, 02421, 02422, 02424, 02426, 02428, 02430, 02502, 02503, 02504, 02506, 02507, 02508, 02600, 02601, 02602, 02603, 02604, 02605, 02606, 02607, 02608, 02609, 02610, 02611, 02612, 02613, 02614, 02615, 02616, 02617, 02618, 02619, 02620, 02621, 02703, 02704, 02705, 02707, 02709, 02711, 02713, 02714, 02800, 02801, 02803, 02804, 02805, 02806, 02807, 02808, 02809, 02810, 02811, 02812, 02813, 02814, 02815, 02816, 02817, 02818, 02819, 02820, 02821, 02822, 02824, 02900, 02902, 02903, 02904, 02906, 02908, 02910 |
| FH-Detached-02 | 47 | 1985 | 113,542 | 00001, 03901, 03902, 03903, 03904, 03905, 03906, 03907, 03908, 03909, 03910, 03911, 03912, 03913, 03914, 03915, 03916, 03917, 03918, 03919, 03920, 03921, 03922, 03923, 03924, 03925, 03926, 03930, 03931, 03932, 03933, 03934, 03935, 03936, 03937, 03938, 03939, 03940, 03941, 03942, 03943, 03944, 03945, 03946, 03948, 03950, 03951 |
| FH-Detached-03 | 81 | 1990 | 208,025 | 03952, 03953, 03954, 03955, 03956, 03957, 03958, 03959, 03960, 03961, 03962, 03963, 03964, 03966, 03967, 03968, 03969, 03970, 03971, 03972, 03973, 03974, 03975, 03976, 03977, 03978, 03979, 03980, 03981, 03982, 03983, 03984, 03985, 03986, 03987, 03988, 03989, 03991, 03992, 03994, 03996, 03997, 03998, 03999, 04001, 04002, 04003, 04005, 04007, 04008, 04009, 04010, 04011, 04012, 04013, 04014, 04015, 04016, 04017, 04018, 04019, 04020, 04021, 04022, 04024, 04025, 04026, 04027, 04028, 04029, 04031, 04032, 04033, 04034, 04035, 04036, 04037, 04038, 04039, 05099, 05115 |

1.30

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| FII-Duplex-01 | 108 | 1963 | 323,431 | 01722, 01900, 01902, 01903, 01904, 01906, 01907, 02003, 02009, 03000, 03001, 03002, 03003, 03005, 03006, 03007, 03008, 03009, 03010, 03011, 03012, 03013, 03014, 03015, 03101, 03102, 03103, 03104, 03105, 03106, 03200, 03201, 03202, 03204, 03206, 03208, 03302, 03304, 03310, 03312, 03314, 03316, 03401, 03402, 03403, 03404, 03405, 03406, 03407, 03408, 03409, 03410, 03412, 03414, 03415, 03416, 03417, 03418, 03419, 03422, 03500, 03501, 03502, 03503, 03504, 03505, 03506, 03507, 03508, 03509, 03510, 03511, 03512, 03513, 03514, 03515, 03516, 03517, 03518, 03519, 03520, 03522, 03600, 03601, 03602, 03603, 03604, 03605, 03606, 03607, 03608, 03609, 03610, 03611, 03612, 03613, 03614, 03615, 03616, 03617, 03618, 03619, 03620, 03621, 03622, 03623, 03625, 03631 |
| FII-Duplex-02 | 13 | 1983 | 51,350 | 03697, 03703, 03707, 03709, 03711, 03714, 03717, 03735, 03739, 03740, 03741, 03749, 03751 |
| FII-Duplex-03 | 117 | 1990 | 558,965 | 04041, 04042, 04043, 04044, 04045, 04046, 04047, 04048, 04051, 04052, 04053, 04055, 04058, 04060, 04061, 04062, 04063, 04064, 04065, 04066, 04070, 04072, 04073, 04074, 04075, 04076, 04077, 04079, 04080, 04081, 04082, 04083, 04087, 04088, 04089, 04090, 04091, 04092, 04093, 04094, 04095, 04096, 04097, 04098, 04099, 05011, 05017, 05018, 05019, 05020, 05021, 05022, 05023, 05024, 05025, 05026, 05027, 05029, 05031, 05032, 05034, 05035, 05036, 05037, 05038, 05039, 05044, 05047, 05049, 05050, 05051, 05053, 05055, 05057, 05058, 05062, 05063, 05064, 05065, 05069, 05070, 05071, 05073, 05074, 05075, 05076, 05079, 05080, 05082, 05083, 05085, 05086, 05087, 05090, 05091, 05092, 05093, 05095, 05096, 05097, 05098, 05100, 05101, 05102, 05105, 05106, 05107, 05110, 05111, 05116, 05122, 05127, 05128, 05137, 05138, 05146, 05147 |
| | | | | |
| GUEST HOUSES-01 | 6 | 1987 | 11,046 | 00900, 00901, 00902, 00903, 00904, 00906 |
| GUEST HOUSES-02 | 10 | 1982 | 12,000 | TS001, TS003, TS004, TS005, TS036, TS046, TS047, TS048, TS049, TS050 |
| | | | | |
| HANGER-01 | 1 | 1944 | 8,100 | 06203 |
| | | | | |
| HOSPITAL-01 | 1 | 1968 | 63,818 | 00166 |

1.31

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| LABS-01 | 1 | 1953 | 6,265 | 00144 |
| LABS-02 | 1 | 1946 | 3,150 | 00228 |
| | | | | |
| MILITARY OTHER-01 | 38 | 1965 | 12,462 | 00334, 00355, 00622, 00624, 00627, 00640, 00643, 00647, 00670, 00834, 00836, 00852, 04605, 04820, 04920, 06205, 06300, 06550, 11006, 11008, 11013, 12006, 12008, 70501, 70504, 70604, 70606, 71020, 71102, 71103, 71610, 71710, 71720, 71850, 72115, DIOSF, MOGAS, WASTO |
| MILITARY OTHER-02 | 36 | 1986 | 15,899 | 00628, 00629, 00683, 00685, 00686, 00687, 00689, 00690, 00691, 00871, 00872, 00874, 00877, 00878, 00890, 01319, 07632, 07702, 07704, 07705, 07706, 07707, 07708, 70223, 70224, 70309, 70310, 70312, 70443, 70444, 70614, 70615, 70773, 70774, 70884, 70915 |
| MILITARY OTHER-03 | 1 | 1987 | 5,760 | 06100 |
| MILITARY OTHER-04 | 2 | 1978 | 1,778 | 00950, 00992 |
| MILITARY OTHER-05 | 4 | 1987 | 11,944 | 06017, 06032, 06047, 06057 |
| | | | | |
| MWR-01 | 8 | 1967 | 1,638 | 00023, 00671, 00672, 00673, 00675, 00676, 00677, 00770 |
| MWR-02 | 8 | 1986 | 21,236 | 00009, 00124, 00331, 00911, 00976, 01209, 01210, 03995 |
| MWR-03 | 1 | 1987 | 12,660 | 01322 |
| MWR-04 | 5 | 1949 | 15,947 | 00312, 00410, 00480, 00556, 01318 |
| MWR-05 | 1 | 1965 | 9,271 | 00310 |
| MWR-05a | 1 | 1968 | 2,487 | 00340 |
| MWR-06 | 3 | 1983 | 15,610 | 00910, 01300, 01313 |
| MWR-07 | 1 | 1985 | 23,680 | 00361 |

1.32

Ft. Irwin FEDS Level-2 Building Set Summary

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| PROD/PROCESS-01 | 50 | 1971 | 17,012 | 00012, 00027, 00042, 00043, 00044, 00143, 00149, 00169, 00244, 00319, 00324, 00339, 00343, 00353, 00388, 00432, 00450, 00532, 00617, 00630, 00636, 00638, 00641, 00652, 00663, 00679, 00682, 00700, 00705, 00708, 00709, 00730, 00824, 00838, 00848, 00851, 00853, 00870, 00876, 00880, 00974, 00984, 04006, 05990, 06204, 07703, 16152, 19000, 20003, 20020 |
| PROD/PROCESS-02 | 3 | 1986 | 10,900 | 00109, 00253, 00263 |
| | | | | |
| RECREATION-01 | 3 | 1962 | 6,845 | 00018, 00328, 00338 |
| RECREATION-02 | 3 | 1965 | 39,748 | 00322, 00327, 00905 |
| RECREATION-03 | 1 | 1969 | 10,416 | 00325 |
| RECREATION-04 | 1 | 1986 | 23,150 | 00362 |
| | | | | |
| SCHOOL/TRAINING-01 | 2 | 1964 | 2,160 | 11010, 12010 |
| SCHOOL/TRAINING-02 | 15 | 1985 | 37,116 | 00184, 00217, 00284, 00285, 00286, 00588, 01201, 01203, 01204, 01205, 01206, 01207, 01208, 70445, 70775 |
| SCHOOL/TRAINING-03 | 5 | 1958 | 17,610 | 00490, 00492, 00496, 00547, 01202 |
| | | | | |
| SECURITY-01 | 6 | 1981 | 580 | 00010, 00688, 00692, 07631, 07700, 20010 |
| SECURITY-02 | 2 | 1945 | 8,766 | 00326, 00427 |
| SECURITY-03 | 1 | 1985 | 7,600 | 00400 |
| | | | | |
| SHOPS-02 | 17 | 1984 | 60,817 | 00501, 00631, 00632, 00633, 00634, 00664, 00665, 00666, 00667, 00668, 00669, 00825, 00829, 00846, 00859, 07602, MOWEL, |
| SHOPS-03 | 17 | 1946 | 67,658 | 00356, 00367, 00384, 00568, 00581, 00600, 00605, 00608, 00612, 00616, 00623, 00626, 00642, 00646, 00842, 00941, 00945 |
| SHOPS-04 | 2 | 1952 | 55,184 | 00614, 00840 |
| SHOPS-05 | 10 | 1967 | 53,342 | 00357, 00620, 00621, 00639, 00650, 00830, 00832, 00847, 00850, 00857 |
| SHOPS-06 | 2 | 1987 | 7,680 | 00837, 00855 |
| SHOPS-07 | 4 | 1985 | 134,888 | 00680, 00681, 00873, 00879 |
| | | | | |

1.33

| Bldg. Set ID | No. | Avg. Yr. Built | Area ($ft^2$) | Building Numbers |
|---|---|---|---|---|
| STORAGE-01 | 23 | 1984 | 40,520 | 00015, 07606, 07607, 07608, 07609, 07610, 07611, 07612, 07613, 07614, 07615, 07616, 07617, 07618, 07619, 07620, 07621, 07622, 07623, 07624, 07625, 07626, 07627 |
| STORAGE-02 | 141 | 1961 | 185,935 | 00148, 01824, 01826, 01828, 01830, 01832, 01834, 01836, 01838, 01839, 01841, 01842, 01843, 01844, 02000, 02002, 02004, 02006, 02008, 02010, 02012, 02100, 02101, 02102, 02103, 02104, 02105, 02106, 02107, 02108, 02109, 02110, 02111, 02207, 02209, 02300, 02301, 02302, 02303, 02304, 02305, 02306, 02307, 02308, 02310, 02312, 02313, 02314, 02400, 02401, 02402, 02403, 02404, 02405, 02406, 02407, 02408, 02409, 02410, 02411, 02412, 02413, 02414, 02415, 02416, 02417, 02418, 02419, 02420, 02421, 02422, 02424, 02426, 02428, 02430, 02502, 02503, 02504, 02506, 02507, 02508, 02600, 02601, 02602, 02603, 02604, 02605, 02606, 02607, 02608, 02609, 02610, 02611, 02612, 02613, 02614, 02615, 02616, 02617, 02618, 02619, 02620, 02621, 02703, 02704, 02705, 02707, 02709, 02711, 02713, 02714, 02800, 02801, 02803, 02804, 02805, 02806, 02807, 02808, 02809, 02810, 02811, 02812, 02813, 02814, 02815, 02816, 02817, 02818, 02819, 02820, 02821, 02822, 02824, 02900, 02902, 02903, 02904, 02906, 02908, 02910 |
| | | | | |
| WAREHOUSE-01 | 39 | 1949 | 28,728 | 00022, 00139, 00354, 00386, 00609, 00625, 04101, 04102, 04103, 04104, 04105, 04106, 04107, 04108, 04109, 04201, 04202, 04203, 04204, 04205, 04206, 04207, 04208, 04209, 04301, 04302, 04303, 04304, 04305, 04306, 04307, 04308, 04309, 04310, 04401, 04402, 04403, 04404, 20005 |
| WAREHOUSE-02 | 8 | 1964 | 25,561 | 00358, 00360, 00706, 04110, 04111, 04210, 04211, 20001 |
| WAREHOUSE-03 | 3 | 1983 | 4,167 | 00359, 00703, 20008 |
| WAREHOUSE-04 | 2 | 1986 | 20,559 | 07601, 07701 |
| WAREHOUSE-05 | 27 | 1946 | 89,826 | 00024, 00234, 00318, 00333, 00342, 00344, 00352, 00364, 00435, 00456, 00460, 00462, 00470, 00472, 00474, 00485, 00486, 00531, 00537, 00545, 00558, 00562, 00584, 00585, 00586, 00814, 00818 |
| WAREHOUSE-06 | 2 | 1956 | 8,665 | 00517, 00844 |
| WAREHOUSE-07 | 2 | 1954 | 81,680 | 00860, 00934 |
| WAREHOUSE-08 | 2 | 1968 | 13,249 | 00277, 00306 |
| WAREHOUSE-09 | 3 | 1985 | 14,325 | 00552, 00827, 00861 |
| WAREHOUSE-10 | 3 | 1987 | 39,375 | 00821, 00863, 00888 |
| WAREHOUSE-11 | 1 | 1987 | 14,500 | 00862 |

# 2.0 Energy Resource Opportunity Evaluations

The results of the analysis of energy resource opportunities (EROs) are presented within 16 sections, organized by end-use category, by manual versus FEDS Level-2 analysis, and in some cases, by building type. Boilers and furnaces are analyzed in Section 2.1, manual HVAC options are analyzed in Section 2.2, building envelope (Level-2) in Section 2.3, building envelope (manual) in Section 2.4, service hot water (Level-2) in Section 2.5, service hot water (manual) in Section 2.6, interior lighting (Level-2) in Section 2.7, lighting controls (manual) in Section 2.8, motors in Section 2.9, air conditioning in Section 2.10, central plant chillers in Section 2.11, domestic refrigerators in Section 2.12, modular offices in Section 2.13, transmission and distribution in Section 2.14, peak shifting in Section 2.15, and base vehicles in Section 2.16. A brief narrative description of each ERO is provided and, when applicable, a discussion of energy supply and demand, energy security, and environmental issues.

At the end of each section, a summary table presents the operational performance and energy savings information. For the Level-2 EROs these tables report existing and retrofit equipment efficiencies, energy savings, and retrofit installed cost. The manual results tables are presented in three parts: existing operating parameters, energy-efficient operating parameters, and energy-efficient economic parameters. All results tables report the net present value (NPV) and the savings-to-investment ratio (SIR). The NPV is defined as the difference between the life-cycle cost of the existing technology and that of the proposed alternative. The SIR is defined as the present value (PV) of total savings divided by the PV of the installed cost. As a first-cut selection criteria, EROs with positive NPVs are selected for further consideration and reported in the Energy Efficient Economic Parameter section, while EROs with negative NPVs are discarded. For the installation of new or retrofit equipment to be economically attractive, its NPV would have to be greater than zero. The NPV of the option of doing nothing to the existing equipment is zero. The SIR is used to prioritize EROs and is only applied to projects deemed cost-effective by nature of their positive NPV.

Individual EROs were evaluated as mutually exclusive measures. This approach allows individual EROs to be ranked or rated based on parameters such as installed cost, NPV, energy savings, and changes in operations and maintenance (O&M) requirements. In addition, this evaluation approach permits direct economic comparison of competing EROs (e.g., retrofitting an old gas furnace with a new standard-efficiency or a new high-efficiency furnace). When competing EROs have positive NPVs, the ERO with the higher positive NPV will be considered further, while the ERO with the lower NPV will no longer be considered.

In the Energy Efficient Economic Parameter section of the manual tables, in cases where there are multiple positive NPV retrofit options, the highest positive NPV option may be "boxed" if presenting all of the options was considered to be of value. In other cases, only the highest positive NPV option is shown in this section. At the bottom of this section all highest positive NPV options are summed and presented as totals for the following column headings: Installed Cost (1994$), Annual Savings (MBtu), Annualized Net Energy Savings (1994$), Annualized O&M Savings (1994$), and Net Present Value (1994$). These totals represent the summation of the available resource (in energy and dollars) for the winning retrofit technologies.

In the manual EROs, replacement or retrofit of existing technologies was evaluated on a replace-immediately (RI) or a replace-on-failure (ROF) basis or both, depending on the average approximate age of the existing equipment, the remaining useful life of the existing equipment, and the life expectancy of new equipment. All EROs can be evaluated on an RI basis. EROs that affect existing equipment with remaining useful lives greater than 25 years can only be evaluated on an RI basis because the existing equipment

would not be expected to fail during the 25-year analysis period (as mandated by 10 CFR Part 436, which requires all federal energy decisions to use LCC analysis methodology). If, however, the existing equipment is expected to fail during the 25-year analysis period, the EROs associated with this equipment can be evaluated on an ROF basis. In addition, existing equipment that has exceeded the average life expectancy of comparable new equipment is assumed in this analysis to have zero remaining useful life left.

The Level-2 approach to RI and ROF is a bit different; Level-2 assumes that an ROF piece of equipment will, by law (10 CFR Part 436), be replaced with the most life-cycle, cost-effective piece of equipment. This assumption rules out the need to examine the ROF option for any piece of equipment.

The maintenance cost given for new or retrofit EROs is the incremental cost difference between the cost of maintaining the existing equipment and that of maintaining new or retrofitted equipment. Because maintenance cost of new or retrofitted equipment is often the same as the cost to maintain the existing equipment, this incremental maintenance cost is often zero.

Electricity demand savings were included in this analysis for the following ERO equipment types where relevant: lighting, air conditioning, fans, pumps, motors, and transmission and distribution (T&D). Essentially, if EROs associated with these equipment types contributed to peak demand reduction (as measured in reduced peak kW load), then demand savings were included in the economic analysis.

The 1994 discount rate of 3.1% (NIST 1993) was used in this analysis. This rate is a reflection of the discount rate for U.S. Treasury Bonds and varies slightly from year to year. The relative ranking of EROs with positive NPVs (see Table 3.5) should not be affected to a large extent from this variable discount rate. For consistency in this analysis, installed costs are in 1994 dollars (1994$), and the fuel escalation rates are determined with the appropriate 1994 index by fuel type (NIST 1993).

There are a number of EROs that are post-scripted as "discussion only." In general, these are EROs that PNL was asked to analyze by the Fort Irwin energy manager, but were found to be technically flawed, grossly not cost-effective, or beyond the scope of this analysis. There are several others that are included for informational purposes. The information included in these sections is, as the name states, a discussion of the ERO only. No attempt was made to calculate the life-cycle cost-effectiveness of any of these EROs, and therefore, no results tables are included.

## 2.1 FEDS Boiler and Furnace EROs

### 2.1.1 Replace Existing HTHW Systems with (Oil, Natural Gas, or LPG) Boilers

**Description**

This section pertains to replacing an existing HTHW heating configuration (HTHW distribution and heat exchanger) with new conventional or high-efficiency boilers fueled by oil, natural gas, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set. Since FEDS uses a "fuel blind" approach to ERO analysis, choice of retrofit boiler fuel is based on life-cycle cost-effectiveness, which may not necessarily be the most practical or environmentally sound choice. This analysis assumes the building's existing secondary-distribution loop will be used by the retrofit boilers.

**Assumptions**

Technical assumptions follow:

- FEDS calculates existing heat exchanger size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit boiler fuel availability, fuel consumption, efficiency, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit boiler efficiencies are given by the following equations:

conventional gas boiler efficiency = $0.871-1.83\times10^{-3}$*(Boiler Cap.)
pulse-condensing gas boiler efficiency = $0.871-1.83\times10^{-3}$*(Boiler Cap.)+0.08
conventional LPG boiler efficiency = $0.871-1.83\times10^{-3}$*(Boiler Cap.)
pulse-condensing LPG boiler efficiency = $0.871-1.83\times10^{-3}$*(Boiler Cap.)+0.08
conventional oil boiler efficiency = $0.891-1.83\times10^{-3}$*(Boiler Cap.)

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

### 2.1.2 Replace Existing LPG Boilers

**Description**

This ERO pertains to replacing existing boilers with a new conventional or high-efficiency boilers fueled by LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

**Assumptions**

Technical assumptions follow:

- FEDS calculates existing boiler size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit boiler fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the input file for the building set.

- Retrofit boiler efficiencies are given by the following equations:

conventional gas boiler efficiency = $0.871-1.83^{-3}$*(Boiler Cap.)
pulse-condensing gas boiler efficiency = $0.871-1.83^{-3}$*(Boiler Cap.)+0.08
conventional LPG boiler efficiency = $0.871-1.83^{-3}$*(Boiler Cap.)
pulse-condensing LPG boiler efficiency = $0.871-1.83^{-3}$*(Boiler Cap.)+0.08
conventional oil boiler efficiency = $0.891-1.83^{-3}$*(Boiler Cap.)

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

### 2.1.3 Retrofit Existing Boilers with Automatic Electric Vent Dampers

**Description**

Installing automatic electric vent dampers will reduce standby losses in a boiler and therefore improve efficiency. When the burner is off, the damper closes to minimize heat loss through the stack. This ERO is typically considered for boilers of all capacities.

**Assumptions**

Technical assumptions follow:

- Automatic electric vent damper installed cost and resulting boiler efficiency increase are to be determined by FEDS based on age, size, and fuel type of the existing boiler as developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- The automatic damper will improve thermal efficiency by an average of 3% over the existing case.

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

### 2.1.4 Retrofit Existing Boilers with Feedwater Economizers

**Description**

Feedwater economizers increase boiler efficiency by transferring heat from the exiting combustion gases to the feedwater, via a heat exchanger. This ERO is considered for boilers between 3–80 MBtuh.

**Assumptions**

Technical assumptions follow:

- Feedwater economizer size, installed cost, and resulting boiler efficiency is determined by FEDS based on age, size, and fuel type of the existing boiler as developed in the Level-2 input file for the building set.

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

### 2.1.5 Replace Existing LPG Furnaces

**Description**

This ERO pertains to replacing existing LPG furnaces with new conventional or high-efficiency furnaces fueled by LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

**Assumptions**

Technical assumptions follow:

- FEDS calculates existing furnace size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit furnace fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit furnace efficiencies are as follows:

| | |
|---|---|
| conventional gas furnace | - 78.0% |
| conventional oil furnace | - 78.0% |
| conventional electric furnace | - 98.0% |
| high-efficiency gas furnace | - 93.0% |
| high-efficiency LPG furnace | - 93.0% |

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.1.

# Table 2.1. Boiler and Furnace EROs

| Building Set | Existing Technology | Retrofit Technology | Retro Number | Exist. Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADMINISTRATION-03a | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.82 | 0.85 | Propane | Propane | 2 | 0 | 76 | 229 | 13 | 153 | 3.0 |
| BARRACKS-03 | Propane Conv Boiler | Add Automatic Electric Damper | 2 | 0.77 | 0.80 | Propane | Propane | 17 | 0 | 192 | 916 | 93 | 724 | 4.8 |
| BARRACKS-04 | Hot Water Fan Coil | New Conventional Individual Bldg. LPG Boiler | 3 | 1.00 | 0.87 | Gen. Hot Wtr | Propane | -132 | 0 | 11,149 | 40,539 | 3,613 | 29,390 | 3.6 |
| CHAPEL-02 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.78 | 0.81 | Propane | Propane | 7 | 0 | 144 | 488 | 41 | 345 | 3.4 |
| CLUBS-03 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.86 | 0.89 | Propane | Propane | 1 | 0 | 113 | 143 | 8 | 30 | 1.3 |
| EXCHANGE FACILITIES-03 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.85 | 0.87 | Propane | Propane | 4 | 0 | 171 | 461 | 27 | 289 | 2.7 |
| HOSPITAL | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.77 | 0.79 | Propane | Propane | 6 | 0 | 258 | 346 | 31 | 89 | 1.3 |
| MWR-04 | Propane Conv Boiler | Add Automatic Electric Damper | 2 | 0.80 | 0.83 | Propane | Propane | 7 | 0 | 304 | 602 | 41 | 298 | 2.0 |
| MWR-06 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.84 | 0.87 | Propane | Propane | 3 | 0 | 105 | 308 | 18 | 204 | 2.9 |
| MWR-07 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.84 | 0.87 | Propane | Propane | 6 | 0 | 130 | 659 | 38 | 529 | 5.1 |
| RECREATION-02 | Propane Conv Boiler | Add Automatic Electric Damper | 2 | 0.77 | 0.80 | Propane | Propane | 6 | 0 | 244 | 330 | 33 | 86 | 1.4 |
| RECREATION-04 | Propane Conv Boiler | Add Automatic Electric Damper | 1 | 0.85 | 0.88 | Propane | Propane | 3 | 0 | 130 | 345 | 20 | 215 | 2.7 |
| TOTALS: | | | 17 | | | | | -70 | 0 | 13,016 | 45,366 | 3,976 | 32,352 | 3.5 |

## 2.2 Manual HVAC EROs

There are a number of additional HVAC EROs that are not currently handled by FEDS Level-2. The options analyzed at Fort Irwin are presented in this section. The first involves replacing propane-fired unit heaters with radiant heat. The second covers replacement of standard manual thermostats with programmable models in order to implement night setback. The third ERO is a comparison of all of the various options for the family housing HVAC systems. While some of these options are analyzed by Level-2, all of the possibilities are shown to provide a common existing condition. The last two EROs discuss duct insulation and the liquid pressure amplification device.

### 2.2.1 Replace Conventional Heaters with LPG-Fired Infrared Heaters

**Description**

This ERO covers the replacement of existing unit heaters with LPG-fired radiant heat in maintenance shops, motorpools, and hangars. Currently these buildings are heated by large numbers of unit heaters which heat up the large volumes of air that these buildings enclose. Many of these buildings have large doors which are occasionally opened to bring in/take out vehicles. When this happens, much of the warm air in the building is lost, and the heating system must run continuously to reheat the space. Also, none of these buildings is particularly well insulated, so there is a significant infiltration component in the heating load in addition to that from opening the doors.

Radiant heat works by heating up objects in the space rather than the air. This removes the infiltration load from the heating equipment and greatly reduces energy consumption. In the large open areas in these buildings, the floor slab is used as thermal storage, which evens out the heating and allows the radiant heaters to run less often. Several buildings at Fort Irwin have radiant heat installed for occupant comfort and are operating satisfactorily.

**Assumptions**

Technical assumptions are as follows:

- This ERO applies to 4 HANGAR buildings, 29 MTRPOOL buildings, and 9 other SHOP buildings.
- The existing heating systems are based on unit heaters. Equipment size is based on heating energy use intensities (EUIs) from Volume 2 of this report. Buildings with boilers are assumed to have a hot water loop, with hydronic unit heaters in the open bay areas.
- Assumed unit heater run-hours are calculated from the EUIs and the estimated capacity and number of unit heaters in each building.
- The existing unit heaters are assumed to be 75% efficient including those served by a boiler, where the combined heating plant, distribution system and unit heater are assumed 75% efficient.
- Radiant heaters are assumed to be 90% efficient and use 30% less energy due to infiltration savings as discussed above. Fan power is reduced by 85% since there is no need to push the large volumes of air through the unit heaters. This assumes that the new radiant heaters are direct vented to the outside and that there is sufficient infiltration (through leakage or open doors) to provide for fresh air requirements in the buildings.

- According to radiant heater manufacturers, a 15% reduction in equipment size compared to forced air systems is standard practice due to differences in heating technology and delivery methods. For this analysis, standard sized unit heaters were assumed; size multiplied by number of heaters gives a total heating capacity. This number was reduced by 15% for the size of the radiant heaters. It is assumed that a combination of radiant heat components can give any required heating capacity within 1 KBtuh.

- There are no restrictions on the use of radiant heaters in these buildings. This issue will have to be studied concerning the use of flammable materials for cleaning, degreasing, etc.

- Almost identical performance can be achieved through the use of propane or natural gas. For at least one manufacturer, the only difference is the size of the burner orifice, which can easily be changed if natural gas becomes available in the future.

Cost assumptions are as follows:

- Radiant heaters cost an average $2,000/100 KBtuh installed. Actual costs will vary with the building configuration, ceiling height, etc.

- Costs for existing unit heaters are taken from Means (1992c) and are shown in the following table:

| Size, KBtuh | Materials, 1992 $ | Labor, 1992 $ |
|---|---|---|
| 30 | 390 | 50 |
| 60 | 450 | 50 |
| 75 | 490 | 50 |
| 100 | 575 | 60 |

**Results**

The complete quantitative results of this ERO appear in Table 2.2. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial installed cost of all cost-effective, replace-immediately implementations of this ERO is $231,990. There are two replace on failure options with a total cost of $3,212. There is no effect on the maintenance budget due to this ERO.

**Energy and Cost Savings.** It is estimated that all cost-effective, replace-immediately implementations of this ERO will result in an annual energy savings of 3,492 MBtu of LPG and 348,877 kWh of electricity, for an annualized cost savings of $38,185; demand savings of 727 kW-months, for an annualized cost savings of $2,321 and a NPV of $485,059.

It is estimated that all cost-effective replace on failure implementations of this ERO will result in an annual energy savings of 20 MBtu of LPG and 3,050 kWh of electricity, for an annualized cost savings of $167 and demand savings of 15 kW-months, for an annualized cost savings of $29 and an NPV of $2,885.

**Operations and Maintenance.** The radiant heaters will require no more maintenance than the existing unit heaters. Since there are already radiant heaters in use, it is assumed that the maintenance staff are trained in their operation and maintenance.

### 2.2.2 Effect Night Setback

**Description**

This ERO involves replacement of existing manual thermostats with programmable electronic models. The electronic thermostat will be able to automatically reset temperature setpoints for both heating and cooling during occupant selected unoccupied periods. This usually includes weeknights and all day on weekends. The thermostat should also have a (timed) manual override for those periods when the building is used off-hours. Most electronic models also have optimum start/stop capability, where the thermostat "learns" when to start and stop the HVAC system to warm-up/cool-down the space at the beginning and end of each day with a minimum of wasted energy.

PNL was asked by the installation energy manager to evaluate another type of setback thermostat that uses the space lighting to determine the setback condition. The light-sensitive thermostat has a built-in photocell which monitors whether the lights are on or off. When the lights are off, the thermostat is in setback operation. The thermostat is available with built-in preset maximum heating temperature (usually 75°F) and minimum cooling temperature (usually 70°F) and a 10 or 15°F setback/setup. This allows some occupant control without allowing excessive heating or cooling of the space. According to manufacturers literature, this technology has been used successfully in retail sales applications where the lights are always on during business hours and usually off during non-business hours.

While the light-sensitive thermostat seems like as good a choice as a fully programmable thermostat at first glance, there are several disadvantages:

- The lights must be on at all times during the occupied period. Turning on lights to operate a thermostat is wasteful and inefficient. Of course, in some buildings/spaces there is sufficient daylight so that lights may not be required.

- The lights must be off during the unoccupied period. Some lights are almost always left on in commercial buildings, usually in common areas and hallways. Unfortunately, this is also a likely place for the thermostat.

- The light-sensitive thermostat has only a limited warm-up/cool-down option, limited to allowing the HVAC system to come on a fixed number of hours after setback is initiated even if the lights are off. If the lights are left on later than usual the night before, there will be no morning warm-up/cool-down.

- The light-sensitive thermostat costs about $100 more than a high quality programmable electronic thermostat.

For these reasons, the light-sensitive thermostat was not included in the analysis. However, this type of control should be kept in mind when doing a more detailed assessment before implementation of the night setback ERO. There are undoubtedly certain areas/applications where this technology may be more practical than a programmable thermostat.

There are valid concerns regarding night setback when discussing the energy used to "warm-up" or "cool-down" a building after a setback period. It has been said that more energy is used during this time than if the building were left at a constant temperature. This is an issue mainly in buildings with large thermal mass, where large quantities of heat or cool are stored in walls or floors. Most of the buildings at Fort Irwin are relatively lightweight and therefore pick-up loads should not be an issue.

It is often difficult to program and maintain electronic thermostats in areas where occupants have access to them. It is recommended that new thermostats be purchased with locking covers to prevent tampering with the setback program. However, access should be allowed to an override button and buttons for control of space temperature (within a fixed range) during occupied periods. Previous implementations of night setback thermostats and other HVAC controls have shown that occupants must be given some amount of control over their environment for the system to be successful.

**Assumptions**

The technical assumptions are as follows:

- The following building types are considered for night setback: ADMIN, CHAPEL, CLINIC, COMCATN, DGR, MTRPOOL, SHOP-ELC, TRAING. Modular trailer-type ADMIN spaces are not covered here, but under another ERO section.

- Since it is almost impossible to determine the existing conditions in every building, a penetration rate was assumed to cover buildings that may already have night setback, have irregular occupancy patterns, or where the HVAC system was not compatible with night setback controls. With the exception of MTRPOOL, it was assumed that 75% of the buildings could be retrofitted with new thermostats and have night setback implemented. 25% of MTRPOOL buildings were assumed to be retrofitable. (It is assumed that many MTRPOOL facilities are not heated, or only heated to minimal operating conditions.)

- Existing energy use for heating, cooling and fans was calculated from the EUIs developed in Volume 2 of this report.

- Energy savings were calculated using DOE2.1d. A sample building was modeled using constant thermostat setpoints of 70° F for heating and 78°F for cooling, then rerun with the following setpoint schedule:

  Weekdays:
  12 am - 7 am 55°F heating, 99°F cooling
  7 am - 5 pm 70°F heating, 78°F cooling
  5 pm - 12 am 55°F heating, 99°F cooling
  Weekends:
  12 am - 12 am 55°F heating, 99°F cooling.

This resulted in a savings of 55% for heating, 28% for cooling and 70% for fans. These numbers appear reasonable given the following: at Fort Irwin most heating is at night, and weekends comprise about 28% of the week.

- HVAC electric energy use was broken down into the utility billing structure blocks using bin weather data for China Lake, CA (the closest site where such data was available). Heating was assumed during all hours when outdoor air temperature (OAT) was 61°F or less. Cooling was assumed for all hours when OAT was 76°F or higher. The total kWh was then apportioned based on the percentage of hours in each rate block.

- There are an average of two thermostats per building.

The cost assumptions are as follows:

- Each programmable thermostat costs $120 for material and $26 for installation. Material prices are from manufacturers catalogs and labor is from Means. Prices have been modified for the Los Angeles area from Means: 97.7% for materials, 128% for labor. Installed cost also includes 15% contractor overhead and profit, for a total material cost of $135 and a total labor cost of $38 per thermostat.

**Results**

The complete quantitative results of this ERO appear in Table 2.3. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial cost of this ERO is $39,120 for all cost-effective implementations.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in annual energy savings of 669,582 kWh and 11,641 MBtu at a value of $108,867, and electric demand savings of 272 kW-months at a value of $730. The total NPV for this ERO is $1,830,927.

### 2.2.3 Residential HVAC EROs

**Description**

Residential HVAC EROs comprise a number of options to replace the existing propane furnaces and central air conditioners in the family housing units. There are 1,637 family housing units, all with basically the same HVAC system. There are five replacement options, four are analyzed with a minimum compliance alternative and a maximum efficiency alternative. The options include air-source heat pump, ground-source heat pump, LPG furnace and central air, natural gas furnace and central air, and gas-fired heat pump (still under development but included for comparison purposes).

Although natural gas is not presently available at Fort Irwin, HVAC options are included to compare the operating cost of natural gas and propane. The natural gas rate used in the analysis is an estimate based on conversations with base personnel and representatives of possible natural gas providers.

This ERO was done manually because the Level-2 software cannot yet fully analyze EROs involving heat pumps (either air or ground source). The Level-2 software will analyze high efficiency air

conditioners and furnaces, but will take interactive effects into consideration. In order to maintain equal standing among all of the HVAC options, all options were analyzed manually, using only the savings from the individual pieces of equipment.

**Assumptions**

The technical assumptions are as follows:

- The existing LPG furnaces have an average size of 50 KBtuh (input) and efficiency of 70.5% AFUE. The existing air conditioners have an average size of 2.5 tons and efficiency of 8.0 SEER.

- The replacement efficiencies are as follows:

| Replacement Equipment | Cooling Eff. | Heating Eff. |
|---|---|---|
| Min. Compliance Air Source Heat Pump | 10.0 SEER | 7.0 HSPF |
| High Eff. Air Source Heat Pump | 15.4 SEER | 8.3 HSPF |
| Avg. Eff. Ground Source Heat Pump | 13.3 EER | 2.8 COP |
| High Eff. Ground Source Heat Pump | 16.0 EER | 3.5 COP |
| Min. Compliance Furnace and A/C | 10.0 SEER | 78.0% AFUE |
| High Eff. Furnace and A/C | 15.7 SEER | 92.6% AFUE |
| Gas Fired Heat Pump | 1.1 COP | 1.3 COP |

Efficiencies for the LPG and natural gas furnace and central air conditioner options are assumed to be the same; the only difference for these two options is the price of fuel.

Additional notes on ground-source heat pumps: 1) There are no efficiency standards for ground-source heat pumps, so an average efficiency unit was chosen to represent the minimum compliance case, 2) Since the ground temperature remains fairly constant, the given efficiencies are assumed to represent seasonal values (EER = SEER).

- Existing energy consumption was calculated using the EUIs developed in Volume 2 of this report: 2.91 kWh/ft$^2$-yr for cooling, and 26.37 kBtu/ft$^2$-yr for heating. Given an average house size of 1,800 ft$^2$, the energy consumption is 5,238 kWh for cooling and 47.5 MBtu for heating per unit.

- Retrofit energy consumption is based on the actual equipment size and estimated run hours of each replacement unit to meet the same load as the existing equipment. The replacement equipment sizes are different from the existing equipment size in almost all cases since actual equipment was chosen for the retrofit options. Equipment sizes are given in the following table:

| Replacement Equipment | Cooling Cap. (KBtuh) | Heating Cap. (KBtuh) |
|---|---|---|
| Min. Compliance Air Source Heat Pump | 28.2 | 27.4 |
| High Eff. Air Source Heat Pump | 29.0 | 29.0 |
| Avg. Eff. Ground Source Heat Pump | 30.2 | 20.8 |
| High Eff. Ground Source Heat Pump | 31.2 | 21.2 |
| Min. Compliance Furnace and A/C | 28.6 | 40.0 |
| High Eff. Furnace and A/C | 30.8 | 37.0 |
| Gas Fired Heat Pump | 36.0 | 53.5 |

- Operating hours for the existing equipment are based on the EUIs and equipment capacities as described above. Operating hours for the retrofit equipment are calculated from the existing equipment hours modified by the replacement equipment efficiencies and capacities. Operating hours for cooling and heating for each electric utility rate period are given in the following tables:

  Cooling Operating Hours:

| Equipment Description | Summer | | | Winter | |
|---|---|---|---|---|---|
| | On-Peak | Mid-Peak | Off-Peak | Mid-Peak | Off-Peak |
| Existing Furnace and A/C | 226 | 324 | 503 | 228 | 116 |
| Min. Comp. Air Source HP | 241 | 345 | 535 | 242 | 123 |
| High Eff. Air Source HP | 234 | 335 | 520 | 236 | 119 |
| Avg. Eff. Ground Source HP | 225 | 322 | 499 | 226 | 115 |
| High Eff. Ground Source HP | 218 | 312 | 483 | 219 | 111 |
| Min. Comp. Furnace and A/C | 238 | 340 | 527 | 239 | 121 |
| High Eff. Furnace and A/C | 221 | 316 | 490 | 222 | 112 |
| Gas Fired Heat Pump | 189 | 270 | 419 | 190 | 96 |

Heating Operating Hours:

| Equipment Description | Summer | | | Winter | |
|---|---|---|---|---|---|
| | On-Peak | Mid-Peak | Off-Peak | Mid-Peak | Off-Peak |
| Existing Furnace and A/C | 0 | 0 | 23 | 260 | 609 |
| Min. Comp. Air Source HP | 0 | 0 | 32 | 356 | 833 |
| High Eff. Air Source HP | 0 | 0 | 30 | 336 | 788 |
| Avg. Eff. Ground Source HP | 0 | 0 | 42 | 470 | 1098 |
| High Eff. Ground Source HP | 0 | 0 | 41 | 460 | 1078 |
| Min. Comp. Furnace and A/C | 0 | 0 | 22 | 244 | 571 |
| High Eff. Furnace and A/C | 0 | 0 | 23 | 264 | 617 |
| Gas Fired Heat Pump | 0 | 0 | 16 | 182 | 427 |

The cost assumptions are as follows:

- The replacement equipment installed costs are as follows:

| Replacement Equipment | Material (1994 $) | Labor (1994 $) |
|---|---|---|
| Min. Compliance Air Source Heat Pump | $2,180 | $559 |
| High Eff. Air Source Heat Pump | $5,175 | $559 |
| Avg. Eff. Ground Source Heat Pump | $3,000 | $559 |
| High Eff. Ground Source Heat Pump | $3,770 | $559 |
| Min. Compliance Furnace and A/C | $1,483 | $468 |
| High Eff. Furnace and A/C | $4,725 | $468 |
| Gas Fired Heat Pump | $5,000 | $750 |

Material costs are from manufacturer's catalogs and sales representatives. Labor costs are from Means. All costs include 15% overhead and profit. Material and labor costs for the ground source heat pump excavation and piping are included in the material cost column above.

- Operations and maintenance costs are as follows: $75/yr for all air and ground source heat pump options, $85/yr for all furnace and air conditioner options (including the existing), and $105/yr for the gas-fired heat pump option.

- The cost of natural gas (for the gas fired heat pump) is assumed to be $3.50/MBtu. While natural gas is not currently available at Fort Irwin (it is unknown if the unit can be converted to LPG), the gas fired heat pump is included for comparision purposes.

**Results**

The complete quantitative results of this ERO appear in Table 2.4. The table contains specific energy, cost, and economic performance data. The "boxed" row in the economic parameters section of the table marks the winning ERO (the ERO with the highest NPV).

The gas-fired heat pump was not chosen as the winning ERO (even though it has the highest NPV) since gas is not currently available at Fort Irwin. If some time elapses before implementation of the residential HVAC ERO, and gas is brought to the site for other uses, the gas-fired heat pump may deserve further study.

**Budget Implications.** The initial cost of this ERO is $7,086,917 for the most cost-effective implementation.

**Energy and Cost Savings.** It is estimated that the most cost-effective implementation of this ERO will result in *increased* annual electric energy consumption of 299,851 kWh, but an annual propane savings of 77,702 MBtu, for a total annualized energy cost savings of $479,316, and electric demand savings of 15,226 kW-months, at an annualized value of $234,468.

**Operations and Maintenance.** The gas-fired heat pump is the only option that would require significant additional maintenance; the oil, oil filter and spark plug must be replaced yearly at an estimated cost (materials and labor) of $105 per unit. Replacing the furnace and air conditioner with a heat pump should result in minor O&M savings of approximately $16,370 per year.

### 2.2.4 Duct Insulation (discussion only)

Twenty-nine buildings were identified at Fort Irwin that have extensive outside ductwork that delivers cooled air from evaporative coolers to the building interiors. These buildings are all classified as "T" buildings, indicating that they were originally constructed as temporary structures. These buildings are generally used as offices with some storage areas and are all small, averaging 2,712 square feet. There is no wall or ceiling insulation in these buildings and there is no thermostatic control for the evaporative cooling units.

Measurements were taken on the ductwork of six buildings that were representative of the ductwork on the remaining twenty-three buildings. A total of 18,472 square feet of exterior ductwork is attached to these six buildings. Cost of materials to insulate the ductwork was determined to be $1.74 per square foot. Labor charges are estimated to be $2.82 per square foot. Total installation, including materials and labor, is expected to be $4.56 per square foot of ductwork. Total cost to insulate the outside duct on the six buildings was calculated to be $84,233.

The total cooling energy consumption was calculated to be less than $2,000 per year for these six buildings. Even if a savings of 50% could be achieved, the total payback would exceed 84 years. Therefore, we do not believe this to be a cost-effective ERO.

### 2.2.5 Install Liquid Pressure Amplification Device (discussion only)

Liquid pressure amplification (LPA) is a mechanical means of increasing the operating efficiency of vapor-compression refrigeration and air conditioning systems. This efficiency increase results from the installation of a pump designed to increase the refrigerant pressure while reducing the work required of the compressor and thus saving energy.

Most vapor-compression refrigeration and air conditioning systems have the following components: a receiver, an expansion valve, an evaporator, a compressor, and a condenser. Typically, these components are designed and sized to meet the required load on the hottest days of the year (the design-day). This is true of the condenser which is designed to operate at condenser pressures required to achieve refrigerant condensation on the hottest days of the year. These elevated pressures, required only for those hot days, result in wasted energy during cooler weather when the system is needlessly operating at these higher pressures. One way to reduce energy consumption is to allow the condenser pressure to vary or "float" with the ambient temperature. Floating the condenser pressure allows the compressor to maintain pressures necessary for condensation on a given day instead of the higher design-day pressure conditions. While this seems like a simple solution, the drawback to lowering the condenser pressure is the formation of gas in the liquid refrigerant prior to the expansion valve. This gas, called flash-gas, reduces the system operating efficiency by displacing liquid refrigerant while doing no work itself. To reduce flash-gas formation while allowing the condenser pressure to float, the LPA pump is installed in between the condenser and the expansion valve. With the LPA pump installed in the liquid-line, flash-gas formation is minimized allowing condenser pressure to float, thus reducing compressor energy consumption.

Annual energy savings resulting from LPA are a direct function of annual weather conditions. The greater the number of hours per year the system can operate at a lowered condenser pressure, the greater the annual energy savings. Applications of LPA systems in climates having moderate average temperatures with relatively short high-temperature peaks are more attractive than applications in climates having warm, relatively constant, average temperatures. The manufacturer, Hy-Save Inc., reports estimated annual saving as high as 57%, while a number of independent case studies estimate the savings to be between 10% and 25%, depending on application. Savings discrepancies aside, cost-effective energy savings are possible with proper system selection and LPA application. To properly characterize this ERO, further in-depth study is required on an individual equipment basis. The high-level nature of this analysis precluded the collection of the detailed data required for life-cycle costing purposes.

## Table 2.2. Infrared Radiant Heat EROs

### Existing Heater Operating Parameters

| ID | Bldg. Type/ Number | Equipment Type | Unit Eff. (%) | # of Units | Avg Size/ Capacity (Btu/hr) | Operating Hours Winter | | LPG (heat) Consumption (MBtu/yr) | Electric (fan) Consumption | | Number of Months Contrib. to Peak | Sum Coincident Demand (kW-mo) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mid Peak (Hours) | Off Peak (Hours) | | Mid Peak (kWh) | Off Peak (kWh) | | |
| 1 | HANGAR/06203 | Unit Heaters | 75% | 9 | 25,000 | 282 | 659 | 212 | 1,781 | 4,172 | 3 | 19 |
| 2 | HANGAR/BD007 | Unit Heaters | 75% | 16 | 45,000 | 278 | 651 | 669 | 5,630 | 13,186 | 3 | 61 |
| 3 | HANGAR/BD008 | Unit Heaters | 75% | 12 | 45,000 | 285 | 668 | 514 | 4,328 | 10,137 | 3 | 46 |
| 4 | HANGAR/BD009 | Unit Heaters | 75% | 16 | 45,000 | 278 | 651 | 669 | 5,630 | 13,186 | 3 | 61 |
| 5 | MTRPOOL/00879 | Unit Heaters | 75% | 13 | 98,000 | 211 | 494 | 898 | 9,939 | 23,280 | 2 | 94 |
| 6 | MTRPOOL/00873 | Unit Heaters | 75% | 11 | 98,000 | 245 | 573 | 882 | 9,762 | 22,866 | 2 | 80 |
| 7 | MTRPOOL/00681 | Unit Heaters | 75% | 9 | 47,200 | 336 | 786 | 477 | 5,278 | 12,362 | 3 | 47 |
| 8 | MTRPOOL/00680 | Unit Heaters | 75% | 9 | 47,200 | 298 | 698 | 423 | 4,684 | 10,972 | 3 | 47 |
| 9 | MTRPOOL/00642 | Unit Heaters | 75% | 6 | 75,000 | 43 | 100 | 64 | 711 | 1,665 | 0 | 0 |
| 10 | MTRPOOL/00626 | Unit Heaters | 75% | 1 | 100,000 | 183 | 428 | 61 | 676 | 1,582 | 2 | 7 |
| 11 | MTRPOOL/00623 | Unit Heaters | 75% | 1 | 100,000 | 183 | 428 | 61 | 676 | 1,582 | 2 | 7 |
| 12 | MTRPOOL/00621 | Unit Heaters | 75% | 4 | 45,000 | 132 | 309 | 79 | 880 | 2,060 | 1 | 7 |
| 13 | MTRPOOL/00614 | Unit Heaters | 75% | 6 | 45,000 | 586 | 1,374 | 529 | 5,860 | 13,727 | 6 | 60 |
| 14 | MTRPOOL/00620 | Unit Heaters | 75% | 3 | 60,000 | 132 | 309 | 79 | 880 | 2,060 | 1 | 7 |
| 15 | MTRPOOL/00605 | Unit Heaters | 75% | 4 | 45,000 | 135 | 317 | 81 | 901 | 2,110 | 1 | 7 |
| 16 | MTRPOOL/00850 | Unit Heaters | 75% | 3 | 60,000 | 132 | 309 | 79 | 880 | 2,060 | 1 | 7 |
| 17 | MTRPOOL/00840 | Unit Heaters | 75% | 6 | 60,000 | 471 | 1,103 | 567 | 6,275 | 14,698 | 5 | 67 |
| 18 | MTRPOOL/00608 | Unit Heaters | 75% | 6 | 25,000 | 112 | 261 | 56 | 619 | 1,451 | 1 | 6 |
| 19 | MTRPOOL/00650 | Unit Heaters | 75% | 5 | 25,000 | 190 | 445 | 79 | 880 | 2,060 | 2 | 9 |
| 20 | MTRPOOL/00612 | Unit Heaters | 75% | 4 | 25,000 | 434 | 1,015 | 145 | 1,604 | 3,758 | 4 | 15 |
| 21 | MTRPOOL/00945 | Unit Heaters | 75% | 2 | 45,000 | 203 | 475 | 61 | 676 | 1,582 | 2 | 7 |
| 22 | MTRPOOL/00830 | Unit Heaters | 75% | 3 | 45,000 | 363 | 849 | 164 | 1,811 | 4,243 | 4 | 20 |
| 23 | MTRPOOL/00847 | Unit Heaters | 75% | 4 | 45,000 | 370 | 866 | 222 | 2,463 | 5,769 | 4 | 27 |
| 24 | MTRPOOL/00639 | Unit Heaters | 75% | 2 | 45,000 | 264 | 619 | 79 | 880 | 2,060 | 3 | 10 |
| 25 | MTRPOOL/00646 | Unit Heaters | 75% | 2 | 30,000 | 304 | 713 | 61 | 676 | 1,582 | 3 | 7 |
| 26 | MTRPOOL/00832 | Unit Heaters | 75% | 2 | 45,000 | 324 | 759 | 97 | 1,079 | 2,527 | 3 | 10 |
| 27 | MTRPOOL/00893 | Unit Heaters | 75% | 4 | 45,000 | 143 | 334 | 86 | 950 | 2,225 | 1 | 7 |
| 28 | MTRPOOL/00892 | Unit Heaters | 75% | 8 | 45,000 | 131 | 306 | 157 | 1,742 | 4,080 | 1 | 13 |
| 29 | MTRPOOL/00941 | Unit Heaters | 75% | 5 | 30,000 | 128 | 300 | 64 | 711 | 1,665 | 1 | 6 |
| 30 | MTRPOOL/00825 | Unit Heaters | 75% | 6 | 45,000 | 141 | 330 | 127 | 1,407 | 3,297 | 1 | 10 |
| 31 | MTRPOOL/00694 | Unit Heaters | 75% | 12 | 45,000 | 133 | 312 | 240 | 2,660 | 6,231 | 1 | 20 |
| 32 | MTRPOOL/00837 | Unit Heaters | 75% | 4 | 45,000 | 121 | 285 | 73 | 809 | 1,896 | 1 | 7 |
| 33 | MTRPOOL/00835 | Unit Heaters | 75% | 7 | 45,000 | 140 | 329 | 148 | 1,636 | 3,832 | 1 | 12 |
| 34 | SHOP/20018 | Unit Heaters | 75% | 1 | 47,200 | 52 | 121 | 8 | 1,301 | 3,046 | 1 | 25 |
| 35 | SHOP/00367 | Unit Heaters | 75% | 4 | 25,000 | 50 | 116 | 17 | 2,652 | 6,213 | 0 | 0 |
| 36 | SHOP/00357 | Unit Heaters | 75% | 1 | 30,000 | 23 | 54 | 2 | 372 | 870 | 0 | 0 |
| 37 | SHOP/00384 | Unit Heaters | 75% | 1 | 25,000 | 47 | 111 | 4 | 634 | 1,485 | 0 | 0 |
| 38 | SHOP-AIR/BD006 | Unit Heaters | 75% | 3 | 30,000 | 61 | 143 | 18 | 413 | 967 | 1 | 7 |
| 39 | SHOP-HVY/BD005 | Unit Heaters | 75% | 5 | 30,000 | 59 | 137 | 29 | 661 | 1,547 | 1 | 11 |
| 40 | SHOP/HDSDT | Unit Heaters | 75% | 15 | 75,000 | 31 | 73 | 118 | 18,853 | 44,161 | 0 | 0 |
| 41 | SHOP/00501 | Unit Heaters | 75% | 1 | 45,000 | 51 | 121 | 8 | 1,239 | 2,901 | 1 | 24 |
| 42 | SHOP/HDSDS | Unit Heaters | 75% | 15 | 45,000 | 36 | 85 | 82 | 13,092 | 30,666 | 0 | 0 |

## Table 2.2. (contd)

Efficient Heater ERO Operating Parameters

| ID | Description | Fuel Type | Unit Eff. (%) | # of Units | Total Installed Capacity (Btu/hr) | Operating Hours Winter | | LPG (heat) Consumption (MBtu/yr) | Electric (fan) Consumption | | Number of Months Contrib. to Peak | Sum Coincident Demand (kW-mo) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Mid Peak (Hours) | Off Peak (Hours) | | Mid Peak (kWh) | Off Peak (kWh) | | |
| 1 | Radiant Heat | LPG | 90% | 1 | 191,000 | 193 | 453 | 124 | 267 | 626 | 3 | 3 |
| 2 | Radiant Heat | LPG | 90% | 1 | 612,000 | 191 | 447 | 390 | 844 | 1,978 | 3 | 9 |
| 3 | Radiant Heat | LPG | 90% | 1 | 459,000 | 196 | 458 | 300 | 649 | 1,521 | 3 | 7 |
| 4 | Radiant Heat | LPG | 90% | 1 | 612,000 | 191 | 447 | 390 | 844 | 1,978 | 3 | 9 |
| 5 | Radiant Heat | LPG | 90% | 1 | 1,083,000 | 145 | 339 | 524 | 1,491 | 3,492 | 2 | 14 |
| 6 | Radiant Heat | LPG | 90% | 1 | 916,000 | 168 | 393 | 514 | 1,464 | 3,430 | 2 | 12 |
| 7 | Radiant Heat | LPG | 90% | 1 | 361,000 | 230 | 540 | 278 | 792 | 1,854 | 3 | 7 |
| 8 | Radiant Heat | LPG | 90% | 1 | 361,000 | 205 | 479 | 247 | 703 | 1,646 | 3 | 7 |
| 9 | Radiant Heat | LPG | 90% | 1 | 383,000 | 29 | 69 | 37 | 107 | 250 | 0 | 0 |
| 10 | Radiant Heat | LPG | 90% | 1 | 85,000 | 125 | 293 | 36 | 101 | 237 | 2 | 1 |
| 11 | Radiant Heat | LPG | 90% | 1 | 85,000 | 125 | 293 | 36 | 101 | 237 | 2 | 1 |
| 12 | Radiant Heat | LPG | 90% | 1 | 153,000 | 91 | 212 | 46 | 132 | 309 | 1 | 1 |
| 13 | Radiant Heat | LPG | 90% | 1 | 230,000 | 402 | 941 | 309 | 879 | 2,059 | 6 | 9 |
| 14 | Radiant Heat | LPG | 90% | 1 | 153,000 | 91 | 212 | 46 | 132 | 309 | 1 | 1 |
| 15 | Radiant Heat | LPG | 90% | 1 | 153,000 | 93 | 217 | 47 | 135 | 316 | 1 | 1 |
| 16 | Radiant Heat | LPG | 90% | 1 | 153,000 | 91 | 212 | 46 | 132 | 309 | 1 | 1 |
| 17 | Radiant Heat | LPG | 90% | 1 | 306,000 | 323 | 757 | 331 | 941 | 2,205 | 5 | 10 |
| 18 | Radiant Heat | LPG | 90% | 1 | 128,000 | 76 | 179 | 33 | 93 | 218 | 1 | 1 |
| 19 | Radiant Heat | LPG | 90% | 1 | 106,000 | 131 | 306 | 46 | 132 | 309 | 2 | 1 |
| 20 | Radiant Heat | LPG | 90% | 1 | 85,000 | 298 | 697 | 85 | 241 | 564 | 4 | 2 |
| 21 | Radiant Heat | LPG | 90% | 1 | 77,000 | 138 | 324 | 36 | 101 | 237 | 2 | 1 |
| 22 | Radiant Heat | LPG | 90% | 1 | 115,000 | 248 | 582 | 95 | 272 | 636 | 4 | 3 |
| 23 | Radiant Heat | LPG | 90% | 1 | 153,000 | 254 | 594 | 130 | 369 | 865 | 4 | 4 |
| 24 | Radiant Heat | LPG | 90% | 1 | 77,000 | 180 | 422 | 46 | 132 | 309 | 3 | 1 |
| 25 | Radiant Heat | LPG | 90% | 1 | 51,000 | 209 | 489 | 36 | 101 | 237 | 3 | 1 |
| 26 | Radiant Heat | LPG | 90% | 1 | 77,000 | 221 | 517 | 57 | 162 | 379 | 3 | 1 |
| 27 | Radiant Heat | LPG | 90% | 1 | 153,000 | 98 | 229 | 50 | 142 | 334 | 1 | 1 |
| 28 | Radiant Heat | LPG | 90% | 1 | 306,000 | 90 | 210 | 92 | 261 | 612 | 1 | 2 |
| 29 | Radiant Heat | LPG | 90% | 1 | 128,000 | 88 | 205 | 37 | 107 | 250 | 1 | 1 |
| 30 | Radiant Heat | LPG | 90% | 1 | 230,000 | 96 | 226 | 74 | 211 | 494 | 1 | 1 |
| 31 | Radiant Heat | LPG | 90% | 1 | 459,000 | 91 | 214 | 140 | 399 | 935 | 1 | 3 |
| 32 | Radiant Heat | LPG | 90% | 1 | 153,000 | 83 | 195 | 43 | 121 | 284 | 1 | 1 |
| 33 | Radiant Heat | LPG | 90% | 1 | 268,000 | 96 | 225 | 86 | 245 | 575 | 1 | 2 |
| 34 | Radiant Heat | LPG | 90% | 1 | 40,000 | 35 | 83 | 5 | 195 | 457 | 1 | 4 |
| 35 | Radiant Heat | LPG | 90% | 1 | 85,000 | 34 | 80 | 10 | 398 | 932 | 0 | 0 |
| 36 | Radiant Heat | LPG | 90% | 1 | 26,000 | 16 | 37 | 1 | 56 | 131 | 0 | 0 |
| 37 | Radiant Heat | LPG | 90% | 1 | 21,000 | 33 | 77 | 2 | 95 | 223 | 0 | 0 |
| 38 | Radiant Heat | LPG | 90% | 1 | 77,000 | 42 | 97 | 11 | 62 | 145 | 1 | 1 |
| 39 | Radiant Heat | LPG | 90% | 1 | 128,000 | 40 | 94 | 17 | 99 | 232 | 1 | 2 |
| 40 | Radiant Heat | LPG | 90% | 1 | 956,000 | 22 | 50 | 69 | 2,828 | 6,624 | 0 | 0 |
| 41 | Radiant Heat | LPG | 90% | 1 | 38,000 | 36 | 83 | 5 | 186 | 435 | 1 | 4 |
| 42 | Radiant Heat | LPG | 90% | 1 | 574,000 | 25 | 58 | 48 | 1,964 | 4,600 | 0 | 0 |

## Table 2.2. (contd)

### Efficient Heater ERO Economic Parameters

| ID | RI or ROF | Life (Years) | Installed Cost (1994 $) | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LPG Savings (MBtu) | Electric Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | RI | 15 | 3,820 | 88 | 5,060 | 16 | 762 | 52 | 813 | 13,882 | 4.63 |
| 2 | RI | 15 | 12,240 | 279 | 15,994 | 52 | 2,407 | 165 | 2,572 | 32,996 | 3.70 |
| 3 | RI | 15 | 9,180 | 214 | 12,295 | 39 | 1,850 | 124 | 1,974 | 25,525 | 3.78 |
| 4 | RI | 15 | 12,240 | 279 | 15,994 | 52 | 2,407 | 165 | 2,572 | 32,996 | 3.70 |
| 5 | RI | 15 | 32,490 | 374 | 28,236 | 80 | 3,596 | 256 | 3,852 | 25,646 | 1.79 |
| 6 | RI | 15 | 27,480 | 367 | 27,734 | 68 | 3,532 | 217 | 3,748 | 30,142 | 2.10 |
| 7 | RI | 15 | 10,830 | 199 | 14,994 | 40 | 1,909 | 128 | 2,037 | 23,281 | 3.15 |
| 8 | RI | 15 | 10,830 | 176 | 13,307 | 40 | 1,695 | 128 | 1,823 | 19,582 | 2.81 |
| 10 | RI | 15 | 1,700 | 25 | 1,919 | 6 | 244 | 20 | 264 | 2,955 | 2.74 |
| 11 | RI | 15 | 1,700 | 25 | 1,919 | 6 | 244 | 20 | 264 | 2,955 | 2.74 |
| 12 | RI | 15 | 3,060 | 33 | 2,499 | 6 | 318 | 18 | 336 | 3,923 | 2.28 |
| 13 | RI | 15 | 4,600 | 221 | 16,650 | 51 | 2,120 | 163 | 2,283 | 36,498 | 8.93 |
| 14 | RI | 15 | 3,060 | 33 | 2,499 | 6 | 318 | 18 | 336 | 3,402 | 2.11 |
| 15 | RI | 15 | 3,060 | 34 | 2,559 | 6 | 326 | 18 | 344 | 4,055 | 2.33 |
| 16 | RI | 15 | 3,060 | 33 | 2,499 | 6 | 318 | 18 | 336 | 3,402 | 2.11 |
| 17 | RI | 15 | 6,120 | 236 | 17,827 | 57 | 2,270 | 181 | 2,451 | 37,429 | 7.12 |
| 18 | RI | 15 | 2,560 | 23 | 1,759 | 5 | 224 | 15 | 239 | 4,018 | 2.57 |
| 19 | RI | 15 | 2,120 | 33 | 2,499 | 8 | 318 | 25 | 343 | 5,849 | 3.76 |
| 20 | RI | 15 | 1,700 | 60 | 4,558 | 13 | 580 | 40 | 621 | 10,631 | 7.25 |
| 21 | RI | 15 | 1,540 | 25 | 1,919 | 6 | 244 | 18 | 262 | 3,572 | 3.32 |
| 22 | RI | 15 | 2,300 | 68 | 5,146 | 17 | 655 | 54 | 710 | 10,811 | 5.70 |
| 23 | RI | 15 | 3,060 | 93 | 6,997 | 23 | 891 | 72 | 963 | 14,722 | 5.81 |
| 24 | RI | 15 | 1,540 | 33 | 2,499 | 8 | 318 | 27 | 345 | 4,999 | 4.25 |
| 25 | RI | 15 | 1,020 | 25 | 1,919 | 6 | 244 | 18 | 262 | 4,245 | 5.16 |
| 26 | RI | 15 | 1,540 | 41 | 3,064 | 8 | 390 | 27 | 417 | 6,239 | 5.05 |
| 27 | RI | 15 | 3,060 | 36 | 2,699 | 6 | 344 | 18 | 362 | 3,407 | 2.11 |
| 28 | RI | 15 | 6,120 | 66 | 4,948 | 11 | 630 | 36 | 666 | 5,827 | 1.95 |
| 29 | RI | 15 | 2,560 | 27 | 2,019 | 5 | 257 | 15 | 272 | 3,984 | 2.56 |
| 30 | RI | 15 | 4,600 | 53 | 3,998 | 8 | 509 | 27 | 536 | 4,630 | 2.01 |
| 31 | RI | 15 | 9,180 | 100 | 7,557 | 17 | 962 | 54 | 1,017 | 9,037 | 1.98 |
| 32 | RI | 15 | 3,060 | 30 | 2,299 | 6 | 293 | 18 | 311 | 2,654 | 1.87 |
| 33 | RI | 15 | 5,360 | 62 | 4,648 | 10 | 592 | 32 | 624 | 4,797 | 1.89 |
| 34 | RI | 15 | 1,200 | 3 | 3,695 | 21 | 219 | 69 | 287 | 3,847 | 4.21 |
| 35 | RI | 15 | 1,700 | 7 | 7,535 | 0 | 446 | 0 | 446 | 7,624 | 5.48 |
| 36 | RI | 15 | 520 | 1 | 1,056 | 0 | 62 | 0 | 62 | 924 | 2.78 |
| 37 | RI | 15 | 420 | 2 | 1,801 | 0 | 107 | 0 | 107 | 1,828 | 5.35 |
| 38 | ROF | 15 | 1,206 | 8 | 1,173 | 6 | 64 | 11 | 75 | 1,108 | 1.92 |
| 39 | ROF | 15 | 2,005 | 12 | 1,877 | 10 | 103 | 18 | 121 | 1,778 | 1.89 |
| 40 | RI | 15 | 19,120 | 49 | 53,562 | 0 | 3,170 | 0 | 3,170 | 37,921 | 2.98 |
| 41 | RI | 15 | 760 | 3 | 3,519 | 20 | 208 | 65 | 274 | 3,926 | 6.17 |
| 42 | RI | 15 | 11,480 | 34 | 37,195 | 0 | 2,202 | 0 | 2,202 | 30,899 | 3.69 |
| Totals: | | | | | | | | | | | |
| | RI: | | 231,990 | 3,492 | 348,877 | 727 | 38,185 | 2,321 | 40,506 | 485,059 | 3.09 |
| | ROF: | | 3,212 | 20 | 3,050 | 15 | 167 | 29 | 197 | 2,885 | 1.90 |

## Table 2.3. Night Setback EROs

### Existing Thermostat Operating Parameters

| | Existing Building Parameters | | | | | Annual Energy Consumption | | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Summer Electric | | | Winter Electric | | Summer | | Winter |
| ID | Bldg. Type | Total Number of Bldgs | Pen. Rate (%) | Number of Units for ERO | ERO Sqft | LPG (MBtu/yr) | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | ADMIN | 77 | 75% | 58 | 313,594 | 14,869 | 56,476 | 82,137 | 141,454 | 117,423 | 145,027 | 432 | 108 | 65 |
| 2 | CHAPEL | 4 | 75% | 3 | 14,531 | 506 | 2,964 | 4,327 | 7,629 | 6,936 | 96,378 | 23 | 6 | 3 |
| 3 | CLINIC | 8 | 75% | 6 | 15,843 | 957 | 13,882 | 19,992 | 32,362 | 19,775 | 98,184 | 106 | 27 | 16 |
| 4 | COMCATN | 8 | 75% | 6 | 42,375 | 1,713 | 12,339 | 17,862 | 29,898 | 21,855 | 101,188 | 95 | 24 | 14 |
| 5 | DGR | 14 | 75% | 11 | 59,438 | 824 | 11,556 | 16,848 | 29,448 | 25,927 | 105,236 | 88 | 22 | 13 |
| 6 | MTRPOOL | 30 | 25% | 8 | 85,130 | 6,763 | 25,136 | 36,507 | 62,349 | 49,966 | 114,235 | 193 | 48 | 29 |
| 7 | SHOP-ELC | 5 | 75% | 4 | 9,123 | 42 | 2,085 | 3,028 | 5,173 | 4,149 | 94,765 | 16 | 4 | 2 |
| 8 | TRAING | 22 | 75% | 17 | 42,665 | 193 | 21,258 | 30,562 | 48,916 | 27,861 | 98,912 | 163 | 41 | 24 |

### Setback Thermostat Operating Parameters

| | ERO Building Parameters | | | | Annual Energy Consumption | | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Summer Electric | | | Winter Electric | | Summer | | Winter |
| ID | Replacement Equipment | Percent Savings Cooling | Percent Savings Heating | Percent Savings Vent/Fans | LPG (MBtu/yr) | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Programmable T-Stat | 28% | 55% | 70% | 8,178 | 23,519 | 34,580 | 63,462 | 66,090 | 129,379 | 432 | 45 | 27 |
| 2 | Programmable T-Stat | 28% | 55% | 70% | 279 | 1,333 | 1,967 | 3,692 | 4,109 | 5,986 | 23 | 3 | 2 |
| 3 | Programmable T-Stat | 28% | 55% | 70% | 526 | 4,626 | 6,708 | 11,349 | 8,721 | 10,161 | 106 | 9 | 5 |
| 4 | Programmable T-Stat | 28% | 55% | 70% | 942 | 4,656 | 6,806 | 12,088 | 11,294 | 15,048 | 95 | 9 | 5 |
| 5 | Programmable T-Stat | 28% | 55% | 70% | 453 | 5,054 | 7,450 | 13,874 | 15,096 | 21,768 | 88 | 10 | 6 |
| 6 | Programmable T-Stat | 28% | 55% | 70% | 3,719 | 10,176 | 14,938 | 27,172 | 27,514 | 38,309 | 193 | 19 | 12 |
| 7 | Programmable T-Stat | 28% | 55% | 70% | 23 | 845 | 1,240 | 2,256 | 2,286 | 3,183 | 16 | 2 | 1 |
| 8 | Programmable T-Stat | 28% | 55% | 70% | 106 | 6,776 | 9,795 | 16,247 | 11,351 | 12,156 | 163 | 13 | 8 |

### Setback Thermostat Economic Parameters

| | | | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|
| ID | Installed Cost (1994 $) | Equip. Life (Years) | LPG Savings (MBtu) | Electric Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | 20,079 | 15 | 6,691 | 261,537 | 101 | 54,223 | 271 | 54,494 | 909,248 | 46.28 |
| 2 | 1,039 | 15 | 228 | 13,862 | 5 | 2,163 | 13 | 2,176 | 35,968 | 35.63 |
| 3 | 2,077 | 15 | 431 | 62,681 | 28 | 6,634 | 76 | 6,711 | 112,544 | 55.18 |
| 4 | 2,077 | 15 | 771 | 56,469 | 24 | 8,034 | 63 | 8,097 | 136,424 | 66.68 |
| 5 | 3,808 | 15 | 371 | 53,851 | 20 | 5,573 | 54 | 5,627 | 91,366 | 24.99 |
| 6 | 2,770 | 15 | 3,043 | 115,998 | 46 | 24,498 | 123 | 24,622 | 419,976 | 152.64 |
| 7 | 1,385 | 15 | 19 | 9,623 | 4 | 742 | 10 | 752 | 10,946 | 8.90 |
| 8 | 5,885 | 15 | 87 | 95,560 | 44 | 6,999 | 119 | 7,118 | 114,454 | 20.45 |
| Totals: | | | | | | | | | | |
| | 39,120 | | 11,641 | 669,582 | 272 | 108,867 | 730 | 109,598 | 1,830,927 | 47.80 |

# Table 2.4. Residential HVAC EROs

## Existing HVAC Characteristics and Operating Parameters

| ID | Cooling Source | Efficiency | Heating Source | Efficiency | Number of Units | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Summer | | | Winter | | | Summer | | Winter |
| | | | | | | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | LPG (MBtu/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 1 | DX Air Conditioner | 8.00 SEER | LPG Furnace | 0.71 % AFUE | 1,637 | 1,390,045 | 1,989,202 | 3,086,326 | 1,398,034 | 711,000 | 77,702 | 24,556 | 6,139 | 3,683 |

## Alternative HVAC Characteristics and Operating Parameters

| ID | Cooling Source | Efficiency | Heating Source | Efficiency | Number of Units | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Summer | | | Winter | | | Summer | | Winter |
| | | | | | | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | LPG (MBtu/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 1a | Std. Eff. Air Src HP | 10.00 SEER | Std. Eff. Air Src HP | 7.00 HSPF | 1,637 | 1,112,036 | 1,591,362 | 2,671,789 | 3,399,120 | 5,911,065 | 0 | 18,465 | 4,616 | 4,616 |
| 1b | High Eff. Air Src HP | 15.40 SEER | High Eff. Air Src HP | 8.30 HSPF | 1,637 | 722,101 | 1,033,352 | 1,774,262 | 2,649,727 | 4,874,875 | 0 | 12,331 | 3,083 | 3,083 |
| 1c | Std. Eff. Grnd Src HP | 13.30 EER | Std. Eff. Grnd Src HP | 2.80 COP | 1,637 | 836,117 | 1,196,513 | 2,004,977 | 2,512,004 | 4,341,990 | 0 | 14,868 | 3,717 | 3,717 |
| 1d | High Eff. Grnd Src HP | 16.00 EER | High Eff. Grnd Src HP | 3.50 COP | 1,637 | 695,022 | 994,601 | 1,661,995 | 2,035,882 | 3,486,956 | 0 | 12,769 | 3,192 | 3,192 |
| 1e | Std. Eff. DX A/C | 10.00 SEER | Std. Eff. NG Furnace | 0.78 %AFUE | 1,637 | 1,112,036 | 1,591,362 | 2,469,060 | 1,118,427 | 568,800 | 70,231 | 18,727 | 4,682 | 4,682 |
| 1f | High Eff. DX A/C | 15.70 SEER | High Eff. NG Furnace | 0.93 %AFUE | 1,637 | 708,303 | 1,013,606 | 1,572,650 | 712,374 | 362,293 | 59,157 | 12,846 | 3,211 | 3,211 |
| 1g | Std. Eff. DX A/C | 10.00 SEER | Std. Eff. LPG Furnace | 0.78 %AFUE | 1,637 | 1,112,036 | 1,591,362 | 2,469,060 | 1,118,427 | 568,800 | 70,231 | 18,727 | 4,682 | 4,682 |
| 1h | High Eff. DX A/C | 15.70 SEER | High Eff. LPG Furnace | 0.93 %AFUE | 1,637 | 708,303 | 1,013,606 | 1,572,650 | 712,374 | 362,293 | 59,157 | 12,846 | 3,211 | 3,211 |
| 1i | Gas Heat Pump | 1.10 COP | Gas Heat Pump | 1.30 COP | 1,637 | 0 | 0 | 0 | 0 | 0 | 104,499 | 0 | 0 | 0 |

## Alternative HVAC Economic Parameters

| ID | RI or ROF | First Cost (1993 $) | Existing O&M ($/yr) | Retrofit O&M ($/yr) | Equip. Life (yr) | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LPG (MBtu/yr) | Electric (kWh/yr) | Demand (kW-mo) | Energy ($/yr) | Demand ($/yr) | Total ($/yr) | NPV | SIR |
| 1a | ROF | 4,483,820 | 139,145 | 122,775 | 15 | 77,702 | -6,110,764 | 6,680 | 94,389 | 75,418 | 169,807 | 1,905,966 | 1.53 |
| 1b | ROF | 9,387,147 | 139,145 | 122,775 | 15 | 77,702 | -2,479,711 | 15,882 | 243,666 | 156,457 | 400,123 | 1,315,629 | 1.17 |
| 1c | RI | 5,826,672 | 139,145 | 122,775 | 15 | 77,702 | -2,316,995 | 12,076 | 357,431 | 191,303 | 548,734 | 4,233,677 | 1.73 |
| 1d | RI | 7,086,917 | 139,145 | 122,775 | 15 | 77,702 | -299,851 | 15,226 | 479,316 | 234,468 | 713,784 | 5,244,863 | 1.74 |
| 1e | RI | 3,194,085 | 139,145 | 139,145 | 15 | 7,471 | 1,714,921 | 6,287 | 237,839 | 111,977 | 349,816 | 4,351,339 | 2.36 |
| 1f | ROF | 8,501,098 | 139,145 | 139,145 | 15 | 18,544 | 4,205,380 | 15,110 | 294,522 | 149,653 | 444,175 | 2,717,312 | 1.40 |
| 1g | ROF | 3,194,085 | 139,145 | 139,145 | 15 | 7,471 | 1,714,921 | 6,287 | 103,979 | 71,958 | 175,937 | 3,029,752 | 2.17 |
| 1h | ROF | 8,501,098 | 139,145 | 139,145 | 15 | 18,544 | 4,205,380 | 15,110 | 255,808 | 149,653 | 405,461 | 2,050,639 | 1.30 |
| 1i | RI | 9,412,750 | 139,145 | 171,885 | 15 | -26,797 | 8,574,606 | 34,378 | 560,867 | 496,949 | 1,057,816 | 6,944,238 | 1.74 |

## 2.3 FEDS Building Envelope EROs

Level-2 considers two building envelope retrofit options: adding or installing wall and/or ceiling insulation.

### 2.3.1 Insulate Ceilings

**Description**

Ceilings can be insulated with either blown-in or batt type fiberglass insulation. This ERO examines the options of increasing ceiling insulation in buildings which have either attic space or suspended ceilings.

**Assumptions**

Technical assumptions follow:

- FEDS calculates existing insulation R-value based on building type and age information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit R-values, fuel consumption, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit insulation R-values are as follows:

  Increase insulation by - R-8
  Increase insulation by - R-11
  Increase insulation by - R-19
  Increase insulation by - R-30
  Increase insulation by - R-38

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.5.

### 2.3.2 Insulate Exterior Walls

**Description**

There are two wall insulation options depending on the construction of the building. Exterior masonry walls can be insulated by affixing exterior insulation and exterior hard coat to the masonry surface. Wood frame buildings can have insulation blown into the spaces between the framing studs. The resulting wall has a high R-value and a tighter envelope.

**Assumptions**

Technical assumptions are as follows:

- FEDS calculates existing insulation R-value based on building type and age information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit R-values, fuel consumption, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit insulation R-values are as follows:

  Increase insulation by - R-4.3
  Increase insulation by - R-7.0
  Increase insulation by - R-10.9
  Increase insulation by - R-13

**Results**

The complete quantitative results including energy, installed cost, and NPV can be found in Table 2.6.

# Table 2.5. FEDS Building Envelope EROs - Roof/Ceiling Insulation

| Building Set | Existing Technology | Retrofit Technology | Retro Number | Exist Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADMINISTRATION-01 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA (a) | NA (b) | NA (b) | NA (c) | NA (c) | NA (d) | NA (d) | 4,031 | 7,043 | 409 | 3,012 | 1.7 |
| ADMINISTRATION-02 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 14,427 | 17,438 | 1,013 | 3,011 | 1.2 |
| ADMINISTRATION-03 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-11 | NA | NA | NA | NA | NA | NA | NA | 19,934 | 73,396 | 4,262 | 53,462 | 3.7 |
| ADMINISTRATION-03a | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 735 | 2,428 | 141 | 1,693 | 3.3 |
| ADMINISTRATION-04 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 8,466 | 23,482 | 1,364 | 15,017 | 2.8 |
| ADMINISTRATION-05 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 40,100 | 133,166 | 7,733 | 93,066 | 3.3 |
| ADMINISTRATION-06 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 3,358 | 5,062 | 294 | 1,704 | 1.5 |
| ADMINISTRATION-07 | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 30,033 | 75,364 | 4,376 | 45,331 | 2.5 |
| ADMINISTRATION-07a | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 9,330 | 39,978 | 2,322 | 30,648 | 4.3 |
| ADMINISTRATION-08 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 28,208 | 43,336 | 2,516 | 15,128 | 1.5 |
| ADMINISTRATION-09 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 88,158 | 120,120 | 6,975 | 31,962 | 1.4 |
| BARRACKS-01 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-11 | NA | NA | NA | NA | NA | NA | NA | 2,439 | 3,366 | 195 | 926 | 1.4 |
| BARRACKS-02 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 73,163 | 109,732 | 6,372 | 36,568 | 1.5 |
| BARRACKS-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 9,600 | 80,133 | 4,653 | 70,533 | 8.3 |
| BARRACKS-04 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 28,540 | 374,291 | 21,735 | 345,751 | 13.1 |
| BARRACKS-07 | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 54,371 | 154,238 | 8,957 | 99,867 | 2.8 |
| CHAPEL-01 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 3,576 | 39,906 | 2,317 | 36,330 | 11.2 |
| CHAPEL-02 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 5,858 | 6,514 | 378 | 656 | 1.1 |
| CLINIC-01 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 2,149 | 2,307 | 134 | 158 | 1.1 |
| CLINIC-02 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 1,114 | 7,677 | 446 | 6,563 | 6.9 |
| CLUBS-01 | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 2,317 | 5,486 | 319 | 3,170 | 2.4 |
| CLUBS-02 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 15,681 | 70,012 | 4,066 | 54,331 | 4.5 |
| CLUBS-03 | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 31,173 | 139,987 | 8,129 | 108,814 | 4.5 |
| COMMISSARIES | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 70,277 | 249,226 | 14,472 | 178,949 | 3.5 |
| DINING HALLS-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 7,006 | 12,745 | 740 | 5,739 | 1.8 |
| DINING HALLS-04 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 13,024 | 97,760 | 5,677 | 84,736 | 7.5 |
| DINING HALLS-05 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 3,655 | 372,611 | 21,637 | 368,956 | 101.9 |
| DINING HALLS-06 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 13,508 | 95,829 | 5,565 | 82,321 | 7.1 |
| ELECTRONICS-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 1,755 | 2,706 | 157 | 952 | 1.5 |
| EXCHANGE FACILITIES-01 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 4,114 | 36,678 | 2,130 | 32,564 | 8.9 |
| EXCHANGE FACILITIES-02 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 4,438 | 6,592 | 383 | 2,154 | 1.5 |
| EXCHANGE FACILITIES-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 6,828 | 23,692 | 1,376 | 16,864 | 3.5 |
| EXCHANGE FACILITIES-04 | Roof Insul. R-Value 8.90 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 11,058 | 22,822 | 1,325 | 11,764 | 2.1 |
| FH-3 OR MORE-01 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 50,557 | 59,468 | 3,453 | 8,910 | 1.2 |
| FH-3 OR MORE-03 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 139,587 | 160,259 | 9,306 | 20,672 | 1.1 |
| FH-DETACHED-01 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 158,833 | 1,072,696 | 62,291 | 913,862 | 6.8 |
| FH-DUPLEX-01 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 262,367 | 753,863 | 43,777 | 491,496 | 2.9 |
| FH-DUPLEX-03 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 314,380 | 382,884 | 22,234 | 68,504 | 1.2 |
| GUEST HOUSES-02 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 9,734 | 41,440 | 2,406 | 31,705 | 4.3 |
| HANGER | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 6,571 | 125,148 | 7,267 | 118,577 | 19.0 |
| LABS-02 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 2,112 | 10,122 | 588 | 8,009 | 4.8 |
| MILITARY OTHER-01 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-11 | NA | NA | NA | NA | NA | NA | NA | 4,852 | 9,901 | 575 | 5,048 | 2.0 |
| MILITARY OTHER-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 3,925 | 5,829 | 338 | 1,904 | 1.5 |

## Table 2.5. (contd)

| Building Set | Existing Technology | Retrofit Technology | Retro Number | Exist Eff , COP or Lamp Wattage | Retro Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILITARY OTHER-04 | Roof Insul. R-Value 7.15 | Attic Ceiling: Increase Insul by R-19 | NA | NA | NA | NA | NA | NA | NA | 1,000 | 1,937 | 113 | 937 | 1.9 |
| MWR-02 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-11 | NA | NA | NA | NA | NA | NA | NA | 5,788 | 5,904 | 343 | 116 | 1.0 |
| MWR-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 12,324 | 28,596 | 1,661 | 16,272 | 2.3 |
| MWR-04 | Roof Insul R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 5,864 | 61,347 | 3,562 | 55,483 | 10.5 |
| MWR-05 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 9,025 | 47,726 | 2,771 | 38,701 | 5.3 |
| MWR-05a | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 2,582 | 10,020 | 582 | 7,438 | 3 9 |
| MWR-06 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 8,780 | 9,298 | 540 | 519 | 1.1 |
| MWR-07 | Roof Insul. R-Value 30.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 13,318 | 15,772 | 916 | 2,454 | 1.2 |
| RECREATION-02 | Roof Insul R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 38,692 | 906,694 | 52,651 | 868,002 | 23.4 |
| RECREATION-04 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 22,535 | 47,558 | 2,762 | 25,023 | 2.1 |
| SCHOOL/TRAINING-01 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 850 | 2,090 | 121 | 1,240 | 2.5 |
| SCHOOL/TRAINING-02 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-38 | NA | NA | NA | NA | NA | NA | NA | 26,977 | 114,430 | 6,645 | 87,453 | 4.2 |
| SCHOOL/TRAINING-03 | Roof Insul. R-Value 11.00 | Attic Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 5,333 | 57,838 | 3,359 | 52,505 | 10.8 |
| SECURITY-01 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 228 | 5,504 | 320 | 5,275 | 24.1 |
| SECURITY-03 | Roof Insul R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 3,699 | 6,827 | 396 | 3,128 | 1.8 |
| SHOPS-02 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 33,590 | 71,995 | 4,181 | 38,405 | 2.1 |
| SHOPS-03 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 24,881 | 104,601 | 6,074 | 79,720 | 4.2 |
| SHOPS-04 | Roof Insul R-Value 5.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 31,037 | 830,340 | 48,218 | 799,303 | 26.8 |
| SHOPS-05 | Roof Insul R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 35,771 | 51,297 | 2,979 | 15,526 | 1.4 |
| SHOPS-06 | Roof Insul. R-Value 8.69 | Attic Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 2,326 | 3,551 | 206 | 1,225 | 1.5 |
| STORAGE-02 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 56,310 | 71,665 | 4,162 | 15,355 | 1.3 |
| WAREHOUSE-01 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 8,700 | 9,020 | 524 | 319 | 1.0 |
| WAREHOUSE-05 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 33,033 | 131,440 | 7,633 | 98,407 | 4.0 |
| WAREHOUSE-06 | Roof Insul. R-Value 0.00 | Attic Ceiling: Increase Insul. by R-19 | NA | NA | NA | NA | NA | NA | NA | 4,873 | 92,799 | 5,389 | 87,926 | 19.0 |
| WAREHOUSE-07 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 30,037 | 158,192 | 9,186 | 128,155 | 5.3 |
| WAREHOUSE-08 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 4,872 | 22,102 | 1,283 | 17,230 | 4.5 |
| WAREHOUSE-09 | Roof Insul. R-Value 20.05 | Suspended Ceiling: Increase Insul. by R-8 | NA | NA | NA | NA | NA | NA | NA | 5,268 | 19,445 | 1,129 | 14,177 | 3.7 |
| WAREHOUSE-12 | Roof Insul. R-Value 0.00 | Suspended Ceiling: Increase Insul. by R-30 | NA | NA | NA | NA | NA | NA | NA | 12,314 | 166,555 | 9,672 | 154,241 | 13.5 |
| TOTALS: | | | | | | | | | | 2,005,349 | 8,131,276 | 472,181 | 6,125,922 | 4.1 |

(a) All buildings in the building set are assumed to be retrofit.
(b) See existing and retrofit technology columns for theses values.
(c) Exisitng and retrofit fuels are assumed to be all fuels used in the building
(d) There are no energy and demand savings directly attributable to Insul. measures; reported savings are from the interactive effects of other energy consuming equipment in the building

# Table 2.6. FEDS Building Envelope EROs - Wall Insulation

| Building Set | Existing Technology | Retrofit Technology | Retro Number | Exist Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADMINISTRATION-02 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA (a) | NA (b) | NA (b) | NA (c) | NA (c) | NA (d) | NA (d) | 18,375 | 26,784 | 1,555 | 8,409 | 1.5 |
| ADMINISTRATION-04 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 9,235 | 25,952 | 1,507 | 16,717 | 2.8 |
| ADMINISTRATION-06 | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-4.3 | NA | NA | NA | NA | NA | NA | NA | 16,023 | 16,148 | 938 | 125 | 1.0 |
| BARRACKS-02 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 108,268 | 115,934 | 6,732 | 7,666 | 1.1 |
| BARRACKS-04 | Wall Insul. R-Value 7.00 | Blow-in Insul.: Increase Insul. by R-2.4 | NA | NA | NA | NA | NA | NA | NA | 31,169 | 62,676 | 3,640 | 31,507 | 2.0 |
| CHAPEL-01 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 5,158 | 23,006 | 1,336 | 17,848 | 4.5 |
| CHAPEL-02 | Wall Insul. R-Value 5.32 | Interior Masonary Surface: Increase Insul. by R-4.3 | NA | NA | NA | NA | NA | NA | NA | 9,153 | 14,664 | 852 | 5,511 | 1.6 |
| CLINIC-02 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 25,381 | 30,430 | 1,767 | 5,049 | 1.2 |
| CLUBS-02 | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-10.9 | NA | NA | NA | NA | NA | NA | NA | 26,717 | 52,319 | 3,038 | 25,602 | 2.0 |
| DINING HALLS-04 | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-10.9 | NA | NA | NA | NA | NA | NA | NA | 13,468 | 80,473 | 4,673 | 67,005 | 6.0 |
| ELECTRONICS-03 | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-4.3 | NA | NA | NA | NA | NA | NA | NA | 4,364 | 7,341 | 426 | 2,977 | 1.7 |
| EXCHANGE FACILITIES-01 | Wall Insul. R-Value 8.79 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 5,007 | 9,369 | 544 | 4,362 | 1.9 |
| EXCHANGE FACILITIES-03 | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-4.3 | NA | NA | NA | NA | NA | NA | NA | 10,662 | 12,474 | 724 | 1,812 | 1.2 |
| FH-DETACHED-01 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 209,504 | 276,790 | 16,073 | 67,286 | 1.3 |
| FH-DUPLEX-01 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 227,405 | 591,832 | 34,368 | 364,427 | 2.6 |
| HANGER | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-13 | NA | NA | NA | NA | NA | NA | NA | 20,331 | 109,631 | 6,366 | 89,300 | 5.4 |
| HOSPITAL | Wall Insul. R-Value 0.00 | Interior Masonary Surface: Increase Insul. by R-4.3 | NA | NA | NA | NA | NA | NA | NA | 42,931 | 54,160 | 3,145 | 11,228 | 1.3 |
| MWR-05 | Wall Insul. R-Value 5.32 | Interior Masonary Surface: Increase Insul. by R-10.9 | NA | NA | NA | NA | NA | NA | NA | 11,818 | 67,995 | 3,948 | 56,177 | 5.8 |
| RECREATION-02 | Wall Insul. R-Value 7.00 | Blow-in Insul.: Increase Insul. by R-2.4 | NA | NA | NA | NA | NA | NA | NA | 21,108 | 48,445 | 2,813 | 27,337 | 2.3 |
| SCHOOL/TRAINING-01 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 3,099 | 5,395 | 313 | 2,295 | 1.7 |
| SCHOOL/TRAINING-03 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 19,441 | 24,882 | 1,445 | 5,440 | 1.3 |
| SECURITY-01 | Wall Insul. R-Value 5.32 | Interior Masonary Surface: Increase Insul. by R-10.9 | NA | NA | NA | NA | NA | NA | NA | 3,735 | 5,611 | 326 | 1,876 | 1.5 |
| SHOPS-04 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 20,147 | 73,797 | 4,285 | 53,650 | 3.7 |
| WAREHOUSE-06 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-6.5 | NA | NA | NA | NA | NA | NA | NA | 12,613 | 41,163 | 2,390 | 28,550 | 3.3 |
| WAREHOUSE-09 | Wall Insul. R-Value 8.79 | Blow-in Insul.: Increase Insul. by R-2.4 | NA | NA | NA | NA | NA | NA | NA | 18,813 | 19,732 | 1,146 | 919 | 1.0 |
| WAREHOUSE-12 | Wall Insul. R-Value 0.00 | Blow-in Insul.: Increase Insul. by R-13 | NA | NA | NA | NA | NA | NA | NA | 13,336 | 43,884 | 2,548 | 30,547 | 3.3 |
| TOTALS: | | | | | | | | | | 907,261 | 1,840,887 | 106,898 | 933,622 | 2.0 |

Notes:

(a) All buildings in the building set are assumed to be retrofit.

(b) See existing and retrofit technology columns for theses values.

(c) Existing and retrofit fuels are assumed to be all fuels used in the building.

(d) There are no energy and demand savings directly attributable to insulation measures; reported savings are from the interactive effects of other energy consuming equipment in the building.

## 2.4 Manual Building Envelope EROs

Shade screens, double-pane windows, and weatherization (weather stripping/sealants of windows and doors) EROs were examined for Fort Irwin. These EROs focus on reducing the heating and cooling load on the building, thus saving both cooling energy in the summer and heating energy in the winter. The version of FEDS used in this analysis does not consider these EROs, so they were done using hand calculations.

### 2.4.1 Shade Screens

**Description**

By installing shade screens at Fort Irwin, buildings can reduce radiative heat gain through the windows. Shade screens are designed to replace existing insect screens, but instead of a metal or fabric mesh, the shade screens are made with rows of miniature louvers that block the sun when it gets above a certain angle. The higher the sun, the less light is transmitted. By reducing the amount of sunlight that enters through the windows in the summer (when the sun is the highest), cooling load can be substantially reduced. Further, the design of the shade screens is such that the solar gain in the winter will not be affected since the sun is lower in the sky. Thus, shade screens will not block out the radiative heat in the winter that would help offset the load to the facilities heating system, as is the case for reflective window films.

The shade screens may also provide additional security since they are nearly opaque from the outside, while allowing clear viewing from the inside.

**Assumptions**

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)

- Percentage of windows on each side of the building was best fitted to each category based on observations made during the site visits by PNL.

- All the months during the summer season (June through September) are assumed to contribute to the cooling energy consumption, based on an average temperature above 75°F. China Lake typical meteorological year (TMY) weather data was used to determine this baseline.

- Air conditioning equipment COP (coefficient of performance) for existing equipment was assumed to be 3.

- The present shading coefficient is assumed to be 1.0 (i.e., no shading), and the proposed shading coefficient is assumed to be 0.3. This is a conservative number chosen to reflect daily averages; shade screen manufacturers claim a shading coefficient of 0.15 when the sun is above 30 degrees.

- Solar insolation attributing to heat gain through the windows was calculated from solar heat gain factor (SHGF) (Btuh-ft$^2$) (from ASHRAE Fundamentals 1993, pp. 27.21-.22) assuming Fort Irwin is

at 35 degrees latitude. Buildings are assumed to be oriented 45° from north; therefore the SHGF used are for the NE, SE, NW, and SW faces of the building.

- Solar time, used by ASHRAE Fundamentals, was converted to Pacific Time to account for on, mid, off peak energy consumption during the summer season.
- Each side of the building was analyzed separately so to find the best economic choice for shade screens.
- The shade screens will not increase the heating load in the winter.

The cost assumptions are as follows:

- The shade screens cost $5/ft$^2$ installed.
- A $0.80/ft$^2$ rebate is available from SCE for window tint or screen installed on the east, southeast, south, southwest and west facing glass. For this analysis, the rebate was deducted from the first cost on the applicable (southeast and southwest) sides of the buildings.

**Results**

Qualitative results of the ERO analysis appear in Table 2.7. The table contains specific energy, cost, and economic data. The results are broken down into commercial and family housing sub-totals. Because there are different costs and savings associated with each side of the buildings, the results are given in terms of the southeast, southwest, and northwest facing sides. There are no cost-effective implementations for the northeast facing windows.

**Budget Implications**. The estimated initial cost of all cost-effective implementations of this ERO are as follows:

| Glass Facing Direction | Commercial | Family Housing |
|---|---|---|
| Southeast | $64,346 | $235,942 |
| Southwest | $96,484 | $94,533 |
| Northwest | $51,725 | $112,364 |

**Energy and Cost Savings**. The estimated annual electrical energy savings in kWh and associated cost savings are as follows:

| Glass Facing Direction | Commercial | | Family Housing | |
|---|---|---|---|---|
| | kWh/yr | $/yr | kWh/yr | $/yr |
| Southeast | 134,592 | 8,697 | 493,519 | 31,889 |
| Southwest | 193,108 | 24,639 | 199,699 | 24,141 |
| Northwest | 63,320 | 7,525 | 137,554 | 16,346 |

**Demand and Cost Savings.** The estimated annual electrical demand savings in kW and associated cost savings are as follows:

| Glass Facing Direction | Commercial | | Family Housing | |
|---|---|---|---|---|
| | kW-mo/yr | $/yr | kW-mo/yr | $/yr |
| Southeast | 280 | 3,256 | 1,025 | 11,940 |
| Southwest | 1,291 | 23,281 | 1,265 | 22,810 |
| Northwest | 390 | 7,066 | 848 | 15,349 |

## 2.4.2 Double-Pane Windows

### Description

The majority of windows at Fort Irwin are single-pane. Single-paned windows allow a significant amount of heat to transfer across the window when compared to double-paned windows. Double-paned windows have a dead air space between the glazings which acts as insulation, reducing the amount of heat transfer through the window. Therefore, by replacing the single-paned windows at Fort Irwin, there would be a decrease in energy consumption associated with cooling and heating energy.

This ERO examines the buildings throughout the main base. Buildings were excluded from the analysis based on small floor areas, use of the building, location of the building (i.e., remote areas), and/or minimal window area.

### Assumptions

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)

- Percentage of windows on each side of the building was best fitted to each category based on observations made during the site visits by PNL.

- The months with an average outdoor air temperature below 65°F were assumed to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy, based on an average temperature above 75°F. China Lake TMY (typical meteorological year) weather data was used to determine this baseline.

- The conductive heat loss or gain through the window was determined by the equation:

$$Q = U*A*\Delta T*OH:$$

where: U = window thermal conductivity (Btuh-ft$^2$-°F)
A = area of window (ft$^2$)
$\Delta$T = temperature difference across the window (°F)
OH = operating hours

- Existing single-pane windows are assumed to have an U-value of 0.98 (Btuh-ft$^2$-F) and the U-value for double pane is assumed to be 0.7 (Btuh-ft$^2$-F).

- The temperature difference across the window in the above equation was determined as follows:

  - $\Delta$T for heating season was determined by taking the average outdoor temperature of each individual heating month (from TMY data) minus 65°F (assumed indoor temperature during the heating season).

  - $\Delta$T for cooling season was determined by taking the average outdoor temperature of the cooling season minus 75°F (assumed indoor temperature during the cooling season).

- To determine the operating hours, each day (weekday or weekend) was broken into a percentage of on, mid, off, or super off hours (depending on the season) and appropriately prorated for the entire season operating hours for each rate type.

- Air conditioning equipment efficiency for existing equipment was assumed to have a COP of 3. Furnace efficiency was assumed to be 75%.

The cost assumptions are as follows:

- Double-pane windows are assumed to be \$9/ft$^2$ for materials and \$8/ft$^2$ for labor taken as an average from several sources. (Means: Building Construction Cost Data 1992a; The Richardson Rapid System, Process Plant Construction Estimating Standards, Volume 2, 1992; cost estimate from a manufacturer of efficient window)

**Results**

Qualitative results of the ERO analysis appear in Table 2.8. The table contains specific energy, cost, and economic data. There are no cost-effective options for this ERO.

### 2.4.3 Weatherization Package

**Description**

By sealing cracks in the building envelope with weatherstripping and caulking, a significant amount of heat to transfer through the envelope of the building can be decreased, thus decreasing the energy consumption to heat and cool the building.

This ERO examines the buildings throughout the main base. Buildings were excluded from the analysis based on small floor areas, use of the building, location of the building (i.e., remote areas), and/or minimal

window area. Heat transfer (both heat gain or loss depending on the season) due to infiltration was calculated using an associated infiltration rate (cfm/ft$^2$) of existing buildings, compared to the heat transfer into a tightly sealed building (ASHRAE Fundamentals 1993, p. 23.16), to predict the energy savings associated with installing weatherstripping on the windows and doors.

**Assumptions**

The technical assumptions are as follows:

- Buildings were categorized by building class (i.e., concrete block, masonry siding, etc.). Buildings which did not have a designated building class were categorized by the building type (i.e., ADMIN, DINING, etc.)

- Percentage of windows on each side of the building was best fitted to each category based on observations made during the base site visit by PNL.

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy, based on an average temperature above 75°F. China Lake TMY (typical meteorological year) weather data was used to determine this baseline.

- Existing air conditioning equipment was assumed to have a COP of 3. Furnace efficiency was assumed to be 75%.

- To determine the operating hours, each day (week day or week-end) was broken into a percentage of on, mid, off, or super off hours (depending on the season) and appropriately prorated for the entire season operating hours for each rate type.

- The average temperature for each month during the heating season came from the TMY data for China Lake. The cooling season temperature was for the entire cooling season, also from China Lake TMY. data. It should be noted that this was broken up into each rate schedule.

- Existing air leakage values at Fort Irwin is assumed to be both average (0.3 cfm/ft$^2$) and leaky (0.6 cfm/ft$^2$) tightness (determined by the age and type of building: i.e., anything built prior to 1980 = leaky), and proposed air leakage values are assumed to be tight commercial building of 0.1 cfm/ft$^2$ (from ASHRAE Fundamentals, 1993, p. 23.16)

- Heat gain calculations for sensible heat gain or loss is from ASHRAE Fundamentals, 1993, p. 25.13.

$$Q = C_p * \rho * W_{area} * I * \Delta T * OH$$

where: $C_p$ = specific heat of air = 0.24 (Btu/lb-°F)
$\rho$ = density of air (lb/ft$^3$)
$W_{area}$ = wall area (ft$^2$)
I = infiltration rate (cfm/ft$^2$)
$\Delta T$ = temperature difference across envelope (°F)
OH = operating hours

- The temperature difference across the window in the above equation was determined as follows:

  - $\Delta T$ for heating season was determined by taking the average outdoor temperature of each individual heating month (from TMY data) minus 65°F (assumed indoor temperature during the heating season).

  - $\Delta T$ for cooling season was determined by taking the average outdoor temperature of the cooling season minus 75°F (assumed indoor temperature during the cooling season).

- It was assumed 2 doors per building with dimensions of 3' x 7'. Window dimensions were approximated from site visit. Family housing windows were considered to be 3' x 4'.

The cost assumptions are as follows:

- Caulking material = $0.06/ft, labor = $0.72/ft

- Weatherstripping material = $2.20/ft, labor = $1.92/ft

- Door Strips material = $2.60/ft, labor = $3.84/ft (from Means 1992a)

**Results**

Qualitative results of the ERO analysis appear in Table 2.9. The table contains specific energy, cost, and economic data. The results are summarized below.

**Budget Implications**. The estimated initial cost of weatherstripping the windows and doors in the commercial buildings is $145,789. The estimated initial cost for family housing is $225,617.

**Energy and Cost Savings**. The estimated annual energy savings for commercial buildings is 1,231,150 kWh and 3,583 MBtu (LPG), for a total annualized cost savings of $130,687. The estimated annual demand savings is 5,113 kW-months at a cost savings of $72,229. The estimated annual energy savings for family housing is 992,689 kWh and 2,889 MBtu (LPG), for a total annualized cost savings of $105,374. The estimated annual demand savings, for family housing is 2,889 kW-months at a savings of $58,239. These estimates are based on 100% implementation of the ERO for a typical operating year.

## Table 2.7. Shade Screen EROs

### Existing Window Operating Parameters

| ID | Building Description | Energy | | | | Demand | |
|---|---|---|---|---|---|---|---|
| | | | Summer | | | Summer | |
| | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| Northeast Side: | | | | | | | |
| NE-1 | U Shaped Bldgs: Barracks | 82,528 | 12,351 | 28,681 | 41,496 | 95 | 77 |
| NE-2 | U Shaped Bldgs: Other | 11,784 | 1,764 | 4,095 | 5,925 | 14 | 11 |
| NE-3 | Concrete Block: w/ SE win only | 7,630 | 1,142 | 2,652 | 3,837 | 9 | 7 |
| NE-4 | Concrete Block: Barracks | 11,982 | 1,793 | 4,164 | 6,024 | 14 | 11 |
| NE-5 | Concrete Block: Misc -pre 1980 | 4,989 | 747 | 1,734 | 2,508 | 6 | 5 |
| NE-6 | Concrete Block: Misc -post 1980 | 4,351 | 651 | 1,512 | 2,188 | 5 | 4 |
| NE-7 | Metal Siding | 31,727 | 4,748 | 11,026 | 15,953 | 36 | 30 |
| NE-8 | Masonite Siding: pre 1950 | 14,205 | 2,126 | 4,937 | 7,142 | 16 | 13 |
| NE-9 | Masonite Siding: post 1950 | 4,697 | 703 | 1,632 | 2,362 | 5 | 4 |
| NE-10 | Wood Siding | 1,382 | 207 | 480 | 695 | 2 | 1 |
| NE-11 | ADMIN: MISC pre 1964 | 1,733 | 259 | 602 | 871 | 2 | 2 |
| NE-12 | ADMIN: MISC post 1964 | 3,057 | 458 | 1,063 | 1,537 | 4 | 3 |
| NE-13 | BRK/ADM MISC | 1,662 | 249 | 578 | 836 | 2 | 2 |
| NE-14 | DINING: MSIC | 1,857 | 278 | 646 | 934 | 2 | 2 |
| NE-15 | MOTORPOOL | 3,117 | 466 | 1,083 | 1,567 | 4 | 3 |
| NE-16 | MWR | 722 | 108 | 251 | 363 | 1 | 1 |
| NE-17 | SECURTY | 148 | 22 | 51 | 74 | 0 | 0 |
| NE-18 | SHOP | 3,053 | 457 | 1,061 | 1,535 | 4 | 3 |
| NE-19 | TRAINING | 1,011 | 151 | 352 | 509 | 1 | 1 |
| NE-20 | WHS | 638 | 95 | 222 | 321 | 1 | 1 |
| FH-NE-1 | Fam. Hsg. - 1961 Vintage | 107,872 | 21,137 | 19,489 | 67,246 | 162 | 52 |
| FH-NE-2 | Fam. Hsg. - 1963 Vintage | 118,051 | 23,131 | 21,328 | 73,592 | 177 | 57 |
| FH-NE-3 | Fam. Hsg. - 1964-66 Vintage | 72,044 | 14,117 | 13,016 | 44,912 | 108 | 35 |
| FH-NE-4 | Fam. Hsg. - 1983 Vintage | 110,312 | 21,615 | 19,929 | 68,767 | 166 | 53 |
| FH-NE-5 | Fam. Hsg. - 1984 Vintage | 82,958 | 16,255 | 14,987 | 51,715 | 125 | 40 |
| Southeast Side: | | | | | | | |
| SE-1 | U Shaped Bldgs: Barracks | 82,528 | 12,351 | 28,681 | 41,496 | 95 | 77 |
| SE-2 | U Shaped Bldgs: Other | 11,784 | 1,764 | 4,095 | 5,925 | 14 | 11 |
| SE-3 | Concrete Block: w/ SE win only | 7,630 | 1,142 | 2,652 | 3,837 | 9 | 7 |
| SE-4 | Concrete Block: Barracks | 11,982 | 1,793 | 4,164 | 6,024 | 14 | 11 |
| SE-5 | Concrete Block: Misc -pre 1980 | 4,989 | 747 | 1,734 | 2,508 | 6 | 5 |
| SE-6 | Concrete Block: Misc -post 1980 | 4,351 | 651 | 1,512 | 2,188 | 5 | 4 |
| SE-7 | Metal Siding | 31,727 | 4,748 | 11,026 | 15,953 | 36 | 30 |
| SE-8 | Masonite Siding: pre 1950 | 14,205 | 2,126 | 4,937 | 7,142 | 16 | 13 |
| SE-9 | Masonite Siding: post 1950 | 4,697 | 703 | 1,632 | 2,362 | 5 | 4 |
| SE-10 | Wood Siding | 1,382 | 207 | 480 | 695 | 2 | 1 |
| SE-11 | ADMIN: MISC pre 1964 | 1,733 | 259 | 602 | 871 | 2 | 2 |
| SE-12 | ADMIN: MISC post 1964 | 3,057 | 458 | 1,063 | 1,537 | 4 | 3 |
| SE-13 | BRK/ADM MISC | 1,662 | 249 | 578 | 836 | 2 | 2 |
| SE-14 | DINING: MSIC | 1,857 | 278 | 646 | 934 | 2 | 2 |
| SE-15 | MOTORPOOL | 3,117 | 466 | 1,083 | 1,567 | 4 | 3 |
| SE-16 | MWR | 722 | 108 | 251 | 363 | 1 | 1 |
| SE-17 | SECURTY | 148 | 22 | 51 | 74 | 0 | 0 |
| SE-18 | SHOP | 3,053 | 457 | 1,061 | 1,535 | 4 | 3 |
| SE-19 | TRAINING | 1,011 | 151 | 352 | 509 | 1 | 1 |
| SE-20 | WHS | 638 | 95 | 222 | 321 | 1 | 1 |
| FH-SE-1 | Fam. Hsg. - 1961 Vintage | 154,797 | 23,167 | 53,797 | 77,833 | 178 | 144 |
| FH-SE-2 | Fam. Hsg. - 1963 Vintage | 169,435 | 25,357 | 58,884 | 85,193 | 194 | 158 |
| FH-SE-3 | Fam. Hsg. - 1964-66 Vintage | 103,403 | 15,475 | 35,936 | 51,991 | 119 | 96 |
| FH-SE-4 | Fam. Hsg. - 1983 Vintage | 158,326 | 23,695 | 55,024 | 79,607 | 182 | 147 |
| FH-SE-5 | Fam. Hsg. - 1984 Vintage | 119,066 | 17,819 | 41,380 | 59,867 | 137 | 111 |

## Table 2.7. (contd)

Existing Window Operating Parameters

| ID | Building Description | Energy | | | | Demand | |
|---|---|---|---|---|---|---|---|
| | | | Summer | | | Summer | |
| | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| Southwest Side: | | | | | | | |
| SW-1 | U Shaped Bldgs: Barracks | 83,348 | 64,260 | 13,215 | 5,873 | 492 | 35 |
| SW-2 | U Shaped Bldgs: Other | 11,901 | 9,176 | 1,887 | 839 | 70 | 5 |
| SW-3 | Concrete Block: w/ SE win only | 0 | 0 | 0 | 0 | 0 | 0 |
| SW-4 | Concrete Block: Barracks | 16,268 | 12,542 | 2,579 | 1,146 | 96 | 7 |
| SW-5 | Concrete Block: Misc -pre 1980 | 5,038 | 3,884 | 799 | 355 | 30 | 2 |
| SW-6 | Concrete Block: Misc -post 1980 | 4,394 | 3,388 | 697 | 310 | 26 | 2 |
| SW-7 | Metal Siding | 32,043 | 24,704 | 5,080 | 2,258 | 189 | 14 |
| SW-8 | Masonite Siding: pre 1950 | 45,633 | 35,182 | 7,235 | 3,216 | 270 | 19 |
| SW-9 | Masonite Siding: post 1950 | 18,289 | 14,100 | 2,900 | 1,289 | 108 | 8 |
| SW-10 | Wood Siding | 5,584 | 4,305 | 885 | 393 | 33 | 2 |
| SW-11 | ADMIN: MISC pre 1964 | 6,999 | 5,396 | 1,110 | 493 | 41 | 3 |
| SW-12 | ADMIN: MISC post 1964 | 12,351 | 9,523 | 1,958 | 870 | 73 | 5 |
| SW-13 | BRK/ADM MISC | 6,714 | 5,176 | 1,064 | 473 | 40 | 3 |
| SW-14 | DINING: MSIC | 7,504 | 5,785 | 1,190 | 529 | 44 | 3 |
| SW-15 | MOTORPOOL | 12,592 | 9,708 | 1,996 | 887 | 74 | 5 |
| SW-16 | MWR | 2,919 | 2,250 | 463 | 206 | 17 | 1 |
| SW-17 | SECURTY | 598 | 461 | 95 | 42 | 4 | 0 |
| SW-18 | SHOP | 12,334 | 9,509 | 1,956 | 869 | 73 | 5 |
| SW-19 | TRAINING | 4,086 | 3,150 | 648 | 288 | 24 | 2 |
| SW-20 | WHS | 2,576 | 1,986 | 408 | 182 | 15 | 1 |
| FH-SW-1 | Fam. Hsg. - 1961 Vintage | 63,004 | 48,575 | 9,989 | 4,440 | 372 | 27 |
| FH-SW-2 | Fam. Hsg. - 1963 Vintage | 68,447 | 52,772 | 10,852 | 4,823 | 404 | 29 |
| FH-SW-3 | Fam. Hsg. - 1964-66 Vintage | 41,772 | 32,206 | 6,623 | 2,944 | 247 | 18 |
| FH-SW-4 | Fam. Hsg. - 1983 Vintage | 63,960 | 49,312 | 10,141 | 4,507 | 378 | 27 |
| FH-SW-5 | Fam. Hsg. - 1984 Vintage | 48,100 | 37,084 | 7,626 | 3,390 | 284 | 20 |
| Northwest Side: | | | | | | | |
| NW-1 | U Shaped Bldgs: Barracks | 24,804 | 18,693 | 3,580 | 2,531 | 143 | 10 |
| NW-2 | U Shaped Bldgs: Other | 3,542 | 2,669 | 511 | 361 | 20 | 1 |
| NW-3 | Concrete Block: w/ SE win only | 0 | 0 | 0 | 0 | 0 | 0 |
| NW-4 | Concrete Block: Barracks | 8,355 | 6,297 | 1,206 | 852 | 48 | 3 |
| NW-5 | Concrete Block: Misc -pre 1980 | 3,476 | 2,619 | 502 | 355 | 20 | 1 |
| NW-6 | Concrete Block: Misc -post 1980 | 3,031 | 2,285 | 438 | 309 | 18 | 1 |
| NW-7 | Metal Siding | 22,945 | 17,292 | 3,312 | 2,341 | 133 | 9 |
| NW-8 | Masonite Siding: pre 1950 | 8,344 | 6,288 | 1,204 | 851 | 48 | 3 |
| NW-9 | Masonite Siding: post 1950 | 3,154 | 2,377 | 455 | 322 | 18 | 1 |
| NW-10 | Wood Siding | 963 | 726 | 139 | 98 | 6 | 0 |
| NW-11 | ADMIN: MISC pre 1964 | 1,207 | 910 | 174 | 123 | 7 | 0 |
| NW-12 | ADMIN: MISC post 1964 | 2,130 | 1,605 | 307 | 217 | 12 | 1 |
| NW-13 | BRK/ADM MISC | 1,158 | 873 | 167 | 118 | 7 | 0 |
| NW-14 | DINING: MSIC | 1,294 | 975 | 187 | 132 | 7 | 1 |
| NW-15 | MOTORPOOL | 2,172 | 1,637 | 313 | 222 | 13 | 1 |
| NW-16 | MWR | 503 | 379 | 73 | 51 | 3 | 0 |
| NW-17 | SECURTY | 103 | 78 | 15 | 11 | 1 | 0 |
| NW-18 | SHOP | 2,127 | 1,603 | 307 | 217 | 12 | 1 |
| NW-19 | TRAINING | 705 | 531 | 102 | 72 | 4 | 0 |
| NW-20 | WHS | 444 | 335 | 64 | 45 | 3 | 0 |
| FH-NW-1 | Fam. Hsg. - 1961 Vintage | 43,159 | 32,527 | 6,229 | 4,403 | 249 | 17 |
| FH-NW-2 | Fam. Hsg. - 1963 Vintage | 47,220 | 35,587 | 6,816 | 4,817 | 273 | 18 |
| FH-NW-3 | Fam. Hsg. - 1964-66 Vintage | 28,818 | 21,718 | 4,159 | 2,940 | 166 | 11 |
| FH-NW-4 | Fam. Hsg. - 1983 Vintage | 44,125 | 33,254 | 6,369 | 4,502 | 255 | 17 |
| FH-NW-5 | Fam. Hsg. - 1984 Vintage | 33,183 | 25,008 | 4,790 | 3,385 | 192 | 13 |

## Table 2.7. (contd)

### Shade Screens ERO Operating Parameters

| ID | Description of ERO | Energy | | | | Demand | |
|---|---|---|---|---|---|---|---|
| | | | Summer | | | Summer | |
| | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| Northeast Side: | | | | | | | |
| NE-1 | Shade Screens - NE side | 7,441 | 1,458 | 1,344 | 4,639 | 11 | 4 |
| NE-2 | Shade Screens - NE side | 1,063 | 208 | 192 | 662 | 2 | 1 |
| NE-3 | Shade Screens - NE side | 0 | 0 | 0 | 0 | 0 | 0 |
| NE-4 | Shade Screens - NE side | 3,369 | 660 | 609 | 2,100 | 5 | 2 |
| NE-5 | Shade Screens - NE side | 1,043 | 204 | 188 | 650 | 2 | 1 |
| NE-6 | Shade Screens - NE side | 909 | 178 | 164 | 567 | 1 | 0 |
| NE-7 | Shade Screens - NE side | 6,884 | 1,349 | 1,244 | 4,291 | 10 | 3 |
| NE-8 | Shade Screens - NE side | 8,978 | 1,759 | 1,622 | 5,597 | 13 | 4 |
| NE-9 | Shade Screens - NE side | 3,750 | 735 | 677 | 2,338 | 6 | 2 |
| NE-10 | Shade Screens - NE side | 1,156 | 226 | 209 | 720 | 2 | 1 |
| NE-11 | Shade Screens - NE side | 1,449 | 284 | 262 | 903 | 2 | 1 |
| NE-12 | Shade Screens - NE side | 2,556 | 501 | 462 | 1,594 | 4 | 1 |
| NE-13 | Shade Screens - NE side | 1,390 | 272 | 251 | 866 | 2 | 1 |
| NE-14 | Shade Screens - NE side | 1,553 | 304 | 281 | 968 | 2 | 1 |
| NE-15 | Shade Screens - NE side | 2,606 | 511 | 471 | 1,625 | 4 | 1 |
| NE-16 | Shade Screens - NE side | 604 | 118 | 109 | 377 | 1 | 0 |
| NE-17 | Shade Screens - NE side | 124 | 24 | 22 | 77 | 0 | 0 |
| NE-18 | Shade Screens - NE side | 2,553 | 500 | 461 | 1,591 | 4 | 1 |
| NE-19 | Shade Screens - NE side | 846 | 166 | 153 | 527 | 1 | 0 |
| NE-20 | Shade Screens - NE side | 533 | 104 | 96 | 332 | 1 | 0 |
| FH-NE-1 | Shade Screens - NE Side | 32,362 | 6,341 | 5,847 | 20,174 | 49 | 16 |
| FH-NE-2 | Shade Screens - NE Side | 35,415 | 6,939 | 6,398 | 22,078 | 53 | 17 |
| FH-NE-3 | Shade Screens - NE Side | 21,613 | 4,235 | 3,905 | 13,474 | 32 | 10 |
| FH-NE-4 | Shade Screens - NE Side | 33,093 | 6,484 | 5,979 | 20,630 | 50 | 16 |
| FH-NE-5 | Shade Screens - NE Side | 24,887 | 4,877 | 4,496 | 15,515 | 37 | 12 |
| Southeast Side: | | | | | | | |
| SE-1 | Shade Screens - SE side | 24,758 | 3,705 | 8,604 | 12,449 | 28 | 23 |
| SE-2 | Shade Screens - SE side | 3,535 | 529 | 1,229 | 1,778 | 4 | 3 |
| SE-3 | Shade Screens - SE side | 2,289 | 343 | 796 | 1,151 | 3 | 2 |
| SE-4 | Shade Screens - SE side | 3,595 | 538 | 1,249 | 1,807 | 4 | 3 |
| SE-5 | Shade Screens - SE side | 1,497 | 224 | 520 | 752 | 2 | 1 |
| SE-6 | Shade Screens - SE side | 1,305 | 195 | 454 | 656 | 1 | 1 |
| SE-7 | Shade Screens - SE side | 9,518 | 1,424 | 3,308 | 4,786 | 11 | 9 |
| SE-8 | Shade Screens - SE side | 4,261 | 638 | 1,481 | 2,143 | 5 | 4 |
| SE-9 | Shade Screens - SE side | 1,409 | 211 | 490 | 708 | 2 | 1 |
| SE-10 | Shade Screens - SE side | 415 | 62 | 144 | 208 | 0 | 0 |
| SE-11 | Shade Screens - SE side | 520 | 78 | 181 | 261 | 1 | 0 |
| SE-12 | Shade Screens - SE side | 917 | 137 | 319 | 461 | 1 | 1 |
| SE-13 | Shade Screens - SE side | 499 | 75 | 173 | 251 | 1 | 0 |
| SE-14 | Shade Screens - SE side | 557 | 83 | 194 | 280 | 1 | 1 |
| SE-15 | Shade Screens - SE side | 935 | 140 | 325 | 470 | 1 | 1 |
| SE-16 | Shade Screens - SE side | 217 | 32 | 75 | 109 | 0 | 0 |
| SE-17 | Shade Screens - SE side | 44 | 7 | 15 | 22 | 0 | 0 |
| SE-18 | Shade Screens - SE side | 916 | 137 | 318 | 461 | 1 | 1 |
| SE-19 | Shade Screens - SE side | 303 | 45 | 105 | 153 | 0 | 0 |
| SE-20 | Shade Screens - SE side | 191 | 29 | 66 | 96 | 0 | 0 |
| FH-SE-1 | Shade Screens - SE Side | 46,439 | 6,950 | 16,139 | 23,350 | 53 | 43 |
| FH-SE-2 | Shade Screens - SE Side | 50,830 | 7,607 | 17,665 | 25,558 | 58 | 47 |
| FH-SE-3 | Shade Screens - SE Side | 31,021 | 4,643 | 10,781 | 15,597 | 36 | 29 |
| FH-SE-4 | Shade Screens - SE Side | 47,498 | 7,109 | 16,507 | 23,882 | 54 | 44 |
| FH-SE-5 | Shade Screens - SE Side | 35,720 | 5,346 | 12,414 | 17,960 | 41 | 33 |

## Table 2.7. (contd)

### Shade Screens ERO Operating Parameters

| ID | Description of ERO | Energy | | | | Demand | |
|---|---|---|---|---|---|---|---|
| | | | Summer | | | Summer | |
| | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| Southwest Side: | | | | | | | |
| SW-1 | Shade Screens - SW side | 25,004 | 19,278 | 3,964 | 1,762 | 148 | 11 |
| SW-2 | Shade Screens - SW side | 3,570 | 2,753 | 566 | 252 | 21 | 2 |
| SW-3 | Shade Screens - SW side | 0 | 0 | 0 | 0 | 0 | 0 |
| SW-4 | Shade Screens - SW side | 4,880 | 3,763 | 774 | 344 | 29 | 2 |
| SW-5 | Shade Screens - SW side | 1,511 | 1,165 | 240 | 107 | 9 | 1 |
| SW-6 | Shade Screens - SW side | 1,318 | 1,016 | 209 | 93 | 8 | 1 |
| SW-7 | Shade Screens - SW side | 9,613 | 7,411 | 1,524 | 677 | 57 | 4 |
| SW-8 | Shade Screens - SW side | 13,690 | 10,555 | 2,171 | 965 | 81 | 6 |
| SW-9 | Shade Screens - SW side | 5,487 | 4,230 | 870 | 387 | 32 | 2 |
| SW-10 | Shade Screens - SW side | 1,675 | 1,291 | 266 | 118 | 10 | 1 |
| SW-11 | Shade Screens - SW side | 2,100 | 1,619 | 333 | 148 | 12 | 1 |
| SW-12 | Shade Screens - SW side | 3,705 | 2,857 | 587 | 261 | 22 | 2 |
| SW-13 | Shade Screens - SW side | 2,014 | 1,553 | 319 | 142 | 12 | 1 |
| SW-14 | Shade Screens - SW side | 2,251 | 1,736 | 357 | 159 | 13 | 1 |
| SW-15 | Shade Screens - SW side | 3,778 | 2,912 | 599 | 266 | 22 | 2 |
| SW-16 | Shade Screens - SW side | 876 | 675 | 139 | 62 | 5 | 0 |
| SW-17 | Shade Screens - SW side | 179 | 138 | 28 | 13 | 1 | 0 |
| SW-18 | Shade Screens - SW side | 3,700 | 2,853 | 587 | 261 | 22 | 2 |
| SW-19 | Shade Screens - SW side | 1,226 | 945 | 194 | 86 | 7 | 1 |
| SW-20 | Shade Screens - SW side | 773 | 596 | 123 | 54 | 5 | 0 |
| FH-SW-1 | Shade Screens - SW Side | 18,901 | 14,573 | 2,997 | 1,332 | 112 | 8 |
| FH-SW-2 | Shade Screens - SW Side | 20,534 | 15,831 | 3,256 | 1,447 | 121 | 9 |
| FH-SW-3 | Shade Screens - SW Side | 12,532 | 9,662 | 1,987 | 883 | 74 | 5 |
| FH-SW-4 | Shade Screens - SW Side | 19,188 | 14,794 | 3,042 | 1,352 | 113 | 8 |
| FH-SW-5 | Shade Screens - SW Side | 14,430 | 11,125 | 2,288 | 1,017 | 85 | 6 |
| Northwest Side: | | | | | | | |
| NW-1 | Shade Screens - NW Side | 7,441 | 5,608 | 1,074 | 759 | 43 | 3 |
| NW-2 | Shade Screens - NW Side | 1,063 | 801 | 153 | 108 | 6 | 0 |
| NW-3 | Shade Screens - NW Side | 0 | 0 | 0 | 0 | 0 | 0 |
| NW-4 | Shade Screens - NW Side | 2,507 | 1,889 | 362 | 256 | 14 | 1 |
| NW-5 | Shade Screens - NW Side | 1,043 | 786 | 151 | 106 | 6 | 0 |
| NW-6 | Shade Screens - NW Side | 909 | 685 | 131 | 93 | 5 | 0 |
| NW-7 | Shade Screens - NW Side | 6,884 | 5,188 | 994 | 702 | 40 | 3 |
| NW-8 | Shade Screens - NW Side | 2,503 | 1,886 | 361 | 255 | 14 | 1 |
| NW-9 | Shade Screens - NW Side | 946 | 713 | 137 | 97 | 5 | 0 |
| NW-10 | Shade Screens - NW Side | 289 | 218 | 42 | 29 | 2 | 0 |
| NW-11 | Shade Screens - NW Side | 362 | 273 | 52 | 37 | 2 | 0 |
| NW-12 | Shade Screens - NW Side | 639 | 482 | 92 | 65 | 4 | 0 |
| NW-13 | Shade Screens - NW Side | 347 | 262 | 50 | 35 | 2 | 0 |
| NW-14 | Shade Screens - NW Side | 388 | 293 | 56 | 40 | 2 | 0 |
| NW-15 | Shade Screens - NW Side | 652 | 491 | 94 | 66 | 4 | 0 |
| NW-16 | Shade Screens - NW Side | 151 | 114 | 22 | 15 | 1 | 0 |
| NW-17 | Shade Screens - NW Side | 31 | 23 | 4 | 3 | 0 | 0 |
| NW-18 | Shade Screens - NW Side | 638 | 481 | 92 | 65 | 4 | 0 |
| NW-19 | Shade Screens - NW Side | 211 | 159 | 31 | 22 | 1 | 0 |
| NW-20 | Shade Screens - NW Side | 133 | 100 | 19 | 14 | 1 | 0 |
| FH-NW-1 | Shade Screens - NW Side | 12,948 | 9,758 | 1,869 | 1,321 | 75 | 5 |
| FH-NW-2 | Shade Screens - NW Side | 14,166 | 10,676 | 2,045 | 1,445 | 82 | 5 |
| FH-NW-3 | Shade Screens - NW Side | 8,645 | 6,515 | 1,248 | 882 | 50 | 3 |
| FH-NW-4 | Shade Screens - NW Side | 13,237 | 9,976 | 1,911 | 1,350 | 76 | 5 |
| FH-NW-5 | Shade Screens - NW Side | 9,955 | 7,502 | 1,437 | 1,016 | 57 | 4 |

## Table 2.7. (contd)

### Shade Screens ERO Economic Parameters

| ID | First Cost (w/o rebate) (1994 $) | First Cost (w/ rebate) (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| Northeast Side: | | | | | | | | | | |
| There are no cost effective options for the Northeast side. | | | | | | | | | | |
| Southeast Side: | | | | | | | | | | |
| SE-1 | 32,879 | 27,619 | 10 | 57,770 | 120 | 3,733 | 1,398 | 5,130 | 26,894 | 1.97 |
| SE-2 | 4,695 | 3,944 | 10 | 8,249 | 17 | 533 | 200 | 733 | 3,840 | 1.97 |
| SE-3 | 3,040 | 2,554 | 10 | 5,341 | 11 | 345 | 129 | 474 | 2,487 | 1.97 |
| SE-4 | 4,774 | 4,010 | 10 | 8,387 | 17 | 542 | 203 | 745 | 3,905 | 1.97 |
| SE-5 | 1,987 | 1,669 | 10 | 3,492 | 7 | 226 | 84 | 310 | 1,626 | 1.97 |
| SE-6 | 1,733 | 1,456 | 10 | 3,046 | 6 | 197 | 74 | 270 | 1,418 | 1.97 |
| SE-7 | 12,640 | 10,618 | 10 | 22,209 | 46 | 1,435 | 537 | 1,972 | 10,339 | 1.97 |
| SE-8 | 5,659 | 4,754 | 10 | 9,943 | 21 | 642 | 241 | 883 | 4,629 | 1.97 |
| SE-9 | 1,871 | 1,572 | 10 | 3,288 | 7 | 212 | 80 | 292 | 1,531 | 1.97 |
| SE-10 | 551 | 463 | 10 | 968 | 2 | 63 | 23 | 86 | 450 | 1.97 |
| SE-11 | 690 | 580 | 10 | 1,213 | 3 | 78 | 29 | 108 | 565 | 1.97 |
| SE-12 | 1,218 | 1,023 | 10 | 2,140 | 4 | 138 | 52 | 190 | 996 | 1.97 |
| SE-13 | 662 | 556 | 10 | 1,163 | 2 | 75 | 28 | 103 | 542 | 1.97 |
| SE-14 | 740 | 622 | 10 | 1,300 | 3 | 84 | 31 | 115 | 605 | 1.97 |
| SE-15 | 1,242 | 1,043 | 10 | 2,182 | 5 | 141 | 53 | 194 | 1,016 | 1.97 |
| SE-16 | 288 | 242 | 10 | 506 | 1 | 33 | 12 | 45 | 235 | 1.97 |
| SE-17 | 59 | 50 | 10 | 104 | 0 | 7 | 3 | 9 | 48 | 1.97 |
| SE-18 | 1,216 | 1,022 | 10 | 2,137 | 4 | 138 | 52 | 190 | 995 | 1.97 |
| SE-19 | 403 | 338 | 10 | 708 | 1 | 46 | 17 | 63 | 330 | 1.97 |
| SE-20 | 254 | 213 | 10 | 446 | 1 | 29 | 11 | 40 | 208 | 1.97 |
| FH-SE-1 | 61,671 | 51,804 | 10 | 108,358 | 225 | 7,002 | 2,622 | 9,623 | 50,445 | 1.97 |
| FH-SE-2 | 67,503 | 56,703 | 10 | 118,604 | 246 | 7,664 | 2,869 | 10,533 | 55,215 | 1.97 |
| FH-SE-3 | 41,196 | 34,604 | 10 | 72,382 | 150 | 4,677 | 1,751 | 6,428 | 33,697 | 1.97 |
| FH-SE-4 | 63,078 | 52,985 | 10 | 110,829 | 230 | 7,161 | 2,681 | 9,842 | 51,595 | 1.97 |
| FH-SE-5 | 47,436 | 39,846 | 10 | 83,346 | 173 | 5,385 | 2,016 | 7,402 | 38,801 | 1.97 |
| Southwest Side: | | | | | | | | | | |
| SW-1 | 32,879 | 27,619 | 10 | 58,344 | 369 | 7,053 | 6,664 | 13,717 | 174,765 | 7.33 |
| SW-2 | 4,695 | 3,944 | 10 | 8,331 | 53 | 1,007 | 952 | 1,959 | 24,955 | 7.33 |
| SW-4 | 6,417 | 5,391 | 10 | 3,527 | 72 | 1,377 | 1,301 | 2,677 | 34,111 | 7.33 |
| SW-5 | 1,987 | 1,669 | 10 | 3,076 | 22 | 426 | 403 | 829 | 10,564 | 7.33 |
| SW-6 | 1,733 | 1,456 | 10 | 22,430 | 19 | 372 | 351 | 723 | 9,214 | 7.33 |
| SW-7 | 12,640 | 10,618 | 10 | 31,943 | 142 | 2,712 | 2,562 | 5,274 | 67,187 | 7.33 |
| SW-8 | 18,002 | 15,121 | 10 | 12,802 | 202 | 3,862 | 3,649 | 7,510 | 95,684 | 7.33 |
| SW-9 | 7,215 | 6,060 | 10 | 3,909 | 81 | 1,548 | 1,462 | 3,010 | 38,348 | 7.33 |
| SW-10 | 2,203 | 1,850 | 10 | 4,900 | 25 | 472 | 446 | 919 | 11,708 | 7.33 |
| SW-11 | 2,761 | 2,319 | 10 | 8,646 | 31 | 592 | 560 | 1,152 | 14,676 | 7.33 |
| SW-12 | 4,872 | 4,093 | 10 | 4,700 | 55 | 1,045 | 988 | 2,033 | 25,898 | 7.33 |
| SW-13 | 2,648 | 2,225 | 10 | 5,253 | 30 | 568 | 537 | 1,105 | 14,078 | 7.33 |
| SW-14 | 2,960 | 2,486 | 10 | 8,814 | 33 | 635 | 600 | 1,235 | 15,734 | 7.33 |
| SW-15 | 4,967 | 4,172 | 10 | 2,043 | 56 | 1,066 | 1,007 | 2,072 | 26,403 | 7.33 |
| SW-16 | 1,151 | 967 | 10 | 419 | 13 | 247 | 233 | 480 | 6,120 | 7.33 |
| SW-17 | 236 | 198 | 10 | 8,634 | 3 | 51 | 48 | 98 | 1,254 | 7.33 |
| SW-18 | 4,865 | 4,087 | 10 | 2,860 | 55 | 1,044 | 986 | 2,030 | 25,862 | 7.33 |
| SW-19 | 1,612 | 1,354 | 10 | 1,803 | 18 | 346 | 327 | 672 | 8,568 | 7.33 |
| SW-20 | 1,016 | 854 | 10 | 676 | 11 | 218 | 206 | 424 | 5,402 | 7.33 |
| FH-SW-1 | 24,854 | 20,877 | 10 | 44,103 | 279 | 5,332 | 5,038 | 10,369 | 132,108 | 7.33 |
| FH-SW-2 | 27,001 | 22,681 | 10 | 47,913 | 303 | 5,792 | 5,473 | 11,265 | 143,521 | 7.33 |
| FH-SW-3 | 16,478 | 13,842 | 10 | 29,241 | 185 | 3,535 | 3,340 | 6,875 | 87,588 | 7.33 |
| FH-SW-4 | 25,231 | 21,194 | 10 | 44,772 | 284 | 5,412 | 5,114 | 10,526 | 134,112 | 7.33 |
| FH-SW-5 | 18,975 | 15,939 | 10 | 33,670 | 213 | 4,070 | 3,846 | 7,916 | 100,856 | 7.33 |

## Table 2.7. (contd)

Shade Screens ERO Economic Parameters

| ID | First Cost (w/o rebate) (1994 $) | First Cost (w/ rebate) (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|
| Northwest Side: | | | | | | | | | | |
| NW-1 | 14,183 | NA | 10 | 17,363 | 107 | 2,063 | 1,937 | 4,001 | 40,117 | 3.83 |
| NW-2 | 2,025 | NA | 10 | 2,479 | 15 | 295 | 277 | 571 | 5,728 | 3.83 |
| NW-4 | 4,778 | NA | 10 | 5,849 | 36 | 695 | 653 | 1,348 | 13,513 | 3.83 |
| NW-5 | 1,987 | NA | 10 | 2,433 | 15 | 289 | 271 | 561 | 5,622 | 3.83 |
| NW-6 | 1,733 | NA | 10 | 2,122 | 13 | 252 | 237 | 489 | 4,903 | 3.83 |
| NW-7 | 13,120 | NA | 10 | 16,062 | 99 | 1,909 | 1,792 | 3,701 | 37,110 | 3.83 |
| NW-8 | 4,771 | NA | 10 | 5,841 | 36 | 694 | 652 | 1,346 | 13,495 | 3.83 |
| NW-9 | 1,804 | NA | 10 | 2,208 | 14 | 262 | 246 | 509 | 5,102 | 3.83 |
| NW-10 | 551 | NA | 10 | 674 | 4 | 80 | 75 | 155 | 1,558 | 3.83 |
| NW-11 | 690 | NA | 10 | 845 | 5 | 100 | 94 | 195 | 1,952 | 3.83 |
| NW-12 | 1,218 | NA | 10 | 1,491 | 9 | 177 | 166 | 344 | 3,445 | 3.83 |
| NW-13 | 662 | NA | 10 | 811 | 5 | 96 | 90 | 187 | 1,873 | 3.83 |
| NW-14 | 740 | NA | 10 | 906 | 6 | 108 | 101 | 209 | 2,093 | 3.83 |
| NW-15 | 1,242 | NA | 10 | 1,520 | 9 | 181 | 170 | 350 | 3,512 | 3.83 |
| NW-16 | 288 | NA | 10 | 352 | 2 | 42 | 39 | 81 | 814 | 3.83 |
| NW-17 | 59 | NA | 10 | 72 | 0 | 9 | 8 | 17 | 167 | 3.83 |
| NW-18 | 1,216 | NA | 10 | 1,489 | 9 | 177 | 166 | 343 | 3,440 | 3.83 |
| NW-19 | 403 | NA | 10 | 493 | 3 | 59 | 55 | 114 | 1,140 | 3.83 |
| NW-20 | 254 | NA | 10 | 311 | 2 | 37 | 35 | 72 | 719 | 3.83 |
| FH-NW-1 | 24,679 | NA | 10 | 30,211 | 186 | 3,590 | 3,371 | 6,961 | 69,803 | 3.83 |
| FH-NW-2 | 27,001 | NA | 10 | 33,054 | 204 | 3,928 | 3,688 | 7,616 | 76,372 | 3.83 |
| FH-NW-3 | 16,478 | NA | 10 | 20,172 | 124 | 2,397 | 2,251 | 4,648 | 46,608 | 3.83 |
| FH-NW-4 | 25,231 | NA | 10 | 30,887 | 190 | 3,671 | 3,447 | 7,117 | 71,365 | 3.83 |
| FH-NW-5 | 18,975 | NA | 10 | 23,228 | 143 | 2,760 | 2,592 | 5,352 | 53,668 | 3.83 |
| Sub-Totals: | | | | | | | | | | |
| Commercial: | | | | | | | | | | |
| Northeast: | 0 | NA | | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| Southeast: | 76,602 | 64,346 | | 134,592 | 280 | 8,697 | 3,256 | 11,953 | 62,658 | 1.97 |
| Southwest: | 114,862 | 96,484 | | 193,108 | 1,291 | 24,639 | 23,281 | 47,920 | 610,530 | 7.33 |
| Northwest: | 51,725 | NA | | 63,320 | 390 | 7,525 | 7,066 | 14,590 | 146,301 | 3.83 |
| Family Housing: | | | | | | | | | | |
| Northeast: | 0 | NA | | 0 | 0 | 0 | 0 | 0 | 0 | NA |
| Southeast: | 280,884 | 235,942 | | 493,519 | 1,025 | 31,889 | 11,940 | 43,828 | 229,754 | 1.97 |
| Southwest: | 112,539 | 94,533 | | 199,699 | 1,265 | 24,141 | 22,810 | 46,951 | 598,185 | 7.33 |
| Northwest: | 112,364 | NA | | 137,554 | 848 | 16,346 | 15,349 | 31,695 | 317,816 | 3.83 |
| TOTAL: | 748,976 | 655,394 | | 1,221,792 | 5,098 | 113,237 | 83,701 | 196,938 | 1,965,245 | 4.00 |

## Table 2.8. Double Pane Window EROs

### Existing Window Operating Parameters

| ID | Building Description | Energy | | | | | Demand | |
|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Summer | |
| | | LPG (MBtu/yr) | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| DPW-1 | U Shaped Bldgs: Barracks | 1,037 | 107,095 | 20,934 | 25,692 | 17,388 | 160 | 34 |
| DPW-2 | U Shaped Bldgs: Other | 148 | 15,292 | 2,989 | 3,669 | 2,483 | 23 | 5 |
| DPW-3 | Concrete Block: w/ SE win only | 33 | 3,459 | 676 | 830 | 562 | 5 | 1 |
| DPW-4 | Concrete Block: Barracks | 247 | 25,475 | 4,980 | 6,112 | 4,136 | 38 | 8 |
| DPW-5 | Concrete Block: Misc -pre 1980 | 88 | 9,045 | 1,768 | 2,170 | 1,469 | 14 | 3 |
| DPW-6 | Concrete Block: Misc -post 1980 | 76 | 7,889 | 1,542 | 1,893 | 1,281 | 12 | 3 |
| DPW-7 | Metal Siding | 568 | 58,620 | 11,459 | 14,063 | 9,517 | 88 | 19 |
| DPW-8 | Masonite Siding: pre 1950 | 502 | 51,821 | 10,130 | 12,432 | 8,414 | 78 | 17 |
| DPW-9 | Masonite Siding: post 1950 | 199 | 20,522 | 4,012 | 4,923 | 3,332 | 31 | 7 |
| DPW-10 | Wood Siding | 61 | 6,265 | 1,225 | 1,503 | 1,017 | 9 | 2 |
| DPW-11 | ADMIN: MISC pre 1964 | 76 | 7,854 | 1,535 | 1,884 | 1,275 | 12 | 3 |
| DPW-12 | ADMIN: MISC post 1964 | 134 | 13,859 | 2,709 | 3,325 | 2,250 | 21 | 4 |
| DPW-13 | BRK/ADM MISC | 73 | 7,534 | 1,473 | 1,807 | 1,223 | 11 | 2 |
| DPW-14 | DINING: MSIC | 81 | 13,569 | 1,646 | 2,020 | 1,367 | 13 | 3 |
| DPW-15 | MOTORPOOL | 137 | 14,129 | 2,762 | 3,390 | 2,294 | 21 | 5 |
| DPW-16 | MWR | 32 | 3,275 | 640 | 786 | 532 | 5 | 1 |
| DPW-17 | SECURTY | 6 | 671 | 131 | 161 | 109 | 1 | 0 |
| DPW-18 | SHOP | 134 | 13,840 | 2,705 | 3,320 | 2,247 | 21 | 4 |
| DPW-19 | TRAINING | 44 | 4,585 | 896 | 1,100 | 744 | 7 | 1 |
| DPW-20 | WHS | 33 | 2,472 | 565 | 694 | 469 | 4 | 1 |
| DPW-21 | Fam. Hsg. - 1961 Vintage | 454 | 101,373 | 38,452 | 47,191 | 15,730 | 74 | 32 |
| DPW-22 | Fam. Hsg. - 1963 Vintage | 496 | 110,826 | 42,038 | 51,592 | 17,197 | 81 | 35 |
| DPW-23 | Fam. Hsg. - 1964-66 Vintage | 303 | 67,635 | 25,655 | 31,485 | 10,495 | 49 | 21 |
| DPW-24 | Fam. Hsg. - 1983 Vintage | 470 | 104,839 | 39,767 | 48,804 | 16,268 | 76 | 33 |
| DPW-25 | Fam. Hsg. - 1984 Vintage | 349 | 77,881 | 29,541 | 36,255 | 12,085 | 57 | 24 |

### Double Pane Window ERO Operating Parameters

| ID | Description of ERO | Energy | | | | | Demand | |
|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Summer | |
| | | LPG (MBtu/yr) | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| DPW-1 | Double-paned windows | 664 | 76,496 | 14,953 | 18,352 | 12,420 | 46 | 10 |
| DPW-2 | Double-paned windows | 95 | 10,923 | 2,135 | 2,620 | 1,773 | 7 | 1 |
| DPW-3 | Double-paned windows | 21 | 2,471 | 483 | 593 | 401 | 1 | 0 |
| DPW-4 | Double-paned windows | 158 | 18,197 | 3,557 | 4,365 | 2,954 | 11 | 2 |
| DPW-5 | Double-paned windows | 56 | 6,461 | 1,263 | 1,550 | 1,049 | 4 | 1 |
| DPW-6 | Double-paned windows | 49 | 5,635 | 1,102 | 1,352 | 915 | 3 | 1 |
| DPW-7 | Double-paned windows | 363 | 41,871 | 8,185 | 10,045 | 6,798 | 25 | 5 |
| DPW-8 | Double-paned windows | 321 | 37,015 | 7,236 | 8,880 | 6,010 | 22 | 5 |
| DPW-9 | Double-paned windows | 127 | 14,658 | 2,865 | 3,517 | 2,380 | 9 | 2 |
| DPW-10 | Double-paned windows | 39 | 4,475 | 875 | 1,074 | 727 | 3 | 1 |
| DPW-11 | Double-paned windows | 49 | 5,610 | 1,097 | 1,346 | 911 | 3 | 1 |
| DPW-12 | Double-paned windows | 86 | 9,899 | 1,935 | 2,375 | 1,607 | 6 | 1 |
| DPW-13 | Double-paned windows | 47 | 5,381 | 1,052 | 1,291 | 874 | 3 | 1 |
| DPW-14 | Double-paned windows | 52 | 9,692 | 1,176 | 1,443 | 976 | 4 | 1 |
| DPW-15 | Double-paned windows | 88 | 10,092 | 1,973 | 2,421 | 1,639 | 6 | 1 |
| DPW-16 | Double-paned windows | 20 | 2,339 | 457 | 561 | 380 | 1 | 0 |
| DPW-17 | Double-paned windows | 4 | 479 | 94 | 115 | 78 | 0 | 0 |
| DPW-18 | Double-paned windows | 86 | 9,886 | 1,932 | 2,372 | 1,605 | 6 | 1 |
| DPW-19 | Double-paned windows | 28 | 3,275 | 640 | 786 | 532 | 2 | 0 |
| DPW-20 | Double-paned windows | 21 | 1,766 | 404 | 495 | 335 | 1 | 0 |
| DPW-21 | Double-paned windows | 324 | 72,410 | 27,466 | 33,708 | 11,236 | 53 | 23 |
| DPW-22 | Double-paned windows | 355 | 79,162 | 30,027 | 36,851 | 12,284 | 58 | 25 |
| DPW-23 | Double-paned windows | 216 | 48,311 | 18,325 | 22,490 | 7,497 | 35 | 15 |
| DPW-24 | Double-paned windows | 335 | 74,885 | 28,405 | 34,860 | 11,620 | 54 | 23 |
| DPW-25 | Double-paned windows | 249 | 55,629 | 21,101 | 25,896 | 8,632 | 40 | 17 |

**Table 2.8.** (contd)

Double Pane Window ERO Economic Parameters

| ID | Material First Cost (1994 $) | Installation Labor Cost (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings | | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| | | | | Electric (kWh) | LPG (MBtu) | | | | | | |
| DPW-1 | 169,425 | 150,600 | 25 | 30,598 | 373 | 139 | 3,586 | 2,254 | 5,840 | (219,450) | 0.31 |
| DPW-2 | 24,192 | 21,504 | 25 | 4,369 | 53 | 20 | 512 | 322 | 834 | (31,335) | 0.31 |
| DPW-3 | 5,472 | 4,864 | 25 | 988 | 12 | 4 | 116 | 73 | 189 | (7,088) | 0.31 |
| DPW-4 | 40,302 | 35,824 | 25 | 7,279 | 89 | 33 | 853 | 536 | 1,389 | (52,202) | 0.31 |
| DPW-5 | 14,310 | 12,720 | 25 | 2,584 | 32 | 12 | 303 | 190 | 493 | (18,535) | 0.31 |
| DPW-6 | 12,480 | 11,094 | 25 | 2,254 | 27 | 10 | 264 | 166 | 430 | (16,165) | 0.31 |
| DPW-7 | 92,738 | 82,434 | 25 | 16,749 | 204 | 76 | 1,963 | 1,234 | 3,197 | (120,120) | 0.31 |
| DPW-8 | 81,981 | 72,872 | 25 | 14,806 | 180 | 67 | 1,735 | 1,091 | 2,826 | (106,187) | 0.31 |
| DPW-9 | 32,466 | 28,859 | 25 | 5,863 | 71 | 27 | 687 | 432 | 1,119 | (42,052) | 0.31 |
| DPW-10 | 9,912 | 8,811 | 25 | 1,790 | 22 | 8 | 210 | 132 | 342 | (12,838) | 0.31 |
| DPW-11 | 12,425 | 11,044 | 25 | 2,244 | 27 | 10 | 263 | 165 | 428 | (16,094) | 0.31 |
| DPW-12 | 21,925 | 19,489 | 25 | 3,960 | 48 | 18 | 464 | 292 | 756 | (28,399) | 0.31 |
| DPW-13 | 11,918 | 10,594 | 25 | 2,152 | 26 | 10 | 252 | 159 | 411 | (15,437) | 0.31 |
| DPW-14 | 13,320 | 11,840 | 25 | 3,877 | 29 | 11 | 278 | 176 | 454 | (17,342) | 0.31 |
| DPW-15 | 22,352 | 19,869 | 25 | 4,037 | 49 | 18 | 473 | 297 | 771 | (28,952) | 0.31 |
| DPW-16 | 5,181 | 4,605 | 25 | 936 | 11 | 4 | 110 | 69 | 179 | (6,711) | 0.31 |
| DPW-17 | 1,062 | 944 | 25 | 192 | 2 | 1 | 22 | 14 | 37 | (1,375) | 0.31 |
| DPW-18 | 21,895 | 19,462 | 25 | 3,954 | 48 | 18 | 463 | 291 | 755 | (28,359) | 0.31 |
| DPW-19 | 7,253 | 6,447 | 25 | 1,310 | 16 | 6 | 154 | 97 | 250 | (9,395) | 0.31 |
| DPW-20 | 4,574 | 4,065 | 25 | 707 | 12 | 4 | 107 | 61 | 168 | (5,741) | 0.34 |
| DPW-21 | 311,196 | 276,619 | 25 | 28,964 | 130 | 30 | 3,326 | 425 | 3,751 | (246,610) | 0.21 |
| DPW-22 | 340,215 | 302,413 | 25 | 31,665 | 142 | 33 | 3,636 | 464 | 4,100 | (269,606) | 0.21 |
| DPW-23 | 207,627 | 184,557 | 25 | 19,324 | 87 | 20 | 2,219 | 283 | 2,502 | (164,535) | 0.21 |
| DPW-24 | 321,835 | 286,076 | 25 | 29,954 | 134 | 31 | 3,439 | 439 | 3,879 | (255,041) | 0.21 |
| DPW-25 | 239,079 | 212,514 | 25 | 22,252 | 100 | 23 | 2,555 | 326 | 2,881 | (189,460) | 0.21 |

## Table 2.9. (contd)

### Weatherization ERO Economic Parameters

| ID | First Cost (1994 $) | Installation Cost (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings | | Demand Savings | Energy Savings | Demand Savings | Total Savings | | |
| | | | | Electric (kWh) | LPG (MBtu) | (kW-mo) | (1994 $) | (1994 $) | (1994 $) | NPV (1994 $) | SIR |
| WTH-1 | 7,164 | 21,341 | 25 | 226,425 | 659 | 940 | 24,035 | 13,284 | 37,319 | 614,151 | 22.55 |
| WTH-2 | 1,736 | 3,594 | 25 | 60,380 | 176 | 251 | 6,409 | 3,542 | 9,952 | 166,045 | 32.15 |
| WTH-3 | 1,897 | 2,298 | 25 | 3,759 | 11 | 16 | 399 | 221 | 620 | 6,474 | 2.54 |
| WTH-4 | 2,538 | 7,840 | 25 | 64,706 | 188 | 269 | 6,869 | 3,796 | 10,665 | 173,276 | 17.70 |
| WTH-5 | 2,048 | 3,039 | 25 | 34,248 | 100 | 142 | 3,635 | 2,009 | 5,645 | 92,117 | 19.11 |
| WTH-6 | 3,806 | 5,815 | 25 | 47,339 | 138 | 197 | 5,025 | 2,777 | 7,802 | 124,741 | 13.97 |
| WTH-7 | 3,038 | 10,600 | 25 | 161,887 | 471 | 672 | 17,184 | 9,498 | 26,682 | 445,841 | 33.69 |
| WTH-8 | 9,096 | 16,521 | 25 | 288,914 | 841 | 1,200 | 30,668 | 16,950 | 47,618 | 794,401 | 32.01 |
| WTH-9 | 2,221 | 5,114 | 25 | 119,333 | 347 | 496 | 12,667 | 7,001 | 19,668 | 331,363 | 46.17 |
| WTH-10 | 471 | 1,340 | 25 | 13,686 | 40 | 57 | 1,453 | 803 | 2,256 | 37,033 | 21.45 |
| WTH-11 | 2,924 | 6,007 | 25 | 88,083 | 256 | 366 | 9,350 | 5,168 | 14,518 | 241,072 | 27.99 |
| WTH-12 | 624 | 2,108 | 25 | 10,696 | 31 | 44 | 1,135 | 628 | 1,763 | 27,627 | 11.11 |
| WTH-13 | 593 | 1,725 | 25 | 7,357 | 21 | 31 | 781 | 432 | 1,213 | 18,563 | 9.01 |
| WTH-14 | 2,019 | 3,759 | 25 | 32,098 | 93 | 133 | 3,407 | 1,883 | 5,290 | 85,324 | 15.77 |
| WTH-15 | 636 | 1,170 | 25 | 9,837 | 29 | 41 | 1,044 | 577 | 1,621 | 26,113 | 15.46 |
| WTH-16 | 602 | 764 | 25 | 1,524 | 4 | 6 | 162 | 89 | 251 | 2,960 | 3.17 |
| WTH-17 | 1,031 | 3,749 | 25 | 31,440 | 92 | 131 | 3,337 | 1,845 | 5,182 | 84,456 | 18.67 |
| WTH-18 | 1,557 | 2,523 | 25 | 13,020 | 38 | 54 | 1,382 | 764 | 2,146 | 32,873 | 9.06 |
| WTH-19 | 936 | 1,543 | 25 | 16,419 | 48 | 68 | 1,743 | 963 | 2,706 | 44,122 | 18.79 |
| WTH-20 | 16,295 | 43,664 | 25 | 285,139 | 830 | 1,184 | 30,268 | 16,728 | 46,996 | 749,345 | 13.50 |
| WTH-21 | 12,486 | 42,121 | 25 | 311,729 | 907 | 1,295 | 33,090 | 18,288 | 51,378 | 830,164 | 16.20 |
| WTH-22 | 6,732 | 24,770 | 25 | 190,242 | 554 | 790 | 20,194 | 11,161 | 31,355 | 508,458 | 17.14 |
| WTH-23 | 8,604 | 36,466 | 25 | 117,955 | 343 | 490 | 12,521 | 6,920 | 19,441 | 289,719 | 7.43 |
| WTH-24 | 6,878 | 27,602 | 25 | 87,624 | 255 | 364 | 9,301 | 5,141 | 14,442 | 214,222 | 7.21 |
| Totals: | | | | | | | | | | | |
| Commercial: | 44,937 | 100,852 | | 1,231,150 | 3,583 | 5,113 | 130,687 | 72,229 | 202,915 | 3,348,555 | 23.97 |
| Fam. Hsg.: | 50,994 | 174,623 | | 992,689 | 2,889 | 4,123 | 105,374 | 58,239 | 163,613 | 2,591,907 | 12.49 |

## Table 2.9. Weatherization EROs

### Existing Building Operating Parameters

| ID | Building Description | Energy | | | | | Demand | |
|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Summer | |
| | | LPG (MBtu/yr) | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| WTH-1 | U Shaped Bldgs: Barracks | 791 | 271,710 | 103,062 | 126,486 | 42,162 | 790 | 339 |
| WTH-2 | U Shaped Bldgs: Other | 211 | 72,456 | 27,483 | 33,729 | 11,243 | 211 | 90 |
| WTH-3 | Concrete Block: w/ SE win only | 16 | 5,638 | 2,139 | 2,625 | 875 | 16 | 7 |
| WTH-4 | Concrete Block: Barracks | 282 | 97,060 | 36,816 | 45,183 | 15,061 | 282 | 121 |
| WTH-5 | Concrete Block: Misc-pre 1980 | 150 | 51,372 | 19,486 | 23,914 | 7,971 | 149 | 64 |
| WTH-6 | Concrete Block: Misc-post 1980 | 207 | 71,009 | 26,934 | 33,056 | 11,019 | 206 | 89 |
| WTH-7 | Metal Siding | 565 | 194,264 | 73,686 | 90,433 | 30,144 | 565 | 242 |
| WTH-8 | Masonite Siding: pre 1950 | 1,009 | 346,697 | 131,506 | 161,394 | 53,798 | 1008 | 432 |
| WTH-9 | Masonite Siding: post 1950 | 417 | 143,199 | 54,317 | 66,662 | 22,221 | 416 | 178 |
| WTH-10 | Wood Siding | 48 | 16,423 | 6,229 | 7,645 | 2,548 | 48 | 20 |
| WTH-11 | ADMIN: MISC pre 1964 | 308 | 105,699 | 40,093 | 49,205 | 16,402 | 307 | 132 |
| WTH-12 | ADMIN: MISC post 1964 | 47 | 16,045 | 6,086 | 7,469 | 2,490 | 47 | 20 |
| WTH-13 | BRK/ADM MISC | 32 | 11,035 | 4,186 | 5,137 | 1,712 | 32 | 14 |
| WTH-14 | DINING: MSIC | 140 | 48,146 | 18,262 | 22,413 | 7,471 | 140 | 60 |
| WTH-15 | MOTORPOOL | 43 | 14,755 | 5,597 | 6,869 | 2,290 | 43 | 18 |
| WTH-16 | MWR | 7 | 2,286 | 867 | 1,064 | 355 | 7 | 3 |
| WTH-17 | SHOP | 137 | 47,160 | 17,888 | 21,954 | 7,318 | 137 | 59 |
| WTH-18 | TRAINING | 57 | 19,529 | 7,408 | 9,091 | 3,030 | 57 | 24 |
| WTH-19 | WHS | 72 | 24,628 | 9,342 | 11,465 | 3,822 | 72 | 31 |
| WTH-20 | Fam. Hsg. - 1961 Vintage | 996 | 342,167 | 129,787 | 159,285 | 53,095 | 995 | 426 |
| WTH-21 | Fam. Hsg. - 1963 Vintage | 1,089 | 374,074 | 141,890 | 174,138 | 58,046 | 1087 | 466 |
| WTH-22 | Fam. Hsg. - 1964-66 Vintage | 664 | 228,290 | 86,593 | 106,273 | 35,424 | 664 | 285 |
| WTH-23 | Fam. Hsg. - 1983 Vintage | 515 | 176,933 | 67,112 | 82,365 | 27,455 | 514 | 221 |
| WTH-24 | Fam. Hsg. - 1984 Vintage | 383 | 131,436 | 49,855 | 61,186 | 20,395 | 382 | 164 |

### Weatherization ERO Operating Parameters

| ID | Description of ERO | Energy | | | | | Demand | |
|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Summer | |
| | | LPG (MBtu/yr) | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) |
| WTH-1 | Weatherization | 132 | 45,285 | 17,177 | 21,081 | 7,027 | 132 | 56 |
| WTH-2 | Weatherization | 35 | 12,076 | 4,581 | 5,622 | 1,874 | 35 | 15 |
| WTH-3 | Weatherization | 5 | 1,879 | 713 | 875 | 292 | 5 | 2 |
| WTH-4 | Weatherization | 94 | 32,353 | 12,272 | 15,061 | 5,020 | 94 | 40 |
| WTH-5 | Weatherization | 50 | 17,124 | 6,495 | 7,971 | 2,657 | 50 | 21 |
| WTH-6 | Weatherization | 69 | 23,670 | 8,978 | 11,019 | 3,673 | 69 | 30 |
| WTH-7 | Weatherization | 94 | 32,377 | 12,281 | 15,072 | 5,024 | 94 | 40 |
| WTH-8 | Weatherization | 168 | 57,783 | 21,918 | 26,899 | 8,966 | 168 | 72 |
| WTH-9 | Weatherization | 69 | 23,867 | 9,053 | 11,110 | 3,703 | 69 | 30 |
| WTH-10 | Weatherization | 8 | 2,737 | 1,038 | 1,274 | 425 | 8 | 3 |
| WTH-11 | Weatherization | 51 | 17,617 | 6,682 | 8,201 | 2,734 | 51 | 22 |
| WTH-12 | Weatherization | 16 | 5,348 | 2,029 | 2,490 | 830 | 16 | 7 |
| WTH-13 | Weatherization | 11 | 3,678 | 1,395 | 1,712 | 571 | 11 | 5 |
| WTH-14 | Weatherization | 47 | 16,049 | 6,087 | 7,471 | 2,490 | 47 | 20 |
| WTH-15 | Weatherization | 14 | 4,918 | 1,866 | 2,290 | 763 | 14 | 6 |
| WTH-16 | Weatherization | 2 | 762 | 289 | 355 | 118 | 2 | 1 |
| WTH-17 | Weatherization | 46 | 15,720 | 5,963 | 7,318 | 2,439 | 46 | 20 |
| WTH-18 | Weatherization | 19 | 6,510 | 2,469 | 3,030 | 1,010 | 19 | 8 |
| WTH-19 | Weatherization | 24 | 8,209 | 3,114 | 3,822 | 1,274 | 24 | 10 |
| WTH-20 | Weatherization | 166 | 57,028 | 21,631 | 26,547 | 8,849 | 166 | 71 |
| WTH-21 | Weatherization | 181 | 62,346 | 23,648 | 29,023 | 9,674 | 181 | 78 |
| WTH-22 | Weatherization | 111 | 38,048 | 14,432 | 17,712 | 5,904 | 111 | 47 |
| WTH-23 | Weatherization | 172 | 58,978 | 22,371 | 27,455 | 9,152 | 171 | 74 |
| WTH-24 | Weatherization | 128 | 43,812 | 16,618 | 20,395 | 6,798 | 127 | 55 |

## 2.5 FEDS Service Hot Water EROs

Level-2 analyzes a wide range of possible service hot water heating options. Many of these are variations of similar EROs with different existing and retrofit fuel possibilities. Therefore, the EROs are grouped together by major option to avoid repetitive descriptions and assumptions. The Level-2 software analyzes all the possible combinations of replacements and equipment/efficiency upgrades and chooses the most life-cycle cost-effective combination of options for each building set.

### 2.5.1 Replace Existing (Electric, Natural Gas, Oil, or LPG) Service Hot Water Systems

**Description**

This ERO pertains to replacing existing (electric, natural gas, oil, or LPG) service hot water systems with new efficient or high-efficiency service hot waters fueled by electricity, natural gas, oil, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set. This ERO also evaluates adding a heat trap to the retrofit for further energy savings.

**Assumptions**

Technical assumptions are as follows:

- FEDS calculates existing hot water system size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit hot water system fuel availability, fuel consumption, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit service hot water efficiencies are as follows:

| | |
|---|---|
| electric service hot water | - 98.0% |
| electric service hot water | - 98.0% |
| oil service hot water heater | - 80.0% |
| natural gas service hot water heater | - 76.0% |
| natural gas service hot water heater | - 80.0% |
| natural gas service hot water heater | - 85.0% |
| natural gas service hot water heater | - 94.0% |
| LPG service hot water heater | - 76.0% |
| LPG service hot water heater | - 80.0% |
| LPG service hot water heater | - 85.0% |
| LPG service hot water heater | - 94.0% |

**Results**

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

## 2.5.2 Replace Existing HTHW Heat Exchanger Service Hot Water Systems

**Description**

This ERO pertains to replacing existing HTHW service hot water systems (HTHW distribution and heat exchanger) with new conventional or high-efficiency boilers fueled by oil, natural gas, or LPG. Fuel switching alternatives are only considered when the fuel is available to the building set.

**Assumptions**

Technical assumptions are as follows:

- FEDS calculates existing heat exchanger size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Retrofit boiler fuel availability, fuel consumption, efficiency, size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

- Retrofit boiler efficiencies are given by the following equations:

| | | |
|---|---|---|
| conventional gas boiler efficiency | = | $0.871-1.83^{-3}$*(Boiler Cap.) |
| pulse-condensing gas boiler efficiency | = | $0.871-1.83^{-3}$*(Boiler Cap.)+0.08 |
| conventional LPG boiler efficiency | = | $0.871-1.83^{-3}$*(Boiler Cap.) |
| pulse-condensing LPG boiler efficiency | = | $0.871-1.83^{-3}$*(Boiler Cap.)+0.08 |
| conventional oil boiler efficiency | = | $0.891-1.83^{-3}$*(Boiler Cap.) |

**Results**

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

## 2.5.3 Service Hot Water System Upgrade

**Description**

Depending on existing equipment condition, equipment upgrade rather than replacement may be more cost-effective. This ERO evaluates the following upgrades: insulate existing hot water tank, insulate piping near water heater, decrease water heater temperature (only examined for certain building types), and install low-flow shower heads and faucet aerators where applicable. All of these possible upgrades can be combined with any of the water heater replacement options above. The Level-2 software analyzes each possible replacement and upgrade and chooses the most life-cycle cost-effective combination of options for each building set.

**Assumptions**

Technical assumptions are as follows:

- FEDS calculates existing hot water system size, age, efficiency, and fuel consumption based on information developed in the Level-2 input file for the building set. These calculated (default) values can be changed if the actual information is known.

- Hot water system upgrade fuel consumption, equipment size, and installed cost are also determined based on information developed in the Level-2 input file for the building set.

**Results**

The complete quantitative results, including energy, installed cost, and NPV, can be found in Table 2.10.

# Table 2.10. FEDS Service Hot Water EROs

| Building Set | Existing Technology | Retrofit Technology | Retro Number (a) | Exist Eff, COP or Lamp Wattage | Retro Eff, COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADMINISTRATION-01 | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 0 38 | 1 | 0 76 | Electricity | Propane | 1 | 0 | 222 | 808 | 150 | 586 | 3 6 |
| ADMINISTRATION-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp. | 1.12 | 0.75 | 0.75 | Propane | Propane | 19 | 0 | 99 | 268 | 95 | 169 | 2.7 |
| ADMINISTRATION-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 6.92 | 0.75 | 0.75 | Propane | Propane | 126 | 0 | 675 | 2,893 | 633 | 2,217 | 4.3 |
| ADMINISTRATION-03a | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 0.17 | 0 75 | 0.75 | Propane | Propane | 2 | 0 | 16 | 52 | 11 | 36 | 3 2 |
| ADMINISTRATION-04 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.38 | 0.75 | 0 75 | Propane | Propane | 6 | 0 | 39 | 141 | 31 | 103 | 3 7 |
| ADMINISTRATION-06 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0 74 | 0.75 | 0.75 | Propane | Propane | 10 | 0 | 65 | 241 | 53 | 176 | 3 7 |
| ADMINISTRATION-06a | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.44 | 0.75 | 0.75 | Propane | Propane | 6 | 0 | 41 | 141 | 31 | 100 | 3 4 |
| ADMINISTRATION-07a | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.21 | 0.75 | 0.75 | Propane | Propane | 9 | 0 | 109 | 196 | 43 | 87 | 1.8 |
| ADMINISTRATION-08 | Hot Water Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 2 | 1 | 0.9582 | Gen. Hot Wtr. | Propane | 79 | 0 | 1,375 | 48,893 | 2,839 | 47,518 | 35.6 |
| ADMINISTRATION-09 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 3.53 | 1 | 1 | Electricity | Electricity | 38 | 4 | 418 | 7,564 | 1,219 | 7,146 | 18.1 |
| BARRACKS-01 | Propane SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 0.62 | 0.75 | 0 75 | Propane | Propane | 19 | 0 | 102 | 426 | 93 | 324 | 4 2 |
| BARRACKS-02 | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 32 | 0.8044 | 0.9583 | Propane | Propane | 2,000 | 0 | 9,749 | 172,520 | 11,704 | 162,771 | 17.7 |
| BARRACKS-03 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 2 | 0.774 | 0.774 | Propane | Propane | 204 | 0 | 1,563 | 10,991 | 1,111 | 9,427 | 7.0 |
| BARRACKS-04 | Hot Water Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 1 | 0.9582 | Gen. Hot Wtr. | Propane | 127 | 0 | 2,227 | 35,894 | 3,199 | 33,667 | 16.1 |
| BARRACKS-04 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 2 | 0 8491 | 0.8491 | Propane | Propane | 329 | 0 | 3,940 | 34,423 | 1,999 | 30,483 | 8 7 |
| BARRACKS-05 | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 0.8635 | 0.9583 | Propane | Propane | 41 | 0 | 482 | 4,236 | 246 | 3,754 | 8.8 |
| BARRACKS-06 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 9 | 0.8485 | 0.8485 | Propane | Propane | 314 | 0 | 4,450 | 32,845 | 1,907 | 28,395 | 7.4 |
| BARRACKS-07 | Hot Water Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 9 | 1 | 0.9582 | Gen. Hot Wtr. | Propane | 768 | 0 | 19,960 | 384,533 | 22,330 | 364,573 | 19.3 |
| CHAPEL-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.75 | 0.75 | 0.75 | Propane | Propane | 9 | 0 | 66 | 211 | 46 | 146 | 3.2 |
| CHAPEL-02 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.25 | 0.75 | 0.75 | Propane | Propane | 18 | 0 | 106 | 409 | 90 | 304 | 3 9 |
| CLINIC-02 | Propane SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 2 | 0.75 | 0.75 | Propane | Propane | 28 | 0 | 223 | 644 | 141 | 421 | 2.9 |
| CLUBS-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0 07 | 0.75 | 0.75 | Propane | Propane | 1 | 0 | 7 | 23 | 5 | 16 | 3.3 |
| CLUBS-03 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 1 | 0.8628 | 0.8628 | Propane | Propane | 369 | 0 | 508 | 38,578 | 2,240 | 38,070 | 75 9 |
| COMMISSARIES | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 1 | 0.8576 | 0.8576 | Propane | Propane | 197 | 0 | 231 | 20,605 | 1,197 | 20,374 | 89.3 |
| DINING HALLS-01 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 8.16 | 1 | 1 | Electricity | Electricity | 44 | 2 | 676 | 5,037 | 933 | 4,361 | 7.5 |
| DINING HALLS-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 17.5 | 0.75 | 0.75 | Propane | Propane | 202 | 0 | 1,439 | 4,645 | 1,017 | 3,206 | 3 2 |
| DINING HALLS-04 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 16.36 | 0.75 | 0.75 | Propane | Propane | 186 | 0 | 1,328 | 4,283 | 938 | 2,954 | 3.2 |
| DINING HALLS-06 | Hot Water Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 1 | 0 9581 | Gen. Hot Wtr. | Propane | 186 | 0 | 2,305 | 53,399 | 3,101 | 51,093 | 23 2 |
| ELECTRONICS-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.38 | 0.75 | 0.75 | Propane | Propane | 8 | 0 | 33 | 186 | 41 | 153 | 5 7 |
| EXCHANGE FACILITIES-01 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.15 | 1 | 1 | Electricity | Electricity | 1 | 0 | 18 | 176 | 33 | 158 | 9.9 |
| EXCHANGE FACILITIES-02 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.64 | 1 | 1 | Electricity | Electricity | 4 | 0 | 57 | 526 | 97 | 469 | 9 2 |
| EXCHANGE FACILITIES-03 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 0.75 | 0.7628 | 0.7628 | Propane | Propane | 45 | 0 | 52 | 2,021 | 238 | 1,969 | 38.8 |
| EXCHANGE FACILITIES-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.31 | 0.75 | 0.75 | Propane | Propane | 5 | 0 | 27 | 150 | 28 | 123 | 5.5 |
| EXCHANGE FACILITIES-04 | Electric Central Boiler | Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators | 1 | 1 | 1 | Electricity | Electricity | 14 | 1 | 119 | 6,268 | 364 | 6,150 | 52.7 |
| FH-3 OR MORE-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 86.4 | 0.75 | 0.75 | Propane | Propane | 1,874 | 0 | 13,034 | 43,113 | 9,441 | 30,079 | 3.3 |
| FH-3 OR MORE-02 | Propane SHW Heater | 0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 300 | 0.75 | 0.85 | Propane | Propane | 7,917 | 0 | 18,926 | 38,194 | 39,378 | 19,267 | 2 0 |
| FH-3 OR MORE-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 141.6 | 0.77 | 0.77 | Propane | Propane | 3,618 | 0 | 20,856 | 115,251 | 18,568 | 94,395 | 5.5 |
| FH-DETACHED-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 116.8 | 0.75 | 0.75 | Propane | Propane | 1,730 | 0 | 15,098 | 39,816 | 8,719 | 24,718 | 2.6 |
| FH-DETACHED-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 81 | 0.77 | 0.77 | Propane | Propane | 668 | 0 | 9,477 | 21,272 | 3,427 | 11,795 | 2.2 |
| FH-DUPLEX-01 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 172 8 | 0.75 | 0.75 | Propane | Propane | 6,234 | 0 | 17,038 | 143,436 | 31,409 | 126,398 | 8.4 |
| FH-DUPLEX-02 | Propane SHW Heater | 0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 20.8 | 0.75 | 0 85 | Propane | Propane | 1,132 | 0 | 5,654 | 26,040 | 5,702 | 20,386 | 4 6 |
| FH-DUPLEX-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 187.2 | 0.77 | 0.77 | Propane | Propane | 10,311 | 0 | 18,797 | 328,507 | 52,926 | 309,710 | 17.5 |
| GUEST HOUSES-01 | Electric SHW Heater | 0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 6 | 1 | 0.76 | Electricity | Propane | -9 | 6 | 1,493 | 8,349 | 1,546 | 6,855 | 5.6 |
| GUEST HOUSES-02 | Electric SHW Heater | 0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 6 | 1 | 0.76 | Electricity | Propane | -5 | 7 | 279 | 1,704 | 1,757 | 1,425 | 6.1 |
| HOSPITAL | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 0.7849 | 0 9577 | Propane | Propane | 567 | 0 | 5,716 | 37,700 | 3,181 | 31,984 | 6 6 |

## Table 2.10. (contd)

| Building Set | Existing Technology | Retrofit Technology | Retro Number (a) | Exist Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LABS-01 | Propane SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 0.2 | 0.75 | 0.75 | Propane | Propane | 3 | 0 | 20 | 65 | 14 | 45 | 3.3 |
| LABS-02 | Propane SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 0.11 | 0.75 | 0.75 | Propane | Propane | 2 | 0 | 11 | 36 | 8 | 26 | 3.4 |
| MILITARY OTHER-01 | Electric SHW Heater | Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM) | 0.18 | 1 | 0.76 | Electricity | Propane | -1 | 0 | 102 | 355 | 66 | 253 | 3.5 |
| MILITARY OTHER-03 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.08 | 1 | 1 | Electricity | Electricity | 0 | 0 | 12 | 60 | 11 | 48 | 5.1 |
| MILITARY OTHER-04 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.5 | 0.75 | 0.75 | Propane | Propane | 3 | 0 | 46 | 58 | 13 | 12 | 1.3 |
| MILITARY OTHER-05 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 8 | 0.8514 | 0.8514 | Propane | Propane | 120 | 0 | 320 | 12,525 | 727 | 12,205 | 39.2 |
| MWR-02 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 2 | 1 | 1 | Electricity | Electricity | 8 | 1 | 183 | 1,022 | 224 | 839 | 5.6 |
| MWR-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.25 | 0.75 | 0.75 | Propane | Propane | 7 | 0 | 106 | 122 | 33 | 16 | 1.2 |
| MWR-04 | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 2 | 0.8043 | 0.9583 | Propane | Propane | 98 | 0 | 788 | 8,412 | 571 | 7,624 | 10.7 |
| MWR-04 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.12 | 0.75 | 0.75 | Propane | Propane | 16 | 0 | 99 | 361 | 79 | 262 | 3.7 |
| MWR-05 | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 0.7747 | 0.9582 | Propane | Propane | 121 | 0 | 503 | 6,500 | 657 | 5,997 | 12.9 |
| MWR-05a | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.5 | 0.75 | 0.75 | Propane | Propane | 6 | 0 | 43 | 147 | 32 | 104 | 3.4 |
| MWR-06 | Propane Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 0.8413 | 0.9582 | Propane | Propane | 59 | 0 | 821 | 6,153 | 357 | 5,332 | 7.5 |
| MWR-07 | Propane SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 0.38 | 0.75 | 0.75 | Propane | Propane | 8 | 0 | 32 | 76 | 40 | 44 | 2.4 |
| RECREATION-02 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.25 | 0.75 | 0.75 | Propane | Propane | 18 | 0 | 114 | 412 | 90 | 298 | 3.6 |
| RECREATION-04 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 1 | 0.8508 | 0.8508 | Propane | Propane | 76 | 0 | 562 | 7,941 | 461 | 7,379 | 14.1 |
| SCHOOL/TRAINING-01 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.5 | 1 | 1 | Electricity | Electricity | 5 | 0 | 49 | 701 | 130 | 651 | 14.2 |
| SCHOOL/TRAINING-02 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1.12 | 1 | 1 | Electricity | Electricity | 39 | 4 | 197 | 4,947 | 1,334 | 4,750 | 25.1 |
| SCHOOL/TRAINING-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 3.92 | 0.75 | 0.75 | Propane | Propane | 55 | 0 | 358 | 1,258 | 276 | 900 | 3.5 |
| SECURITY-02 | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 1 | 1 | 0.76 | Electricity | Propane | 2 | 1 | 608 | 1,859 | 344 | 1,250 | 3.1 |
| SHOPS-02 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.33 | 1 | 1 | Electricity | Electricity | 2 | 0 | 39 | 136 | 48 | 97 | 3.5 |
| SHOPS-03 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 31.25 | 0.75 | 0.75 | Propane | Propane | 362 | 0 | 3,223 | 8,338 | 1,826 | 5,116 | 2.6 |
| SHOPS-04 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1 | 0.75 | 0.75 | Propane | Propane | 14 | 0 | 109 | 323 | 71 | 214 | 3.0 |
| SHOPS-05 | Propane SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 4 | 0.75 | 0.75 | Propane | Propane | 40 | 0 | 281 | 930 | 204 | 649 | 3.3 |
| WAREHOUSE-05 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 4.79 | 0.75 | 0.75 | Propane | Propane | 60 | 0 | 439 | 1,370 | 300 | 931 | 3.1 |
| WAREHOUSE-06 | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 1 | 1 | 1 | Electricity | Electricity | 5 | 0 | 86 | 632 | 117 | 546 | 7.4 |
| WAREHOUSE-07 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.75 | 0.75 | 0.75 | Propane | Propane | 10 | 0 | 72 | 231 | 51 | 160 | 3.2 |
| WAREHOUSE-08 | Propane Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 1 | 0.7852 | 0.7852 | Propane | Propane | 7 | 0 | 11 | 454 | 38 | 442 | 40.5 |
| WAREHOUSE-08 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.5 | 0.75 | 0.75 | Propane | Propane | 6 | 0 | 43 | 132 | 29 | 90 | 3.1 |
| WAREHOUSE-09 | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp. | 0.08 | 1 | 0.76 | Electricity | Propane | 0 | 0 | 32 | 74 | 20 | 42 | 2.3 |
| WAREHOUSE-12 | Propane SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 0.5 | 0.75 | 0.75 | Propane | Propane | 6 | 0 | 43 | 134 | 29 | 91 | 3.1 |
| TOTALS: | | | | | | | | 40,609 | 26 | 188,447 | 1,743,372 | 242,457 | 1,554,924 | 9.3 |

Notes:

(a) Number of units for SHW retrofits is prorated to assumed standard sizes and therefore will not reflect the actual number of SHW heaters.

## 2.6 Manual Service Hot Water EROs

This section presents two service hot water EROs not analyzed by FEDS Level-2. Air conditioning desuperheaters are devices which use the waste heat from air-cooled condensers to heat domestic hot water. The water heater controller is a device which monitors hot water usage and resets the hot water temperature during periods of low use.

### 2.6.1 A/C Desuperheater ERO

**Description**

A desuperheater is a heat exchanger that transfers waste heat from an air conditioner or refrigeration system to the domestic hot water system. The air conditioner and the water heater serve opposite functions; the air conditioner takes heat from the interior and expels it outside, while the water heater uses an outside source of energy to generate hot water. Fortuitously, the rejected heat from the air conditioner is usually around 140°F, which is the typical setting for most domestic hot water systems.

The heat rejection part of the air conditioning cycle occurs in the condenser. The desuperheater is installed between the compressor and condenser to recover some of the heat before it is rejected to the atmosphere. A counterflow heat exchanger is used to transfer the heat to any process requiring heat. For example: the incoming cold water, cool water recirculated from the domestic water storage tank, building hot water circulating loop, or a process hot water system.

In addition to being able to supply the majority of the hot water needs during the cooling season, the desuperheater also helps improve overall air conditioner efficiency by about 15%. This reduces electric consumption and demand and will help prolong A/C equipment life.

The desuperheater can be installed with a number of controls options. Among those recommended are a compressor interlock, and winter freeze protection. The compressor interlock will only operate the desuperheater when the A/C system is also operating. Freeze protection can take a number of forms, from draining the system to heat tape to continuous water circulation. The most efficient system uses heat tape controlled by a simple thermostat set to come on when the temperature drops below 40-45°F. While draining the system will save the most energy, there is the added maintenance expense involved with draining, then refilling the system every year.

A total of 61 air-cooled air conditioning units in 27 buildings are considered in this ERO. This ERO is applied to A/C units with 10 or more tons of cooling capacity that were listed in the RPL or identified during site visits. There are many A/C units with less than 10 tons capacity on Fort Irwin which may be suitable for this technology, but insufficient information was available to fully analyze this ERO for those units. Also not addressed in this analysis are facilities with commercial refrigeration equipment in use, i.e., commissary, dining halls, etc. Any building using a vapor-compression type cooling system for any application has potential for waste heat recovery using a desuperheater.

**Assumptions**

The technical assumptions are as follows:

- Domestic hot water and air conditioning energy consumption are calculated from the DHW and cooling EUIs in Volume 2 of this report. The EUI is multiplied by the building area to get the energy consumption for each end-use in each building.

- In buildings where there were more than one A/C unit, the area ($ft^2$) served by each unit was prorated by A/C tonnage. While desuperheaters are usually limited to one desuperheater for each A/C unit, it is possible in some cases to connect multiple A/C units to one desuperheater. For this analysis, each A/C unit is assumed to be served by one desuperheater.

- Heat recovery by the desuperheater is assumed to be 3,000 Btu per hour, per ton of cooling capacity. Actual heat recovery rates depend on the temperature of the incoming water.

- Efficiency of existing air-cooled A/C units is assumed to be 1.5 kW/ton. After installation of the desuperheater, this efficiency will improve by 15%, to 1.275 kW/ton.

- The cooling systems were assumed to operate over an eight month period. To find the percent of the DHW load replaced by the desuperheater, the energy consumption (and operating hours) for both the DHW and A/C systems were prorated by 8/12ths.

- The equipment life of the desuperheater is 15 years. Minimal maintenance is required; the water-side tubes should be cleaned every 2-3 years.

The cost assumptions are as follows:

- From conversations with manufacturer's representatives, the following formula was derived for the cost of the desuperheater unit:

$$\text{Cost (1993 \$)} = \tfrac{1}{2}(73.322 * \text{A/C tons} + 752.38)$$

- The cost for installation was more difficult to determine. Much of the costs will depend on the individual layout of each building and A/C system. Number, type and size of any piping, fittings, valves, etc. will depend on the size and configuration of the A/C unit being retrofitted. For this analysis, a labor and associated materials cost was assumed to be equal to the cost of the desuperheater unit.

- An annual maintenance cost of $50 was added to the analysis to cover the periodic tube cleaning required.

**Results**

The complete quantitative results of this ERO appear in Table 2.11. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial cost of this ERO is $118,124 for all cost-effective implementations.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in energy savings of 199,341 kWh and 3,664 MBtu (LPG) at a value of $34,043, and electric demand savings of 2,198 kW-months at a value of $24,124.

**Operations and Maintenance.** As described above, a periodic cleaning of the water-side tubes is required to maintain efficiency and prolong unit life. The estimated additional maintenance cost of $1,900 should cover the cleaning and any other O&M issues.

### 2.6.2 Water Heater Controller ERO (discussion only)

A water heater controller is a device that limits water heater operation based on hot water demand. The controller has three temperature sensors: in the tank, on the supply line, and on the return (recirculating) line. With the information gathered from these sensors, a microprocessor in the controller predicts the future hot water consumption and adjusts the hot water temperature accordingly. Therefore, during periods of low hot water demand, the temperature can be "set back" to reduce energy losses through the circulating system and standby losses in the storage tank.

The benefit of using the controller versus simply reducing the temperature setpoint on the water heater is that the controller can "raise" the setpoint when it senses hot water demand, ensuring a continuous supply of hot water. Changes in the hot water temperature are actually made by the controller selectively energizing the water heater thermostat, so when the controller has selected a lower temperature than the thermostat, it cycles the thermostat on and off to maintain the lower temperature. If the controller fails, the original setpoint is maintained and an adequate supply of hot water is assured.

For example, the system might lower the temperature setpoint from 140°F to 110°F during periods of low demand. This still allows adequate hot water for most domestic uses, only little or no cold water is mixed to bring the temperature down to a usable level. If there is an unexpected demand on the system, the controller will automatically raise the water temperature to maintain an adequate hot water supply; the high temperature water can be mixed with cold water to "produce" more water at a usable temperature.

Other benefits include reduced equipment run-time and reduced scale deposits (due to lower water temperature), which should prolong equipment life and reduce maintenance requirements.

The controller can be used in any building with a circulating hot water system without demands for constant temperature process loads (e.g., dishwashing). Of particular interest at Fort Irwin are the facilities (barracks and showerhouses) used during the training rotations. Many of these buildings are occupied for only a few days every two weeks; while troops are preparing to go into the field, or returning from the field. The rest of the time they are used minimally, if at all. While it is expected that the occupants will turn off the lights and heating or cooling equipment when they go out into the field, they can hardly be expected to turn down the water heater. Energy can be saved by automatically lowering the hot water setpoint during the field training periods.

While the controller manufacturer claims 20-30% savings, more information regarding current hot water consumption, schedules, and heat losses is required to fully analyze this ERO. With load profiles developed by either water temperature metering or boiler/water heater firing times, estimates can be made both of the amount of energy lost during periods of low use and the range of temperature settings that could be used by the controller. With this information, an estimated savings could be calculated, and life-cycle cost analysis completed.

## Table 2.11. Desuperheater EROs

Existing A/C & Water Heater Operating Parameters

| ID | Bldg. Number | Equipment | A/C Rating (tons) | Number of Units | A/C Efficienc (kW/ton) | Bldg Area Served (sqft) | DHW EUI (KBtu/ sqft-yr) | A/C EUI (kWh/ sqft-yr) | Annual Energy Consumption | | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Summer Electric | | | Winter Electric | | Summer | | Winter |
| | | | | | | | | | LPG (MBtu/yr) | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | 00013 | CHILLER-air cooled | 35 | 1 | 1.5 | 4,771 | 0.53 | 1.38 | 2.53 | 1,067 | 1,527 | 2,370 | 1,073 | 546 | 210 | 105 | 105 |
| 2 | 00021 | PKG UNIT | 15 | 2 | 1.5 | 4,281 | 14.8 | 5.97 | 63.35 | 4,143 | 5,928 | 9,198 | 4,167 | 2,119 | 90 | 45 | 45 |
| 4 | 00034 | PKG UNIT | 5 | 1 | 1.5 | 3,500 | 0.44 | 0.75 | 1.54 | 426 | 609 | 945 | 428 | 218 | 30 | 15 | 15 |
| 5 | 00037 | AIR CONDITIONER | 7.5 | 2 | 1.5 | 3,418 | 14.8 | 5.97 | 50.58 | 3,308 | 4,733 | 7,344 | 3,327 | 1,692 | 90 | 45 | 45 |
| 6 | 00037 | AIR CONDITIONER | 5 | 1 | 1.5 | 1,139 | 14.8 | 5.97 | 16.86 | 1,103 | 1,578 | 2,448 | 1,109 | 564 | 30 | 15 | 15 |
| 7 | 00037 | AIR CONDITIONER | 5 | 2 | 1.5 | 2,278 | 14.8 | 5.97 | 33.72 | 2,205 | 3,155 | 4,896 | 2,218 | 1,128 | 60 | 30 | 30 |
| 8 | 00037 | PKG A/C | 25 | 1 | 1.5 | 5,696 | 14.8 | 5.97 | 84.30 | 5,513 | 7,889 | 12,240 | 5,544 | 2,820 | 150 | 75 | 75 |
| 9 | 00037 | PKG A/C | 10 | 4 | 1.5 | 9,113 | 14.8 | 5.97 | 134.88 | 8,820 | 12,622 | 19,583 | 8,871 | 4,511 | 240 | 120 | 120 |
| 10 | 00037 | PKG A/C | 15 | 1 | 1.5 | 3,418 | 14.8 | 5.97 | 50.58 | 3,308 | 4,733 | 7,344 | 3,327 | 1,692 | 90 | 45 | 45 |
| 11 | 00130 | AIR CONDITIONER | 20 | 1 | 1.5 | 24,000 | 1.3 | 0.75 | 31.20 | 2,918 | 4,176 | 6,479 | 2,935 | 1,493 | 120 | 60 | 60 |
| 12 | 00152 | PKG UNIT | 5 | 1 | 1.5 | 969 | 1.3 | 0.75 | 1.26 | 118 | 169 | 262 | 118 | 60 | 30 | 15 | 15 |
| 13 | 00166 | CHILLER-air cooled | 175 | 2 | 1.5 | 63,818 | 30.14 | 9.44 | 1923.47 | 97,663 | 139,759 | 216,842 | 98,224 | 49,954 | 2,100 | 1,050 | 1,050 |
| 14 | 00171 | AIR CONDITIONER | 42 | 1 | 1.5 | 12,820 | 15 | 4.72 | 192.30 | 9,809 | 14,038 | 21,780 | 9,866 | 5,017 | 252 | 126 | 126 |
| 15 | 00202 | AIR CONDITIONER | 10 | 1 | 1.5 | 2,696 | 14.8 | 5.97 | 39.90 | 2,609 | 3,733 | 5,793 | 2,624 | 1,334 | 60 | 30 | 30 |
| 16 | 00202 | AIR CONDITIONER | 18 | 1 | 1.5 | 4,852 | 14.8 | 5.97 | 71.81 | 4,696 | 6,720 | 10,427 | 4,723 | 2,402 | 108 | 54 | 54 |
| 17 | 00222 | PKG UNIT | 24 | 2 | 1.5 | 4,339 | 14.84 | 5.97 | 64.39 | 4,199 | 6,010 | 9,324 | 4,224 | 2,148 | 288 | 144 | 144 |
| 18 | 00222 | PKG UNIT | 50 | 2 | 1.5 | 9,040 | 14.84 | 5.97 | 134.15 | 8,749 | 12,520 | 19,425 | 8,799 | 4,475 | 600 | 300 | 300 |
| 19 | 00237 | AIR CONDITIONER | 7.5 | 2 | 1.5 | 13,612 | 1.3 | 0.75 | 17.70 | 1,655 | 2,368 | 3,675 | 1,665 | 847 | 90 | 45 | 45 |
| 20 | 00248 | PKG UNIT | 8 | 3 | 1.5 | 16,704 | 1.3 | 0.75 | 21.72 | 2,031 | 2,906 | 4,509 | 2,043 | 1,039 | 144 | 72 | 72 |
| 21 | 00254 | PKG UNIT | 32 | 1 | 1.5 | 10,860 | 14.84 | 5.97 | 161.16 | 10,510 | 15,041 | 23,336 | 10,571 | 5,376 | 192 | 96 | 96 |
| 22 | 00255 | PKG UNIT | 6 | 2 | 1.5 | 3,209 | 1.3 | 0.75 | 4.17 | 390 | 558 | 866 | 392 | 200 | 72 | 36 | 36 |
| 23 | 00255 | PKG UNIT | 12.8 | 1 | 1.5 | 3,423 | 1.3 | 0.75 | 4.45 | 416 | 596 | 924 | 419 | 213 | 77 | 38 | 38 |
| 24 | 00258 | PKG UNIT | 6 | 2 | 1.5 | 3,209 | 1.3 | 0.75 | 4.17 | 390 | 558 | 866 | 392 | 200 | 72 | 36 | 36 |
| 25 | 00258 | PKG UNIT | 12.8 | 1 | 1.5 | 3,423 | 1.3 | 0.75 | 4.45 | 416 | 596 | 924 | 419 | 213 | 77 | 38 | 38 |
| 26 | 00323 | PKG UNIT | 7.5 | 3 | 1.5 | 2,880 | 7.42 | 9 | 21.37 | 4,202 | 6,013 | 9,330 | 4,226 | 2,149 | 135 | 68 | 68 |
| 27 | 00323 | PKG UNIT | 5 | 1 | 1.5 | 640 | 7.42 | 9 | 4.75 | 934 | 1,336 | 2,073 | 939 | 478 | 30 | 15 | 15 |
| 28 | 00488 | PKG A/C | 20 | 2 | 1.5 | 6,265 | 1.3 | 0.75 | 8.14 | 762 | 1,090 | 1,691 | 766 | 390 | 240 | 120 | 120 |
| 29 | 00826 | PKG UNIT | 8.5 | 1 | 1.5 | 7,280 | 1.3 | 0.75 | 9.46 | 885 | 1,267 | 1,965 | 890 | 453 | 51 | 26 | 26 |
| 30 | 00857 | Chiller-air cooled | 40 | 1 | 1.5 | 7,200 | 1.01 | 1.28 | 7.27 | 1,494 | 2,138 | 3,317 | 1,503 | 764 | 240 | 120 | 120 |
| 31 | 00905 | CHILLER-air cooled | 40 | 1 | 1.5 | 17,423 | 8.97 | 0.75 | 156.29 | 2,118 | 3,031 | 4,703 | 2,131 | 1,084 | 240 | 120 | 120 |
| 32 | 00905 | PKG UNIT | 7.5 | 1 | 1.5 | 3,267 | 8.97 | 0.75 | 29.30 | 397 | 568 | 882 | 399 | 203 | 45 | 23 | 23 |
| 33 | 00920 | AIR CONDITIONER | 51 | 1 | 1.5 | 56,500 | 3.77 | 1.24 | 213.01 | 11,358 | 16,253 | 25,217 | 11,423 | 5,809 | 306 | 153 | 153 |
| 34 | 00983 | PKG A/C | 15 | 1 | 1.5 | 4,140 | 1.3 | 0.75 | 5.38 | 503 | 720 | 1,118 | 506 | 257 | 90 | 45 | 45 |
| 35 | 00988 | CHILLER | 40 | 1 | 1.5 | 24,000 | 1.3 | 0.75 | 31.20 | 2,918 | 4,176 | 6,479 | 2,935 | 1,493 | 240 | 120 | 120 |
| 36 | 01313 | PKG UNIT | 12 | 1 | 1.5 | 4,800 | 1.17 | 1.4 | 5.62 | 1,089 | 1,559 | 2,419 | 1,096 | 557 | 72 | 36 | 36 |
| 37 | 01322 | AIR CONDITIONER | 8 | 1 | 1.5 | 2,470 | 1.17 | 1.4 | 2.89 | 561 | 802 | 1,245 | 564 | 287 | 48 | 24 | 24 |
| 38 | 01322 | AIR CONDITIONER | 5 | 2 | 1.5 | 1,544 | 1.17 | 1.4 | 1.81 | 350 | 501 | 778 | 352 | 179 | 30 | 15 | 15 |
| 40 | 01322 | PKG UNIT | 5 | 3 | 1.5 | 1,544 | 1.17 | 1.4 | 1.81 | 350 | 501 | 778 | 352 | 179 | 30 | 15 | 15 |
| 43 | 01322 | PKG UNIT | 8 | 1 | 1.5 | 2,470 | 1.17 | 1.4 | 2.89 | 561 | 802 | 1,245 | 564 | 287 | 48 | 24 | 24 |
| 44 | 20001 | AIR CONDITIONER | 30 | 1 | 1.5 | 12,650 | 0.54 | 0.73 | 6.83 | 1,497 | 2,142 | 3,324 | 1,506 | 766 | 180 | 90 | 90 |
| 45 | 20018 | AIR CONDITIONER | 10 | 1 | 1.5 | 6,300 | 14.8 | 5.97 | 93.24 | 6,097 | 8,725 | 13,538 | 6,132 | 3,119 | 60 | 30 | 30 |

## Table 2.11. (contd)

### Desuperheater ERO Operating Parameters

| ID | Description of ERO | A/C Efficiency (kW/ton) | Annual Energy Consumption | | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Summer Electric | | | Winter Electric | | Summer | | Winter |
| | | | LPG (MBtu/yr) | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Install Desuperheater | 1.275 | 0.07 | 907 | 1,298 | 2,014 | 912 | 464 | 179 | 89 | 89 |
| 2 | Install Desuperheater | 1.275 | 1.76 | 3,521 | 5,039 | 7,818 | 3,542 | 1,801 | 77 | 38 | 38 |
| 4 | Install Desuperheater | 1.275 | 0.04 | 362 | 518 | 803 | 364 | 185 | 26 | 13 | 13 |
| 5 | Install Desuperheater | 1.275 | 1.40 | 2,811 | 4,023 | 6,242 | 2,828 | 1,438 | 77 | 38 | 38 |
| 6 | Install Desuperheater | 1.275 | 0.47 | 937 | 1,341 | 2,081 | 943 | 479 | 26 | 13 | 13 |
| 7 | Install Desuperheater | 1.275 | 0.94 | 1,874 | 2,682 | 4,161 | 1,885 | 959 | 51 | 26 | 26 |
| 8 | Install Desuperheater | 1.275 | 2.34 | 4,686 | 6,705 | 10,404 | 4,713 | 2,397 | 128 | 64 | 64 |
| 9 | Install Desuperheater | 1.275 | 3.75 | 7,497 | 10,729 | 16,646 | 7,540 | 3,835 | 204 | 102 | 102 |
| 10 | Install Desuperheater | 1.275 | 1.40 | 2,811 | 4,023 | 6,242 | 2,828 | 1,438 | 77 | 38 | 38 |
| 11 | Install Desuperheater | 1.275 | 0.87 | 2,480 | 3,549 | 5,507 | 2,495 | 1,269 | 102 | 51 | 51 |
| 12 | Install Desuperheater | 1.275 | 0.03 | 100 | 143 | 222 | 101 | 51 | 26 | 13 | 13 |
| 13 | Install Desuperheater | 1.275 | 53.43 | 83,014 | 118,795 | 184,315 | 83,491 | 42,461 | 1785 | 893 | 893 |
| 14 | Install Desuperheater | 1.275 | 5.34 | 8,338 | 11,932 | 18,513 | 8,386 | 4,265 | 214 | 107 | 107 |
| 15 | Install Desuperheater | 1.275 | 1.11 | 2,218 | 3,173 | 4,924 | 2,230 | 1,134 | 51 | 26 | 26 |
| 16 | Install Desuperheater | 1.275 | 1.99 | 3,992 | 5,712 | 8,863 | 4,015 | 2,042 | 92 | 46 | 46 |
| 17 | Install Desuperheater | 1.275 | 1.79 | 3,570 | 5,108 | 7,925 | 3,590 | 1,826 | 245 | 122 | 122 |
| 18 | Install Desuperheater | 1.275 | 3.73 | 7,437 | 10,642 | 16,511 | 7,479 | 3,804 | 510 | 255 | 255 |
| 19 | Install Desuperheater | 1.275 | 0.49 | 1,407 | 2,013 | 3,123 | 1,415 | 720 | 77 | 38 | 38 |
| 20 | Install Desuperheater | 1.275 | 0.60 | 1,726 | 2,470 | 3,833 | 1,736 | 883 | 122 | 61 | 61 |
| 21 | Install Desuperheater | 1.275 | 4.48 | 8,934 | 12,785 | 19,836 | 8,985 | 4,570 | 163 | 82 | 82 |
| 22 | Install Desuperheater | 1.275 | 0.12 | 332 | 475 | 736 | 334 | 170 | 61 | 31 | 31 |
| 23 | Install Desuperheater | 1.275 | 0.12 | 354 | 506 | 785 | 356 | 181 | 65 | 33 | 33 |
| 24 | Install Desuperheater | 1.275 | 0.12 | 332 | 475 | 736 | 334 | 170 | 61 | 31 | 31 |
| 25 | Install Desuperheater | 1.275 | 0.12 | 354 | 506 | 785 | 356 | 181 | 65 | 33 | 33 |
| 26 | Install Desuperheater | 1.275 | 0.59 | 3,572 | 5,111 | 7,930 | 3,592 | 1,827 | 115 | 57 | 57 |
| 27 | Install Desuperheater | 1.275 | 0.13 | 794 | 1,136 | 1,762 | 798 | 406 | 26 | 13 | 13 |
| 28 | Install Desuperheater | 1.275 | 0.23 | 647 | 927 | 1,438 | 651 | 331 | 204 | 102 | 102 |
| 29 | Install Desuperheater | 1.275 | 0.26 | 752 | 1,077 | 1,670 | 757 | 385 | 43 | 22 | 22 |
| 30 | Install Desuperheater | 1.275 | 0.20 | 1,270 | 1,817 | 2,820 | 1,277 | 650 | 204 | 102 | 102 |
| 31 | Install Desuperheater | 1.275 | 7.61 | 1,801 | 2,577 | 3,998 | 1,811 | 921 | 204 | 102 | 102 |
| 32 | Install Desuperheater | 1.275 | 1.43 | 338 | 483 | 750 | 340 | 173 | 38 | 19 | 19 |
| 33 | Install Desuperheater | 1.275 | 5.92 | 9,654 | 13,815 | 21,435 | 9,709 | 4,938 | 260 | 130 | 130 |
| 34 | Install Desuperheater | 1.275 | 0.15 | 428 | 612 | 950 | 430 | 219 | 77 | 38 | 38 |
| 35 | Install Desuperheater | 1.275 | 0.87 | 2,480 | 3,549 | 5,507 | 2,495 | 1,269 | 204 | 102 | 102 |
| 36 | Install Desuperheater | 1.275 | 0.16 | 926 | 1,325 | 2,056 | 931 | 474 | 61 | 31 | 31 |
| 37 | Install Desuperheater | 1.275 | 0.08 | 477 | 682 | 1,058 | 479 | 244 | 41 | 20 | 20 |
| 38 | Install Desuperheater | 1.275 | 0.05 | 298 | 426 | 661 | 300 | 152 | 26 | 13 | 13 |
| 40 | Install Desuperheater | 1.275 | 0.05 | 298 | 426 | 661 | 300 | 152 | 26 | 13 | 13 |
| 43 | Install Desuperheater | 1.275 | 0.08 | 477 | 682 | 1,058 | 479 | 244 | 41 | 20 | 20 |
| 44 | Install Desuperheater | 1.275 | 0.19 | 1,272 | 1,821 | 2,825 | 1,280 | 651 | 153 | 77 | 77 |
| 45 | Install Desuperheater | 1.275 | 2.59 | 5,183 | 7,416 | 11,507 | 5,212 | 2,651 | 51 | 26 | 26 |

## Table 2.11. (contd)

Desuperheater ERO Economic Parameters

| ID | Equipment Cost (1994 $) | Installation Labor Cost (1994 $) | Addn'l Maint. Cost ($/yr) | Equip. Life (Years) | First Year Energy and Demand Savings | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | LPG Savings (MBtu) | Electric Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | 1,659 | 1,659 | 50 | 15 | 2 | 988 | 63 | 82 | 691 | 773 | 7,635 | 3.30 |
| 2 | 926 | 926 | 50 | 15 | 62 | 3,833 | 27 | 606 | 296 | 902 | 11,980 | 7.47 |
| 3 | 926 | 926 | 50 | 15 | 62 | 3,833 | 27 | 606 | 296 | 902 | 11,980 | 7.47 |
| 5 | 926 | 926 | 50 | 15 | 49 | 3,060 | 27 | 484 | 296 | 780 | 9,877 | 6.33 |
| 6 | 559 | 559 | 50 | 15 | 16 | 1,020 | 9 | 161 | 99 | 260 | 1,990 | 2 78 |
| 7 | 743 | 743 | 50 | 15 | 33 | 2,040 | 18 | 322 | 198 | 520 | 5,933 | 4.99 |
| 8 | 1,293 | 1,293 | 50 | 15 | 82 | 5,101 | 45 | 806 | 494 | 1,300 | 17,765 | 7.87 |
| 9 | 1,843 | 1,843 | 50 | 15 | 131 | 8,161 | 72 | 1,289 | 790 | 2,080 | 29,597 | 9.03 |
| 10 | 926 | 926 | 50 | 15 | 49 | 3,060 | 27 | 484 | 296 | 780 | 9,877 | 6.33 |
| 11 | 1,109 | 1,109 | 50 | 15 | 30 | 2,700 | 36 | 354 | 395 | 750 | 8,823 | 4.98 |
| 13 | 13,208 | 13,208 | 50 | 15 | 1,870 | 90,366 | 630 | 16,588 | 6,915 | 23,502 | 365,486 | 14.84 |
| 14 | 1,916 | 1,916 | 50 | 15 | 187 | 9,077 | 75.6 | 1,661 | 830 | 2,491 | 36,469 | 10.52 |
| 15 | 743 | 743 | 50 | 15 | 39 | 2,414 | 18 | 381 | 198 | 579 | 6,950 | 5.68 |
| 16 | 1,036 | 1,036 | 50 | 15 | 70 | 4,345 | 32.4 | 686 | 356 | 1,042 | 14,074 | 7.79 |
| 17 | 2,136 | 2,136 | 50 | 15 | 63 | 3,886 | 86.4 | 615 | 948 | 1,563 | 19,850 | 5.65 |
| 18 | 4,042 | 4,042 | 50 | 15 | 130 | 8,095 | 180 | 1,281 | 1,976 | 3,256 | 43,471 | 6.38 |
| 19 | 926 | 926 | 50 | 15 | 17 | 1,531 | 27 | 201 | 296 | 497 | 5,013 | 3.71 |
| 20 | 1,256 | 1,256 | 50 | 15 | 21 | 1,879 | 43.2 | 247 | 474 | 721 | 7,902 | 4.15 |
| 21 | 1,549 | 1,549 | 50 | 15 | 157 | 9,725 | 57.6 | 1,539 | 632 | 2,171 | 32,023 | 11.33 |
| 22 | 816 | 816 | 50 | 15 | 4 | 361 | 21.6 | 47 | 237 | 284 | 1,666 | 2.02 |
| 23 | 845 | 845 | 50 | 15 | 4 | 385 | 23.04 | 51 | 253 | 303 | 1,907 | 2.13 |
| 24 | 816 | 816 | 50 | 15 | 4 | 361 | 21.6 | 47 | 237 | 284 | 1,666 | 2.02 |
| 25 | 845 | 845 | 50 | 15 | 4 | 385 | 23.04 | 51 | 253 | 303 | 1,907 | 2.13 |
| 26 | 1,201 | 1,201 | 50 | 15 | 21 | 3,888 | 40.5 | 384 | 445 | 828 | 9,912 | 5.13 |
| 27 | 559 | 559 | 50 | 15 | 5 | 864 | 9 | 85 | 99 | 184 | 683 | 1.61 |
| 28 | 1,843 | 1,843 | 50 | 15 | 8 | 705 | 72 | 93 | 790 | 883 | 8,986 | 3.44 |
| 29 | 688 | 688 | 50 | 15 | 9 | 819 | 15.3 | 108 | 168 | 275 | 1,883 | 2.37 |
| 30 | 1,843 | 1,843 | 50 | 15 | 7 | 1,382 | 72 | 135 | 790 | 925 | 9,712 | 3.64 |
| 31 | 1,843 | 1,843 | 50 | 15 | 149 | 1,960 | 72 | 957 | 790 | 1,748 | 23,881 | 7.48 |
| 32 | 651 | 651 | 50 | 15 | 28 | 368 | 13.5 | 180 | 148 | 328 | 2,890 | 3.22 |
| 33 | 2,246 | 2,246 | 50 | 15 | 207 | 10,509 | 91.8 | 1,872 | 1,008 | 2,879 | 42,194 | 10.39 |
| 34 | 926 | 926 | 50 | 15 | 5 | 466 | 27 | 61 | 296 | 357 | 2,604 | 2.41 |
| 35 | 1,843 | 1,843 | 50 | 15 | 30 | 2,700 | 72 | 354 | 790 | 1,145 | 13,496 | 4.66 |
| 36 | 816 | 816 | 50 | 15 | 5 | 1,008 | 21.6 | 100 | 237 | 337 | 2,570 | 2.57 |
| 37 | 669 | 669 | 50 | 15 | 3 | 519 | 14.4 | 51 | 158 | 209 | 801 | 1.60 |
| 43 | 669 | 669 | 50 | 15 | 3 | 519 | 14.4 | 51 | 158 | 209 | 801 | 1.60 |
| 44 | 1,476 | 1,476 | 50 | 15 | 7 | 1,385 | 54 | 133 | 593 | 725 | 7,338 | 3.49 |
| 45 | 743 | 743 | 50 | 15 | 91 | 5,642 | 18 | 891 | 198 | 1,089 | 15,732 | 11.59 |
| Totals: | | | | | | | | | | | | |
| | 59,062 | 59,062 | 1,900 | | 3,664 | 199,341 | 2,198 | 34,043 | 24,124 | 58,167 | 797,322 | 7.75 |

## 2.7 FEDS Building Interior Lighting EROs

About 26% of the electrical energy supplied to Fort Irwin is used for lighting in and around buildings. Few of the existing lamps, ballasts, and light fixtures are as efficient as currently available cost-effective lamps, ballasts, and fixtures. A number of fixture retrofit and fixture replacement EROs are therefore evaluated in this section.

### 2.7.1 Interior Lighting EROs

**Data and Assumptions for all Lighting EROs**

- FEMP Lighting Matrix. The first costs of fixture upgrades (either replacement or retrofit) that are feasible for a given type of existing fixture are determined using data from the FEMP *Lighting Technology Screening Matrix* (LTSM) computer program (Dirks et al. 1992). The per-fixture wattage and maintenance requirements for each existing and post-retrofit configuration are also determined using the LTSM database. The LTSM database has been incorporated into the Level-2 software.

- Fixture Modification versus Fixture Replacement. Fixtures can be upgraded by replacing selected parts (ballast, lamp, reflector, or lens) or by replacing the entire fixture. The best route for a given upgrade is generally determined by the relative costs in the LTSM except when site-specific (usually implementation labor or maintenance related) conditions dictate otherwise.

- Fixture Type and Quantity. The existing fixture inventory was estimated for each building type. The lighting in the majority of the buildings could not be rigorously established within the scope of this project. Estimates of the existing lighting quantity, in the form of fixtures per square foot, are defaults in the Level-2 software. Changes were made to the default values where site-specific information was available.

  This approach assumes that all of the buildings of a given type have the same fixture types, distribution, and use. Thus, the fixture types and counts are not exact but are believed to reasonably characterize existing lighting on the site and the potential for efficiency improvements with available technologies.

- Existing Ballasts. The ballasts used in all existing fluorescent fixtures are standard 60-Hz inductive ballasts.

- Light Levels. Existing light levels are adequate or more than adequate for the visual activities conducted in a space unless otherwise noted. The retrofit fixtures will provide the same lighting level, or slightly less, and are, in all cases, intended to meet or exceed minimum applicable federal standards. The lumen equivalence of replacement fixtures or retrofit packages cannot be determined exactly from the nominal fixture characteristics due to variations in fixture design and the lighting environment and task requirements. The ability of a given upgrade to provide adequate level and quality of light should be field-checked in typical applications before proceeding with a large-scale retrofit.

- Salvage Value. The salvage value for used fixtures is small at best and has been assumed to be zero. Actual salvage value will be reflected in the cost proposals of competitive energy services contractor

(ESCO) bidders. It is essential to the project's long-term success that the old fixtures be removed from the site to prevent their being re-installed for any reason and the inefficient use of electric power that would result.

- Maintenance Costs. Maintenance cost savings are expressed as annualized values. Revamping costs that might occur every 5 years in the 25-year life of an ERO are converted to a present value, and the present value is then converted to a uniform series of yearly costs. Maintenance savings are due chiefly to longer lamp lives (e.g., HPS and fluorescent lamps have a much longer life than standard incandescent) that result in lower annual lamp replacement costs. In cases where the retrofit maintenance cost is only slightly less than the existing maintenance cost, the savings are taken to be zero. This results in a slightly conservative assessment of NPV and resource potential.

- Penetration of EROs. With the exception of incandescent fixtures, all lighting EROs are assumed to have a 100% penetration rate. The reduced penetration rate for incandescent fixtures takes into account that not every fixture can be replaced for one reason or another (i.e., space limitations, aesthetics, etc.). For family housing a 70% penetration rate is assumed; for commercial buildings a 90% penetration rate is assumed.

**Non-Energy Effects Common to All Lighting ERO Implementations**

- Operations and Maintenance. The replacement or retrofit of incandescent fixtures results in reduced maintenance. All other fixture upgrades result in post-retrofit maintenance requirements that are identical or nearly identical to the existing maintenance requirements. All non-energy O&M costs are reported as annualized values based on all expected maintenance costs over the analysis period of 25 years.

  The operation of lighting systems generally will not be affected in any way by implementation of any of the EROs.

  An additional unmeasured benefit of the fixture replacement and retrofit EROs is that conversion to standard lighting systems over the entire site eliminates the need to have multiple types of tubes, ballasts, etc., on hand for repair or replacement. For example, it is recommended that T-8 retrofit parts and replacement fixtures be stocked in sufficient quantity to replace--but not upgrade--the existing fixtures of the types covered in this ERO as their lamps, ballasts or other hardware fail. This will eliminate the need to stock the variety of lamps and ballasts used in the older systems and will result in all fixtures eventually being upgraded with minimal administrative effort.

- Annualized O&M costs as reported in tables are dependent on the operating characteristics (hours of operation) of the lights being impacted. Therefore, the same fixture type may have a different annualized O&M cost from one table to the next, based on its hours of operation.

- Energy Security. None of the lighting EROs have significant impact on energy security.

- Environmental Impact. There are no negative environmental impacts associated with any of the lighting EROs, with the possible exception of the fluorescent fixture upgrades that will involve ballast disposal. In general, implementing lighting EROs will decrease the need for electricity that may be produced from sources that have environmental impacts. All lighting EROs are environmentally beneficial in this respect.

The disposal of PCB-bearing ballasts may have to be addressed. It is not known how many, if any, PCB-bearing ballasts exist at Fort Stewart. If virtually all fluorescent ballasts are targeted for replacement as recommended in this ERO, a beneficial side effect will be that proper disposal of ballasts can be assured as part of the implementation program.

**Results**

The quantitative results of the lighting ERO assessments appear in Table 2.12. This table summarizes the energy, cost, maintenance and economic results of the Level-2 lighting analysis. Factors such as low yearly usage, existing efficient products, and lack of practical retrofit or replacement options render some existing fixture types cost-effective and not subject to change. The notes following the table describe the lighting fixture codes used by Level-2, and provide a simplified description of the appropriate action required to complete each ERO group.

It is recommended that a supply of the recommended replacement lamps and ballasts be kept on hand for any fixtures not upgraded as part of these EROs as their lamps, ballasts or other hardware fail. This will eliminate the need to stock the variety of lamps and ballasts used in the older systems and will result in all fixtures eventually being upgraded with a minimal administrative effort.

**LED screw-in retrofits for exit lights.** The lighting analysis performed through the FEDS software for the exit lighting considers complete LED retrofits. Data for the relatively new LED screw-in retrofit technology is not currently included in the software. Separate analysis of the exit lighting using the cost and operational data for the screw-ins (but not considering the interactive effects that Level-2 takes into account) shows an NPV of $580 per typical fixture. This is $69 more than a similar complete LED exit light replacement, for a total increased NPV of $234,600 for the entire site. The screw-in option has similar labor costs, but an equipment cost of around $37 with similar energy and demand savings to the complete fixture retrofit. Because of the reduced initial cost, this technology should be considered wherever existing exit light housings are in good repair and meet existing safety codes.

# Table 2.12. Interior Lighting EROs

| Number of Building Sets Affected | Existing Technology | Retrofit Technology | Retro Number | Exist Eff., COP or Lamp Wattage | Retro Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 79 | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 3,398 | 40 | 5 | Elec. | Elec | 3,550 | 109 | 370,703 | 1,375,556 | 79,877 | 1,775,817 | 3.4 |
| 2 | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 24 | 40 | 0 | Elec. | Elec | 29 | 1 | 5,269 | 12,762 | 741 | 12,938 | 2.4 |
| 1 | EX2: EXIT - INC (2x15) | EX6: EXIT - LED | 11 | 30 | 5 | Elec. | Elec. | 8 | 0 | 1,233 | 3,854 | 224 | 11,656 | 3.1 |
| 2 | FL117: FL 1X8 1F96T12ES STD1 | FL123: FL 1X8 1F96T12ES EEF1 | 82 | 80 | 71 | Elec. | Elec. | 8 | 0 | 4,043 | 4,936 | 287 | 3,609 | 1.2 |
| 3 | FL13: FL 2X4 4F40T12 EEF2 | FL237: FL 2X4 3F32T8 ELC3 REF | 304 | 172 | 88 | Elec | Elec. | 241 | 16 | 35,642 | 127,465 | 7,402 | 110,417 | 3 5 |
| 2 | FL158: FL 1X8 4F96T12HO STD2 REF | LS6: LPS 180 PEND | 133 | 514 | 225 | Elec. | Elec. | 268 | 23 | 21,532 | 148,874 | 8,645 | 135,527 | 7.0 |
| 25 | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 3,605 | 196 | 88 | Elec. | Elec. | 3,827 | 244 | 422,620 | 2,112,773 | 122,687 | 1,896,471 | 4.0 |
| 7 | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 444 | 147 | 88 | Elec. | Elec | 267 | 20 | 28,081 | 148,850 | 8,645 | 142,167 | 6.4 |
| 19 | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 3,213 | 98 | 62 | Elec. | Elec. | 1,071 | 65 | 156,310 | 542,566 | 31,506 | 449,110 | 3.3 |
| 1 | FL4: FL 1X4 2F40T12 STD2 | FL28: FL 1X4 2F40T12 ELC2 | 4 | 98 | 71 | Elec. | Elec. | 1 | 0 | 173 | 400 | 23 | 270 | 2.3 |
| 36 | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 3,569 | 98 | 62 | Elec. | Elec. | 1,264 | 67 | 173,615 | 607,436 | 35,275 | 530,757 | 3.2 |
| 12 | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 947 | 49 | 35 | Elec. | Elec. | 142 | 8 | 37,513 | 78,623 | 4,565 | 60,335 | 1.3 |
| 1 | FL61: FL 1X8 4F96T12 STD2 | FL130: FL 1X8 4F96T12ES ELC2 REF | 6 | 350 | 210 | Elec. | Elec. | 12 | 1 | 1,044 | 6,568 | 381 | 5,614 | 6.3 |
| 4 | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 452 | 350 | 173 | Elec. | Elec. | 797 | 63 | 72,976 | 436,169 | 25,328 | 377,405 | 6.2 |
| 11 | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 251 | 175 | 105 | Elec. | Elec. | 183 | 10 | 32,534 | 104,425 | 6,063 | 78,379 | 2.5 |
| 1 | FL62: FL 1X8 2F96T12 STD2 | FL74: FL 1X8 2F96T12 ELC2 | 1,283 | 175 | 134 | Elec. | Elec. | 204 | 32 | 80,945 | 75,445 | 4,381 | 36,978 | 0.9 |
| 6 | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 1,735 | 175 | 82 | Elec. | Elec. | 1,015 | 102 | 239,583 | 485,641 | 28,202 | 268,128 | 1.0 |
| 9 | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 1,187 | 95 | 71 | Elec. | Elec. | 300 | 18 | 129,885 | 157,566 | 9,150 | 60,356 | 1.1 |
| 3 | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 25 | 95 | 86 | Elec. | Elec. | 2 | 0 | 1,584 | 1,089 | 63 | 601 | 0.5 |
| 3 | FL6: FL 2X2 2F40T12U STD2 | FL54: FL 2X2 2F32T8U ELC2 | 207 | 98 | 58 | Elec. | Elec. | 57 | 5 | 12,137 | 32,914 | 1,911 | 27,097 | 2.7 |
| 2 | FL79: FL 2X4 4F40T12ES STD2 | FL232: FL 2X4 3F40T12 ELC3 | 43 | 158 | 105 | Elec. | Elec. | 19 | 1 | 2,645 | 8,202 | 476 | 8,969 | 2.8 |
| 14 | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 7,940 | 158 | 88 | Elec. | Elec. | 5,107 | 353 | 930,932 | 3,199,556 | 185,795 | 2,571,740 | 3.2 |
| 2 | FL80: FL 2X4 3F40T12ES STD1,2 | FL57: FL 2X4 2F32T8 ELC2 REF | 57 | 127 | 62 | Elec. | Elec. | 26 | 2 | 5,847 | 14,679 | 852 | 12,581 | 2.5 |
| 8 | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 755 | 79 | 60 | Elec. | Elec. | 131 | 9 | 29,903 | 76,372 | 4,434 | 57,292 | 2 6 |
| 28 | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4,744 | 79 | 60 | Elec. | Elec. | 762 | 48 | 187,907 | 395,881 | 22,991 | 321,905 | 2.4 |
| 2 | FL94: FL 1X4 2F40T12ES EEF2 | FL106: FL 1X4 2F40T12ES ELC2 | 390 | 72 | 60 | Elec. | Elec. | 39 | 1 | 15,442 | 14,650 | 851 | 3,588 | 0.9 |
| 1 | HS14: HPS 100 PEND | LS3: LPS 55 PEND | 23 | 130 | 82 | Elec. | Elec. | 12 | 1 | 4,980 | 7,302 | 424 | 2,605 | 1.5 |
| 1 | HS15: HPS 150 PEND | LS4: LPS 90 PEND | 28 | 185 | 135 | Elec. | Elec. | 21 | 1 | 6,351 | 12,567 | 730 | 5,116 | 2.0 |
| 1 | HS17: HPS 250 PEND | LS5: LPS 135 PEND | 23 | 300 | 173 | Elec. | Elec. | 30 | 3 | 5,972 | 18,391 | 1,068 | 11,600 | 3.1 |
| 14 | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 3,160 | 100 | 46 | Elec. | Elec. | 1,252 | 99 | 129,697 | 664,658 | 38,595 | 616,628 | 5.1 |
| 5 | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 1,831 | 100 | 58 | Elec. | Elec. | 383 | 17 | 58,468 | 176,650 | 10,259 | 176,914 | 3.0 |
| 1 | IN12: INC 2-100 CEIL | HS12: HPS 50 PEND | 6 | 200 | 77.6 | Elec. | Elec. | 7 | 1 | 676 | 4,888 | 284 | 5,357 | 7.2 |
| 1 | IN15: INC 60 TABLE LAMP | FL181: CFL 13 + BLST UNIT | 120 | 60 | 22.2 | Elec. | Elec. | 38 | 1 | 3,568 | 14,319 | 831 | 15,793 | 4.0 |
| 4 | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 128 | 40 | 15.7 | Elec. | Elec. | 38 | 2 | 3,407 | 20,051 | 1,164 | 21,049 | 4.8 |
| 2 | IN1 INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 132 | 40 | 21.1 | Elec. | Elec. | 13 | 0 | 2,721 | 7,031 | 408 | 7,305 | 2.3 |
| 1 | IN28: INC 150 PEND | HS11: HPS 35 PEND | 16 | 150 | 53.7 | Elec. | Elec | 15 | 1 | 1,959 | 7,820 | 454 | 7,256 | 4.0 |
| 4 | IN29: INC 200 PEND | HS12: HPS 50 PEND | 252 | 200 | 77.6 | Elec. | Elec. | 242 | 21 | 30,856 | 133,144 | 7,732 | 122,807 | 5.3 |
| 1 | IN30: INC 300 PEND | LS2: LPS 35 PEND | 108 | 300 | 88.5 | Elec. | Elec. | 159 | 14 | 13,195 | 86,359 | 5,015 | 83,779 | 6 5 |
| 22 | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 4,914 | 60 | 22.2 | Elec. | Elec. | 1,115 | 95 | 145,986 | 472,031 | 27,408 | 511,249 | 5.5 |
| 11 | IN5 INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 27,905 | 60 | 30.6 | Elec. | Elec. | 4,089 | 182 | 644,848 | 1,994,180 | 115,801 | 2,216,277 | 2.4 |
| 16 | IN6. INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 545 | 120 | 44.4 | Elec. | Elec. | 357 | 17 | 24,734 | 180,259 | 10,468 | 210,686 | 11.6 |

## Table 2.12. (contd)

| Number of Building Sets Affected | Existing Technology | Retrofit Technology | Retro Number | Exist. Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | IN6: INC 2-60 CEIL | FL182. CFL 2-13 + BLST UNIT | 264 | 120 | 61.2 | Elec. | Elec. | 77 | 3 | 9,312 | 41,392 | 2,404 | 48,584 | 4.4 |
| 25 | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 14,134 | 75 | 31.8 | Elec. | Elec. | 4,437 | 379 | 158,941 | 2,124,087 | 123,345 | 2,693,106 | 20.8 |
| 9 | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 11,451 | 75 | 41.4 | Elec. | Elec. | 1,917 | 85 | 100,155 | 970,319 | 56,345 | 1,191,264 | 7.1 |
| 1 | MH36: MH 250 HE PEND | LS4: LPS 90 PEND | 257 | 294 | 135 | Elec. | Elec. | 462 | 33 | 36,770 | 234,913 | 13,641 | 236,026 | 6.4 |
| 1 | MV5: MERC 250 PEND | LS4: LPS 90 PEND | 17 | 294 | 135 | Elec. | Elec. | 26 | 2 | 3,722 | 17,811 | 1,034 | 13,751 | 4.8 |
| 1 | MV8: MERC 1000 PEND | HS19: HPS 400 PEND | 28 | 1075 | 465 | Elec. | Elec. | 169 | 13 | 6,612 | 102,961 | 5,979 | 98,855 | 15.6 |
| TOTALS: | | | 100,150 | | | | | 34,189 | 2,168 | 4,393,028 | 17,464,385 | 1,014,144 | 17,255,714 | 4.0 |

**Table 2.12.** (contd)

| Existing Fixtures<br>Fixture Code | Description |
|---|---|
| EXIT - INC (2x20) | Exit Sign, incandescent, 2-20 Watt lamps |
| EXIT - INC (2x15) | Exit Sign, incandescent, 2-15 Watt lamps |
| FL 1X4 1F40T12 STD1 | Fluorescent, 1 ft by 4 ft , 1-40 Watt lamp, Standard Ballast |
| FL 1X4 2F40T12 STD2 | Fluorescent, 1 ft by 4 ft, 2-40 Watt lamps, Standard Ballast |
| FL 1X4 2F40T12ES EEF2 | Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Energy Eff. Ballast |
| FL 1X4 2F40T12ES STD2 | Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Standard Ballast |
| FL 1X8 1F96T12 STD1 | Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Standard Ballast |
| FL 1X8 1F96T12 STD2 | Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Standard Ballast |
| FL 1X8 1F96T12ES STD1 | Fluorescent, 1 ft by 8 ft, 1-60 Watt lamp, Standard Ballast |
| FL 1X8 2F96T12 STD2 | Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast |
| FL 1X8 2F96T12 STD3 | Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast |
| FL 1X8 2F96T12 STD4 | Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Standard Ballast |
| FL 1X8 4F96T12 STD2 | Fluorescent, 1 ft by 8 ft, 4-75 Watt lamps, Standard Ballast |
| FL 1X8 4F96T12HO STD2 REF | Fluorescent, 1 ft by 8 ft, 4-110 Watt lamps, Std Ballast, reflector |
| FL 2X2 2F40T12U STD2 | Fluorescent, 2 ft by 2 ft, 2-40 (U tube) Watt lamps, Std Ballast |
| FL 2X4 2F40T12 STD2 | Fluorescent, 2 ft by 4 ft, 2-40 Watt lamps, Standard Ballast |
| FL 2X4 2F40T12ES STD2 | Fluorescent, 2 ft by 4 ft, 2-34 Watt lamps, Standard Ballast |
| FL 2X4 3F40T12 STD1,2 | Fluorescent, 2 ft by 4 ft, 3-40 Watt lamps, Standard Ballast |
| FL 2X4 3F40T12ES STD1,2 | Fluorescent, 2 ft by 4 ft, 3-34 Watt lamps, Standard Ballast |
| FL 2X4 4F40T12 EEF2 | Fluorescent, 1 ft by 4 ft, 4-40 Watt lamps, Energy Eff. Ballast |
| FL 2X4 4F40T12 STD2 | Fluorescent, 2 ft by 4 ft, 4-40 Watt lamps, Standard Ballast |
| FL 2X4 4F40T12ES STD2 | Fluorescent, 2 ft by 4 ft, 4-34 Watt lamps, Standard Ballast |
| FL 2X4 4F40T12ES STD3 | Fluorescent, 2 ft by 4 ft, 4-34 Watt lamps, Standard Ballast |
| HPS 100 PEND | High Pressure Sodium, Pendant Mount, 100 Watt |
| HPS 150 PEND | High Pressure Sodium, Pendant Mount, 150 Watt |
| HPS 250 PEND | High Pressure Sodium, Pendant Mount, 250 Watt |
| INC 100 CEIL | Incandescent, Ceiling Mount, 100 Watt |
| INC 2-100 CEIL | Incandescent, Ceiling Mount, 2-100 Watt |
| INC 60 TABLE LAMP | Incandescent, Table Lamp, 60 Watt |
| INC 40 CEIL | Incandescent, Ceiling Mount, 40 Watt |
| INC 150 PEND | Incandescent, Pendant Mount, 150 Watt |
| INC 200 PEND | Incandescent, Pendant Mount, 200 Watt |
| INC 300 PEND | Incandescent, Pendant Mount, 300 Watt |
| INC 60 CEIL | Incandescent, Ceiling Mount, 60 Watt |
| INC 2-60 CEIL | Incandescent, Ceiling Mount, 2-60 Watt |
| INC 75 CEIL | Incandescent, Ceiling Mount, 75 Watt |
| MH 250 HE PEND | Metal Halide, Pendant Mount, 250 Watt |
| MERC 250 PEND | Mercury, Pendant Mount, 250 Watt |
| MERC 1000 PEND | Mercury, Pendant Mount, 1000 Watt |

**Table 2.12.** (contd)

| Replacement Fixtures<br>Fixture Code | Description |
|---|---|
| CFL 13 + BLST UNIT | Compact Fluorescent, Ceiling Mount, 13 Watt |
| CFL 2-13 + BLST UNIT | Compact Fluorescent, Ceiling Mount, 2-13 Watt |
| CFL 2-15 CEIL FIXT | Compact Fluorescent, Ceiling Mount, 2-15 Watt |
| CFL 27 INTEGRAL UNIT | Compact Fluorescent "screw-in", 27 Watt |
| CFL 9 + BLST UNIT | Compact Fluorescent, Ceiling Mount, 9 Watt |
| EXIT - LED | Exit Sign, Light Emitting Diode (LED) |
| EXIT - SELF LUMINOUS | Exit Sign, Self Luminous |
| FL 1X4 1F40T12 ELC1 | Fluorescent, 1 ft by 4 ft, 1-40 Watt lamp, Electronic Ballast |
| FL 1X4 2F32T8 ELC2 | Fluorescent, 1 ft by 4 ft, 2-T8-32 Watt lamps, Electronic Ballast |
| FL 1X4 2F40T12 ELC2 | Fluorescent, 1 ft by 4 ft, 2-40 Watt lamps, Electronic Ballast |
| FL 1X4 2F40T12ES ELC2 | Fluorescent, 1 ft by 4 ft, 2-34 Watt lamps, Electronic Ballast |
| FL 1X8 1F96T12 ELC1 | Fluorescent, 1 ft by 8 ft, 1-75 Watt lamp, Electronic Ballast |
| FL 1X8 1F96T12ES EEF1 | Fluorescent, 1 ft by 8 ft, 1-60 Watt lamps, Energy Eff. Ballast |
| FL 1X8 1F96T12ES EEF1 REF | Fluorescent, 1 ft by 8 ft, 1-60 Watt lamp, Energy Eff. Ballast, Reflector |
| FL 1X8 2F96T12 ELC2 | Fluorescent, 1 ft by 8 ft, 2-75 Watt lamps, Electronic Ballast |
| FL 1X8 2F96T12ES ELC2 REF | Fluorescent, 1 ft by 8 ft, 2-60 Watt lamps, Elec. Ballast, Reflector |
| FL 1X8 4F96T12ES ELC2 REF | Fluorescent, 1 ft by 8 ft, 4-60 Watt lamps, Elec. Ballast, Reflector |
| FL 2X2 2F32T8U ELC2 | Fluorescent, 2 ft by 2 ft, 2-T8-32 Watt U-lamps, Elec. Ballast |
| FL 2X4 2F32T8 ELC2 | Fluorescent, 2 ft by 4 ft, 2-T8-32 Watt lamps, Elect. Ball., |
| FL 2X4 2F32T8 ELC2 REF | Fluorescent, 2 ft by 4 ft, 2-T8-32 Watt lamps, Elect. Ball., Reflector |
| FL 2X4 2F40T12ES ELC2 | Fluorescent, 2 ft by 4 ft, 2-34 Watt lamps, Elect. Ball., |
| FL 2X4 3F32T8 ELC3 | Fluorescent, 2 ft by 4 ft, 3-T8-32 Watt lamps, Elect. Ball., |
| FL 2X4 3F32T8 ELC3 REF | Fluorescent, 2 ft by 4 ft, 3-T8-32 Watt lamps, Elect. Ball., Reflector |
| FL 2X4 3F40T12 ELC3 | Fluorescent, 2 ft by 4 ft, 3-40 Watt lamps, Elect. Ball., |
| HPS 35 PEND | High Pressure Sodium, Pendant Mount, 35 Watt |
| HPS 50 PEND | High Pressure Sodium, Pendant Mount, 50 Watt |
| HPS 400 PEND | High Pressure Sodium, Wall Mount, 400 Watt |
| LPS 35 PEND | Low Pressure Sodium, Pendant Mount, 35 Watt |
| LPS 55 PEND | Low Pressure Sodium, Pendant Mount, 55 Watt |
| LPS 90 PEND | Low Pressure Sodium, Pendant Mount, 90 Watt |
| LPS 135 PEND | Low Pressure Sodium, Pendant Mount, 135 Watt |
| LPS 180 PEND | Low Pressure Sodium, Pendant Mount, 180 Watt |

## 2.8 Lighting Control EROs

Many of the interior lighted spaces within the many buildings at Fort Irwin have the potential for reduced lighting energy consumption through the automatic control of lighting. These controls can reduce or eliminate lighting levels when there is ample daylight and/or no occupancy.

### 2.8.1 Occupancy Sensor Lighting Control

**Description**

In many work spaces (offices, stock rooms, work bays, etc.) lights are left on all day. Often lights are left on by occupants who plan on being gone only for a few minutes or want to assure others that they are "in." It is well established that a net savings will accrue any time that lights can be turned off for more than a fraction of a minute.[a] The long-term costs of reduced lamp, ballast and switch life are more than offset by the accumulated energy savings. The control of interior lighting by occupancy sensors can reduce energy consumption in many Fort Irwin buildings.

Occupancy-sensing switches are designed to detect occupant motion typical of the office environment and can be adjusted for sensitivity and turn-off delay time to ensure proper performance in almost any work area. A variety of sensor control types are available. The two general technologies used in occupancy sensors are ultrasonic and infrared. Ultrasonic sensors emit ultrasonic waves that bounce off of objects and are received by the sensor. A moving object will upset the stability of the returning waves indicating motion and occupancy. Infrared sensors read the infrared waves emitted from all objects. Waves that are "warmer" than the surroundings (human skin vs. furniture and walls) and change position are detected as occupancy. Ultrasonic technology is considered best when partitions or large furniture are present since the emitted waves will bounce around objects and return to the sensor. This same advantage can also cause the sensor to read adjoining spaces such as hallways if not properly adjusted. The infrared technology can more easily be adjusted to read specific areas but cannot deal well with partitioned areas. Sensor units also come in a variety of wall and ceiling mount styles designed to cover a variety of room sizes and shapes.

In order to assess potential occupancy control across a majority of the commercial buildings at Fort Irwin, certain assumptions were necessarily made. These assumptions deal primarily with the estimation of building spaces that might be appropriate candidates for lighting occupancy control and are detailed here.

**Assumptions**

The technical assumptions are as follows:

- The number of control spaces for each space type (small office, large office, conference, lunchroom, copy room, restroom, hallway, and highbay) is based on data collected during on-site building audits as well as standard knowledge of building layouts. For each building type (office, barracks, chapel, etc.) an assessment was made of the percentage of total square footage that was expected to fall into each of the space type categories. For example:

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[a] NCEL, "Turn off the lights," (energy) Tech Data Sheet 80-01 by William Pierpoint, Naval Civil Engineering Laboratory, Port Hueneme, California (Jan 1980).

| Administration (ADMIN) | | Motorpool (MTRPOOL) | |
|---|---|---|---|
| small office | 25% | small office | 2% |
| large office | 25% | lunchroom | 1% |
| conference | 5% | restroom | 0.5% |
| lunchroom | 5% | highbay | 75% |
| copy room | 1% | | |
| restroom | 4% | | |

These percentages differ depending on the building type. Many building types are considered to have little or no potential control spaces (HUT, PUMP, CLUB, etc.) and are not included in the analysis. The appropriate percentage values are multiplied by the total building square footage for each corresponding building type on site. The sums of the space type square footages for each building type become the total site square footages of space types that could have lighting controls installed. These total square footage values are then divided by an estimated typical square footage for each space type to arrive at numbers of space types at Fort Irwin that could be retrofitted with lighting controls:

| Site Constructed Buildings | | | Modular Trailer Buildings | | |
|---|---|---|---|---|---|
| small office | = | 1,474 | MT small office | = | 626 |
| large office | = | 625 | MT large office | = | 275 |
| conference | = | 82 | MT conference | = | 44 |
| lunchroom | = | 200 | MT lunchroom | = | 39 |
| copy room | = | 63 | MT copy room | = | 34 |
| restroom | = | 376 | MT restroom | = | 100 |
| hallway | = | 228 | MT hallway | = | 0 |
| highbay | = | 230 | MT highbay | = | 0 |

- The Watts per space type values are derived from data collected during site visits and other typical lighting consumption data from other studies. The typical existing fixture used in these derivations consists of 34 and 40 watt lamps with standard electromagnetic ballasts. The typical T-8 lamp and ballast system is considered to consume only approximately 67% of the standard lamp and ballast system.

| Room Type | hr/yr |
|---|---|
| small office | 530 |
| large office | 390 |
| conference | 582 |
| lunchroom | 582 |
| copy room | 582 |
| restroom | 582 |
| hallway | 0 |
| highbay | 390 |

- Annual operating hours are estimated at 2600 for all space types. The actual number will vary depending on the building and space type. However, most are office related spaces that are generally operated on an office type schedule. In addition, they are on a regular evening cleaning schedule that assures the majority of spaces have lights turned off after hours (cleaning crews are consistent about turning lights off after cleaning).

- The hours of lighting operation potentially saved by occupancy control is based on previous study results of various space types and operational characteristics of the buildings at Fort Irwin.

- Since the nature of occupancy sensor control is random among spaces controlled, no consistent demand is identifiable. Although some demand savings are certain to exist, they are ignored in this analysis.

The cost assumption is as follows:

- Cost data were derived from manufacturers' and distributors' literature and from Means. A typical unit for use in the types and sizes of spaces analyzed here is estimated to be approximately $72 installed.

**Results**

The quantitative results of this lighting ERO assessment appear in Table 2.13. The table contains specific energy, cost, and economic evaluation information for each lighting control area included in the ERO.

**Budget Implications.** The total first cost of implementing the ERO for all potential occupancy control spaces is estimated to be $123,933. This includes the equipment, materials and associated labor.

**Energy Cost Savings.** The electric energy savings associated with the ERO are estimated to be 1,618,813 kWh per year at a cost savings of $134,549. These estimates are based on 100% implementation of the ERO for a typical operating year.

**Operations and Maintenance.** Maintenance cost savings for this ERO are estimated to be $35,683 per year due to reduced lamp replacement associated with lower run hours.

## 2.8.2 Daylight Sensor Lighting Control

**Description**

Some of the work spaces (offices, stock rooms, work bays, etc.) in Fort Irwin buildings have daylighting capacity through various window and/or skylight openings. It is well established that a net savings can occur when natural daylighting is utilized to offset the use of man-made light. Daylight also is known to have positive effects on employee morale and productivity. The use of daylight by control of interior lighting can reduce energy consumption in many Fort Irwin buildings.

Daylight-sensing switches or dimmers are designed to detect the presence of daylight and either switch off or dim overhead lighting. The amount of energy saved will depend on sky conditions, orientation of the space to the sun, and the adjustment settings applied to the sensing equipment. Sensor units are primarily ceiling mounted and can be incorporated into occupancy controls.

**Assumptions**

Most of the assumptions applied above in the occupancy sensor analysis apply here with the following exceptions:

- The number of control spaces is considerably less than those assumed in the occupancy sensor analysis. Only a percentage of the occupancy sensor spaces were considered to have daylight potential. The assumed percentages and estimated numbers of space types are:

| Site Constructed Buildings | | | | Modular Trailer Buildings | | | |
|---|---|---|---|---|---|---|---|
| small office | = | 60% | =884 | MT small office | = | 40% | = 250 |
| large office | = | 60% | =375 | MT large office | = | 40% | = 110 |
| conference | = | 25% | = 21 | MT conference | = | 25% | = 11 |
| lunchroom | = | 10% | = 20 | MT lunchroom | = | 10% | = 4 |
| copy room | = | 0% | = 0 | MT copy room | = | 0% | = 0 |
| restroom | = | 0% | = 0 | MT restroom | = | 0% | = 0 |
| hallway | = | 0% | = 0 | MT hallway | = | 0% | = 0 |
| highbay | = | 0.5% | =115 | MT highbay | = | 0% | = 0 |

- The expected hours of savings due to daylight sensor control is conservatively estimated to be 50% of current hours. Standard industry estimates are approximately 75% for well-designed systems. This value was reduced to 50% because this is being applied to existing rather than daylight-designed spaces and the lighting requirements for cleaning must be included.

The cost assumption is as follows:

- Cost data were derived from manufacturers' and distributors' literature and from Means. A typical unit for use in the types and sizes of spaces analyzed here is estimated to be approximately $68 installed.

**Results**

The quantitative results of this lighting ERO assessment appear in Table 2.13. The table contains specific energy, cost, and economic evaluation information for each lighting control area included in the ERO.

**Budget Implications.** The total first cost of implementing the ERO for all potential daylight control spaces is estimated to be $56,893. This includes the equipment, materials and associated labor.

**Energy Cost Savings.** The electric energy savings associated with the ERO are estimated to be 136,690 kWh per year at a cost savings of $11,361. These estimates are based on 100% implementation of the ERO for a typical operating year.

**Operations and Maintenance.** Maintenance cost savings for this ERO are estimated to be $6,084 per year due to reduced lamp replacement associated with lower run hours.

## 2.8.3 Automatic Light Trimming and Dimming Systems (discussion only)

**Description**

Many systems are available today that are designed to control large areas of lighting by regulation of the wattage supplied to fluorescent and high-intensity discharge lighting ballasts. Several of these are combined with occupancy controls and various switching mechanisms to produce an integrated occupancy/lighting level control mechanism. These systems can reduce lighting to a lower but acceptable level, provide further dimming to low levels when there is no occupancy, and/or reduce lighting based on the presence of daylight.

Based on our analysis of one such system in the commissary warehouse (currently 7 to 36 to 77 footcandles), a 30% total reduction in consumption (based on a mixture of trimming and estimated occupancy dimming as suggested by the control provider) will provide $2,096 in savings, including demand, but cost between $7,875 (first-year purchase) and $15,540 (7-year lease). This corresponds to a simple payback (for reference only) of 3.8 and 7.4 years, respectively.

A standard retrofit of the same warehouse where existing lamps are permanently replaced with 22.5% lower wattage lamps would result in a yearly savings of $1,502 including demand at a cost of $2,781 (first-year purchase). Similarly, a retrofit with 37.5% reduction in wattage would result in yearly savings of $2,403 at a cost of $2,430. Reference simple paybacks for these options are 1.85 and 1.01, respectively. The corresponding permanent reduction in lighting levels with these options would be 26% (5 to 27 to 57 footcandles) and 55% (3 to 16 to 35 footcandles), respectively. With IES recommendations for warehouses at 10 to 15 to 20 (depending on various factors), a majority of spaces would still meet recommended levels with either permanent reduction. In fact, most areas would still exceed these levels.

The length of unoccupied periods is difficult to identify in this space since it is an active stocking room as well as a bulk stock retailing area. Actual unoccupied periods may be rather short. It also appears that the issue of widely varying lighting levels should be addressed prior to or along with any retrofits since at least large portions of the space are potentially overlit (36 to 77 footcandles). These data indicate that for this application a simple lamp retrofit may be more cost-effective than a large voltage control system.

## Table 2.13. Lighting Control EROs

Existing Lighting Operating Parameters

| ID | Space Types | ERO Type | Number of Control Spaces | Watts per Space (Watts) | Operating Schedule | | | | | Energy Consumption | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | | Winter | |
| | | | | | On Peak (Hours) | Mid Peak (Hours) | Off Peak (Hours) | Mid Peak (Hours) | Off Peak (Hours) | On-Peak (kWh) | Mid-Peak (kWh) | Off-Peak (kWh) | Mid-Peak (kWh) | Off-Peak (kWh) |
| OS-1 | Small Office | Occ. Control | 1,474 | 129 | 433 | 347 | 87 | 1,560 | 173 | 82,531 | 66,139 | 16,582 | 297,341 | 32,974 |
| OS-2 | Large Office | Occ. Control | 625 | 423 | 433 | 347 | 87 | 1,560 | 173 | 114,412 | 91,688 | 22,988 | 412,201 | 45,712 |
| OS-3 | Conference | Occ. Control | 82 | 364 | 433 | 347 | 87 | 1,560 | 173 | 12,917 | 10,352 | 2,595 | 46,539 | 5,161 |
| OS-4 | Lunchroom | Occ. Control | 200 | 410 | 433 | 347 | 87 | 1,560 | 173 | 35,509 | 28,457 | 7,135 | 127,932 | 14,187 |
| OS-5 | Copy Room | Occ. Control | 63 | 94 | 433 | 347 | 87 | 1,560 | 173 | 2,559 | 2,051 | 514 | 9,219 | 1,022 |
| OS-6 | Restroom | Occ. Control | 376 | 129 | 433 | 347 | 87 | 1,560 | 173 | 21,053 | 16,871 | 4,230 | 75,848 | 8,411 |
| OS-7 | Hallway | Occ. Control | 228 | 586 | 433 | 347 | 87 | 1,560 | 173 | 57,877 | 46,382 | 11,629 | 208,517 | 23,124 |
| OS-8 | Highbay | Occ. Control | 230 | 1,256 | 433 | 347 | 87 | 1,560 | 173 | 125,110 | 100,261 | 25,138 | 450,743 | 49,986 |
| OS-MT-1 | MT Small Office | Occ. Control | 626 | 221 | 433 | 347 | 87 | 1,560 | 173 | 59,917 | 48,017 | 12,039 | 215,867 | 23,939 |
| OS-MT-2 | MT Large Office | Occ. Control | 275 | 503 | 433 | 347 | 87 | 1,560 | 173 | 59,917 | 48,017 | 12,039 | 215,867 | 23,939 |
| OS-MT-3 | MT Conference | Occ. Control | 44 | 415 | 433 | 347 | 87 | 1,560 | 173 | 7,989 | 6,402 | 1,605 | 28,782 | 3,192 |
| OS-MT-4 | MT Lunchroom | Occ. Control | 39 | 469 | 433 | 347 | 87 | 1,560 | 173 | 7,989 | 6,402 | 1,605 | 28,782 | 3,192 |
| OS-MT-5 | MT Copy Room | Occ. Control | 34 | 107 | 433 | 347 | 87 | 1,560 | 173 | 1,598 | 1,280 | 321 | 5,756 | 638 |
| OS-MT-6 | MT Restroom | Occ. Control | 100 | 147 | 433 | 347 | 87 | 1,560 | 173 | 6,391 | 5,122 | 1,284 | 23,026 | 2,554 |
| DLC-1 | Small Office | Daylight Control | 884 | 129 | 433 | 347 | 87 | 1,560 | 173 | 49,519 | 39,684 | 9,949 | 178,404 | 19,785 |
| DLC-2 | Large Office | Daylight Control | 375 | 423 | 433 | 347 | 87 | 1,560 | 173 | 68,647 | 55,013 | 13,793 | 247,320 | 27,427 |
| DLC-3 | Conference | Daylight Control | 21 | 364 | 433 | 347 | 87 | 1,560 | 173 | 3,229 | 2,588 | 649 | 11,635 | 1,290 |
| DLC-4 | Lunchroom | Daylight Control | 20 | 410 | 433 | 347 | 87 | 1,560 | 173 | 3,551 | 2,846 | 713 | 12,793 | 1,419 |
| DLC-8 | Highbay | Daylight Control | 115 | 1,256 | 433 | 347 | 87 | 1,560 | 173 | 62,555 | 50,131 | 12,569 | 225,371 | 24,993 |
| DLC-MT-1 | MT Small Office | Daylight Control | 250 | 221 | 433 | 347 | 87 | 1,560 | 173 | 23,967 | 19,207 | 4,816 | 86,347 | 9,576 |
| DLC-MT-2 | MT Large Office | Daylight Control | 110 | 503 | 433 | 347 | 87 | 1,560 | 173 | 23,967 | 19,207 | 4,816 | 86,347 | 9,576 |
| DLC-MT-3 | MT Conference | Daylight Control | 11 | 415 | 433 | 347 | 87 | 1,560 | 173 | 1,997 | 1,601 | 401 | 7,196 | 798 |
| DLC-MT-4 | MT Lunchroom | Daylight Control | 4 | 469 | 433 | 347 | 87 | 1,560 | 173 | 799 | 640 | 161 | 2,878 | 319 |

## Table 2.13. (contd)

### Lighting Control ERO Operating Parameters

| ID | Space Types | ERO Type | Number of Control Spaces | Watts per Space (Watts) | Operating Schedule | | | | | Energy Consumption | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | | Winter | |
| | | | | | On Peak (Hours) | Mid Peak (Hours) | Off Peak (Hours) | Mid Peak (Hours) | Off Peak (Hours) | On-Peak (kWh) | Mid-Peak (kWh) | Off-Peak (kWh) | Mid-Peak (kWh) | Off-Peak (kWh) |
| OS-1 | Small Office | Occupancy Control | 1,474 | 190 | 345 | 276 | 69 | 1,242 | 138 | 96,688 | 77,485 | 348,345 | 19,427 | 38,631 |
| OS-2 | Large Office | Occupancy Control | 625 | 264 | 368 | 295 | 74 | 1,326 | 147 | 60,724 | 48,663 | 218,773 | 12,201 | 24,261 |
| OS-3 | Conference | Occupancy Control | 82 | 29 | 336 | 269 | 68 | 1,211 | 134 | 812 | 651 | 2,927 | 163 | 325 |
| OS-4 | Lunchroom | Occupancy Control | 200 | 82 | 336 | 269 | 68 | 1,211 | 134 | 5,494 | 4,403 | 19,794 | 1,104 | 2,195 |
| OS-5 | Copy Room | Occupancy Control | 63 | 6 | 336 | 269 | 68 | 1,211 | 134 | 128 | 102 | 460 | 26 | 51 |
| OS-6 | Restroom | Occupancy Control | 376 | 48 | 336 | 269 | 68 | 1,211 | 134 | 6,096 | 4,885 | 21,962 | 1,225 | 2,435 |
| OS-7 | Hallway | Occupancy Control | 228 | 134 | 433 | 347 | 87 | 1,560 | 173 | 13,229 | 10,602 | 47,661 | 2,658 | 5,285 |
| OS-8 | Highbay | Occupancy Control | 230 | 289 | 368 | 295 | 74 | 1,326 | 147 | 24,502 | 19,635 | 88,273 | 4,923 | 9,789 |
| OS-MT-1 | MT Small Office | Occupancy Control | 1,474 | 190 | 345 | 276 | 69 | 1,242 | 138 | 96,688 | 77,485 | 348,345 | 19,427 | 38,631 |
| OS-MT-2 | MT Large Office | Occupancy Control | 625 | 264 | 368 | 295 | 74 | 1,326 | 147 | 60,724 | 48,663 | 218,773 | 12,201 | 24,261 |
| OS-MT-3 | MT Conference | Occupancy Control | 82 | 29 | 336 | 269 | 68 | 1,211 | 134 | 812 | 651 | 2,927 | 163 | 325 |
| OS-MT-4 | MT Lunchroom | Occupancy Control | 200 | 82 | 336 | 269 | 68 | 1,211 | 134 | 5,494 | 4,403 | 19,794 | 1,104 | 2,195 |
| OS-MT-5 | MT Copy Room | Occupancy Control | 63 | 6 | 336 | 269 | 68 | 1,211 | 134 | 128 | 102 | 460 | 26 | 51 |
| OS-MT-6 | MT Restroom | Occupancy Control | 376 | 48 | 336 | 269 | 68 | 1,211 | 134 | 6,096 | 4,885 | 21,962 | 1,225 | 2,435 |
| DLC-1 | Small Office | Daylight Control | 884 | 190 | 217 | 174 | 44 | 780 | 87 | 36,433 | 29,197 | 131,261 | 7,320 | 14,557 |
| DLC-2 | Large Office | Daylight Control | 375 | 264 | 217 | 174 | 44 | 780 | 87 | 21,432 | 17,175 | 77,214 | 4,306 | 8,563 |
| DLC-3 | Conference | Daylight Control | 21 | 29 | 217 | 174 | 44 | 780 | 87 | 131 | 105 | 471 | 26 | 52 |
| DLC-4 | Lunchroom | Daylight Control | 20 | 82 | 217 | 174 | 44 | 780 | 87 | 354 | 284 | 1,275 | 71 | 141 |
| DLC-8 | Highbay | Daylight Control | 115 | 289 | 217 | 174 | 44 | 780 | 87 | 7,206 | 5,775 | 25,963 | 1,448 | 2,879 |
| DLC-MT-1 | MT Small Office | Daylight Control | 590 | 190 | 217 | 174 | 44 | 780 | 87 | 24,289 | 19,465 | 87,507 | 4,880 | 9,704 |
| DLC-MT-2 | MT Large Office | Daylight Control | 250 | 264 | 217 | 174 | 44 | 780 | 87 | 14,288 | 11,450 | 51,476 | 2,871 | 5,709 |
| DLC-MT-3 | MT Conference | Daylight Control | 21 | 29 | 217 | 174 | 44 | 780 | 87 | 131 | 105 | 471 | 26 | 52 |
| DLC-MT-4 | MT Lunchroom | Daylight Control | 20 | 82 | 217 | 174 | 44 | 780 | 87 | 354 | 284 | 1,275 | 71 | 141 |

**Table 2.13.** (contd)

Lighting Control ERO Economic Parameters

| ID | Existing Annualized O&M Cost | Retrofit Annualized O&M Cost | Number of Control Sensors | Cost per Sensor (1994 $) | Total Sensor Cost (1994 $) | Total Sensor Rebate (1994 $) | Energy Savings (kWh) | Annualized Energy Savings (1994 $) | NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|
| DLC-1b | 6,290 | 2,334 | 884 | 68 | 60,139 | 15,146 | 78,572 | 6,531 | 135,586 | 4.01 |
| OS-2b | 14,533 | 7,105 | 625 | 72 | 45,000 | 9,671 | 322,379 | 26,795 | 554,005 | 16.68 |
| OS-3b | 1,641 | 90 | 82 | 72 | 5,904 | 1,771 | 72,686 | 6,041 | 126,608 | 31.63 |
| OS-4b | 4,510 | 609 | 200 | 72 | 14,400 | 4,320 | 180,231 | 14,980 | 315,071 | 32.26 |
| OS-5b | 325 | 14 | 63 | 72 | 4,536 | 438 | 14,598 | 1,213 | 22,149 | 6 40 |
| OS-6b | 2,674 | 676 | 376 | 72 | 27,072 | 2,694 | 89,811 | 7,465 | 138,582 | 6.68 |
| OS-7b | 7,352 | 1,680 | 228 | 72 | 16,416 | 4,925 | 268,094 | 22,283 | 469,897 | 41.89 |
| OS-8b | 15,892 | 2,588 | 230 | 72 | 16,560 | 4,968 | 604,115 | 50,212 | 1,082,188 | 94.36 |
| DLC-MT-2b | 3,044 | 915 | 250 | 68 | 17,000 | 5,100 | 58,118 | 4,831 | 107,946 | 10.07 |
| OS-MT-3b | 1,015 | 90 | 82 | 72 | 5,904 | 1,293 | 43,092 | 3,582 | 72,991 | 16.83 |
| OS-MT-4b | 1,015 | 609 | 200 | 72 | 14,400 | 449 | 14,980 | 1,245 | 14,477 | 2.04 |
| OS-MT-5b | 203 | 14 | 63 | 72 | 4,536 | 265 | 8,827 | 734 | 11,615 | 3.72 |
| Totals: | | | | | | | | | | |
| Occ. Sensor | 49,159 | 13,476 | 2,149 | | 154,728 | 30,795 | 1,618,813 | 134,549 | 2,807,585 | 22.65 |
| Daylight Sensor | 9,334 | 3,250 | 1,134 | | 77,139 | 20,246 | 136,690 | 11,361 | 243,532 | 4.28 |

## 2.9 Manual Fan, Pump and Compressor Motor EROs

The motor ERO analysis at Fort Irwin considered two primary efficiency options. The first involves the replacement of a single-speed, standard-efficiency motor with a high-efficiency model. The second considers the addition of variable-speed drive (VSD) controls, where applicable.

This analysis addresses the fan, pump and air compressor motors associated with HVAC and compressed air systems, as well as drive motors for water wells and lift stations.

The replacement of currently installed standard efficiency motors with high-efficiency models was evaluated on both a replace-immediately (RI) and replace-on-failure (ROF) basis. A variable-speed drive was considered in any application where reduced pump or fan flow rate is acceptable for a significant fraction of the motor's operating time. There are two possibilities for variable-speed drives: 1) add the VSD to the existing motor, and 2) install a new energy-efficient motor (EEM) with the VSD. This makes a total of three mutually exclusive motor ERO options for the situations where VSDs were considered.

An inventory of motors was developed using the Real Property List (RPL) and from information obtained from site personnel.

### 2.9.1 Energy-Efficient Motors

Energy-efficient, three-phase motors are manufactured with predominantly open drip proof (ODP) or total enclosed fan cooled (TEFC) enclosures. Motors up to 200 hp can be obtained in either 1200, 1800, or 3600 rpm. They are particularly attractive in duty-cycling applications because they suffer less thermal stress than standard efficient motors due to lower losses overall. There are some applications, however, in which EEMs would not be a good alternative; namely, in situations where high starting torque is needed. This is because EEMs are optimized for low slip operation, which generally results in lower starting torque than for standard efficiency motors. For most HVAC fan and pump applications, the starting torque is not an issue. However, the starting characteristics should be kept in mind in preparing retrofit specifications for such things as the compressor motors.

**Description**

This ERO considers the replacement of existing single-speed motors by the best currently available energy-efficient models. The majority of motors analyzed in this study fell under the duty-cycling or air-handling applications in which EEMs are clearly a viable option.

**Assumptions**

The technical assumptions are as follows:

- The motor inventory was developed using the RPL and by information obtained from site personnel. In addition, several motor types that were found during site visits were added to the motor listing. Nameplate data were collected as part of the inspections and is included for these motors.
- Some equipment types with sharply different operating hours were assigned appropriate schedules.
- Existing motors were considered to be sized correctly for current operations. However, significant additional savings can probably be obtained by evaluating the size of each motor in relation to its load at

the time of replacement. It is particularly important to check for fans and pumps that are producing higher flow rates than necessary and pumps that have been throttled with valves or flow regulators.

- Existing, new standard, and new energy efficient motor efficiencies, based on data from *Motor Master* (Washington State Energy Office 1993) for hp $>1$ and W. W. Grainger (1991) for hp $<1$, are shown in the following table. Existing motors were assumed to have an average 2% efficiency loss over new standard replacements to account for age and wear.

| | Efficiency | | |
|---|---|---|---|
| hp | Existing | New Std. | EEM |
| 1/4 | 0.48 | 0.50 | 0.78 |
| 1/2 | 0.53 | 0.55 | 0.78 |
| 3/4 | 0.58 | 0.60 | 0.80 |
| 1 | 0.805 | 0.825 | 0.865 |
| 1.5 | 0.805 | 0.825 | 0.865 |
| 2 | 0.805 | 0.825 | 0.866 |
| 3 | 0.82 | 0.84 | 0.895 |
| 5 | 0.835 | 0.855 | 0.902 |
| 7.5 | 0.855 | 0.875 | 0.917 |
| 10 | 0.855 | 0.875 | 0.917 |
| 15 | 0.865 | 0.885 | 0.93 |
| 20 | 0.882 | 0.902 | 0.934 |
| 25 | 0.89 | 0.91 | 0.941 |
| 30 | 0.89 | 0.91 | 0.941 |
| 40 | 0.897 | 0.917 | 0.945 |
| 50 | 0.902 | 0.924 | 0.95 |
| 60 | 0.905 | 0.925 | 0.952 |
| 100 | 0.916 | 0.936 | 0.958 |
| 125 | 0.918 | 0.938 | 0.96 |
| 150 | 0.921 | 0.941 | 0.962 |
| 200 | 0.925 | 0.945 | 0.962 |

Cost estimating data are as follows:

- Maintenance costs for standard and high-efficiency motors are the same.

- Motor costs are based on the energy-efficient ODP motor costs reported in *Motor Master* (Washington State Energy Office 1992) for hp $>1$, and W. W. Grainger (1991) for hp $<1$, as shown in the following table. The list price is shown; substantial ($\sim$25-50%) discounts should be available for volume purchases. The rebate incentives shown are from Southern California Edison (1992). The rebates cannot exceed 30% of the installed cost of the motor.

| Motor Rating (hp) | High Efficiency Motor Cost | Rebate Incentive |
|---|---|---|
| 1/4 | $113 | $0 |
| 1/2 | $133 | $15 |
| 3/4 | $149 | $16 |
| 1 | $381 | $14 |
| 1.5 | $371 | $18 |
| 2 | $442 | $20 |
| 3 | $415 | $35 |
| 5 | $478 | $40 |
| 7.5 | $647 | $60 |
| 10 | $780 | $70 |
| 15 | $1,042 | $90 |
| 20 | $1,268 | $120 |
| 25 | $1,658 | $135 |
| 30 | $1,969 | $175 |
| 40 | $2,574 | $200 |
| 50 | $3,200 | $230 |
| 60 | $3,346 | $270 |
| 100 | $3,933 | $320 |
| 125 | $5,367 | $450 |
| 150 | $6,801 | $500 |
| 200 | $8,592 | $550 |

- The cost of installation labor, based on data from *Electrical Cost Data* (Means 1992b), is given below. The labor cost is double what is reported in Means to account for removal of the existing motor.

| Motor Rating (hp) | Installation Cost |
|---|---|
| ≤5 | $74 |
| 7.5 | $81 |
| 10 | $84 |
| 15 | $105 |
| 20 | $129 |
| 25 | $136 |
| 30 | $140 |
| 40 | $169 |
| 50 | $210 |
| 60 | $242 |
| 100 | $371 |
| 125 | $428 |
| 150 | $479 |
| 200 | $582 |

- Motor life expectancy is 15 years.

**Results**

Quantitative results of the ERO analysis are presented in Tables 2.14 through 2.22. These tables contain specific energy, cost and economic data for each motor considered for replacement. The results are discussed in general terms below.

**Budget Implications**. The first cost of all cost-effective energy-efficient motor retrofits is $1,118,902, consisting of the replace-immediately implementations at $761,867 for the equipment costs, $380,497 for

| Building Type | Equipment Cost, RI (1994 $) | Labor Cost, RI (1994 $) | Rebate Incentive (1994 $) |
|---|---|---|---|
| ADMIN | 24,239 | 11,174 | 2,516 |
| BRK/ADM | 136,721 | 86,210 | 2,256 |
| Chapel | 596 | 296 | 64 |
| Clinic | 2,269 | 538 | 204 |
| Club | 1,916 | 1,184 | 48 |
| DGR | 3,113 | 1,554 | 335 |
| Dining | 3,582 | 1,924 | 329 |
| FAM. HSG. | 369,736 | 242,128 | 0 |
| FUELDSP | 298 | 148 | 32 |
| Grocery | 17,707 | 2,560 | 1,550 |
| Hospitl | 1,935 | 384 | 155 |
| Hotel | 2,825 | 1,850 | 0 |
| Kitchen | 452 | 296 | 0 |
| LAB-MED | 0 | 0 | 0 |
| MTRPOOL | 16,048 | 4,886 | 1,543 |
| MWR | 3,270 | 1,924 | 172 |
| Other | 149 | 74 | 16 |
| PLT-BLDG | 1,458 | 592 | 147 |
| PUMP-BLG | 1,967 | 401 | 178 |
| REC | 776 | 222 | 72 |
| Securty | 149 | 74 | 16 |
| Shop | 4,099 | 1,535 | 424 |
| SHOP-ELC | 1,043 | 518 | 112 |
| SHOP-WPN | 149 | 74 | 16 |
| STOR-UH | 0 | 0 | 0 |
| Traing | 544 | 296 | 47 |
| WHS-CLD | 1,322 | 444 | 100 |
| WHS | 10,596 | 4,865 | 1,076 |
| Pump Motors | 154,908 | 14,346 | 12,054 |
| Totals | 761,867 | 380,497 | 23,462 |

the labor costs, and a credit of $23,462 for the rebates. The table on the previous page shows the first costs for the replace immediately options. The RI options were the only ones that turned out to be cost-effective. None of the ROF options were optimal.

**Energy, Demand, and Cost Savings.** The electric energy savings associated with all cost-effective implementations of this ERO are estimated to be 1,756,678 kWh per year at a cost savings of $104,555 per year. Demand savings are estimated to be 7,017 kW-months per year with a cost savings of $92,073 per year. The total NPV for all cost-effective EEM motor replacements is $1,861,641. The following table details the energy and demand savings, and NPV by building type:

| Building Type | Energy Savings (kWh/yr) | Energy Savings (1994 $/yr) | Demand Savings (kW-mo/yr) | Demand Savings (1994 $/yr) | Net Present Value (1994 $) |
|---|---|---|---|---|---|
| Admin | 57,465 | 4,810 | 259 | 3,047 | 90,187 |
| BRK/ADM | 259,735 | 18,681 | 1,143 | 12,027 | 220,727 |
| Chapel | 1,292 | 120 | 6 | 81 | 2,320 |
| Clinic | 2,825 | 234 | 24 | 207 | 4,023 |
| Club | 7,140 | 465 | 27 | 244 | 8,022 |
| DGR | 8,619 | 755 | 42 | 446 | 14,920 |
| Dining | 9,139 | 806 | 47 | 497 | 15,215 |
| FAM. HSG. | 728,924 | 44,049 | 2,934 | 55,548 | 892,658 |
| FUELDSP | 646 | 60 | 3 | 41 | 1,160 |
| Grocery | 33,029 | 1,831 | 133 | 940 | 21,760 |
| Hospitl | 7,837 | 408 | 22 | 174 | 7,011 |
| Hotel | 11,934 | 686 | 39 | 341 | 11,259 |
| Kitchen | 2,208 | 125 | 7 | 57 | 2,111 |
| LAB-MED | 0 | 0 | 0 | 0 | 0 |
| MTRPOOL | 30,133 | 2,268 | 141 | 1,498 | 38,073 |
| MWR | 11,509 | 880 | 42 | 358 | 14,413 |
| Other | 323 | 30 | 2 | 21 | 577 |
| PLT-BLDG | 3,461 | 299 | 16 | 156 | 5,138 |
| PUMP-BLG | 2,954 | 184 | 22 | 237 | 4,221 |
| REC | 1,453 | 68 | 7 | 118 | 1,910 |
| Securty | 323 | 20 | 2 | 30 | 585 |
| Shop | 7,116 | 458 | 42 | 639 | 11,644 |
| SHOP-ELC | 2,261 | 142 | 11 | 211 | 4,061 |
| SHOP-WPN | 323 | 20 | 2 | 30 | 580 |
| STOR-UH | 0 | 0 | 0 | 0 | 0 |
| Traing | 1,679 | 81 | 8 | 146 | 2,813 |
| WHS-CLD | 5,802 | 109 | 14 | 342 | 5,452 |
| WHS | 21,163 | 1,324 | 109 | 1,932 | 36,270 |
| Pump Motors | 537,385 | 25,642 | 1,913 | 12,705 | 444,531 |
| Totals | 1,756,678 | 104,555 | 7,017 | 92,073 | 1,861,641 |

## 2.9.2 Variable Speed Drives

Variable speed drives (VSD) can be added to HVAC motor applications to reduce energy consumption without compromising system performance. Fans and pumps are sized to meet the maximum load, even though this may occur only a few hours a year. In addition, motors are generally oversized to account for uncertainties in duct, coil and register pressure losses, as well as to provide additional capacity in the event of future remodeling. The VSD varies motor speed to just meet the load, practically eliminating the energy waste that results from oversizing. In fixed-speed applications, the VSD-controlled motor is not as efficient as a correctly sized line-powered motor, but the VSD-controlled motor is often easier to implement because of uncertainty in existing and future conditions.

The VSD offers several other advantages over the line-powered single-speed motor. The VSD provides "soft-starting," ramping up to speed rather than an abrupt step-up to full power. This will decrease wear on the motor, drive train, and fan, as well as allow for instant restart in the event of momentary power interruption. Longer equipment life and lower noise levels will occur due to lower average operating speed.

### Description

Single-speed motors larger than 1 hp used in air-handling units, chilled and condenser water pumps, and cooling tower fans have been considered for replacement. Because of their relatively low energy consumption and high per-hp cost, application of VSDs to motors of less than 1 hp is not considered in this analysis.

### Assumptions

The technical assumptions are as follows:

- The operation schedules are the same as those for the single-speed motor ERO.
- The highest savings for VSDs in AHUs is achieved when the system is converted to variable air volume (VAV). The VSD will save approximately 71% of the existing constant volume fan motor energy, and 58% of existing inlet vane VAV motor energy (Moses et al. 1989). These are general estimates, since individual motor load profile data are required to fully analyze the savings for each VSD application.
- Chilled water pumps were considered to be directly related to the air-handling units and therefore have similar percentage savings.
- Blast heaters, condenser water pumps, and cooling tower fans with VSDs were assumed to use 50% less energy than the existing conditions.
- Power ventilators with VSDs were also assumed to have 50% savings.

Cost estimating parameters are as follows:

- VSD controller costs (installed) are shown in the following table. VSD costs were obtained from several manufacturers. These costs are approximate for a wide range of sizes and system types; actual costs may be higher or lower depending on individual circumstances.

| Motor Rating, hp | VSD Cost ($) |
|---|---|
| 1 | 1,061 |
| 2 | 1,188 |
| 3 | 1,368 |
| 5 | 1,368 |
| 7.5 | 1,600 |
| 10 | 2,168 |
| 15 | 2,769 |
| 20 | 3,481 |
| 25 | 4,420 |
| 30 | 4,645 |
| 40 | 7,150 |
| 50 | 6,985 |
| 60 | 8,690 |
| 100 | 12,980 |
| 125 | 13,240 |
| 150 | 13,890 |
| 200 | 15,180 |

- Additional costs for individual motor types are given in the following table:

| Motor Type | Additional Cost | Description |
|---|---|---|
| AH and chilled water pumps | $2400/hp for AH<br>$600/hp for pump | For motors requiring CV to VAV retrofit. |
| Blast heater | $200 each | Proportional thermostat. |
| Condenser water pump and cooling tower fans | $100 each | Proportional aquastat. |

- VSD life expectancy is 15 years.

**Results**

Quantitative results of the ERO analysis are presented in Tables 2.23 and 2.24. These tables contain specific energy, cost and economic data for each motor considered for replacement. Summary results of the VSD ERO analysis are presented in the tables below. All motors larger than 1 hp that were considered for VSD retrofit are included. There were three options analyzed in each case: installing a new energy-efficient motor (EEM), adding a VSD to the existing motor, and installing an EEM with a VSD. Only the EEM option and the EEM and VSD proved to be cost-effective. None of the options of VSD to the existing motor was optimal.

**Budget Implications.** The first cost of the VSD and EEM EROs is $224,363, and the EEM motor measures cost is $30,546, for a total cost of $255,149. There will be an additional annual maintenance

cost for the VSD and EEM option due to the added controls of $240. There is a $5,993 rebate incentive for the fan motor VSD and EEM option, and $1,371 for the pump motors. The following table shows the first cost for both VSD options by motor type:

| Motor Type | Equipment Cost, EEM (1994 $) | Labor Cost, EEM (1994 $) | Equipment Cost, VSD & EEM (1994 $) | Labor Cost, VSD & EEM (1994 $) |
|---|---|---|---|---|
| Fan Motors | 18,903 | 2,926 | 166,043 | 827 |
| Pump Motors | 7,844 | 873 | 55,965 | 1,528 |
| Totals: | 26,747 | 3,799 | 222,008 | 2,355 |

**Energy, Demand, and Cost Savings.** The electric energy savings associated with all cost-effective implementations of this ERO are estimated to be 532,724 kWh per year at a cost savings of $35,831 per year. The demand savings are estimated to be 325 kW-months per year at a cost savings of $2,780 per year. The total NPV for all cost-effective implementations is $318,423. The following table details the energy and demand savings by motor type:

| Motor Type | Energy Savings (kWh/yr) | Energy Savings (1994$/yr) | Demand Savings (kW-mo/yr) | Demand Savings (1994$/yr) | Net Present Value (1994 $) |
|---|---|---|---|---|---|
| Fan Motors (EEM) | 23,961 | 1,702 | 121 | 891 | 16,406 |
| Fan Motors (VSD & EEM) | 397,613 | 23,632 | 76 | 499 | 183,591 |
| Pump Motors (EEM) | 5,165 | 423 | 51 | 528 | 5,324 |
| Pump Motor (VSD & EEM) | 105,985 | 10,074 | 77 | 862 | 113,102 |
| Totals: | 532,724 | 35,831 | 325 | 2,780 | 318,423 |

**Operations and Maintenance.** Additional maintenance associated with this ERO is small but not negligible. Controls for the replacement VSDs will have a finite failure rate that is reflected in the estimated maintenance costs.

## 2.9.3 Downsized Energy Efficient Motor ERO (discussion only)

### Description

Motors become oversized as a cumulative result of successive safety factors used in the design process. Safety factors are used to account for performance loss over time, scale build-up in pipes, duct obstructions, design uncertainties, or to allow for possible future expansion. In the initial design of a building it is routine to size the system, add 20% safety factor, then round up to the nearest standard motor size. It has been estimated that one-fifth of all motors over 5 horsepower (hp) installed in U.S. buildings are more than 250% oversized (Nadel et al. 1991). Motors are considered oversized when the majority of the operating time is spent at or below 40% of the nameplate rating.

Motor efficiency drops off sharply below about 40% of rated nameplate, as much as 2-8% less efficient than at 50% of rated load. Power factor also drops steadily with load. Thus, an oversized motor will run at low efficiency and power factor, increasing energy costs and requiring costly power factor correction or utility charges for reactive current. For this reason, it is recommended that when replacing motors (on failure of the existing motor, or when upgrading to energy efficient motors) studies be undertaken to determine the correct size for the motor system. Efficiency peaks at about 75% for EEMs and about 100% for standard efficiency motors. While it is unrealistic to size a motor for exactly 100% of the load, an attempt should be made to size the motor so the majority of the operating time is spent within 50-75% of the rated nameplate to ensure the highest performance and efficiency.

### Results

Detailed analysis of this ERO was not performed due to lack of required data. In order to make decisions regarding downsizing existing motors, detailed information as to motor size, operating time, and existing load are required. This information will need to be collected on an individual motor basis. Size is found on the motor nameplate, operating time can be estimated based on the motor application (or spot metered for a few days), and the load currently on the motor can be measured using an electric power demand analyzer, such as the Dranetz Technologies Series 808.

Only those motors that operate at or less than 40% of rated nameplate should be considered, and then only a subset of those will cost-effective depending on annual operating hours and size. As stated above, improving a motor from 40-50% of rated capacity can increase efficiency by up to 8%. Even larger gains are possible for grossly oversized motors. This efficiency improvement can be added to the savings from switching from standard efficiency motors to EEMs as discussed in Section 2.9.1 above.

## 2.9.4 Properly Sized Pumps (discussion only)

It has been estimated that 22 billion kWh of energy are used annually in pump shaft power consumption in the national defense area. This represents roughly 4% of the U.S. total (U.S. Department of Energy February 1980). The differences in pump efficiency from one unit to the next can range from 20-40%. Determining the optimal size and characteristics of replacement pumps can result in some dramatic savings, not only for the facility, but for the nation as a whole.

Centrifugal pumps operate along a curve on a head-capacity diagram for a given shaft speed. Depending on the characteristics of the load associated with the pump, the pump will operate at one point on the curve. If the pump is not sized properly, pump operation will not be near the design point and low efficiencies will result.

Various pumps were recorded during the audit of Fort Irwin. A case study of several different pumps is provided below to illustrate the possible savings available by replacing pumps with the correctly sized unit for the particular application. To conduct a thorough analysis of the pump-associated energy savings potential at Fort Irwin would require more detailed information on a case-by-case basis.

**Case Study**

There are various methods available to analyze pump information and ascertain the overall operating characteristics. Pump catalogs can be consulted for the appropriate pump curve, or a software package associated with pump-related information could be used. For this analysis, a software tool called PUMP-FLO (Engineered Software, Inc. 1986-1993) was used.

PUMP-FLO is a software package that can upload various manufacturers pump catalogs on computer disk. To use the program, the design point information is input (gallons per minute and feet of head). Various catalogs are then uploaded into the program to ascertain specifics about a particular pump. PUMP-FLO will give details such as the type, size, speed, impeller size, efficiency, and net positive suction head (inlet head required above the vapor pressure) about many different pumps available for that particular application. An individual can then make an informed decision about which pump to choose. To illustrate the procedure and the possible savings, two examples are given below.

During the audit of Fort Irwin, various pumps and their characteristics were noted. One example is a chilled water pump, the details of which are as follows: 80 gpm; 60 ft of head; 9.25" impeller; 1750 rpm. This pump is about 43% efficient running at 1,750 rpm. However, a search of the PUMP-FLO database shows that a 58%-efficient pump is available with a 8.25" impeller. Thus, a 13% efficiency improvement could be gained by replacing this pump. Furthermore, in this example, the 58%-efficient pump may not be any more expensive (it could even be cheaper) than the 43%-efficient pump.

In one of the PUMP-BLDG units, 690 gpm was being pumped with 90 ft of head. PUMP-FLO shows a range of efficiencies for pumps meeting these criteria from 58-82%. This is a range of 24%. Therefore, choosing the proper pump to replace this unit would have positive economic benefits over the entire life-cycle.

Generally speaking, pump prices are independent of the efficiency within a given category. Therefore, when replacing pumps, it is recommended that various pump catalogs be consulted to determine the optimal pump curve for an application. Having various pump catalogs linked into a pump software package which allows an individual to quickly choose an optimal unit is a valuable tool. By choosing the correct pump, rather large efficiency improvements can be gained. Software such as PUMP-FLO has shown there to be as much 20-40% difference between the least and most efficient pumps that will meet the particular needs of an application.

## 2.9.5 Rewind Existing Motors (discussion only)

**Description**

Most motors fail because the bearings go out or the windings fail, usually because of insulation degradation, overheating, aging, and overvoltage conditions. When bearings or windings are the failing component, the old windings may be stripped and replaced with new wire. Generally, this is done on motors over 10 hp. However, there are various other considerations (Nadel et al. 1991). The greatest concern is that the motor is usually not as efficient after the rewind (1-5% less efficient). Often, there are other

hidden problems that are not found during the rewind process. Therefore, this option was not analyzed. Properly sizing a new premium efficiency motor or switching to a premium efficiency motor with a VSD, if applicable, should be considered.

## Table 2.14. Administration Building Energy Efficient Motor EROs

### Existing ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-1 | ADMIN | 00988 | air comp | 1 | 1.5 | 80.5% | 523 | 352 | 1,205 | 0 | 0 | 12 | 364 | 245 | 838 | 0 | 0 | 6 | 11 |
| MTR-100 | ADMIN | 00157 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-101 | ADMIN | 00157 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-102 | ADMIN | 00236 | Evap clr | 3 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-103 | ADMIN | 00237 | Evap. clr | 8 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 4,028 | 2,562 | 2,805 | 0 | 0 | 31 | 15 |
| MTR-104 | ADMIN | 00237 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-105 | ADMIN | 00241 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-106 | ADMIN | 00248 | Evap. clr | 3 | 2 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,902 | 1,846 | 2,021 | 0 | 0 | 22 | 11 |
| MTR-107 | ADMIN | 00256 | Evap. clr | 5 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,419 | 1,538 | 1,684 | 0 | 0 | 19 | 9 |
| MTR-108 | ADMIN | 00257 | Evap. clr | 5 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,419 | 1,538 | 1,684 | 0 | 0 | 19 | 9 |
| MTR-109 | ADMIN | 00279 | Evap. clr | 5 | 2 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 4,837 | 3,077 | 3,368 | 0 | 0 | 37 | 19 |
| MTR-110 | ADMIN | 00281 | Evap. clr | 1 | 2 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-111 | ADMIN | 00281 | Evap. clr | 1 | 5 | 84.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,304 | 1,466 | 1,604 | 0 | 0 | 18 | 9 |
| MTR-112 | ADMIN | 00320 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-113 | ADMIN | 00372 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-114 | ADMIN | 00372 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-115 | ADMIN | 00372 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-116 | ADMIN | 00408 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-117 | ADMIN | 00411 | Evap. clr | 2 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-118 | ADMIN | 00415 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-119 | ADMIN | 00425 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-120 | ADMIN | 00426 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-121 | ADMIN | 00428 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-122 | ADMIN | 00429 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-123 | ADMIN | 00433 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-124 | ADMIN | 00436 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-125 | ADMIN | 00437 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-126 | ADMIN | 00437 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-127 | ADMIN | 00439 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-128 | ADMIN | 00441 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-129 | ADMIN | 00442 | Evap. clr | 2 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-130 | ADMIN | 00443 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-131 | ADMIN | 00443 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-132 | ADMIN | 00444 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-133 | ADMIN | 00445 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-134 | ADMIN | 00451 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-135 | ADMIN | 00452 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 3,021 | 1,922 | 2,104 | 0 | 0 | 23 | 12 |
| MTR-136 | ADMIN | 00452 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-137 | ADMIN | 00453 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-138 | ADMIN | 00454 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-139 | ADMIN | 00458 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-140 | ADMIN | 00458 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-141 | ADMIN | 00464 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |

## Table 2.14. (contd)

### Existing ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-142 | ADMIN | 00464 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-143 | ADMIN | 00466 | Evap. clr | 2 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-144 | ADMIN | 00479 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-145 | ADMIN | 00483 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-146 | ADMIN | 00497 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-147 | ADMIN | 00498 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-148 | ADMIN | 00499 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-149 | ADMIN | 00504 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-150 | ADMIN | 00504 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-151 | ADMIN | 00508 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-152 | ADMIN | 00510 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-153 | ADMIN | 00513 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-154 | ADMIN | 00520 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-155 | ADMIN | 00521 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-156 | ADMIN | 00524 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 3,021 | 1,922 | 2,104 | 0 | 0 | 23 | 12 |
| MTR-157 | ADMIN | 00526 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-158 | ADMIN | 00527 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-159 | ADMIN | 00528 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-160 | ADMIN | 00528 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-161 | ADMIN | 00529 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-162 | ADMIN | 00539 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-163 | ADMIN | 00543 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-164 | ADMIN | 00543 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-165 | ADMIN | 00544 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-166 | ADMIN | 00544 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-167 | ADMIN | 00549 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-168 | ADMIN | 00551 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-169 | ADMIN | 00554 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-170 | ADMIN | 00564 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-171 | ADMIN | 00570 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-172 | ADMIN | 00578 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-173 | ADMIN | 00579 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-174 | ADMIN | 00580 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-175 | ADMIN | 00583 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-176 | ADMIN | 00604 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-177 | ADMIN | 00604 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-178 | ADMIN | 00813 | Evap. clr | 2 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-179 | ADMIN | 00930 | Evap. clr | 3 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,177 | 1,385 | 1,516 | 0 | 0 | 17 | 8 |
| MTR-180 | ADMIN | 00930 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-181 | ADMIN | 00988 | Evap. clr | 1 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 6 | 367 | 234 | 256 | 0 | 0 | 3 | 1 |
| MTR-182 | ADMIN | 00988 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-183 | ADMIN | 00988 | Evap. clr | 1 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 6 | 367 | 234 | 256 | 0 | 0 | 3 | 1 |
| MTR-184 | ADMIN | 00988 | Evap. clr | 2 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 6 | 735 | 467 | 512 | 0 | 0 | 6 | 3 |

**Table 2.14.** (contd)

## Existing ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-185 | ADMIN | 06201 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-186 | ADMIN | 06201 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-187 | ADMIN | 07600 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-38 | ADMIN | 00985 | cond | 1 | 0.75 | 58.0% | 0 | 0 | 1,215 | 0 | 2,846 | 12 | 0 | 0 | 586 | 0 | 995 | 4 | 8 |
| MTR-39 | ADMIN | 00985 | cond | 2 | 0.75 | 58.0% | 0 | 0 | 1,215 | 0 | 2,846 | 12 | 0 | 0 | 1,172 | 0 | 1,990 | 8 | 15 |
| MTR-419 | ADMIN | 00433 | EFU | 1 | 0.25 | 48.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 203 | 136 | 606 | 0 | 0 | 2 | 3 |
| MTR-420 | ADMIN | 00439 | EFU | 1 | 0.25 | 48.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 203 | 136 | 606 | 0 | 0 | 2 | 3 |
| MTR-424 | ADMIN | 00988 | RTU | 1 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 12 | 367 | 234 | 256 | 0 | 0 | 3 | 6 |
| MTR-428 | ADMIN | 00988 | cmptr, flr units | 5 | 3 | 82.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 7,137 | 10,726 | 30,759 | 22,093 | 44,735 | 55 | 109 |
| MTR-431 | ADMIN | 00988 | RTU | 6 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 12 | 2,204 | 1,402 | 1,535 | 0 | 0 | 17 | 34 |
| MTR-98 | ADMIN | 00101 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 3,021 | 1,922 | 2,104 | 0 | 0 | 23 | 12 |
| MTR-99 | ADMIN | 00152 | Evap. clr | 1 | 5 | 83.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,332 | 1,483 | 1,624 | 0 | 0 | 18 | 9 |

## Table 2.14. (contd)

### Energy-Efficient ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-1 | EEM | ADMIN | 00988 | air comp | 1 | 1.5 | 86.5% | 523 | 352 | 1,205 | 0 | 0 | 338 | 228 | 779 | 0 | 0 | 5.2 | 10.3 |
| MTR-100 | EEM | ADMIN | 00157 | Evap. clr | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3.4 | 1.7 |
| MTR-101 | EEM | ADMIN | 00157 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-102 | EEM | ADMIN | 00236 | Evap. clr | 3 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10.3 | 5.2 |
| MTR-103 | EEM | ADMIN | 00237 | Evap. clr | 8 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 2,921 | 1,858 | 2,034 | 0 | 0 | 22.4 | 11.2 |
| MTR-104 | EEM | ADMIN | 00237 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-105 | EEM | ADMIN | 00241 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-106 | EEM | ADMIN | 00248 | Evap. clr | 3 | 2 | 86.6% | 522 | 332 | 363 | 0 | 0 | 2,698 | 1,716 | 1,879 | 0 | 0 | 20.7 | 10.3 |
| MTR-107 | EEM | ADMIN | 00256 | Evap. clr | 5 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 2,251 | 1,432 | 1,567 | 0 | 0 | 17.2 | 8.6 |
| MTR-108 | EEM | ADMIN | 00257 | Evap. clr | 5 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 2,251 | 1,432 | 1,567 | 0 | 0 | 17.2 | 8.6 |
| MTR-109 | EEM | ADMIN | 00279 | Evap. clr | 5 | 2 | 86.6% | 522 | 332 | 363 | 0 | 0 | 4,497 | 2,860 | 3,131 | 0 | 0 | 34.5 | 17.2 |
| MTR-110 | EEM | ADMIN | 00281 | Evap. clr | 1 | 2 | 86.6% | 522 | 332 | 363 | 0 | 0 | 899 | 572 | 626 | 0 | 0 | 6.9 | 3.4 |
| MTR-111 | EEM | ADMIN | 00281 | Evap. clr | 1 | 5 | 90.2% | 522 | 332 | 363 | 0 | 0 | 2,159 | 1,373 | 1,503 | 0 | 0 | 16.5 | 8.3 |
| MTR-112 | EEM | ADMIN | 00320 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-113 | EEM | ADMIN | 00372 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-114 | EEM | ADMIN | 00372 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-115 | EEM | ADMIN | 00372 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-116 | EEM | ADMIN | 00408 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-117 | EEM | ADMIN | 00411 | Evap. clr | 2 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10.3 | 5.2 |
| MTR-118 | EEM | ADMIN | 00415 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-119 | EEM | ADMIN | 00425 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-120 | EEM | ADMIN | 00426 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-121 | EEM | ADMIN | 00428 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-122 | EEM | ADMIN | 00429 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-123 | EEM | ADMIN | 00433 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-124 | EEM | ADMIN | 00436 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-125 | EEM | ADMIN | 00437 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-126 | EEM | ADMIN | 00437 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-127 | EEM | ADMIN | 00439 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-128 | EEM | ADMIN | 00441 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-129 | EEM | ADMIN | 00442 | Evap. clr | 2 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10.3 | 5.2 |
| MTR-130 | EEM | ADMIN | 00443 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-131 | EEM | ADMIN | 00443 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-132 | EEM | ADMIN | 00444 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-133 | EEM | ADMIN | 00445 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-134 | EEM | ADMIN | 00451 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-135 | EEM | ADMIN | 00452 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 2,190 | 1,393 | 1,525 | 0 | 0 | 16.8 | 8.4 |
| MTR-136 | EEM | ADMIN | 00452 | Evap. clr | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3.4 | 1.7 |
| MTR-137 | EEM | ADMIN | 00453 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-138 | EEM | ADMIN | 00454 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-139 | EEM | ADMIN | 00458 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-140 | EEM | ADMIN | 00458 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-141 | EEM | ADMIN | 00464 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |

**Table 2.14.** (contd)

## Energy-Efficient ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-142 | EEM | ADMIN | 00464 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-143 | EEM | ADMIN | 00466 | Evap. clr | 2 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 900 | 573 | 627 | 0 | 0 | 6.9 | 3.4 |
| MTR-144 | EEM | ADMIN | 00479 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-145 | EEM | ADMIN | 00483 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-146 | EEM | ADMIN | 00497 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-147 | EEM | ADMIN | 00498 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-148 | EEM | ADMIN | 00499 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-149 | EEM | ADMIN | 00504 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-150 | EEM | ADMIN | 00504 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-151 | EEM | ADMIN | 00508 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-152 | EEM | ADMIN | 00510 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-153 | EEM | ADMIN | 00513 | Evap. clr | 4 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11.2 | 5.6 |
| MTR-154 | EEM | ADMIN | 00520 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-155 | EEM | ADMIN | 00521 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-156 | EEM | ADMIN | 00524 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 2,190 | 1,393 | 1,525 | 0 | 0 | 16.8 | 8.4 |
| MTR-157 | EEM | ADMIN | 00526 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-158 | EEM | ADMIN | 00527 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-159 | EEM | ADMIN | 00528 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-160 | EEM | ADMIN | 00528 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-161 | EEM | ADMIN | 00529 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-162 | EEM | ADMIN | 00539 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-163 | EEM | ADMIN | 00543 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-164 | EEM | ADMIN | 00543 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-165 | EEM | ADMIN | 00544 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-166 | EEM | ADMIN | 00544 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-167 | EEM | ADMIN | 00549 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-168 | EEM | ADMIN | 00551 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-169 | EEM | ADMIN | 00554 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-170 | EEM | ADMIN | 00564 | Evap. clr | 3 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8.4 | 4.2 |
| MTR-171 | EEM | ADMIN | 00570 | Evap. clr | 4 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11.2 | 5.6 |
| MTR-172 | EEM | ADMIN | 00578 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-173 | EEM | ADMIN | 00579 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-174 | EEM | ADMIN | 00580 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-175 | EEM | ADMIN | 00583 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-176 | EEM | ADMIN | 00604 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-177 | EEM | ADMIN | 00604 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-178 | EEM | ADMIN | 00813 | Evap. clr | 2 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 900 | 573 | 627 | 0 | 0 | 6.9 | 3.4 |
| MTR-179 | EEM | ADMIN | 00930 | Evap. clr | 3 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 2,026 | 1,288 | 1,411 | 0 | 0 | 15.5 | 7.8 |
| MTR-180 | EEM | ADMIN | 00930 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5.2 | 2.6 |
| MTR-181 | EEM | ADMIN | 00988 | Evap. clr | 1 | 0.5 | 78.0% | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 1.9 | 1.0 |
| MTR-182 | EEM | ADMIN | 00988 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-183 | EEM | ADMIN | 00988 | Evap. clr | 1 | 0.5 | 78.0% | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 1.9 | 1.0 |
| MTR-184 | EEM | ADMIN | 00988 | Evap. clr | 2 | 0.5 | 78.0% | 522 | 332 | 363 | 0 | 0 | 499 | 318 | 348 | 0 | 0 | 3.8 | 1.9 |

**Table 2.14.** (contd)

## Energy-Efficient ADMIN Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-185 | EEM | ADMIN | 06201 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-186 | EEM | ADMIN | 06201 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-187 | EEM | ADMIN | 07600 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-38 | EEM | ADMIN | 00985 | cond | 1 | 0.75 | 80.0% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 425 | 0 | 995 | 2.8 | 5.6 |
| MTR-39 | EEM | ADMIN | 00985 | cond | 2 | 0.75 | 80.0% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 850 | 0 | 1,990 | 5.6 | 11.2 |
| MTR-419 | EEM | ADMIN | 00433 | EFU | 1 | 0.25 | 78.0% | 523 | 349 | 1,560 | 0 | 0 | 125 | 83 | 373 | 0 | 0 | 1.0 | 1.9 |
| MTR-420 | EEM | ADMIN | 00439 | EFU | 1 | 0.25 | 78.0% | 523 | 349 | 1,560 | 0 | 0 | 125 | 83 | 373 | 0 | 0 | 1.0 | 1.9 |
| MTR-424 | EEM | ADMIN | 00988 | RTU | 1 | 0.5 | 78.0% | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 1.9 | 3.8 |
| MTR-428 | EEM | ADMIN | 00988 | cmptr, flr units | 5 | 3 | 89.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 6,539 | 9,827 | 28,181 | 20,242 | 44,735 | 50.0 | 100.0 |
| MTR-431 | EEM | ADMIN | 00988 | RTU | 6 | 0.5 | 78.0% | 522 | 332 | 363 | 0 | 0 | 1,498 | 953 | 1,043 | 0 | 0 | 11.5 | 23.0 |
| MTR-98 | EEM | ADMIN | 00101 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 2,190 | 1,393 | 1,525 | 0 | 0 | 16.8 | 8.4 |
| MTR-99 | EEM | ADMIN | 00152 | Evap. clr | 1 | 5 | 90.2% | 522 | 332 | 363 | 0 | 0 | 2,159 | 1,373 | 1,503 | 0 | 0 | 16.5 | 8.3 |

## Table 2.14. (contd)

### Energy-Efficient ADMIN Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-101 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-103 | RI | EEM | 1,192 | 592 | 128 | 0 | 15 | 2,584 | 13 | 238 | 160 | 398 | 4,669 | 3.82 |
| MTR-104 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-105 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 89 | 60 | 149 | 1,751 | 3.82 |
| MTR-111 | RI | EEM | 478 | 74 | 40 | 0 | 15 | 340 | 2 | 26 | 18 | 44 | 50 | 1.10 |
| MTR-112 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-113 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-114 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-115 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-116 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-118 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-119 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-120 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-121 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-123 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-124 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 89 | 60 | 148 | 1,756 | 3.83 |
| MTR-125 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-127 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-128 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-130 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-131 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-132 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-133 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-135 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 1,938 | 10 | 181 | 122 | 302 | 3,481 | 3.80 |
| MTR-137 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-138 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-139 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-140 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-141 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-142 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-144 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-145 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-146 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-147 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-148 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-149 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-150 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-151 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-152 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-153 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 120 | 81 | 202 | 2,320 | 3.80 |
| MTR-154 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-155 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-156 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 1,938 | 10 | 177 | 120 | 297 | 3,513 | 3.83 |

Table 2.14. (contd)

## Energy-Efficient ADMIN Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-157 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-158 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-159 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-160 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-161 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-162 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-163 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-164 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-165 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-166 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-169 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-170 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-171 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 120 | 81 | 202 | 2,320 | 3.80 |
| MTR-172 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-173 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-174 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-175 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-176 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-177 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-181 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 1 | 26 | 17 | 43 | 475 | 3.47 |
| MTR-182 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-183 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 1 | 25 | 17 | 42 | 499 | 3.60 |
| MTR-184 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 549 | 3 | 51 | 35 | 86 | 950 | 3.47 |
| MTR-185 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 61 | 41 | 102 | 1,154 | 3.79 |
| MTR-186 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-187 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-38 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 539 | 3 | 27 | 25 | 52 | 605 | 3.92 |
| MTR-39 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 1,077 | 6 | 54 | 50 | 104 | 1,211 | 3.92 |
| MTR-419 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 363 | 2 | 30 | 14 | 45 | 514 | 3.75 |
| MTR-420 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 363 | 2 | 30 | 14 | 45 | 514 | 3.75 |
| MTR-424 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 3 | 26 | 21 | 47 | 544 | 3.83 |
| MTR-428 | RI | EEM | 2,075 | 370 | 175 | 0 | 15 | 10,017 | 14 | 491 | 96 | 586 | 6,930 | 4.05 |
| MTR-431 | RI | EEM | 798 | 444 | 90 | 0 | 15 | 1,648 | 16 | 154 | 128 | 283 | 3,265 | 3.83 |
| MTR-98 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 1,938 | 10 | 183 | 123 | 306 | 3,462 | 3.79 |
| MTR-99 | RI | EEM | 478 | 74 | 40 | 0 | 15 | 404 | 2 | 33 | 22 | 55 | 232 | 1.45 |
| Totals: | | | 24,239 | 11,174 | 2,516 | 0 | | 57,465 | 259 | 4,810 | 3,047 | 7,857 | 90,187 | 3.74 |

## Table 2.15. Barracks Building Energy Efficient Motor EROs

### Existing BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-188 | BRK/ADM | 00014 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-189 | BRK/ADM | 00098 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-190 | BRK/ADM | 00102 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-191 | BRK/ADM | 00103 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-192 | BRK/ADM | 00104 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-193 | BRK/ADM | 00249 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-194 | BRK/ADM | 00249 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-195 | BRK/ADM | 00250 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-196 | BRK/ADM | 00250 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-197 | BRK/ADM | 00251 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-198 | BRK/ADM | 00251 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-199 | BRK/ADM | 00252 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-200 | BRK/ADM | 00252 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-201 | BRK/ADM | 00261 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-202 | BRK/ADM | 00261 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-203 | BRK/ADM | 00262 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-204 | BRK/ADM | 00262 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-205 | BRK/ADM | 00264 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-206 | BRK/ADM | 00264 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-207 | BRK/ADM | 00265 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-208 | BRK/ADM | 00265 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-209 | BRK/ADM | 00267 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-210 | BRK/ADM | 00267 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-211 | BRK/ADM | 00412 | Evap. clr | 22 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 11,078 | 15,853 | 11,142 | 0 | 0 | 85 | 42 |
| MTR-212 | BRK/ADM | 00413 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 2,014 | 2,882 | 2,026 | 0 | 0 | 15 | 8 |
| MTR-213 | BRK/ADM | 00414 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-214 | BRK/ADM | 00416 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-215 | BRK/ADM | 00417 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-216 | BRK/ADM | 00418 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-217 | BRK/ADM | 00419 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-218 | BRK/ADM | 00420 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-219 | BRK/ADM | 00421 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-220 | BRK/ADM | 00422 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-221 | BRK/ADM | 00423 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-222 | BRK/ADM | 00434 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-223 | BRK/ADM | 00440 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-224 | BRK/ADM | 00448 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-225 | BRK/ADM | 00487 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-226 | BRK/ADM | 00489 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-227 | BRK/ADM | 00491 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-228 | BRK/ADM | 00493 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-229 | BRK/ADM | 00494 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-230 | BRK/ADM | 00511 | Evap. clr | 5 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 2,518 | 3,603 | 2,532 | 0 | 0 | 19 | 10 |

## Existing BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-231 | BRK/ADM | 00512 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-232 | BRK/ADM | 00514 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-233 | BRK/ADM | 00516 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-234 | BRK/ADM | 00518 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-235 | BRK/ADM | 00519 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-236 | BRK/ADM | 00523 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-237 | BRK/ADM | 00530 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-238 | BRK/ADM | 00534 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-239 | BRK/ADM | 00540 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 3,021 | 4,324 | 3,039 | 0 | 0 | 23 | 12 |
| MTR-487 | BRK/ADM | 00105 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-488 | BRK/ADM | 00106 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-489 | BRK/ADM | 00107 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-490 | BRK/ADM | 00108 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-491 | BRK/ADM | 00110 | FCU | 20 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 4,721 | 420 | 6,805 | 0 | 47 |
| MTR-492 | BRK/ADM | 00111 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-493 | BRK/ADM | 00249 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-494 | BRK/ADM | 00249 | FCU | 29 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 6,845 | 608 | 9,867 | 0 | 68 |
| MTR-495 | BRK/ADM | 00249 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-496 | BRK/ADM | 00249 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-497 | BRK/ADM | 00249 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-498 | BRK/ADM | 00249 | FCU | 4 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 944 | 84 | 1,361 | 0 | 9 |
| MTR-499 | BRK/ADM | 00249 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-500 | BRK/ADM | 00250 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-501 | BRK/ADM | 00250 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-502 | BRK/ADM | 00250 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-503 | BRK/ADM | 00250 | FCU | 29 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 6,845 | 608 | 9,867 | 0 | 68 |
| MTR-504 | BRK/ADM | 00250 | FCU | 4 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 944 | 84 | 1,361 | 0 | 9 |
| MTR-505 | BRK/ADM | 00250 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-506 | BRK/ADM | 00250 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-507 | BRK/ADM | 00251 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-508 | BRK/ADM | 00251 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-509 | BRK/ADM | 00251 | FCU | 29 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 6,845 | 608 | 9,867 | 0 | 68 |
| MTR-510 | BRK/ADM | 00251 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-511 | BRK/ADM | 00251 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-512 | BRK/ADM | 00251 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-513 | BRK/ADM | 00251 | FCU | 4 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 944 | 84 | 1,361 | 0 | 9 |
| MTR-514 | BRK/ADM | 00252 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-515 | BRK/ADM | 00252 | FCU | 16 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 3,777 | 336 | 5,444 | 0 | 37 |
| MTR-516 | BRK/ADM | 00252 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-517 | BRK/ADM | 00252 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-518 | BRK/ADM | 00252 | FCU | 29 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 6,845 | 608 | 9,867 | 0 | 68 |
| MTR-519 | BRK/ADM | 00252 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 236 | 21 | 340 | 0 | 2 |
| MTR-520 | BRK/ADM | 00252 | FCU | 4 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 944 | 84 | 1,361 | 0 | 9 |

**Table 2.15.** (contd)

## Existing BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-56 | BRK/ADM | 00105 | FCU | 16 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,623 | 2,322 | 1,632 | 0 | 0 | 25 | 12 |
| MTR-57 | BRK/ADM | 00106 | FCU | 16 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,623 | 2,322 | 1,632 | 0 | 0 | 25 | 12 |
| MTR-58 | BRK/ADM | 00107 | FCU | 16 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,623 | 2,322 | 1,632 | 0 | 0 | 25 | 12 |
| MTR-59 | BRK/ADM | 00108 | FCU | 16 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,623 | 2,322 | 1,632 | 0 | 0 | 25 | 12 |
| MTR-60 | BRK/ADM | 00110 | FCU | 20 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 2,028 | 2,902 | 2,040 | 0 | 0 | 31 | 16 |
| MTR-61 | BRK/ADM | 00111 | FCU | 16 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,623 | 2,322 | 1,632 | 0 | 0 | 25 | 12 |
| MTR-62 | BRK/ADM | 00226 | FCU | 75 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,606 | 10,884 | 7,649 | 0 | 0 | 117 | 58 |
| MTR-63 | BRK/ADM | 00226 | FCU | 7 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 710 | 1,016 | 714 | 0 | 0 | 11 | 5 |
| MTR-64 | BRK/ADM | 00226 | AHU | 2 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 203 | 290 | 204 | 0 | 0 | 3 | 2 |
| MTR-65 | BRK/ADM | 00261 | FCU | 71 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,200 | 10,304 | 7,241 | 0 | 0 | 110 | 55 |
| MTR-66 | BRK/ADM | 00261 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |
| MTR-67 | BRK/ADM | 00262 | FCU | 71 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,200 | 10,304 | 7,241 | 0 | 0 | 110 | 55 |
| MTR-68 | BRK/ADM | 00262 | FCU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |
| MTR-69 | BRK/ADM | 00264 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |
| MTR-70 | BRK/ADM | 00264 | FCU | 71 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,200 | 10,304 | 7,241 | 0 | 0 | 110 | 55 |
| MTR-71 | BRK/ADM | 00265 | FCU | 71 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,200 | 10,304 | 7,241 | 0 | 0 | 110 | 55 |
| MTR-72 | BRK/ADM | 00265 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |
| MTR-73 | BRK/ADM | 00267 | FCU | 71 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,200 | 10,304 | 7,241 | 0 | 0 | 110 | 55 |
| MTR-74 | BRK/ADM | 00267 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |
| MTR-75 | BRK/ADM | 00273 | FCU | 7 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 710 | 1,016 | 714 | 0 | 0 | 11 | 5 |
| MTR-76 | BRK/ADM | 00273 | AHU | 2 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 203 | 290 | 204 | 0 | 0 | 3 | 2 |
| MTR-77 | BRK/ADM | 00273 | FCU | 75 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,606 | 10,884 | 7,649 | 0 | 0 | 117 | 58 |
| MTR-78 | BRK/ADM | 00275 | FCU | 75 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 7,606 | 10,884 | 7,649 | 0 | 0 | 117 | 58 |
| MTR-79 | BRK/ADM | 00275 | FCU | 7 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 710 | 1,016 | 714 | 0 | 0 | 11 | 5 |
| MTR-80 | BRK/ADM | 00275 | AHU | 2 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 203 | 290 | 204 | 0 | 0 | 3 | 2 |

## Table 2.15. (contd)

### Energy-Efficient BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-188 | EEM | BRK/ADM | 00014 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-189 | EEM | BRK/ADM | 00098 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-190 | EEM | BRK/ADM | 00102 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-191 | EEM | BRK/ADM | 00103 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-192 | EEM | BRK/ADM | 00104 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-193 | EEM | BRK/ADM | 00249 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-194 | EEM | BRK/ADM | 00249 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-195 | EEM | BRK/ADM | 00250 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-196 | EEM | BRK/ADM | 00250 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-197 | EEM | BRK/ADM | 00251 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-198 | EEM | BRK/ADM | 00251 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-199 | EEM | BRK/ADM | 00252 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-200 | EEM | BRK/ADM | 00252 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-201 | EEM | BRK/ADM | 00261 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-202 | EEM | BRK/ADM | 00261 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-203 | EEM | BRK/ADM | 00262 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-204 | EEM | BRK/ADM | 00262 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-205 | EEM | BRK/ADM | 00264 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-206 | EEM | BRK/ADM | 00264 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-207 | EEM | BRK/ADM | 00265 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-208 | EEM | BRK/ADM | 00265 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-209 | EEM | BRK/ADM | 00267 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-210 | EEM | BRK/ADM | 00267 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-211 | EEM | BRK/ADM | 00412 | Evap. clr | 22 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 8,032 | 11,494 | 8,078 | 0 | 0 | 61.5 | 30.8 |
| MTR-212 | EEM | BRK/ADM | 00413 | Evap. clr | 4 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 1,460 | 2,090 | 1,469 | 0 | 0 | 11.2 | 5.6 |
| MTR-213 | EEM | BRK/ADM | 00414 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-214 | EEM | BRK/ADM | 00416 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-215 | EEM | BRK/ADM | 00417 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-216 | EEM | BRK/ADM | 00418 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-217 | EEM | BRK/ADM | 00419 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-218 | EEM | BRK/ADM | 00420 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-219 | EEM | BRK/ADM | 00421 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-220 | EEM | BRK/ADM | 00422 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-221 | EEM | BRK/ADM | 00423 | Evap. clr | 4 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-222 | EEM | BRK/ADM | 00434 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-223 | EEM | BRK/ADM | 00440 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-224 | EEM | BRK/ADM | 00448 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-225 | EEM | BRK/ADM | 00487 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-226 | EEM | BRK/ADM | 00489 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-227 | EEM | BRK/ADM | 00491 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-228 | EEM | BRK/ADM | 00493 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-229 | EEM | BRK/ADM | 00494 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-230 | EEM | BRK/ADM | 00511 | Evap. clr | 5 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 1,825 | 2,612 | 1,836 | 0 | 0 | 14.0 | 7.0 |

## Table 2.15. (contd)

### Energy-Efficient BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-231 | EEM | BRK/ADM | 00512 | Evap clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-232 | EEM | BRK/ADM | 00514 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-233 | EEM | BRK/ADM | 00516 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-234 | EEM | BRK/ADM | 00518 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-235 | EEM | BRK/ADM | 00519 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-236 | EEM | BRK/ADM | 00523 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-237 | EEM | BRK/ADM | 00530 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-238 | EEM | BRK/ADM | 00534 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-239 | EEM | BRK/ADM | 00540 | Evap. clr | 6 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 2,190 | 3,135 | 2,203 | 0 | 0 | 16.8 | 8.4 |
| MTR-487 | EEM | BRK/ADM | 00105 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-488 | EEM | BRK/ADM | 00106 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-489 | EEM | BRK/ADM | 00107 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-490 | EEM | BRK/ADM | 00108 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-491 | EEM | BRK/ADM | 00110 | FCU | 20 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,905 | 258 | 6,805 | 0 | 28.7 |
| MTR-492 | EEM | BRK/ADM | 00111 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-493 | EEM | BRK/ADM | 00249 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-494 | EEM | BRK/ADM | 00249 | FCU | 29 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 4,212 | 374 | 9,867 | 0 | 41.6 |
| MTR-495 | EEM | BRK/ADM | 00249 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-496 | EEM | BRK/ADM | 00249 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-497 | EEM | BRK/ADM | 00249 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-498 | EEM | BRK/ADM | 00249 | FCU | 4 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 581 | 52 | 1,361 | 0 | 5.7 |
| MTR-499 | EEM | BRK/ADM | 00249 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-500 | EEM | BRK/ADM | 00250 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-501 | EEM | BRK/ADM | 00250 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-502 | EEM | BRK/ADM | 00250 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-503 | EEM | BRK/ADM | 00250 | FCU | 29 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 4,212 | 374 | 9,867 | 0 | 41.6 |
| MTR-504 | EEM | BRK/ADM | 00250 | FCU | 4 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 581 | 52 | 1,361 | 0 | 5.7 |
| MTR-505 | EEM | BRK/ADM | 00250 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-506 | EEM | BRK/ADM | 00250 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-507 | EEM | BRK/ADM | 00251 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-508 | EEM | BRK/ADM | 00251 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-509 | EEM | BRK/ADM | 00251 | FCU | 29 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 4,212 | 374 | 9,867 | 0 | 41.6 |
| MTR-510 | EEM | BRK/ADM | 00251 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-511 | EEM | BRK/ADM | 00251 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-512 | EEM | BRK/ADM | 00251 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-513 | EEM | BRK/ADM | 00251 | FCU | 4 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 581 | 52 | 1,361 | 0 | 5.7 |
| MTR-514 | EEM | BRK/ADM | 00252 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-515 | EEM | BRK/ADM | 00252 | FCU | 16 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 2,324 | 207 | 5,444 | 0 | 23.0 |
| MTR-516 | EEM | BRK/ADM | 00252 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-517 | EEM | BRK/ADM | 00252 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-518 | EEM | BRK/ADM | 00252 | FCU | 29 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 4,212 | 374 | 9,867 | 0 | 41.6 |
| MTR-519 | EEM | BRK/ADM | 00252 | FCU | 1 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 145 | 13 | 340 | 0 | 1.4 |
| MTR-520 | EEM | BRK/ADM | 00252 | FCU | 4 | 0.25 | 78.0% | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 581 | 52 | 1,361 | 0 | 5.7 |

## Table 2.15. (contd)

### Energy-Efficient BRK/ADM Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-56 | EEM | BRK/ADM | 00105 | FCU | 16 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 998 | 1,429 | 1,004 | 0 | 0 | 15.3 | 7.7 |
| MTR-57 | EEM | BRK/ADM | 00106 | FCU | 16 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 998 | 1,429 | 1,004 | 0 | 0 | 15.3 | 7.7 |
| MTR-58 | EEM | BRK/ADM | 00107 | FCU | 16 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 998 | 1,429 | 1,004 | 0 | 0 | 15.3 | 7.7 |
| MTR-59 | EEM | BRK/ADM | 00108 | FCU | 16 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 998 | 1,429 | 1,004 | 0 | 0 | 15.3 | 7.7 |
| MTR-60 | EEM | BRK/ADM | 00110 | FCU | 20 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 1,248 | 1,786 | 1,255 | 0 | 0 | 19.1 | 9.6 |
| MTR-61 | EEM | BRK/ADM | 00111 | FCU | 16 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 998 | 1,429 | 1,004 | 0 | 0 | 15.3 | 7.7 |
| MTR-62 | EEM | BRK/ADM | 00226 | FCU | 75 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,680 | 6,698 | 4,707 | 0 | 0 | 71.7 | 35.9 |
| MTR-63 | EEM | BRK/ADM | 00226 | FCU | 7 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 437 | 625 | 439 | 0 | 0 | 6.7 | 3.3 |
| MTR-64 | EEM | BRK/ADM | 00226 | AHU | 2 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 125 | 179 | 126 | 0 | 0 | 1.9 | 1.0 |
| MTR-65 | EEM | BRK/ADM | 00261 | FCU | 71 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,431 | 6,341 | 4,456 | 0 | 0 | 67.9 | 34.0 |
| MTR-66 | EEM | BRK/ADM | 00261 | AHU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |
| MTR-67 | EEM | BRK/ADM | 00262 | FCU | 71 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,431 | 6,341 | 4,456 | 0 | 0 | 67.9 | 34.0 |
| MTR-68 | EEM | BRK/ADM | 00262 | FCU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |
| MTR-69 | EEM | BRK/ADM | 00264 | AHU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |
| MTR-70 | EEM | BRK/ADM | 00264 | FCU | 71 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,431 | 6,341 | 4,456 | 0 | 0 | 67.9 | 34.0 |
| MTR-71 | EEM | BRK/ADM | 00265 | FCU | 71 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,431 | 6,341 | 4,456 | 0 | 0 | 67.9 | 34.0 |
| MTR-72 | EEM | BRK/ADM | 00265 | AHU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |
| MTR-73 | EEM | BRK/ADM | 00267 | FCU | 71 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,431 | 6,341 | 4,456 | 0 | 0 | 67.9 | 34.0 |
| MTR-74 | EEM | BRK/ADM | 00267 | AHU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |
| MTR-75 | EEM | BRK/ADM | 00273 | FCU | 7 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 437 | 625 | 439 | 0 | 0 | 6.7 | 3.3 |
| MTR-76 | EEM | BRK/ADM | 00273 | AHU | 2 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 125 | 179 | 126 | 0 | 0 | 1.9 | 1.0 |
| MTR-77 | EEM | BRK/ADM | 00273 | FCU | 75 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,680 | 6,698 | 4,707 | 0 | 0 | 71.7 | 35.9 |
| MTR-78 | EEM | BRK/ADM | 00275 | FCU | 75 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 4,680 | 6,698 | 4,707 | 0 | 0 | 71.7 | 35.9 |
| MTR-79 | EEM | BRK/ADM | 00275 | FCU | 7 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 437 | 625 | 439 | 0 | 0 | 6.7 | 3.3 |
| MTR-80 | EEM | BRK/ADM | 00275 | AHU | 2 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 125 | 179 | 126 | 0 | 0 | 1.9 | 1.0 |

**Table 2.15.** (contd)

Energy-Efficient BRK/ADM Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-188 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 61 | 748 | 4.61 |
| MTR-189 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-190 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-191 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-192 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-193 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-194 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-195 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-196 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-197 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-198 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-199 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-200 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-201 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-202 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-203 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-204 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-205 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-206 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-207 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-208 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-209 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-210 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 41 | 21 | 61 | 747 | 4.61 |
| MTR-211 | RI | EEM | 3,278 | 1,628 | 352 | 0 | 15 | 10,470 | 35 | 893 | 455 | 1,348 | 16,435 | 4.61 |
| MTR-212 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,904 | 6 | 160 | 81 | 241 | 2,995 | 4.62 |
| MTR-214 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-222 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-223 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-224 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-230 | RI | EEM | 745 | 370 | 80 | 0 | 15 | 2,380 | 8 | 202 | 103 | 305 | 3,738 | 4.61 |
| MTR-231 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-232 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-233 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-234 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-236 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 242 | 123 | 366 | 4,485 | 4.61 |
| MTR-237 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-238 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-239 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 2,855 | 10 | 239 | 122 | 361 | 4,492 | 4.62 |
| MTR-487 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 250 | 43 | 293 | 974 | 1.33 |
| MTR-488 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 250 | 43 | 293 | 974 | 1.33 |
| MTR-489 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 250 | 43 | 293 | 974 | 1.33 |
| MTR-490 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 250 | 43 | 293 | 974 | 1.33 |
| MTR-491 | RI | EEM | 2,260 | 1,480 | 0 | 0 | 15 | 6,230 | 18 | 313 | 53 | 366 | 1,217 | 1.33 |

## Table 2.15. (contd)

### Energy-Efficient BRK/ADM Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-492 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 250 | 43 | 293 | 974 | 1.33 |
| MTR-493 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-494 | RI | EEM | 3,277 | 2,146 | 0 | 0 | 15 | 9,034 | 26 | 453 | 77 | 531 | 1,765 | 1.33 |
| MTR-495 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-496 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-497 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-498 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,246 | 4 | 62 | 11 | 73 | 261 | 1.35 |
| MTR-499 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 249 | 43 | 291 | 1,045 | 1.35 |
| MTR-500 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-501 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-502 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 249 | 43 | 291 | 1,045 | 1.35 |
| MTR-503 | RI | EEM | 3,277 | 2,146 | 0 | 0 | 15 | 9,034 | 26 | 451 | 77 | 528 | 1,895 | 1.35 |
| MTR-504 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,246 | 4 | 62 | 11 | 73 | 261 | 1.35 |
| MTR-505 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-506 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-507 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 249 | 43 | 291 | 1,045 | 1.35 |
| MTR-508 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-509 | RI | EEM | 3,277 | 2,146 | 0 | 0 | 15 | 9,034 | 26 | 451 | 77 | 528 | 1,895 | 1.35 |
| MTR-510 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-511 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-512 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-513 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,246 | 4 | 62 | 11 | 73 | 261 | 1.35 |
| MTR-514 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-515 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 4,984 | 14 | 249 | 43 | 291 | 1,045 | 1.35 |
| MTR-516 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-517 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-518 | RI | EEM | 3,277 | 2,146 | 0 | 0 | 15 | 9,034 | 26 | 451 | 77 | 528 | 1,895 | 1.35 |
| MTR-519 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 312 | 1 | 16 | 3 | 18 | 65 | 1.35 |
| MTR-520 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,246 | 4 | 62 | 11 | 73 | 261 | 1.35 |
| MTR-56 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 2,145 | 14 | 182 | 185 | 367 | 2,253 | 1.75 |
| MTR-57 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 2,145 | 14 | 182 | 185 | 367 | 2,253 | 1.75 |
| MTR-58 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 2,145 | 14 | 182 | 185 | 367 | 2,253 | 1.75 |
| MTR-59 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 2,145 | 14 | 182 | 185 | 367 | 2,253 | 1.75 |
| MTR-60 | RI | EEM | 2,260 | 1,480 | 0 | 0 | 15 | 2,681 | 18 | 227 | 232 | 459 | 2,816 | 1.75 |
| MTR-61 | RI | EEM | 1,808 | 1,184 | 0 | 0 | 15 | 2,145 | 14 | 182 | 185 | 367 | 2,253 | 1.75 |
| MTR-62 | RI | EEM | 8,475 | 5,550 | 0 | 0 | 15 | 10,054 | 67 | 853 | 868 | 1,721 | 10,559 | 1.75 |
| MTR-63 | RI | EEM | 791 | 518 | 0 | 0 | 15 | 938 | 6 | 80 | 81 | 161 | 958 | 1.73 |
| MTR-64 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 268 | 2 | 23 | 23 | 46 | 274 | 1.73 |
| MTR-65 | RI | EEM | 8,023 | 5,254 | 0 | 0 | 15 | 9,517 | 64 | 819 | 834 | 1,654 | 9,190 | 1.69 |
| MTR-66 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 11 | 12 | 23 | 137 | 1.73 |
| MTR-67 | RI | EEM | 8,023 | 5,254 | 0 | 0 | 15 | 9,517 | 64 | 819 | 834 | 1,654 | 9,190 | 1.69 |
| MTR-68 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 12 | 12 | 23 | 129 | 1.69 |
| MTR-69 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 12 | 12 | 23 | 129 | 1.69 |

**Table 2.15.** (contd)

Energy-Efficient BRK/ADM Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-70 | RI | EEM | 8,023 | 5,254 | 0 | 0 | 15 | 9,517 | 64 | 819 | 834 | 1,654 | 9,190 | 1.69 |
| MTR-71 | RI | EEM | 8,023 | 5,254 | 0 | 0 | 15 | 9,517 | 64 | 819 | 834 | 1,654 | 9,190 | 1.69 |
| MTR-72 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 12 | 12 | 23 | 129 | 1.69 |
| MTR-73 | RI | EEM | 8,023 | 5,254 | 0 | 0 | 15 | 9,517 | 64 | 819 | 834 | 1,654 | 9,190 | 1.69 |
| MTR-74 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 12 | 12 | 23 | 129 | 1.69 |
| MTR-75 | RI | EEM | 791 | 518 | 0 | 0 | 15 | 938 | 6 | 81 | 82 | 163 | 906 | 1.69 |
| MTR-76 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 268 | 2 | 23 | 23 | 46 | 274 | 1.73 |
| MTR-77 | RI | EEM | 8,475 | 5,550 | 0 | 0 | 15 | 10,054 | 67 | 857 | 873 | 1,730 | 10,267 | 1.73 |
| MTR-78 | RI | EEM | 8,475 | 5,550 | 0 | 0 | 15 | 10,054 | 67 | 857 | 873 | 1,730 | 10,267 | 1.73 |
| MTR-79 | RI | EEM | 791 | 518 | 0 | 0 | 15 | 938 | 6 | 80 | 81 | 161 | 958 | 1.73 |
| MTR-80 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 268 | 2 | 23 | 23 | 46 | 274 | 1.73 |
| Totals: | | | 136,721 | 86,210 | 2,256 | 0 | | 259,735 | 1,143 | 18,681 | 12,027 | 30,708 | 220,727 | 2.00 |

## Table 2.16. Chapel, Clinic, and Club Building Energy Efficient Motor EROs

### Existing Chapel, Clinic, Club Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-240 | CHAPEL | 00212 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-241 | CHAPEL | 00212 | Evap. clr | 2 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-242 | CHAPEL | 00315 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-243 | CHAPEL | 00315 | Evap. clr | 1 | 2 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-2 | CLINIC | 00171 | comp. | 2 | 10 | 84.5% | 523 | 352 | 1,205 | 0 | 0 | 12 | 4,617 | 3,108 | 10,638 | 0 | 0 | 71 | 141 |
| MTR-244 | CLINIC | 00235 | Evap. clr | 3 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-245 | CLINIC | 00242 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-246 | CLINIC | 00245 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-247 | CLINIC | 00245 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-3 | CLINIC | 00171 | comp | 2 | 1 | 75.0% | 523 | 352 | 1,205 | 0 | 0 | 12 | 520 | 350 | 1,199 | 0 | 0 | 8 | 16 |
| MTR-81 | CLINIC | 00171 | AHU | 1 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 101 | 64 | 71 | 0 | 0 | 2 | 1 |
| MTR-14 | CLUB | 00202 | heat pump | 1 | 0.25 | 48.0% | 522 | 747 | 1,740 | 108 | 3,113 | 12 | 101 | 145 | 338 | 21 | 372 | 2 | 3 |
| MTR-15 | CLUB | 00202 | heat pump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 108 | 3,113 | 12 | 406 | 580 | 1,352 | 84 | 1,489 | 6 | 12 |
| MTR-16 | CLUB | 00202 | heat pump | 2 | 0.25 | 48.0% | 522 | 747 | 1,740 | 108 | 3,113 | 12 | 203 | 290 | 676 | 42 | 744 | 3 | 6 |
| MTR-17 | CLUB | 00202 | heat pump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 108 | 3,113 | 12 | 406 | 580 | 1,352 | 84 | 1,489 | 6 | 12 |
| MTR-248 | CLUB | 00021 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 1,007 | 1,441 | 1,013 | 0 | 0 | 8 | 4 |
| MTR-249 | CLUB | 00037 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 726 | 1,038 | 730 | 0 | 0 | 6 | 3 |
| MTR-250 | CLUB | 00202 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 747 | 525 | 0 | 0 | 6 | 504 | 721 | 506 | 0 | 0 | 4 | 2 |
| MTR-251 | CLUB | 00202 | Evap. clr | 6 | 1 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 2,902 | 4,154 | 2,919 | 0 | 0 | 22 | 11 |
| MTR-252 | CLUB | 00202 | Evap. clr | 1 | 1 | 80.5% | 522 | 747 | 525 | 0 | 0 | 6 | 484 | 692 | 487 | 0 | 0 | 4 | 2 |
| MTR-41 | CLUB | 00202 | heat pump | 2 | 1.5 | 80.5% | 522 | 747 | 1,740 | 0 | 3,113 | 12 | 726 | 1,038 | 2,419 | 0 | 4,027 | 11 | 22 |
| MTR-42 | CLUB | 00202 | heat pump | 1 | 0.25 | 48.0% | 522 | 747 | 1,740 | 0 | 3,113 | 12 | 101 | 145 | 338 | 0 | 372 | 2 | 3 |
| MTR-82 | CLUB | 20018 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 101 | 145 | 102 | 0 | 0 | 2 | 1 |

**Table 2.16.** (contd)

## Energy-Efficient Chapel, Clinic, & Club Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-240 | EEM | CHAPEL | 00212 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-241 | EEM | CHAPEL | 00212 | Evap. clr | 2 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10.3 | 5.2 |
| MTR-242 | EEM | CHAPEL | 00315 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-243 | EEM | CHAPEL | 00315 | Evap. clr | 1 | 2 | 86.6% | 522 | 332 | 363 | 0 | 0 | 899 | 572 | 626 | 0 | 0 | 6.9 | 3.4 |
| MTR-2 | EEM | CLINIC | 00171 | comp | 2 | 10 | 91.7% | 523 | 352 | 1,205 | 0 | 0 | 4,255 | 2,864 | 9,803 | 0 | 0 | 65.1 | 130.2 |
| MTR-244 | EEM | CLINIC | 00235 | Evap. clr | 3 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10.3 | 5.2 |
| MTR-245 | EEM | CLINIC | 00242 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 5.6 | 2.8 |
| MTR-246 | EEM | CLINIC | 00245 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-247 | EEM | CLINIC | 00245 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 2.8 | 1.4 |
| MTR-3 | EEM | CLINIC | 00171 | comp | 2 | 1 | 86.5% | 523 | 352 | 1,205 | 0 | 0 | 451 | 304 | 1,039 | 0 | 0 | 6.9 | 13.8 |
| MTR-81 | EEM | CLINIC | 00171 | AHU | 1 | 0.25 | 78.0% | 522 | 332 | 363 | 0 | 0 | 62 | 40 | 43 | 0 | 0 | 1.0 | 0.5 |
| MTR-14 | EEM | CLUB | 00202 | heat pump | 1 | 0.25 | 78.0% | 522 | 747 | 1,740 | 108 | 3,113 | 62 | 89 | 208 | 13 | 372 | 1.0 | 1.9 |
| MTR-15 | EEM | CLUB | 00202 | heat pump | 4 | 0.25 | 78.0% | 522 | 747 | 1,740 | 108 | 3,113 | 250 | 357 | 832 | 52 | 1,489 | 3.8 | 7.7 |
| MTR-16 | EEM | CLUB | 00202 | heat pump | 2 | 0.25 | 78.0% | 522 | 747 | 1,740 | 108 | 3,113 | 125 | 179 | 416 | 26 | 744 | 1.9 | 3.8 |
| MTR-17 | EEM | CLUB | 00202 | heat pump | 4 | 0.25 | 78.0% | 522 | 747 | 1,740 | 108 | 3,113 | 250 | 357 | 832 | 52 | 1,489 | 3.8 | 7.7 |
| MTR-248 | EEM | CLUB | 00021 | Evap. clr | 2 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 730 | 1,045 | 734 | 0 | 0 | 5.6 | 2.8 |
| MTR-249 | EEM | CLUB | 00037 | Evap. clr | 1 | 1.5 | 86.5% | 522 | 747 | 525 | 0 | 0 | 675 | 966 | 679 | 0 | 0 | 5.2 | 2.6 |
| MTR-250 | EEM | CLUB | 00202 | Evap. clr | 1 | 0.75 | 80.0% | 522 | 747 | 525 | 0 | 0 | 365 | 522 | 367 | 0 | 0 | 2.8 | 1.4 |
| MTR-251 | EEM | CLUB | 00202 | Evap. clr | 6 | 1 | 86.5% | 522 | 747 | 525 | 0 | 0 | 2,701 | 3,865 | 2,717 | 0 | 0 | 20.7 | 10.3 |
| MTR-252 | EEM | CLUB | 00202 | Evap. clr | 1 | 1 | 86.5% | 522 | 747 | 525 | 0 | 0 | 450 | 644 | 453 | 0 | 0 | 3.4 | 1.7 |
| MTR-41 | EEM | CLUB | 00202 | heat pump | 2 | 1.5 | 86.5% | 522 | 747 | 1,740 | 0 | 3,113 | 675 | 966 | 2,251 | 0 | 4,027 | 10.3 | 20.7 |
| MTR-42 | EEM | CLUB | 00202 | heat pump | 1 | 0.25 | 78.0% | 522 | 747 | 1,740 | 0 | 3,113 | 62 | 89 | 208 | 0 | 372 | 1.0 | 1.9 |
| MTR-82 | EEM | CLUB | 20018 | AHU | 1 | 0.25 | 78.0% | 522 | 747 | 525 | 0 | 0 | 62 | 89 | 63 | 0 | 0 | 1.0 | 0.5 |

**Table 2.16.** (contd)

## Energy-Efficient Chapel, Clinic, Club Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-240 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-242 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-2 | RI | EEM | 1,560 | 168 | 140 | 0 | 15 | 1,442 | 17 | 107 | 115 | 222 | 1,593 | 2.00 |
| MTR-245 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 99 | 1,171 | 3.83 |
| MTR-246 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 49 | 585 | 3.83 |
| MTR-247 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-81 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 91 | 1 | 9 | 12 | 20 | 93 | 1.50 |
| MTR-14 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 466 | 2 | 28 | 14 | 42 | 470 | 3.51 |
| MTR-15 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,862 | 7 | 111 | 57 | 168 | 1,881 | 3.51 |
| MTR-16 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 931 | 4 | 56 | 29 | 84 | 940 | 3.51 |
| MTR-17 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 1,862 | 7 | 111 | 57 | 168 | 1,881 | 3.51 |
| MTR-248 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 952 | 3 | 80 | 41 | 121 | 1,496 | 4.61 |
| MTR-250 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 476 | 2 | 40 | 20 | 60 | 749 | 4.62 |
| MTR-42 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 457 | 2 | 28 | 14 | 42 | 465 | 3.49 |
| MTR-82 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 134 | 1 | 11 | 12 | 23 | 141 | 1.75 |
| Totals: | Chapel | | 596 | 296 | 64 | 0 | | 1,292 | 6 | 120 | 81 | 202 | 2,320 | 3.8 |
| | Clinic | | 2,269 | 538 | 204 | 0 | | 2,825 | 24 | 234 | 207 | 441 | 4,023 | 2.5 |
| | Club | | 1,916 | 1,184 | 48 | 0 | | 7,140 | 27 | 465 | 244 | 709 | 8,022 | 3.6 |

## Table 2.17. DGR, Dining, Family Housing, and Fuel Building Energy Efficient Motor EROs

### Existing DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-97 | DGR | 01315 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-253 | DGR | 00308 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,902 | 1,846 | 2,021 | 0 | 0 | 22 | 11 |
| MTR-254 | DGR | 00308 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-255 | DGR | 00404 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-256 | DGR | 00404 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-257 | DGR | 00430 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 3,021 | 1,922 | 2,104 | 0 | 0 | 23 | 12 |
| MTR-258 | DGR | 00909 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-259 | DGR | 00909 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-4 | DGR | 00308 | air comp | 1 | 1 | 80.5% | 523 | 352 | 1,205 | 0 | 0 | 12 | 242 | 163 | 558 | 0 | 0 | 4 | 7 |
| MTR-439 | DGR | 00308 | AHU | 3 | 0.75 | 58.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 1,514 | 1,010 | 4,515 | 0 | 0 | 12 | 23 |
| MTR-440 | DGR | 00308 | AHU | 2 | 0.75 | 58.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 1,009 | 673 | 3,010 | 0 | 0 | 8 | 15 |
| MTR-441 | DGR | 00308 | AHU | 1 | 0.5 | 53.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 368 | 246 | 1,098 | 0 | 0 | 3 | 6 |
| MTR-260 | DINING | 00254 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-261 | DINING | 00254 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-262 | DINING | 00431 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-263 | DINING | 00431 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-264 | DINING | 00447 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-265 | DINING | 00447 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-266 | DINING | 00449 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-267 | DINING | 00449 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-268 | DINING | 00468 | Evap. clr | 6 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 3,021 | 1,922 | 2,104 | 0 | 0 | 23 | 12 |
| MTR-269 | DINING | 00535 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-270 | DINING | 00560 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-442 | DINING | 00254 | AHU | 6 | 0.5 | 53.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 2,208 | 1,474 | 6,587 | 0 | 0 | 17 | 34 |
| MTR-445 | DINING | 00254 | AHU | 1 | 0.5 | 53.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 368 | 246 | 1,098 | 0 | 0 | 3 | 6 |
| MTR-446 | DINING | 00254 | AHU | 1 | 0.75 | 58.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 505 | 337 | 1,505 | 0 | 0 | 4 | 8 |
| MTR-83 | DINING | 00222 | AHU | 2 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 203 | 129 | 141 | 0 | 0 | 3 | 2 |
| MTR-84 | DINING | 00222 | FCU | 2 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 203 | 129 | 141 | 0 | 0 | 3 | 2 |
| MTR-85 | DINING | 00254 | FCU | 1 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 101 | 64 | 71 | 0 | 0 | 2 | 1 |
| MTR-526 | Fam Hsg | na | Furn Fan | 1636 | 0.25 | 48.0% | 0 | 0 | 1,215 | 108 | 2,846 | 6 | 0 | 0 | 386,160 | 34,325 | 904,536 | 0 | 3814 |
| MTR-527 | Fam Hsg | na | Cond | 1636 | 0.25 | 48.0% | 522 | 747 | 525 | 0 | 0 | 6 | 165,906 | 237,417 | 166,859 | 0 | 0 | 2543 | 1271 |
| MTR-271 | FUELDSP | 00836 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-272 | FUELDSP | 00950 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |

## Table 2.17. (contd)

### Energy-Efficient DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-97 | EEM | | 01315 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-253 | EEM | DGR | 00308 | Evap. clr | 4 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,701 | 1,718 | 1,881 | 0 | 0 | 21 | 10 |
| MTR-254 | EEM | DGR | 00308 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-255 | EEM | DGR | 00404 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-256 | EEM | DGR | 00404 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-257 | EEM | DGR | 00430 | Evap. clr | 6 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 2,190 | 1,393 | 1,525 | 0 | 0 | 17 | 8 |
| MTR-258 | EEM | DGR | 00909 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-259 | EEM | DGR | 00909 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-4 | EEM | DGR | 00308 | air comp | 1 | 1 | 0.865 | 523 | 352 | 1,205 | 0 | 0 | 226 | 152 | 520 | 0 | 0 | 3 | 7 |
| MTR-439 | EEM | DGR | 00308 | AHU | 3 | 0.75 | 0.800 | 523 | 349 | 1,560 | 0 | 0 | 1,097 | 732 | 3,273 | 0 | 0 | 8 | 17 |
| MTR-440 | EEM | DGR | 00308 | AHU | 2 | 0.75 | 0.800 | 523 | 349 | 1,560 | 0 | 0 | 732 | 488 | 2,182 | 0 | 0 | 6 | 11 |
| MTR-441 | EEM | DGR | 00308 | AHU | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 2 | 4 |
| MTR-260 | EEM | DINING | 00254 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-261 | EEM | DINING | 00254 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-262 | EEM | DINING | 00431 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-263 | EEM | DINING | 00431 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-264 | EEM | DINING | 00447 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-265 | EEM | DINING | 00447 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-266 | EEM | DINING | 00449 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-267 | EEM | DINING | 00449 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-268 | EEM | DINING | 00468 | Evap. clr | 6 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 2,190 | 1,393 | 1,525 | 0 | 0 | 17 | 8 |
| MTR-269 | EEM | DINING | 00535 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-270 | EEM | DINING | 00560 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-442 | EEM | DINING | 00254 | AHU | 6 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 1,501 | 1,001 | 4,476 | 0 | 0 | 11 | 23 |
| MTR-445 | EEM | DINING | 00254 | AHU | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 2 | 4 |
| MTR-446 | EEM | DINING | 00254 | AHU | 1 | 0.75 | 0.800 | 523 | 349 | 1,560 | 0 | 0 | 366 | 244 | 1,091 | 0 | 0 | 3 | 6 |
| MTR-83 | EEM | DINING | 00222 | AHU | 2 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 125 | 79 | 87 | 0 | 0 | 2 | 1 |
| MTR-84 | EEM | DINING | 00222 | FCU | 2 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 125 | 79 | 87 | 0 | 0 | 2 | 1 |
| MTR-85 | EEM | DINING | 00254 | FCU | 1 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 62 | 40 | 43 | 0 | 0 | 1 | 0 |
| MTR-526 | EEM | Fam Hsg | na | Furn Fan | 1636 | 0.25 | 0.780 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 237,637 | 21,123 | 556,637 | 0 | 2347 |
| MTR-527 | EEM | Fam Hsg | na | Cond | 1636 | 0.25 | 0.780 | 522 | 747 | 525 | 0 | 0 | 102,096 | 146,103 | 102,683 | 0 | 0 | 1565 | 782 |
| MTR-271 | EEM | FUELDSP | 00836 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-272 | EEM | FUELDSP | 00950 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |

**Table 2.17.** (contd)

## Energy-Efficient DGR, DINING, Fam. Hsg., & FUELDSP Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-97 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-254 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 100 | 1,167 | 3.82 |
| MTR-255 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-256 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 584 | 3.82 |
| MTR-257 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 1,938 | 10 | 181 | 122 | 302 | 3,481 | 3.80 |
| MTR-258 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 29 | 20 | 48 | 591 | 3.86 |
| MTR-259 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 98 | 1,175 | 3.84 |
| MTR-439 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 1,935 | 10 | 160 | 75 | 235 | 3,177 | 6.12 |
| MTR-440 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 1,290 | 6 | 102 | 48 | 150 | 2,120 | 6.12 |
| MTR-441 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 3 | 46 | 21 | 67 | 885 | 5.61 |
| MTR-260 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 582 | 3.81 |
| MTR-261 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 582 | 3.81 |
| MTR-262 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-265 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-267 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-268 | RI | EEM | 894 | 444 | 96 | 0 | 15 | 1,938 | 10 | 181 | 122 | 302 | 3,481 | 3.80 |
| MTR-270 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-442 | RI | EEM | 798 | 444 | 90 | 0 | 15 | 3,291 | 16 | 273 | 128 | 401 | 5,308 | 5.61 |
| MTR-445 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 3 | 46 | 21 | 67 | 885 | 5.61 |
| MTR-446 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 645 | 3 | 53 | 25 | 78 | 1,059 | 6.12 |
| MTR-83 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 182 | 2 | 17 | 24 | 41 | 161 | 1.43 |
| MTR-84 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 182 | 2 | 17 | 24 | 41 | 161 | 1.43 |
| MTR-85 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 91 | 1 | 9 | 12 | 20 | 97 | 1.52 |
| MTR-526 | RI | EEM | 184,868 | 121,064 | 0 | 0 | 15 | 509,624 | 1,467 | 25,448 | 36,603 | 62,051 | 662,338 | 3.16 |
| MTR-527 | RI | EEM | 184,868 | 121,064 | 0 | 0 | 15 | 219,301 | 1,467 | 18,601 | 18,945 | 37,546 | 230,320 | 1.75 |
| MTR-271 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-272 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| Totals: | DGR | | 3,113 | 1,554 | 335 | 0 | | 8,619 | 42 | 755 | 446 | 1,202 | 14,920 | 4.44 |
| | DINING | | 3,582 | 1,924 | 329 | 0 | | 9,139 | 47 | 806 | 497 | 1,303 | 15,215 | 3.94 |
| | Fam. Hsg. | | 369,736 | 242,128 | 0 | 0 | | 728,924 | 2,934 | 44,049 | 55,548 | 99,597 | 892,658 | 2.46 |
| | FUEL-DSP | | 298 | 148 | 32 | 0 | | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |

## Table 2.18. Grocery, Hospital, Hotel, Kitchen, and Laboratory Building Energy Efficient Motor EROs

### Existing GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-18 | GROCERY | 00920 | A/C | 1 | 7.5 | 85.5% | 522 | 747 | 1740 | 108 | 3,113 | 12 | 1,708 | 2,444 | 5,693 | 353 | 10,186 | 26 | 52 |
| MTR-19 | GROCERY | 00920 | A/C | 2 | 7.5 | 85.5% | 522 | 747 | 1740 | 108 | 3,113 | 12 | 3,416 | 4,888 | 11,386 | 707 | 20,371 | 52 | 105 |
| MTR-20 | GROCERY | 00920 | A/C | 1 | 7.5 | 85.5% | 522 | 747 | 1740 | 108 | 3,113 | 12 | 1,708 | 2,444 | 5,693 | 353 | 10,186 | 26 | 52 |
| MTR-21 | GROCERY | 00920 | refrig | 17 | 5 | 83.5% | 522 | 747 | 1740 | 108 | 3,113 | 12 | 19,820 | 28,364 | 66,068 | 4,101 | 118,201 | 304 | 608 |
| MTR-273 | GROCERY | 00920 | Evap. clr | 3 | 3 | 82.0% | 522 | 332 | 363 | 0 | 0 | 6 | 4,274 | 2,718 | 2,976 | 0 | 0 | 33 | 16 |
| MTR-274 | GROCERY | 00920 | Evap. clr | 3 | 3 | 82.0% | 522 | 332 | 363 | 0 | 0 | 6 | 4,274 | 2,718 | 2,976 | 0 | 0 | 33 | 16 |
| MTR-43 | GROCERY | 00920 | | 2 | 7.5 | 85.5% | 522 | 747 | 1,740 | 108 | 3,113 | 6 | 3,416 | 4,888 | 11,386 | 707 | 20,371 | 52 | 79 |
| MTR-447 | GROCERY | 00920 | clg twr | 2 | 7.5 | 85.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 6,845 | 4,568 | 20,417 | 0 | 0 | 52 | 105 |
| MTR-448 | GROCERY | 00920 | AHU | 1 | 1.5 | 80.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 727 | 485 | 2,168 | 0 | 0 | 6 | 11 |
| MTR-449 | GROCERY | 00920 | main store | 1 | 20 | 88.2% | 523 | 349 | 1,560 | 0 | 0 | 12 | 8,847 | 5,904 | 26,389 | 0 | 0 | 68 | 135 |
| MTR-450 | GROCERY | 00920 | clg twr | 1 | 7.5 | 85.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 3,422 | 2,284 | 10,208 | 0 | 0 | 26 | 52 |
| MTR-22 | HOSPITL | 00166 | comp | 1 | 3 | 80.5% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 726 | 1,038 | 2,419 | 1,761 | 4,327 | 11 | 22 |
| MTR-275 | HOSPITL | 00166 | Evap. clr | 1 | 1 | 80.5% | 522 | 747 | 525 | 1,159 | 267 | 6 | 484 | 692 | 487 | 1,074 | 247 | 4 | 2 |
| MTR-5 | HOSPITL | 00166 | air comp | 2 | 1.5 | 80.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 727 | 1,093 | 3,133 | 2,251 | 4,974 | 11 | 22 |
| MTR-6 | HOSPITL | 00166 | air comp | 2 | 7.5 | 82.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 3,569 | 5,363 | 15,379 | 11,047 | 24,413 | 55 | 109 |
| MTR-7 | HOSPITL | 00166 | air comp | 1 | 1.5 | 80.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 364 | 546 | 1,567 | 1,125 | 2,487 | 6 | 11 |
| MTR-86 | HOSPITL | 00166 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-87 | HOSPITL | 00166 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-23 | HOTEL | 00900 | heatpump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 406 | 580 | 1,352 | 985 | 2,419 | 6 | 12 |
| MTR-24 | HOTEL | 00901 | heatpump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 406 | 580 | 1,352 | 985 | 2,419 | 6 | 12 |
| MTR-25 | HOTEL | 00902 | heatpump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 406 | 580 | 1,352 | 985 | 2,419 | 6 | 12 |
| MTR-26 | HOTEL | 00903 | heatpump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 406 | 580 | 1,352 | 985 | 2,419 | 6 | 12 |
| MTR-27 | HOTEL | 00904 | heatpump | 3 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 304 | 435 | 1,014 | 738 | 1,814 | 5 | 9 |
| MTR-28 | HOTEL | 00906 | heatpump | 4 | 0.25 | 48.0% | 522 | 747 | 1,740 | 1,267 | 3,113 | 12 | 406 | 580 | 1,352 | 985 | 2,419 | 6 | 12 |
| MTR-88 | HOTEL | 00900 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-89 | HOTEL | 00901 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-90 | HOTEL | 00902 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-91 | HOTEL | 00903 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-92 | HOTEL | 00904 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-93 | HOTEL | 00906 | AHU | 1 | 0.25 | 48.0% | 522 | 747 | 525 | 1,159 | 267 | 6 | 101 | 145 | 102 | 225 | 52 | 2 | 1 |
| MTR-276 | KITCHEN | 00819 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-277 | LAB-MED | 00144 | Evap. clr | 2 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-278 | LAB-MED | 00144 | Evap. clr | 4 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,902 | 1,846 | 2,021 | 0 | 0 | 22 | 11 |
| MTR-279 | LAB-MED | 00228 | Evap. clr | 3 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,177 | 1,385 | 1,516 | 0 | 0 | 17 | 8 |

**Table 2.18.** (contd)

## Energy-Efficient GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-18 | EEM | GROCERY | 00920 | A/C | 1 | 7.5 | 0.917 | 522 | 747 | 1,740 | 108 | 3,113 | 1,592 | 2,279 | 5,308 | 329 | 9,497 | 24 | 49 |
| MTR-19 | EEM | GROCERY | 00920 | A/C | 2 | 7.5 | 0.917 | 522 | 747 | 1,740 | 108 | 3,113 | 3,185 | 4,558 | 10,616 | 659 | 18,994 | 49 | 98 |
| MTR-20 | EEM | GROCERY | 00920 | A/C | 1 | 7.5 | 0.917 | 522 | 747 | 1,740 | 108 | 3,113 | 1,592 | 2,279 | 5,308 | 329 | 9,497 | 24 | 49 |
| MTR-21 | EEM | GROCERY | 00920 | refrig | 17 | 5 | 0.902 | 522 | 747 | 1,740 | 108 | 3,113 | 18,348 | 26,257 | 61,160 | 3,796 | 109,421 | 281 | 562 |
| MTR-273 | EEM | GROCERY | 00920 | Evap. clr | 3 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 3,916 | 2,491 | 2,727 | 0 | 0 | 30 | 15 |
| MTR-274 | EEM | GROCERY | 00920 | Evap. clr | 3 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 3,916 | 2,491 | 2,727 | 0 | 0 | 30 | 15 |
| MTR-43 | EEM | GROCERY | 00920 | | 2 | 7.5 | 0.917 | 522 | 747 | 1,740 | 108 | 3,113 | 3,185 | 4,558 | 10,616 | 659 | 18,994 | 49 | 73 |
| MTR-447 | EEM | GROCERY | 00920 | clg twr | 2 | 7.5 | 0.917 | 523 | 349 | 1,560 | 0 | 0 | 6,382 | 4,259 | 19,036 | 0 | 0 | 49 | 98 |
| MTR-448 | EEM | GROCERY | 00920 | AHU | 1 | 1.5 | 0.865 | 523 | 349 | 1,560 | 0 | 0 | 677 | 451 | 2,018 | 0 | 0 | 5 | 10 |
| MTR-449 | EEM | GROCERY | 00920 | main store | 1 | 20 | 0.934 | 523 | 349 | 1,560 | 0 | 0 | 8,355 | 5,575 | 24,920 | 0 | 0 | 64 | 128 |
| MTR-450 | EEM | GROCERY | 00920 | clg twr | 1 | 7.5 | 0.917 | 523 | 349 | 1,560 | 0 | 0 | 3,191 | 2,129 | 9,518 | 0 | 0 | 24 | 49 |
| MTR-22 | EEM | HOSPITL | 00166 | comp | 1 | 3 | 0.895 | 522 | 747 | 1,740 | 1,267 | 3,113 | 653 | 934 | 2,175 | 1,584 | 3,892 | 10 | 20 |
| MTR-275 | EEM | HOSPITL | 00166 | Evap. clr | 1 | 1 | 0.865 | 522 | 747 | 525 | 1,159 | 267 | 450 | 644 | 453 | 1,000 | 230 | 3 | 2 |
| MTR-5 | EEM | HOSPITL | 00166 | air comp | 2 | 1.5 | 0.865 | 523 | 786 | 2,254 | 1,619 | 3,578 | 677 | 1,017 | 2,916 | 2,094 | 4,629 | 10 | 21 |
| MTR-6 | EEM | HOSPITL | 00166 | air comp | 2 | 7.5 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 3,191 | 4,796 | 13,753 | 9,878 | 21,831 | 49 | 98 |
| MTR-7 | EEM | HOSPITL | 00166 | air comp | 1 | 1.5 | 0.865 | 523 | 786 | 2,254 | 1,619 | 3,578 | 338 | 508 | 1,458 | 1,047 | 2,314 | 5 | 10 |
| MTR-86 | EEM | HOSPITL | 00166 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-87 | EEM | HOSPITL | 00166 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-23 | EEM | HOTEL | 00900 | heatpump | 4 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 250 | 357 | 832 | 606 | 1,489 | 4 | 8 |
| MTR-24 | EEM | HOTEL | 00901 | heatpump | 4 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 250 | 357 | 832 | 606 | 1,489 | 4 | 8 |
| MTR-25 | EEM | HOTEL | 00902 | heatpump | 4 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 250 | 357 | 832 | 606 | 1,489 | 4 | 8 |
| MTR-26 | EEM | HOTEL | 00903 | heatpump | 4 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 250 | 357 | 832 | 606 | 1,489 | 4 | 8 |
| MTR-27 | EEM | HOTEL | 00904 | heatpump | 3 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 187 | 268 | 624 | 454 | 1,116 | 3 | 6 |
| MTR-28 | EEM | HOTEL | 00906 | heatpump | 4 | 0.25 | 0.780 | 522 | 747 | 1,740 | 1,267 | 3,113 | 250 | 357 | 832 | 606 | 1,489 | 4 | 8 |
| MTR-88 | EEM | HOTEL | 00900 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-89 | EEM | HOTEL | 00901 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-90 | EEM | HOTEL | 00902 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-91 | EEM | HOTEL | 00903 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-92 | EEM | HOTEL | 00904 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-93 | EEM | HOTEL | 00906 | AHU | 1 | 0.25 | 0.780 | 522 | 747 | 525 | 1,159 | 267 | 62 | 89 | 63 | 139 | 32 | 1 | 0 |
| MTR-276 | EEM | KITCHEN | 00819 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-277 | EEM | LAB-MED | 00144 | Evap. clr | 2 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10 | 5 |
| MTR-278 | EEM | LAB-MED | 00144 | Evap. clr | 4 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,701 | 1,718 | 1,881 | 0 | 0 | 21 | 10 |
| MTR-279 | EEM | LAB-MED | 00228 | Evap. clr | 3 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,026 | 1,288 | 1,411 | 0 | 0 | 16 | 8 |

**Table 2.18.** (contd)

## Energy-Efficient GROCERY, HOSPITL, HOTEL, KITCHEN, & LAB Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTR-18 | RI | EEM | 647 | 81 | 60 | 0 | 15 | 1,378 | 5 | 69 | 35 | 104 | 877 | 2.31 |
| MTR-19 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 2,756 | 11 | 138 | 71 | 209 | 1,755 | 2.31 |
| MTR-20 | RI | EEM | 647 | 81 | 60 | 0 | 15 | 1,378 | 5 | 69 | 35 | 104 | 877 | 2.31 |
| MTR-21 | RI | EEM | 8,126 | 1,258 | 680 | 0 | 15 | 17,571 | 68 | 898 | 460 | 1,358 | 11,354 | 2.30 |
| MTR-273 | RI | EEM | 1,245 | 222 | 105 | 0 | 15 | 835 | 4 | 71 | 48 | 119 | 69 | 1.05 |
| MTR-274 | RI | EEM | 1,245 | 222 | 105 | 0 | 15 | 835 | 4 | 69 | 47 | 116 | 93 | 1.07 |
| MTR-43 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 2,756 | 9 | 138 | 66 | 205 | 1,678 | 2.26 |
| MTR-447 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 2,152 | 11 | 151 | 71 | 221 | 1,970 | 2.47 |
| MTR-449 | RI | EEM | 1,268 | 129 | 120 | 0 | 15 | 2,290 | 11 | 152 | 72 | 224 | 2,101 | 2.65 |
| MTR-450 | RI | EEM | 647 | 81 | 60 | 0 | 15 | 1,076 | 5 | 75 | 35 | 111 | 985 | 2.47 |
| MTR-22 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 1,033 | 3 | 53 | 24 | 77 | 693 | 2.53 |
| MTR-6 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 6,323 | 17 | 324 | 126 | 450 | 5,907 | 5.42 |
| MTR-86 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-87 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-23 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| MTR-24 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| MTR-25 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| MTR-26 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| MTR-27 | RI | EEM | 339 | 222 | 0 | 0 | 15 | 1,656 | 5 | 93 | 43 | 136 | 1,583 | 3.82 |
| MTR-88 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-89 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-90 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-91 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-92 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-93 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 241 | 1 | 16 | 12 | 27 | 205 | 2.10 |
| MTR-28 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| Totals: | GROCERY | | 17,707 | 2,560 | 1,550 | 0 | | 33,029 | 133 | 1,831 | 940 | 2,771 | 21,760 | 2.16 |
| | HOSPITL | | 1,935 | 384 | 155 | 0 | | 7,837 | 22 | 408 | 174 | 582 | 7,011 | 4.24 |
| | HOTEL | | 2,825 | 1,850 | 0 | 0 | | 11,934 | 39 | 686 | 341 | 1,027 | 11,259 | 3.41 |
| | KITCHEN | | 452 | 296 | 0 | 0 | | 2,208 | 7 | 125 | 57 | 182 | 2,111 | 3.82 |
| | LAB-MED | | There are no cost effective LAB-MAB EEM motor EROs. | | | | | | | | | | | |

## Table 2.19. Motorpool, MWR, Other, and Plant Building Energy Efficient Motor EROs

### Existing MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-280 | MTRPOOL | 00600 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-281 | MTRPOOL | 00600 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-282 | MTRPOOL | 00600 | Evap. clr | 1 | 3 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-283 | MTRPOOL | 00600 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-284 | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-285 | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-286 | MTRPOOL | 00605 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-287 | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-288 | MTRPOOL | 00608 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-289 | MTRPOOL | 00608 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-29 | MTRPOOL | 00857 | chiller | 2 | 20 | 88.2% | 522 | 332 | 525 | 108 | 3,113 | 6 | 8,830 | 5,616 | 8,881 | 1,827 | 52,660 | 135 | 68 |
| MTR-290 | MTRPOOL | 00612 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-291 | MTRPOOL | 00612 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-292 | MTRPOOL | 00614 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-293 | MTRPOOL | 00620 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-294 | MTRPOOL | 00621 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-295 | MTRPOOL | 00621 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-296 | MTRPOOL | 00623 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-297 | MTRPOOL | 00626 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-298 | MTRPOOL | 00639 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-299 | MTRPOOL | 00642 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-300 | MTRPOOL | 00646 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-301 | MTRPOOL | 00646 | Evap. clr | 2 | 0.5 | 53.0% | 522 | 332 | 363 | 0 | 0 | 6 | 735 | 467 | 512 | 0 | 0 | 6 | 3 |
| MTR-302 | MTRPOOL | 00650 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-303 | MTRPOOL | 00680 | Evap. clr | 5 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 2,419 | 1,538 | 1,684 | 0 | 0 | 19 | 9 |
| MTR-304 | MTRPOOL | 00680 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-305 | MTRPOOL | 00681 | Evap. clr | 4 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,935 | 1,231 | 1,347 | 0 | 0 | 15 | 7 |
| MTR-306 | MTRPOOL | 00681 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-307 | MTRPOOL | 00830 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-308 | MTRPOOL | 00832 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-309 | MTRPOOL | 00832 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-310 | MTRPOOL | 00837 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-311 | MTRPOOL | 00840 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-312 | MTRPOOL | 00840 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-313 | MTRPOOL | 00840 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-314 | MTRPOOL | 00847 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-315 | MTRPOOL | 00847 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-316 | MTRPOOL | 00850 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-317 | MTRPOOL | 00850 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-318 | MTRPOOL | 00873 | Evap. clr | 10 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 7,256 | 4,615 | 5,052 | 0 | 0 | 56 | 28 |
| MTR-319 | MTRPOOL | 00879 | Evap. clr | 10 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 7,256 | 4,615 | 5,052 | 0 | 0 | 56 | 28 |
| MTR-320 | MTRPOOL | 00941 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-44 | MTRPOOL | 00857 | chiller | 4 | 7.5 | 85.5% | 522 | 332 | 525 | 108 | 3,113 | 6 | 6,832 | 4,345 | 6,871 | 1,413 | 40,742 | 105 | 157 |

**Table 2.19.** (contd)

## Existing MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-456 | MTRPOOL | 00857 | AHU | 1 | 20 | 88.2% | 523 | 786 | 2,254 | 0 | 0 | 12 | 8,847 | 13,296 | 38,129 | 0 | 0 | 68 | 135 |
| MTR-521 | MTRPOOL | 00681 | FCU | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-8 | MTRPOOL | 00646 | drip proof | 1 | 2 | 73.5% | 523 | 352 | 1,205 | 0 | 0 | 12 | 531 | 357 | 1,223 | 0 | 0 | 8 | 16 |
| MTR-9 | MTRPOOL | 00873 | 130 psig | 1 | 15 | 85.0% | 523 | 352 | 1,205 | 0 | 0 | 12 | 3,443 | 2,317 | 7,932 | 0 | 0 | 53 | 105 |
| MTR-94 | MTRPOOL | 00680 | FCU | 1 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 101 | 64 | 71 | 0 | 0 | 2 | 1 |
| MTR-95 | MTRPOOL | 00857 | AHU | 1 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 101 | 64 | 71 | 0 | 0 | 2 | 1 |
| MTR-30 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-31 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-32 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-321 | MWR | 00312 | Evap. clr | 2 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-322 | MWR | 00312 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-323 | MWR | 00340 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-324 | MWR | 00410 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-325 | MWR | 00480 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-326 | MWR | 00556 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-327 | MWR | 00910 | Evap. clr | 1 | 2 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-328 | MWR | 01322 | Evap. clr | 2 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 0 | 7 | 4 |
| MTR-329 | MWR | 01322 | Evap. clr | 1 | 0.25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 203 | 129 | 141 | 0 | 0 | 2 | 1 |
| MTR-33 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-330 | MWR | 01322 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-331 | MWR | 01322 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-332 | MWR | 01322 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-333 | MWR | 01322 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-457 | MWR | 01313 | fan motors | 2 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 406 | 611 | 1,752 | 0 | 0 | 3 | 6 |
| MTR-46 | MWR | 01322 | A/C heat unit | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-460 | MWR | 01313 | outdr fan | 1 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 203 | 305 | 876 | 0 | 0 | 2 | 3 |
| MTR-461 | MWR | 01322 | RTU 1 | 1 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 203 | 305 | 876 | 0 | 0 | 2 | 3 |
| MTR-462 | MWR | 01322 | RTU 2 | 1 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 203 | 305 | 876 | 0 | 0 | 2 | 3 |
| MTR-464 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 203 | 305 | 876 | 0 | 0 | 2 | 3 |
| MTR-466 | MWR | 01322 | RTU 3 | 1 | 0.25 | 48.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 203 | 305 | 876 | 0 | 0 | 2 | 3 |
| MTR-469 | MWR | 01322 | RTU 2 | 1 | 0.5 | 53.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 368 | 553 | 1,586 | 0 | 0 | 3 | 6 |
| MTR-47 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-474 | MWR | 01322 | AHU | 3 | 0.5 | 53.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 1,104 | 1,659 | 4,759 | 0 | 0 | 8 | 17 |
| MTR-48 | MWR | 01322 | A/C heat | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 0 | 2 |
| MTR-334 | OTHER | 00992 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-335 | PLT-BLDG | 00253 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-336 | PLT-BLDG | 00253 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-337 | PLT-BLDG | 00253 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-338 | PLT-BLDG | 00263 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-339 | PLT-BLDG | 00263 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-475 | PLT-BLDG | 00253 | basic | 2 | 0.75 | 58.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 1,009 | 673 | 3,010 | 0 | 0 | 8 | 15 |
| MTR-476 | PLT-BLDG | 00263 | boiler | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 6 | 1,427 | 953 | 4,258 | 0 | 0 | 0 | 16 |

**Table 2.19.** (contd)

## Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-280 | EEM | MTRPOOL | 00600 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-281 | EEM | MTRPOOL | 00600 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-282 | EEM | MTRPOOL | 00600 | Evap. clr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 1,305 | 830 | 909 | 0 | 0 | 10 | 5 |
| MTR-283 | EEM | MTRPOOL | 00600 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-284 | EEM | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-285 | EEM | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-286 | EEM | MTRPOOL | 00605 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-287 | EEM | MTRPOOL | 00605 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-288 | EEM | MTRPOOL | 00608 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-289 | EEM | MTRPOOL | 00608 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-29 | EEM | MTRPOOL | 00857 | chiller | 2 | 20 | 0.934 | 522 | 332 | 525 | 108 | 3,113 | 8,339 | 5,303 | 8,387 | 1,725 | 49,728 | 128 | 64 |
| MTR-290 | EEM | MTRPOOL | 00612 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-291 | EEM | MTRPOOL | 00612 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-292 | EEM | MTRPOOL | 00614 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-293 | EEM | MTRPOOL | 00620 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-294 | EEM | MTRPOOL | 00621 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-295 | EEM | MTRPOOL | 00621 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-296 | EEM | MTRPOOL | 00623 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-297 | EEM | MTRPOOL | 00626 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-298 | EEM | MTRPOOL | 00639 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-299 | EEM | MTRPOOL | 00642 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-300 | EEM | MTRPOOL | 00646 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-301 | EEM | MTRPOOL | 00646 | Evap. clr | 2 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 499 | 318 | 348 | 0 | 0 | 4 | 2 |
| MTR-302 | EEM | MTRPOOL | 00650 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-303 | EEM | MTRPOOL | 00680 | Evap. clr | 5 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,251 | 1,432 | 1,567 | 0 | 0 | 17 | 9 |
| MTR-304 | EEM | MTRPOOL | 00680 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-305 | EEM | MTRPOOL | 00681 | Evap. clr | 4 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,801 | 1,145 | 1,254 | 0 | 0 | 14 | 7 |
| MTR-306 | EEM | MTRPOOL | 00681 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-307 | EEM | MTRPOOL | 00830 | Evap. clr | 3 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8 | 4 |
| MTR-308 | EEM | MTRPOOL | 00832 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-309 | EEM | MTRPOOL | 00832 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-310 | EEM | MTRPOOL | 00837 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-311 | EEM | MTRPOOL | 00840 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-312 | EEM | MTRPOOL | 00840 | Evap. clr | 3 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8 | 4 |
| MTR-313 | EEM | MTRPOOL | 00840 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-314 | EEM | MTRPOOL | 00847 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-315 | EEM | MTRPOOL | 00847 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-316 | EEM | MTRPOOL | 00850 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-317 | EEM | MTRPOOL | 00850 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-318 | EEM | MTRPOOL | 00873 | Evap. clr | 10 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 6,753 | 4,295 | 4,702 | 0 | 0 | 52 | 26 |
| MTR-319 | EEM | MTRPOOL | 00879 | Evap. clr | 10 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 6,753 | 4,295 | 4,702 | 0 | 0 | 52 | 26 |
| MTR-320 | EEM | MTRPOOL | 00941 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-44 | EEM | MTRPOOL | 00857 | chiller | 4 | 7.5 | 0.917 | 522 | 332 | 525 | 108 | 3,113 | 6,370 | 4,051 | 6,406 | 1,318 | 37,987 | 98 | 146 |

## Table 2.19. (contd)

### Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-456 | EEM | MTRPOOL | 00857 | AHU | 1 | 20 | 0.934 | 523 | 786 | 2,254 | 0 | 0 | 8,355 | 12,556 | 36,006 | 0 | 0 | 64 | 128 |
| MTR-521 | EEM | MTRPOOL | 00681 | FCU | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-8 | EEM | MTRPOOL | 00646 | drip proof | 1 | 2 | 0.866 | 523 | 352 | 1,205 | 0 | 0 | 451 | 303 | 1,038 | 0 | 0 | 7 | 14 |
| MTR-9 | EEM | MTRPOOL | 00873 | 130 psig | 1 | 15 | 0.930 | 523 | 352 | 1,205 | 0 | 0 | 3,146 | 2,118 | 7,249 | 0 | 0 | 48 | 96 |
| MTR-94 | EEM | MTRPOOL | 00680 | FCU | 1 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 62 | 40 | 43 | 0 | 0 | 1 | 0 |
| MTR-95 | EEM | MTRPOOL | 00857 | AHU | 1 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 62 | 40 | 43 | 0 | 0 | 1 | 0 |
| MTR-30 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-31 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-32 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-321 | EEM | MWR | 00312 | Evap. clr | 2 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 900 | 573 | 627 | 0 | 0 | 7 | 3 |
| MTR-322 | EEM | MWR | 00312 | Evap. clr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| MTR-323 | EEM | MWR | 00340 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-324 | EEM | MWR | 00410 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-325 | EEM | MWR | 00480 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-326 | EEM | MWR | 00556 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-327 | EEM | MWR | 00910 | Evap. clr | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 899 | 572 | 626 | 0 | 0 | 7 | 3 |
| MTR-328 | EEM | MWR | 01322 | Evap. clr | 2 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 900 | 573 | 627 | 0 | 0 | 7 | 3 |
| MTR-329 | EEM | MWR | 01322 | Evap. clr | 1 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 125 | 79 | 87 | 0 | 0 | 1 | 0 |
| MTR-33 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-330 | EEM | MWR | 01322 | Evap. clr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| MTR-331 | EEM | MWR | 01322 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-332 | EEM | MWR | 01322 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-333 | EEM | MWR | 01322 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-457 | EEM | MWR | 01313 | fan motors | 2 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 250 | 376 | 1,078 | 0 | 0 | 2 | 4 |
| MTR-46 | EEM | MWR | 01322 | A/C heat unit | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-460 | EEM | MWR | 01313 | outdr fan | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 125 | 188 | 539 | 0 | 0 | 1 | 2 |
| MTR-461 | EEM | MWR | 01322 | RTU 1 | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 125 | 188 | 539 | 0 | 0 | 1 | 2 |
| MTR-462 | EEM | MWR | 01322 | RTU 2 | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 125 | 188 | 539 | 0 | 0 | 1 | 2 |
| MTR-464 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 125 | 188 | 539 | 0 | 0 | 1 | 2 |
| MTR-466 | EEM | MWR | 01322 | RTU 3 | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 125 | 188 | 539 | 0 | 0 | 1 | 2 |
| MTR-469 | EEM | MWR | 01322 | RTU 2 | 1 | 0.5 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 250 | 376 | 1,078 | 0 | 0 | 2 | 4 |
| MTR-47 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-474 | EEM | MWR | 01322 | AHU | 3 | 0.5 | 0.780 | 523 | 786 | 2,254 | 0 | 0 | 750 | 1,128 | 3,234 | 0 | 0 | 6 | 11 |
| MTR-48 | EEM | MWR | 01322 | A/C heat | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 0 | 1 |
| MTR-334 | EEM | OTHER | 00992 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-335 | EEM | PLT-BLDG | 00253 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-336 | EEM | PLT-BLDG | 00253 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-337 | EEM | PLT-BLDG | 00253 | Evap. clr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| MTR-338 | EEM | PLT-BLDG | 00263 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-339 | EEM | PLT-BLDG | 00263 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-475 | EEM | PLT-BLDG | 00253 | basic | 2 | 0.75 | 0.800 | 523 | 349 | 1,560 | 0 | 0 | 732 | 488 | 2,182 | 0 | 0 | 6 | 11 |
| MTR-476 | EEM | PLT-BLDG | 00263 | boiler | 1 | 3 | 0.895 | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 0 | 15 |

**Table 2.19.** (contd)

## Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-280 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-282 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 340 | 2 | 29 | 20 | 49 | 206 | 1.45 |
| MTR-283 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-284 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-285 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-286 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-287 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-288 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-289 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-29 | RI | EEM | 2,536 | 258 | 240 | 0 | 15 | 4,332 | 11 | 194 | 116 | 310 | 1,831 | 1.72 |
| MTR-290 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-291 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-292 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-293 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-294 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-295 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-296 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-297 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-298 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-299 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-300 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-301 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 549 | 3 | 51 | 35 | 86 | 950 | 3.47 |
| MTR-302 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-304 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 100 | 1,167 | 3.82 |
| MTR-306 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 59 | 40 | 100 | 1,167 | 3.82 |
| MTR-307 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-308 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-309 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-310 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-311 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-312 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 90 | 61 | 151 | 1,740 | 3.80 |
| MTR-313 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-314 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-315 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-316 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-317 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| MTR-320 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3 80 |
| MTR-44 | RI | EEM | 2,588 | 324 | 240 | 0 | 15 | 4,070 | 18 | 192 | 133 | 325 | 1,900 | 1.71 |
| MTR-456 | RI | EEM | 1,268 | 129 | 120 | 0 | 15 | 3,356 | 11 | 211 | 72 | 282 | 3,103 | 3.43 |
| MTR-521 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 65 | 1.35 |
| MTR-8 | RI | EEM | 442 | 74 | 20 | 0 | 15 | 319 | 4 | 26 | 28 | 54 | 235 | 1.47 |
| MTR-9 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 1,178 | 14 | 89 | 96 | 185 | 1,730 | 2.64 |
| MTR-94 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 91 | 1 | 8 | 11 | 20 | 101 | 1.54 |

**Table 2.19.** (contd)

## Energy-Efficient MTRPOOL, MWR, OTHER, & PLT-BLDG Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTR-95 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 91 | 1 | 9 | 12 | 20 | 93 | 1.50 |
| MTR-30 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-31 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-32 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-323 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-324 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-325 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-326 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-329 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 182 | 1 | 17 | 12 | 29 | 240 | 2.29 |
| MTR-33 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-331 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-332 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-333 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 580 | 3.80 |
| MTR-457 | RI | EEM | 226 | 148 | 0 | 0 | 15 | 1,065 | 4 | 84 | 29 | 112 | 1,426 | 4.81 |
| MTR-46 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-460 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 532 | 2 | 42 | 14 | 56 | 713 | 4.81 |
| MTR-461 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 532 | 2 | 42 | 14 | 56 | 713 | 4.81 |
| MTR-462 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 532 | 2 | 42 | 14 | 56 | 713 | 4.81 |
| MTR-464 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 532 | 2 | 42 | 14 | 56 | 713 | 4.81 |
| MTR-466 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 532 | 2 | 42 | 14 | 56 | 713 | 4.81 |
| MTR-469 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 804 | 3 | 63 | 21 | 84 | 1,183 | 7.16 |
| MTR-47 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-474 | RI | EEM | 399 | 222 | 45 | 0 | 15 | 2,411 | 8 | 189 | 64 | 253 | 3,550 | 7.16 |
| MTR-48 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 15 | 3 | 18 | 56 | 1.30 |
| MTR-334 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 21 | 51 | 577 | 3.79 |
| MTR-335 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 582 | 3.81 |
| MTR-336 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 30 | 20 | 50 | 582 | 3.81 |
| MTR-338 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 31 | 21 | 51 | 575 | 3.78 |
| MTR-339 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 61 | 41 | 103 | 1,151 | 3.78 |
| MTR-475 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 1,290 | 6 | 106 | 50 | 156 | 2,118 | 6.12 |
| MTR-476 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 556 | 1 | 41 | 4 | 44 | 130 | 1.29 |
| Totals: | MOTORPOOL | | 16,048 | 4,886 | 1,543 | 0 | | 30,133 | 141 | 2,268 | 1,498 | 3,766 | 38,073 | 2.96 |
| | MWR | | 3,270 | 1,924 | 172 | 0 | | 11,509 | 42 | 880 | 358 | 1,238 | 14,413 | 3.87 |
| | OTHER | | 149 | 74 | 16 | 0 | | 323 | 2 | 30 | 21 | 51 | 577 | 3.79 |
| | PLT-BLDG | | 1,458 | 592 | 147 | 0 | | 3,461 | 16 | 299 | 156 | 455 | 5,138 | 3.70 |

**Table 2.20.** Pump, Recreation, Security, Shop, Storage, Training, and Cold Warehouse Building Energy Efficient Motor EROs

Existing PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-10 | PUMP | 00044 | drip proof | 1 | 2 | 80.5% | 523 | 352 | 1,205 | 0 | 0 | 12 | 485 | 326 | 1,117 | 0 | 0 | 7 | 15 |
| MTR-11 | PUMP | 00652 | set pt 40 psi | 1 | 15 | 85.0% | 523 | 352 | 1,205 | 0 | 0 | 12 | 3,443 | 2,317 | 7,932 | 0 | 0 | 53 | 105 |
| MTR-340 | PUMP | 00044 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-341 | PUMP | 00700 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-342 | PUMP | 00838 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-477 | PUMP | 00324 | AHU | 1 | 5 | 83.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 2,336 | 1,559 | 6,969 | 0 | 0 | 18 | 36 |
| MTR-343 | REC | 00322 | Evap. clr | 10 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 4,837 | 3,077 | 3,368 | 0 | 0 | 37 | 19 |
| MTR-344 | REC | 00338 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-345 | REC | 00905 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-36 | REC | 00905 | heatpmp | 4 | 1 | 80.5% | 522 | 332 | 1,740 | 108 | 3,113 | 12 | 967 | 615 | 3,225 | 200 | 5,770 | 15 | 30 |
| MTR-481 | REC | 00905 | cond | 1 | 5 | 83.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 2,336 | 1,559 | 6,969 | 0 | 0 | 18 | 36 |
| MTR-346 | SECURTY | 00326 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-347 | SECURTY | 00326 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-348 | SECURTY | 00326 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-349 | SECURTY | 00427 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-12 | SHOP | 00367 | 115 psi | 1 | 20 | 88.2% | 523 | 352 | 1,205 | 0 | 0 | 12 | 4,424 | 2,977 | 10,192 | 0 | 0 | 68 | 135 |
| MTR-350 | SHOP | 00356 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-351 | SHOP | 00357 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-352 | SHOP | 00357 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-353 | SHOP | 00357 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-354 | SHOP | 00367 | Evap. clr | 5 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,518 | 1,601 | 1,753 | 0 | 0 | 19 | 10 |
| MTR-355 | SHOP | 00367 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-356 | SHOP | 00384 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-357 | SHOP | 00384 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-358 | SHOP | 00842 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-359 | SHOP | 00842 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-360 | SHOP-ELC | 00581 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-361 | SHOP-ELC | 00581 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-362 | SHOP-ELC | 00616 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-363 | SHOP-WPN | 07602 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-364 | STOR-UH | 00148 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-365 | TRAING | 00490 | Evap. clr | 4 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,935 | 1,231 | 1,347 | 0 | 0 | 15 | 7 |
| MTR-366 | TRAING | 00492 | Evap. clr | 4 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,935 | 1,231 | 1,347 | 0 | 0 | 15 | 7 |
| MTR-367 | TRAING | 00496 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-368 | TRAING | 00496 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-369 | TRAING | 00547 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-482 | TRAING | 01202 | indr fan | 1 | 0.5 | 53.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 368 | 246 | 1,098 | 0 | 0 | 3 | 6 |
| MTR-483 | TRAING | 01202 | outdr fan | 1 | 0.333 | 48.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 271 | 181 | 807 | 0 | 0 | 2 | 4 |
| MTR-37 | WHS-CLD | 00862 | heat pmp | 1 | 0.25 | 48.0% | 522 | 332 | 1,740 | 108 | 3,113 | 12 | 101 | 64 | 338 | 21 | 605 | 2 | 3 |
| MTR-485 | WHS-CLD | 00862 | air curtain | 2 | 0.5 | 53.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 736 | 1,106 | 3,173 | 2,279 | 5,036 | 6 | 11 |
| MTR-486 | WHS-CLD | 00862 | 7000 cfm | 2 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 2,855 | 1,905 | 8,515 | 0 | 0 | 22 | 44 |
| MTR-49 | WHS-CLD | 00862 | heat pmp | 1 | 0.25 | 48.0% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 236 | 0 | 553 | 2 | 2 |

## Table 2.20. (contd)

### Energy-Efficient PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-10 | EEM | PUMP | 00044 | drip proof | 1 | 2 | 0.866 | 523 | 352 | 1,205 | 0 | 0 | 451 | 303 | 1,038 | 0 | 0 | 7 | 14 |
| MTR-11 | EEM | PUMP | 00652 | set pt 40 psi | 1 | 15 | 0.930 | 523 | 352 | 1,205 | 0 | 0 | 3,146 | 2,118 | 7,249 | 0 | 0 | 48 | 96 |
| MTR-340 | EEM | PUMP | 00044 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-341 | EEM | PUMP | 00700 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-342 | EEM | PUMP | 00838 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-477 | EEM | PUMP | 00324 | AHU | 1 | 5 | 0.902 | 523 | 349 | 1,560 | 0 | 0 | 2,163 | 1,443 | 6,451 | 0 | 0 | 17 | 33 |
| MTR-343 | EEM | REC | 00322 | Evap. clr | 10 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 4,502 | 2,863 | 3,135 | 0 | 0 | 34 | 17 |
| MTR-344 | EEM | REC | 00338 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-345 | EEM | REC | 00905 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-36 | EEM | REC | 00905 | heatpmp | 4 | 1 | 0.865 | 522 | 332 | 1,740 | 108 | 3,113 | 900 | 573 | 3,001 | 186 | 5,369 | 14 | 28 |
| MTR-481 | EEM | REC | 00905 | cond | 1 | 5 | 0.902 | 523 | 349 | 1,560 | 0 | 0 | 2,163 | 1,443 | 6,451 | 0 | 0 | 17 | 33 |
| MTR-346 | EEM | SECURTY | 00326 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-347 | EEM | SECURTY | 00326 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-348 | EEM | SECURTY | 00326 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-349 | EEM | SECURTY | 00427 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-12 | EEM | SHOP | 00367 | 115 psi | 1 | 20 | 0.934 | 523 | 352 | 1,205 | 0 | 0 | 4,177 | 2,811 | 9,625 | 0 | 0 | 64 | 128 |
| MTR-350 | EEM | SHOP | 00356 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-351 | EEM | SHOP | 00357 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-352 | EEM | SHOP | 00357 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-353 | EEM | SHOP | 00357 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-354 | EEM | SHOP | 00367 | Evap. clr | 5 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,825 | 1,161 | 1,271 | 0 | 0 | 14 | 7 |
| MTR-355 | EEM | SHOP | 00367 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-356 | EEM | SHOP | 00384 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-357 | EEM | SHOP | 00384 | Evap. clr | 4 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11 | 6 |
| MTR-358 | EEM | SHOP | 00842 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-359 | EEM | SHOP | 00842 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-360 | EEM | SHOP-ELC | 00581 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-361 | EEM | SHOP-ELC | 00581 | Evap. clr | 4 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11 | 6 |
| MTR-362 | EEM | SHOP-ELC | 00616 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-363 | EEM | SHOP-WPN | 07602 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-364 | EEM | STOR-UH | 00148 | Evap. clr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| MTR-365 | EEM | TRAING | 00490 | Evap. clr | 4 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,801 | 1,145 | 1,254 | 0 | 0 | 14 | 7 |
| MTR-366 | EEM | TRAING | 00492 | Evap. clr | 4 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,801 | 1,145 | 1,254 | 0 | 0 | 14 | 7 |
| MTR-367 | EEM | TRAING | 00496 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-368 | EEM | TRAING | 00496 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-369 | EEM | TRAING | 00547 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-482 | EEM | TRAING | 01202 | indr fan | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 2 | 4 |
| MTR-483 | EEM | TRAING | 01202 | outdr fan | 1 | 0.333 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 167 | 111 | 497 | 0 | 0 | 1 | 3 |
| MTR-37 | EEM | WHS-CLD | 00862 | heat pmp | 1 | 0.25 | 0.780 | 522 | 332 | 1,740 | 108 | 3,113 | 62 | 40 | 208 | 13 | 372 | 1 | 2 |
| MTR-485 | EEM | WHS-CLD | 00862 | air curtain | 2 | 0.5 | 0.780 | 523 | 786 | 2,254 | 1,619 | 3,578 | 500 | 752 | 2,156 | 1,548 | 3,422 | 4 | 8 |
| MTR-486 | EEM | WHS-CLD | 00862 | 7000 cfm | 2 | 3 | 0.895 | 523 | 349 | 1,560 | 0 | 0 | 2,616 | 1,745 | 7,802 | 0 | 0 | 20 | 40 |
| MTR-49 | EEM | WHS-CLD | 00862 | heat pmp | 1 | 0.25 | 0.780 | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 145 | 0 | 340 | 1 | 1 |

**Table 2.20.** (contd)

Energy-Efficient PUMP, REC, SECURTY, SHOPs, STOR-UH, TRAING, & WHS-CLD Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTR-11 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 1,178 | 14 | 96 | 89 | 185 | 1,730 | 2 64 |
| MTR-340 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-342 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-477 | RI | EEM | 478 | 74 | 40 | 0 | 15 | 807 | 4 | 27 | 58 | 85 | 750 | 2 47 |
| MTR-344 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3 80 |
| MTR-481 | RI | EEM | 478 | 74 | 40 | 0 | 15 | 807 | 4 | 27 | 58 | 85 | 750 | 2.47 |
| MTR-347 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 49 | 585 | 3 83 |
| MTR-12 | RI | EEM | 1,268 | 129 | 120 | 0 | 15 | 979 | 11 | 72 | 67 | 138 | 623 | 1 49 |
| MTR-350 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-351 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-352 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-353 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3 80 |
| MTR-354 | RI | EEM | 745 | 370 | 80 | 0 | 15 | 1,615 | 8 | 102 | 151 | 252 | 2,900 | 3 80 |
| MTR-355 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3 80 |
| MTR-356 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-357 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 81 | 120 | 202 | 2,320 | 3.80 |
| MTR-358 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3 80 |
| MTR-359 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-360 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-361 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 81 | 120 | 202 | 2,320 | 3.80 |
| MTR-362 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-363 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-367 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-368 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-482 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 3 | 21 | 46 | 67 | 885 | 5.61 |
| MTR-483 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 484 | 2 | 19 | 40 | 59 | 768 | 5.11 |
| MTR-37 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 434 | 2 | 14 | 26 | 40 | 437 | 3.34 |
| MTR-485 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 3,952 | 5 | 43 | 219 | 262 | 3,981 | 11.37 |
| MTR-486 | RI | EEM | 830 | 148 | 70 | 0 | 15 | 1,112 | 5 | 38 | 81 | 120 | 794 | 1.87 |
| MTR-49 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 303 | 1 | 13 | 15 | 29 | 240 | 2.28 |
| Totals: | PUMP | | 1,967 | 401 | 178 | 0 | | 2,954 | 22 | 184 | 237 | 421 | 4,221 | 2.93 |
| | REC | | 776 | 222 | 72 | 0 | | 1,453 | 7 | 68 | 118 | 185 | 1,910 | 3.06 |
| | SECURTY | | 149 | 74 | 16 | 0 | | 323 | 2 | 20 | 30 | 49 | 585 | 3.83 |
| | SHOP | | 4,099 | 1,535 | 424 | 0 | | 7,116 | 42 | 458 | 639 | 1,096 | 11,644 | 3.24 |
| | SHOP-ELC | | 1,043 | 518 | 112 | 0 | | 2,261 | 11 | 142 | 211 | 353 | 4,061 | 3.80 |
| | SHOP-WPN | | 149 | 74 | 16 | 0 | | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| | STOR-UH | | There are no cost effective STOR-UH EEM EROs. | | | | | | | | | | | |
| | TRAING | | 544 | 296 | 47 | 0 | | 1,679 | 8 | 81 | 146 | 227 | 2,813 | 4.55 |
| | WHS-CLD | | 1,322 | 444 | 100 | 0 | | 5,802 | 14 | 109 | 342 | 451 | 5,452 | 4.27 |

## Table 2.21. Warehouse Building Energy Efficient Motor EROs

### Existing WHS Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-13 | WHS | 00552 | wall mnt | 2 | 0.5 | 53.0% | 523 | 352 | 1,205 | 0 | 0 | 12 | 368 | 248 | 848 | 0 | 0 | 6 | 11 |
| MTR-370 | WHS | 00024 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-371 | WHS | 00234 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-372 | WHS | 00277 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-373 | WHS | 00306 | Evap. clr | 2 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 0 | 11 | 6 |
| MTR-374 | WHS | 00318 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-375 | WHS | 00318 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-376 | WHS | 00318 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-377 | WHS | 00318 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-378 | WHS | 00333 | Evap. clr | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 0 | 4 | 2 |
| MTR-379 | WHS | 00333 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-380 | WHS | 00333 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-381 | WHS | 00342 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-382 | WHS | 00342 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-383 | WHS | 00344 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-384 | WHS | 00352 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-385 | WHS | 00360 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-386 | WHS | 00364 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-387 | WHS | 00364 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-388 | WHS | 00364 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-389 | WHS | 00435 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-390 | WHS | 00456 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-391 | WHS | 00460 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-392 | WHS | 00462 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-393 | WHS | 00462 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-394 | WHS | 00470 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-395 | WHS | 00470 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-396 | WHS | 00470 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-397 | WHS | 00472 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-398 | WHS | 00474 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-399 | WHS | 00486 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-400 | WHS | 00486 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-401 | WHS | 00517 | Evap. clr | 4 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 2,014 | 1,281 | 1,402 | 0 | 0 | 15 | 8 |
| MTR-402 | WHS | 00531 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-403 | WHS | 00531 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-404 | WHS | 00537 | Evap. clr | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 726 | 462 | 505 | 0 | 0 | 6 | 3 |
| MTR-405 | WHS | 00545 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-406 | WHS | 00558 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-407 | WHS | 00584 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-408 | WHS | 00585 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-409 | WHS | 00818 | Evap. clr | 1 | 20 | 88.2% | 522 | 332 | 363 | 0 | 0 | 6 | 8,830 | 5,616 | 6,148 | 0 | 0 | 68 | 34 |
| MTR-410 | WHS | 00827 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-411 | WHS | 00827 | Evap. clr | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |

**Table 2.21.** (contd)

Existing WHS Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-412 | WHS | 00827 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-413 | WHS | 00844 | Evap. clr | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-414 | WHS | 00860 | Evap. clr | 1 | 0 75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-415 | WHS | 00860 | Evap. clr | 2 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| MTR-416 | WHS | 00860 | EVAP | 1 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 504 | 320 | 351 | 0 | 0 | 4 | 2 |
| MTR-417 | WHS | 00934 | EVAP | 3 | 0.75 | 58.0% | 522 | 332 | 363 | 0 | 0 | 6 | 1,511 | 961 | 1,052 | 0 | 0 | 12 | 6 |
| MTR-484 | WHS | 00474 | EFU | 2 | 0.5 | 53.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 736 | 491 | 2,196 | 0 | 0 | 6 | 11 |
| MTR-96 | WHS | 20001 | AHU | 4 | 0 25 | 48.0% | 522 | 332 | 363 | 0 | 0 | 6 | 406 | 258 | 282 | 0 | 0 | 6 | 3 |

## Table 2.21. (contd)

### Energy-Efficient WHS Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-13 | EEM | WHS | 00552 | wall mnt | 2 | 0.5 | 0.780 | 523 | 352 | 1,205 | 0 | 0 | 250 | 168 | 576 | 0 | 0 | 4 | 8 |
| MTR-370 | EEM | WHS | 00024 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-371 | EEM | WHS | 00234 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-372 | EEM | WHS | 00277 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-373 | EEM | WHS | 00306 | Evap. clr | 2 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 10 | 5 |
| MTR-374 | EEM | WHS | 00318 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-375 | EEM | WHS | 00318 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-376 | EEM | WHS | 00318 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-377 | EEM | WHS | 00318 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-378 | EEM | WHS | 00333 | Evap. clr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| MTR-379 | EEM | WHS | 00333 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-380 | EEM | WHS | 00333 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-381 | EEM | WHS | 00342 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-382 | EEM | WHS | 00342 | Evap. clr | 4 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11 | 6 |
| MTR-383 | EEM | WHS | 00344 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-384 | EEM | WHS | 00352 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-385 | EEM | WHS | 00360 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-386 | EEM | WHS | 00364 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-387 | EEM | WHS | 00364 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-388 | EEM | WHS | 00364 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-389 | EEM | WHS | 00435 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-390 | EEM | WHS | 00456 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-391 | EEM | WHS | 00460 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-392 | EEM | WHS | 00462 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-393 | EEM | WHS | 00462 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-394 | EEM | WHS | 00470 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-395 | EEM | WHS | 00470 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-396 | EEM | WHS | 00470 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-397 | EEM | WHS | 00472 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-398 | EEM | WHS | 00474 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-399 | EEM | WHS | 00486 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-400 | EEM | WHS | 00486 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-401 | EEM | WHS | 00517 | Evap. clr | 4 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,460 | 929 | 1,017 | 0 | 0 | 11 | 6 |
| MTR-402 | EEM | WHS | 00531 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-403 | EEM | WHS | 00531 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-404 | EEM | WHS | 00537 | Evap. clr | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 3 |
| MTR-405 | EEM | WHS | 00545 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-406 | EEM | WHS | 00558 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-407 | EEM | WHS | 00584 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-408 | EEM | WHS | 00585 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-409 | EEM | WHS | 00818 | Evap. clr | 1 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 8,339 | 5,303 | 5,806 | 0 | 0 | 64 | 32 |
| MTR-410 | EEM | WHS | 00827 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-411 | EEM | WHS | 00827 | Evap. clr | 3 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8 | 4 |

**Table 2.21.** (contd)

## Energy-Efficient WHS Fan Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | WInter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-412 | EEM | WHS | 00827 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-413 | EEM | WHS | 00844 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-414 | EEM | WHS | 00860 | Evap. clr | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-415 | EEM | WHS | 00860 | Evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| MTR-416 | EEM | WHS | 00860 | EVAP | 1 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 365 | 232 | 254 | 0 | 0 | 3 | 1 |
| MTR-417 | EEM | WHS | 00934 | EVAP | 3 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 1,095 | 697 | 763 | 0 | 0 | 8 | 4 |
| MTR-484 | EEM | WHS | 00474 | EFU | 2 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 500 | 334 | 1,492 | 0 | 0 | 4 | 8 |
| MTR-96 | EEM | WHS | 20001 | AHU | 4 | 0.25 | 0.780 | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 4 | 2 |

**Table 2.21.** (contd)

## Energy-Efficient WHS Fan Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MTR-13 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 469 | 5 | 43 | 40 | 83 | 887 | 3.31 |
| MTR-370 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-371 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-374 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-375 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-376 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-377 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-379 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-380 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-381 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-382 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 81 | 120 | 202 | 2,320 | 3.80 |
| MTR-383 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-384 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-385 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-386 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-387 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-388 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-392 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-393 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-394 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-396 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-399 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-400 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-401 | RI | EEM | 596 | 296 | 64 | 0 | 15 | 1,292 | 6 | 81 | 120 | 202 | 2,320 | 3.80 |
| MTR-402 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-403 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-405 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-406 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-407 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-408 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-409 | RI | EEM | 1,268 | 129 | 120 | 0 | 15 | 1,147 | 6 | 58 | 86 | 144 | 729 | 1.57 |
| MTR-410 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 584 | 3.82 |
| MTR-411 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 60 | 89 | 149 | 1,751 | 3.82 |
| MTR-412 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 584 | 3.82 |
| MTR-413 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-414 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-415 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 41 | 60 | 101 | 1,160 | 3.80 |
| MTR-416 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 323 | 2 | 20 | 30 | 50 | 580 | 3.80 |
| MTR-417 | RI | EEM | 447 | 222 | 48 | 0 | 15 | 969 | 5 | 59 | 87 | 146 | 1,768 | 3.85 |
| MTR-484 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 1,097 | 5 | 43 | 91 | 134 | 1,769 | 5.61 |
| MTR-96 | RI | EEM | 452 | 296 | 0 | 0 | 15 | 364 | 4 | 47 | 34 | 81 | 354 | 1.47 |
| Totals: | WHS | | 10,596 | 4,865 | 1,076 | 0 | | 21,163 | 109 | 1,324 | 1,932 | 3,257 | 36,270 | 3.52 |

## Table 2.22. Pump Energy Efficient Motor EROs

### Existing Pump Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| PMTR-18 | BRK/ADM | 00110 | DHW | 1 | 0.33 | 0.480 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 312 | 28 | 730 | 2 | 4 |
| PMTR-19 | BRK/ADM | 00099 | DHW | 1 | 0.33 | 0.480 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 315 | 28 | 737 | 2 | 4 |
| PMTR-20 | BRK/ADM | 00273 | heat/cool | 1 | 1.5 | 0.805 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 844 | 75 | 1,978 | 6 | 11 |
| PMTR-21 | BRK/ADM | 00273 | hot water | 1 | 1 | 0.805 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 563 | 50 | 1,319 | 4 | 7 |
| PMTR-22 | BRK/ADM | 00494 | hot water | 1 | 1.5 | 0.805 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 844 | 75 | 1,978 | 6 | 11 |
| PMTR-23 | BRK/ADM | 00273 | hot water | 1 | 1.5 | 0.805 | 0 | 0 | 1,215 | 108 | 2,846 | 12 | 0 | 0 | 844 | 75 | 1,978 | 6 | 11 |
| PMTR-24 | BRK/ADM | 00273 | sump | 1 | 0.5 | 0.530 | 100 | 100 | 100 | 100 | 100 | 6 | 70 | 70 | 70 | 70 | 70 | 2 | 2 |
| PMTR-25 | BRK/ADM | 00273 | sump | 1 | 0.5 | 0.530 | 100 | 100 | 100 | 100 | 100 | 6 | 70 | 70 | 70 | 70 | 70 | 2 | 2 |
| PMTR-26 | CLINIC | 00171 | induction | 2 | 15 | 0.865 | 522 | 332 | 363 | 0 | 0 | 12 | 13,506 | 8,590 | 9,404 | 0 | 0 | 103 | 207 |
| PMTR-27 | CLINIC | 00171 | induction | 2 | 15 | 0.865 | 522 | 332 | 363 | 0 | 0 | 12 | 13,506 | 8,590 | 9,404 | 0 | 0 | 103 | 207 |
| PMTR-28 | DGR | 00430 | evap. clr | 2 | 0.75 | 0.580 | 522 | 332 | 363 | 0 | 0 | 6 | 1,007 | 641 | 701 | 0 | 0 | 8 | 4 |
| PMTR-29 | DGR | 00308 | circ pump | 1 | 5 | 0.840 | 522 | 332 | 363 | 0 | 0 | 12 | 2,318 | 1,474 | 1,614 | 0 | 0 | 18 | 36 |
| PMTR-30 | DGR | 00430 | temp control | 1 | 0.5 | 0.530 | 522 | 332 | 363 | 0 | 0 | 12 | 367 | 234 | 256 | 0 | 0 | 3 | 6 |
| PMTR-32 | DINING | 00254 | circ. pump | 1 | 0.5 | 0.530 | 522 | 332 | 363 | 0 | 0 | 12 | 184 | 117 | 128 | 0 | 0 | 3 | 6 |
| PMTR-33 | DINING | 00254 | circ. pump | 1 | 1.5 | 0.805 | 522 | 332 | 363 | 0 | 0 | 12 | 363 | 231 | 253 | 0 | 0 | 6 | 11 |
| PMTR-34 | GROCERY | 00920 | circ. pump | 2 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 12 | 4,664 | 2,966 | 3,247 | 0 | 0 | 36 | 71 |
| PMTR-35 | GROCERY | 00920 | clg tower | 1 | 0.5 | 0.530 | 522 | 332 | 363 | 0 | 0 | 6 | 367 | 234 | 256 | 0 | 0 | 3 | 1 |
| PMTR-37 | GROCERY | 00920 | desuperhtrs | 1 | 0.5 | 0.530 | 522 | 332 | 363 | 0 | 0 | 6 | 367 | 234 | 256 | 0 | 0 | 3 | 1 |
| PMTR-38 | HOSPITL | 00166 | condensate | 2 | 1.5 | 0.805 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 1,454 | 2,185 | 6,266 | 4,501 | 9,947 | 11 | 22 |
| PMTR-39 | HOSPITL | 00166 | feed water | 2 | 3 | 0.820 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 2,855 | 4,290 | 12,304 | 8,837 | 19,531 | 22 | 44 |
| PMTR-40 | HOSPITL | 00166 | hot water | 2 | 3 | 0.820 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 2,855 | 4,290 | 12,304 | 8,837 | 19,531 | 22 | 44 |
| PMTR-41 | HOSPITL | 00166 | vacuum pump | 1 | 3 | 0.820 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 1,427 | 2,145 | 6,152 | 4,419 | 9,765 | 11 | 22 |
| PMTR-42 | HOSPITL | 00166 | vacuum pump | 2 | 5 | 0.796 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 4,901 | 7,366 | 21,124 | 15,173 | 33,533 | 37 | 75 |
| PMTR-43 | HOSPITL | 00166 | vacuum pump | 1 | 7.5 | 0.795 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 3,681 | 5,532 | 15,863 | 11,394 | 25,181 | 28 | 56 |
| PMTR-44 | HOSPITL | 00166 | vacuum pump | 2 | 7.5 | 0.795 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 7,361 | 11,063 | 31,726 | 22,788 | 50,362 | 56 | 113 |
| PMTR-58 | PLT-BLDG | 00109 | circ. pump | 1 | 0.5 | 0.530 | 522 | 332 | 363 | 0 | 0 | 6 | 184 | 117 | 128 | 0 | 0 | 3 | 1 |
| PMTR-65 | PLT-BLDG | 00253 | DHW | 2 | 5 | 0.835 | 523 | 786 | 2,254 | 0 | 0 | 12 | 4,673 | 7,022 | 20,138 | 0 | 0 | 36 | 71 |
| PMTR-66 | PLT-BLDG | 00253 | DHW | 1 | 10 | 0.820 | 523 | 786 | 2,254 | 0 | 0 | 12 | 4,758 | 7,151 | 20,506 | 0 | 0 | 36 | 73 |
| PMTR-67 | PLT-BLDG | 00253 | DHW ODP | 1 | 10 | 0.855 | 523 | 786 | 2,254 | 0 | 0 | 12 | 4,563 | 6,858 | 19,666 | 0 | 0 | 35 | 70 |
| PMTR-68 | PLT-BLDG | 00109 | hot water | 1 | 2 | 0.795 | 522 | 332 | 363 | 0 | 0 | 12 | 490 | 312 | 341 | 0 | 0 | 8 | 15 |
| PMTR-69 | PLT-BLDG | 00263 | hot water | 2 | 5 | 0.835 | 523 | 786 | 2,254 | 0 | 0 | 12 | 4,673 | 7,022 | 20,138 | 0 | 0 | 36 | 71 |
| PMTR-70 | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.480 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 203 | 305 | 876 | 629 | 1,390 | 2 | 3 |
| PMTR-71 | POOL-OT | 00328 | circ. pump | 1 | 0.5 | 0.530 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 368 | 553 | 1,586 | 1,139 | 2,518 | 3 | 6 |
| PMTR-72 | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.480 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 203 | 305 | 876 | 629 | 1,390 | 2 | 3 |
| PMTR-73 | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.480 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 203 | 305 | 876 | 629 | 1,390 | 2 | 3 |
| PMTR-100 | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.897 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 17,398 | 26,147 | 74,983 | 53,858 | 119,027 | 133 | 266 |
| PMTR-101 | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.897 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 17,398 | 26,147 | 74,983 | 53,858 | 119,027 | 133 | 266 |
| PMTR-102 | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.897 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 17,398 | 26,147 | 74,983 | 53,858 | 119,027 | 133 | 266 |
| PMTR-103 | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.897 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 17,398 | 26,147 | 74,983 | 53,858 | 119,027 | 133 | 266 |
| PMTR-104 | PUMP | 00700 | Sewage Plant | 2 | 25 | 0.890 | 240 | 356 | 1,032 | 736 | 1,636 | 12 | 10,058 | 14,920 | 43,251 | 30,846 | 68,565 | 168 | 335 |
| PMTR-105 | PUMP | 00652 | Well | 1 | 3 | 0.800 | 186 | 276 | 800 | 570 | 1,268 | 12 | 520 | 772 | 2,237 | 1,596 | 3,547 | 11 | 22 |
| PMTR-106 | PUMP | 00636 | Bicycle Well 1 | 1 | 60 | 0.865 | 186 | 276 | 800 | 570 | 1,268 | 12 | 9,625 | 14,277 | 41,386 | 29,516 | 65,608 | 207 | 414 |
| PMTR-107 | PUMP | 00636 | Bicycle Well 2 | 1 | 60 | 0.865 | 21 | 31 | 90 | 64 | 143 | 12 | 1,087 | 1,612 | 4,673 | 3,332 | 7,407 | 207 | 414 |
| PMTR-108 | PUMP | 00652 | Well I-3 | 1 | 60 | 0.865 | 109 | 162 | 469 | 334 | 743 | 12 | 5,641 | 8,368 | 24,258 | 17,300 | 38,455 | 207 | 414 |

## Table 2.22. (contd)

### Existing Pump Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| PMTR-109 | PUMP | 00636 | Well I-6 | 1 | 60 | 0.865 | 205 | 304 | 882 | 629 | 1,398 | 12 | 10,609 | 15,737 | 45,618 | 32,534 | 72,317 | 207 | 414 |
| PMTR-110 | PUMP | 05996 | Langford Well 1 | 1 | 125 | 0.904 | 212 | 314 | 910 | 649 | 1,443 | 12 | 21,842 | 32,398 | 93,919 | 66,981 | 148,887 | 413 | 825 |
| PMTR-111 | PUMP | 05997 | Bicycle Well 5 | 1 | 125 | 0.904 | 146 | 217 | 630 | 449 | 998 | 12 | 15,102 | 22,401 | 64,937 | 46,311 | 102,942 | 413 | 825 |
| PMTR-112 | PUMP | 00319 | Langford Well 2 | 1 | 100 | 0.904 | 192 | 285 | 826 | 589 | 1,309 | 12 | 15,844 | 23,502 | 68,130 | 48,589 | 108,005 | 330 | 660 |
| PMTR-113 | PUMP | 00319 | Bicycle Well 4 | 1 | 100 | 0.904 | 196 | 290 | 841 | 600 | 1,333 | 12 | 16,141 | 23,943 | 69,408 | 49,500 | 110,030 | 330 | 660 |
| PMTR-114 | PUMP | 00663 | Well #I-7 | 1 | 200 | 0.904 | 182 | 269 | 780 | 557 | 1,237 | 12 | 29,956 | 44,434 | 128,809 | 91,864 | 204,197 | 660 | 1320 |
| PMTR-115 | PUMP | 00043 | Well #I-5 | 1 | 75 | 0.904 | 182 | 269 | 781 | 557 | 1,238 | 12 | 11,241 | 16,674 | 48,335 | 34,472 | 76,624 | 248 | 495 |
| PMTR-116 | PUMP | 00043 | Langford Well 3 | 1 | 75 | 0.904 | 69 | 102 | 296 | 211 | 469 | 12 | 4,256 | 6,313 | 18,299 | 13,051 | 29,009 | 248 | 495 |
| PMTR-74 | PUMP | 00042 | RO plant | 2 | 3 | 0.820 | 180 | 267 | 774 | 552 | 1,227 | 12 | 983 | 1,457 | 4,225 | 3,013 | 6,698 | 22 | 44 |
| PMTR-75 | PUMP | 00044 | RO plant | 1 | 3 | 0.820 | 180 | 267 | 774 | 552 | 1,227 | 12 | 491 | 729 | 2,112 | 1,507 | 3,349 | 11 | 22 |
| PMTR-76 | PUMP | 00324 | HW circ. | 1 | 1.5 | 0.795 | 192 | 284.8 | 825.6 | 588.8 | 1,309 | 12 | 270 | 401 | 1,162 | 829 | 1,842 | 6 | 11 |
| PMTR-77 | PUMP | 00324 | HW circ. | 1 | 15 | 0.865 | 523 | 349 | 1,560 | 0 | 0 | 6 | 6,766 | 4,515 | 20,181 | 0 | 0 | 0 | 78 |
| PMTR-78 | PUMP | 05590 | Booster #1 | 1 | 200 | 0.904 | 66 | 98 | 285 | 203 | 452 | 12 | 10,942 | 16,231 | 47,052 | 33,557 | 74,591 | 660 | 1320 |
| PMTR-79 | PUMP | 05590 | Booster #2 | 1 | 200 | 0.904 | 52 | 78 | 225 | 161 | 357 | 12 | 8,645 | 12,823 | 37,174 | 26,511 | 58,930 | 660 | 1320 |
| PMTR-80 | PUMP | 05590 | Booster #3 | 1 | 200 | 0.904 | 93 | 138 | 399 | 284 | 632 | 12 | 15,300 | 22,694 | 65,788 | 46,919 | 104,292 | 660 | 1320 |
| PMTR-81 | PUMP | 00044 | feedwater | 1 | 15 | 0.839 | 192 | 285 | 826 | 589 | 1,309 | 12 | 2,561 | 3,798 | 11,011 | 7,853 | 17,456 | 53 | 107 |
| PMTR-82 | PUMP | 00324 | from boiler | 1 | 0.5 | 0.530 | 523 | 349 | 1,560 | 0 | 0 | 6 | 368 | 246 | 1,098 | 0 | 0 | 0 | 4 |
| PMTR-83 | PUMP | 18005 | Boosters | 1 | 150 | 0.904 | 156 | 231 | 669 | 477 | 1,061 | 12 | 19,258 | 28,566 | 82,810 | 59,058 | 131,277 | 495 | 990 |
| PMTR-84 | PUMP | 18005 | Boosters | 1 | 150 | 0.904 | 183 | 272 | 788 | 562 | 1,249 | 12 | 22,675 | 33,634 | 97,501 | 69,535 | 154,565 | 495 | 990 |
| PMTR-85 | PUMP | 18005 | Boosters | 1 | 150 | 0.904 | 90 | 134 | 389 | 277 | 616 | 12 | 11,192 | 16,602 | 48,128 | 34,324 | 76,295 | 495 | 990 |
| PMTR-86 | PUMP | 00324 | main | 1 | 20 | 0.840 | 192 | 285 | 826 | 589 | 1,309 | 12 | 3,410 | 5,059 | 14,664 | 10,458 | 23,247 | 71 | 142 |
| PMTR-87 | PUMP | 00324 | pump | 1 | 2 | 0.805 | 192 | 285 | 826 | 589 | 1,309 | 12 | 356 | 528 | 1,530 | 1,091 | 2,426 | 7 | 15 |
| PMTR-88 | PUMP | 00044 | pump | 2 | 7.5 | 0.845 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 6,926 | 10,409 | 29,849 | 21,440 | 47,382 | 53 | 106 |
| PMTR-89 | PUMP | 00044 | pump | 2 | 7.5 | 0.855 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 6,845 | 10,287 | 29,500 | 21,189 | 46,828 | 52 | 105 |
| PMTR-90 | PUMP | 00044 | RO Plant | 1 | 15 | 0.865 | 240 | 356 | 1,032 | 736 | 1,636 | 12 | 3,105 | 4,605 | 13,350 | 9,521 | 21,164 | 52 | 103 |
| PMTR-91 | PUMP | 00042 | RO Plant | 1 | 15 | 0.865 | 240 | 356 | 1,032 | 736 | 1,636 | 12 | 3,105 | 4,605 | 13,350 | 9,521 | 21,164 | 52 | 103 |
| PMTR-92 | PUMP | 00044 | RO Plant | 1 | 75 | 0.904 | 180 | 267 | 774 | 552 | 1,227 | 12 | 11,140 | 16,525 | 47,904 | 34,164 | 75,941 | 248 | 495 |
| PMTR-93 | PUMP | 00044 | RO Plant | 1 | 75 | 0.904 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 32,369 | 48,647 | 139,504 | 100,202 | 221,448 | 248 | 495 |
| PMTR-94 | PUMP | 00044 | RO Plant | 1 | 75 | 0.904 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 32,369 | 48,647 | 139,504 | 100,202 | 221,448 | 248 | 495 |
| PMTR-95 | PUMP | 00324 | recirc | 1 | 1.5 | 0.805 | 192 | 285 | 826 | 589 | 1,309 | 12 | 267 | 396 | 1,148 | 818 | 1,819 | 6 | 11 |
| PMTR-96 | PUMP | 00324 | recirc | 1 | 2 | 0.805 | 192 | 285 | 826 | 589 | 1,309 | 12 | 356 | 528 | 1,530 | 1,091 | 2,426 | 7 | 15 |
| PMTR-97 | PUMP | 00324 | recirc | 1 | 2 | 0.805 | 192 | 285 | 826 | 589 | 1,309 | 12 | 356 | 528 | 1,530 | 1,091 | 2,426 | 7 | 15 |
| PMTR-98 | PUMP | 00324 | recirc | 1 | 2 | 0.805 | 192 | 285 | 826 | 589 | 1,309 | 12 | 356 | 528 | 1,530 | 1,091 | 2,426 | 7 | 15 |
| PMTR-99 | PUMP | 00324 | recirc | 1 | 15 | 0.865 | 192 | 285 | 826 | 589 | 1,309 | 12 | 2,484 | 3,684 | 10,680 | 7,617 | 16,931 | 52 | 103 |
| PMTR-117 | REC | 00905 | condensor | 1 | 0.75 | 0.580 | 523 | 349 | 1,560 | 0 | 0 | 12 | 505 | 337 | 1,505 | 0 | 0 | 4 | 8 |
| PMTR-118 | REC | 00322 | recirc | 1 | 0.5 | 0.530 | 523 | 349 | 1,560 | 0 | 0 | 12 | 368 | 246 | 1,098 | 0 | 0 | 3 | 6 |
| PMTR-119 | REC | 00362 | recirc DHW | 1 | 0.5 | 0.530 | 523 | 349 | 1,560 | 0 | 0 | 12 | 368 | 246 | 1,098 | 0 | 0 | 3 | 6 |
| PMTR-120 | WHS-CLD | 00862 | circ. pump | 6 | 10 | 0.855 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 27,380 | 41,148 | 117,999 | 84,756 | 187,311 | 209 | 419 |
| PMTR-121 | WHS-CLD | 00862 | circ. pump | 3 | 10 | 0.855 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 13,690 | 20,574 | 58,999 | 42,378 | 93,656 | 105 | 209 |
| PMTR-122 | WHS-CLD | 00862 | circ. pump | 2 | 0.5 | 0.530 | 182 | 269 | 780 | 557 | 1,237 | 12 | 255 | 379 | 1,099 | 783 | 1,741 | 6 | 11 |

**Table 2.22.** (contd)

## Energy-Efficient Pump Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| PMTR-18 | EEM | BRK/ADM | 00110 | DHW | 1 | 0.33 | 0.780 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 192 | 17 | 449 | 1 | 3 |
| PMTR-19 | EEM | BRK/ADM | 00099 | DHW | 1 | 0.33 | 0.780 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 194 | 17 | 454 | 1 | 3 |
| PMTR-20 | EEM | BRK/ADM | 00273 | heat/cool | 1 | 1.5 | 0.865 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 786 | 70 | 1,841 | 5 | 10 |
| PMTR-21 | EEM | BRK/ADM | 00273 | hot water | 1 | 1 | 0.865 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 524 | 47 | 1,227 | 3 | 7 |
| PMTR-22 | EEM | BRK/ADM | 00494 | hot water | 1 | 1.5 | 0.865 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 786 | 70 | 1,841 | 5 | 10 |
| PMTR-23 | EEM | BRK/ADM | 00273 | hot water | 1 | 1.5 | 0.865 | 0 | 0 | 1,215 | 108 | 2,846 | 0 | 0 | 786 | 70 | 1,841 | 5 | 10 |
| PMTR-24 | EEM | BRK/ADM | 00273 | sump | 1 | 0.5 | 0.780 | 100 | 100 | 100 | 100 | 100 | 48 | 48 | 48 | 48 | 48 | 1 | 1 |
| PMTR-25 | EEM | BRK/ADM | 00273 | sump | 1 | 0.5 | 0.780 | 100 | 100 | 100 | 100 | 100 | 48 | 48 | 48 | 48 | 48 | 1 | 1 |
| PMTR-26 | EEM | CLINIC | 00171 | induction | 2 | 15 | 0.930 | 522 | 332 | 363 | 0 | 0 | 12,562 | 7,989 | 8,747 | 0 | 0 | 96 | 193 |
| PMTR-27 | EEM | CLINIC | 00171 | induction | 2 | 15 | 0.930 | 522 | 332 | 363 | 0 | 0 | 12,562 | 7,989 | 8,747 | 0 | 0 | 96 | 193 |
| PMTR-28 | EEM | DGR | 00430 | evap. clr | 2 | 0.75 | 0.800 | 522 | 332 | 363 | 0 | 0 | 730 | 464 | 508 | 0 | 0 | 6 | 3 |
| PMTR-29 | EEM | DGR | 00308 | circ pump | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 2,159 | 1,373 | 1,503 | 0 | 0 | 17 | 33 |
| PMTR-30 | EEM | DGR | 00430 | temp control | 1 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 2 | 4 |
| PMTR-32 | EEM | DINING | 00254 | circ. pump | 1 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 125 | 79 | 87 | 0 | 0 | 2 | 4 |
| PMTR-33 | EEM | DINING | 00254 | circ. pump | 1 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 338 | 215 | 235 | 0 | 0 | 5 | 10 |
| PMTR-34 | EEM | GROCERY | 00920 | circ. pump | 2 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 4,317 | 2,746 | 3,006 | 0 | 0 | 33 | 66 |
| PMTR-35 | EEM | GROCERY | 00920 | clg tower | 1 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 2 | 1 |
| PMTR-37 | EEM | GROCERY | 00920 | desuperhtrs | 1 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 250 | 159 | 174 | 0 | 0 | 2 | 1 |
| PMTR-38 | EEM | HOSPITL | 00166 | condensate | 2 | 1.5 | 0.865 | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,353 | 2,034 | 5,832 | 4,189 | 9,257 | 10 | 21 |
| PMTR-39 | EEM | HOSPITL | 00166 | feed water | 2 | 3 | 0.895 | 523 | 786 | 2,254 | 1,619 | 3,578 | 2,616 | 3,931 | 11,273 | 8,097 | 17,894 | 20 | 40 |
| PMTR-40 | EEM | HOSPITL | 00166 | hot water | 2 | 3 | 0.895 | 523 | 786 | 2,254 | 1,619 | 3,578 | 2,616 | 3,931 | 11,273 | 8,097 | 17,894 | 20 | 40 |
| PMTR-41 | EEM | HOSPITL | 00166 | vacuum pump | 1 | 3 | 0.895 | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,308 | 1,965 | 5,636 | 4,048 | 8,947 | 10 | 20 |
| PMTR-42 | EEM | HOSPITL | 00166 | vacuum pump | 2 | 5 | 0.902 | 523 | 786 | 2,254 | 1,619 | 3,578 | 4,325 | 6,501 | 18,642 | 13,390 | 29,592 | 33 | 66 |
| PMTR-43 | EEM | HOSPITL | 00166 | vacuum pump | 1 | 7.5 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 3,191 | 4,796 | 13,753 | 9,878 | 21,831 | 24 | 49 |
| PMTR-44 | EEM | HOSPITL | 00166 | vacuum pump | 2 | 7.5 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 6,382 | 9,591 | 27,505 | 19,756 | 43,662 | 49 | 98 |
| PMTR-58 | EEM | PLT-BLDG | 00109 | circ. pump | 1 | 0.5 | 0.780 | 522 | 332 | 363 | 0 | 0 | 125 | 79 | 87 | 0 | 0 | 2 | 1 |
| PMTR-65 | EEM | PLT-BLDG | 00253 | DHW | 2 | 5 | 0.902 | 523 | 786 | 2,254 | 0 | 0 | 4,325 | 6,501 | 18,642 | 0 | 0 | 33 | 66 |
| PMTR-66 | EEM | PLT-BLDG | 00253 | DHW | 1 | 10 | 0.917 | 523 | 786 | 2,254 | 0 | 0 | 4,255 | 6,394 | 18,337 | 0 | 0 | 33 | 65 |
| PMTR-67 | EEM | PLT-BLDG | 00253 | DHW ODP | 1 | 10 | 0.917 | 523 | 786 | 2,254 | 0 | 0 | 4,255 | 6,394 | 18,337 | 0 | 0 | 33 | 65 |
| PMTR-68 | EEM | PLT-BLDG | 00109 | hot water | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 7 | 14 |
| PMTR-69 | EEM | PLT-BLDG | 00263 | hot water | 2 | 5 | 0.902 | 523 | 786 | 2,254 | 0 | 0 | 4,325 | 6,501 | 18,642 | 0 | 0 | 33 | 66 |
| PMTR-70 | EEM | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 1,619 | 3,578 | 125 | 188 | 539 | 387 | 856 | 1 | 2 |
| PMTR-71 | EEM | POOL-OT | 00328 | circ. pump | 1 | 0.5 | 0.780 | 523 | 786 | 2,254 | 1,619 | 3,578 | 250 | 376 | 1,078 | 774 | 1,711 | 2 | 4 |
| PMTR-72 | EEM | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 1,619 | 3,578 | 125 | 188 | 539 | 387 | 856 | 1 | 2 |
| PMTR-73 | EEM | POOL-OT | 00328 | circ. pump | 1 | 0.25 | 0.780 | 523 | 786 | 2,254 | 1,619 | 3,578 | 125 | 188 | 539 | 387 | 856 | 1 | 2 |
| PMTR-100 | EEM | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.945 | 523 | 786 | 2,254 | 1,619 | 3,578 | 16,515 | 24,819 | 71,174 | 51,123 | 112,982 | 126 | 253 |
| PMTR-101 | EEM | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.945 | 523 | 786 | 2,254 | 1,619 | 3,578 | 16,515 | 24,819 | 71,174 | 51,123 | 112,982 | 126 | 253 |
| PMTR-102 | EEM | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.945 | 523 | 786 | 2,254 | 1,619 | 3,578 | 16,515 | 24,819 | 71,174 | 51,123 | 112,982 | 126 | 253 |
| PMTR-103 | EEM | PUMP | 00700 | Sewage Ponds | 1 | 40 | 0.945 | 523 | 786 | 2,254 | 1,619 | 3,578 | 16,515 | 24,819 | 71,174 | 51,123 | 112,982 | 126 | 253 |
| PMTR-104 | EEM | PUMP | 00700 | Sewage Plant | 2 | 25 | 0.941 | 240 | 356 | 1,032 | 736 | 1,636 | 9,513 | 14,111 | 40,907 | 29,174 | 64,849 | 159 | 317 |
| PMTR-105 | EEM | PUMP | 00652 | Well | 1 | 3 | 0.895 | 186 | 276 | 800 | 570 | 1,268 | 465 | 690 | 2,000 | 1,426 | 3,170 | 10 | 20 |
| PMTR-106 | EEM | PUMP | 00636 | Bicycle Well 1 | 1 | 60 | 0.950 | 186 | 276 | 800 | 570 | 1,268 | 8,764 | 12,999 | 37,683 | 26,875 | 59,738 | 188 | 377 |
| PMTR-107 | EEM | PUMP | 00636 | Bicycle Well 2 | 1 | 60 | 0.950 | 21 | 31 | 90 | 64 | 143 | 989 | 1,468 | 4,255 | 3,034 | 6,745 | 188 | 377 |
| PMTR-108 | EEM | PUMP | 00652 | Well I-3 | 1 | 60 | 0.950 | 109 | 162 | 469 | 334 | 743 | 5,137 | 7,619 | 22,087 | 15,752 | 35,014 | 188 | 377 |

## Table 2.22. (contd)

### Energy-Efficient Pump Motor Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg. Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| PMTR-109 | EEM | PUMP | 00636 | Well I-6 | 1 | 60 | 0.950 | 205 | 304 | 882 | 629 | 1,398 | 9,660 | 14,329 | 41,537 | 29,623 | 65,847 | 188 | 377 |
| PMTR-110 | EEM | PUMP | 05996 | Langford Well 1 | 1 | 125 | 0.960 | 212 | 314 | 910 | 649 | 1,443 | 20,567 | 30,508 | 88,440 | 63,074 | 140,201 | 389 | 777 |
| PMTR-111 | EEM | PUMP | 05997 | Bicycle Well 5 | 1 | 125 | 0.960 | 146 | 217 | 630 | 449 | 998 | 14,221 | 21,094 | 61,149 | 43,610 | 96,937 | 389 | 777 |
| PMTR-112 | EEM | PUMP | 00319 | Langford Well 2 | 1 | 100 | 0.958 | 192 | 285 | 826 | 589 | 1,309 | 14,951 | 22,178 | 64,290 | 45,850 | 101,917 | 311 | 623 |
| PMTR-113 | EEM | PUMP | 00319 | Bicycle Well 4 | 1 | 100 | 0.958 | 196 | 290 | 841 | 600 | 1,333 | 15,231 | 22,593 | 65,495 | 46,710 | 103,828 | 311 | 623 |
| PMTR-114 | EEM | PUMP | 00663 | Well #I-7 | 1 | 200 | 0.962 | 182 | 269 | 780 | 557 | 1,237 | 28,149 | 41,755 | 121,043 | 86,325 | 191,886 | 620 | 1241 |
| PMTR-115 | EEM | PUMP | 00043 | Well #I-5 | 1 | 75 | 0.954 | 182 | 269 | 781 | 557 | 1,238 | 10,652 | 15,800 | 45,802 | 32,665 | 72,608 | 235 | 469 |
| PMTR-116 | EEM | PUMP | 00043 | Langford Well 3 | 1 | 75 | 0.954 | 69 | 102 | 296 | 211 | 469 | 4,033 | 5,982 | 17,340 | 12,367 | 27,489 | 235 | 469 |
| PMTR-74 | EEM | PUMP | 00042 | RO plant | 2 | 3 | 0.895 | 180 | 267 | 774 | 552 | 1,227 | 900 | 1,335 | 3,871 | 2,761 | 6,136 | 20 | 40 |
| PMTR-75 | EEM | PUMP | 00044 | RO plant | 1 | 3 | 0.895 | 180 | 267 | 774 | 552 | 1,227 | 450 | 668 | 1,935 | 1,380 | 3,068 | 10 | 20 |
| PMTR-76 | EEM | PUMP | 00324 | HW circ. | 1 | 1.5 | 0.865 | 192 | 285 | 826 | 589 | 1,309 | 248 | 368 | 1,068 | 762 | 1,693 | 5 | 10 |
| PMTR-77 | EEM | PUMP | 00324 | HW circ. | 1 | 15 | 0.930 | 523 | 349 | 1,560 | 0 | 0 | 6,293 | 4,199 | 18,770 | 0 | 0 | 0 | 72 |
| PMTR-78 | EEM | PUMP | 05590 | Booster #1 | 1 | 200 | 0.962 | 66 | 98 | 285 | 203 | 452 | 10,283 | 15,253 | 44,216 | 31,534 | 70,094 | 620 | 1241 |
| PMTR-79 | EEM | PUMP | 05590 | Booster #2 | 1 | 200 | 0.962 | 52 | 78 | 225 | 161 | 357 | 8,124 | 12,050 | 34,932 | 24,913 | 55,377 | 620 | 1241 |
| PMTR-80 | EEM | PUMP | 05590 | Booster #3 | 1 | 200 | 0.962 | 93 | 138 | 399 | 284 | 632 | 14,377 | 21,326 | 61,822 | 44,090 | 98,004 | 620 | 1241 |
| PMTR-81 | EEM | PUMP | 00044 | feedwater | 1 | 15 | 0.930 | 192 | 285 | 826 | 589 | 1,309 | 2,310 | 3,427 | 9,934 | 7,085 | 15,748 | 48 | 96 |
| PMTR-82 | EEM | PUMP | 00324 | from boiler | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 0 | 3 |
| PMTR-83 | EEM | PUMP | 18005 | Boosters | 1 | 150 | 0.962 | 156 | 231 | 669 | 477 | 1,061 | 18,097 | 26,844 | 77,817 | 55,498 | 123,362 | 465 | 931 |
| PMTR-84 | EEM | PUMP | 18005 | Boosters | 1 | 150 | 0.962 | 183 | 272 | 788 | 562 | 1,249 | 21,308 | 31,606 | 91,622 | 65,343 | 145,246 | 465 | 931 |
| PMTR-85 | EEM | PUMP | 18005 | Boosters | 1 | 150 | 0.962 | 90 | 134 | 389 | 277 | 616 | 10,518 | 15,601 | 45,226 | 32,254 | 71,695 | 465 | 931 |
| PMTR-86 | EEM | PUMP | 00324 | main | 1 | 20 | 0.934 | 192 | 285 | 826 | 589 | 1,309 | 3,067 | 4,549 | 13,188 | 9,406 | 20,907 | 64 | 128 |
| PMTR-87 | EEM | PUMP | 00324 | pump | 1 | 2 | 0.866 | 192 | 285 | 826 | 589 | 1,309 | 331 | 491 | 1,422 | 1,014 | 2,255 | 7 | 14 |
| PMTR-88 | EEM | PUMP | 00044 | pump | 2 | 7.5 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 6,382 | 9,591 | 27,505 | 19,756 | 43,662 | 49 | 98 |
| PMTR-89 | EEM | PUMP | 00044 | pump | 2 | 7.5 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 6,382 | 9,591 | 27,505 | 19,756 | 43,662 | 49 | 98 |
| PMTR-90 | EEM | PUMP | 00044 | RO Plant | 1 | 15 | 0.930 | 240 | 356 | 1,032 | 736 | 1,636 | 2,888 | 4,283 | 12,417 | 8,856 | 19,685 | 48 | 96 |
| PMTR-91 | EEM | PUMP | 00042 | RO Plant | 1 | 15 | 0.930 | 240 | 356 | 1,032 | 736 | 1,636 | 2,888 | 4,283 | 12,417 | 8,856 | 19,685 | 48 | 96 |
| PMTR-92 | EEM | PUMP | 00044 | RO Plant | 1 | 75 | 0.954 | 180 | 267 | 774 | 552 | 1,227 | 10,557 | 15,659 | 45,393 | 32,374 | 71,961 | 235 | 469 |
| PMTR-93 | EEM | PUMP | 00044 | RO Plant | 1 | 75 | 0.954 | 523 | 786 | 2,254 | 1,619 | 3,578 | 30,673 | 46,097 | 132,192 | 94,951 | 209,842 | 235 | 469 |
| PMTR-94 | EEM | PUMP | 00044 | RO Plant | 1 | 75 | 0.954 | 523 | 786 | 2,254 | 1,619 | 3,578 | 30,673 | 46,097 | 132,192 | 94,951 | 209,842 | 235 | 469 |
| PMTR-95 | EEM | PUMP | 00324 | recirc | 1 | 1.5 | 0.865 | 192 | 285 | 826 | 589 | 1,309 | 248 | 368 | 1,068 | 762 | 1,693 | 5 | 10 |
| PMTR-96 | EEM | PUMP | 00324 | recirc | 1 | 2 | 0.866 | 192 | 285 | 826 | 589 | 1,309 | 331 | 491 | 1,422 | 1,014 | 2,255 | 7 | 14 |
| PMTR-97 | EEM | PUMP | 00324 | recirc | 1 | 2 | 0.866 | 192 | 285 | 826 | 589 | 1,309 | 331 | 491 | 1,422 | 1,014 | 2,255 | 7 | 14 |
| PMTR-98 | EEM | PUMP | 00324 | recirc | 1 | 2 | 0.866 | 192 | 285 | 826 | 589 | 1,309 | 331 | 491 | 1,422 | 1,014 | 2,255 | 7 | 14 |
| PMTR-99 | EEM | PUMP | 00324 | recirc | 1 | 15 | 0.930 | 192 | 285 | 826 | 589 | 1,309 | 2,310 | 3,427 | 9,934 | 7,085 | 15,748 | 48 | 96 |
| PMTR-117 | EEM | REC | 00905 | condensor | 1 | 0.75 | 0.800 | 523 | 349 | 1,560 | 0 | 0 | 366 | 244 | 1,091 | 0 | 0 | 3 | 6 |
| PMTR-118 | EEM | REC | 00322 | recirc | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 2 | 4 |
| PMTR-119 | EEM | REC | 00362 | recirc DHW | 1 | 0.5 | 0.780 | 523 | 349 | 1,560 | 0 | 0 | 250 | 167 | 746 | 0 | 0 | 2 | 4 |
| PMTR-120 | EEM | WHS-CLD | 00862 | circ. pump | 6 | 10 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 25,528 | 38,366 | 110,021 | 79,026 | 174,647 | 195 | 390 |
| PMTR-121 | EEM | WHS-CLD | 00862 | circ. pump | 3 | 10 | 0.917 | 523 | 786 | 2,254 | 1,619 | 3,578 | 12,764 | 19,183 | 55,010 | 39,513 | 87,323 | 98 | 195 |
| PMTR-122 | EEM | WHS-CLD | 00862 | circ. pump | 2 | 0.5 | 0.780 | 182 | 269 | 780 | 557 | 1,237 | 174 | 257 | 746 | 532 | 1,183 | 4 | 8 |

**Table 2.22.** (contd)

Energy-Efficient Pump Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| PMTR-18 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 411 | 2 | 21 | 19 | 39 | 425 | 3.27 |
| PMTR-19 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 415 | 2 | 21 | 19 | 40 | 432 | 3.31 |
| PMTR-24 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 113 | 1 | 8 | 22 | 30 | 251 | 2.31 |
| PMTR-25 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 113 | 1 | 8 | 14 | 22 | 107 | 1.56 |
| PMTR-26 | RI | EEM | 2,084 | 210 | 180 | 0 | 15 | 2,202 | 22 | 176 | 146 | 323 | 2,645 | 2.25 |
| PMTR-27 | RI | EEM | 2,084 | 210 | 180 | 0 | 15 | 2,202 | 22 | 176 | 146 | 323 | 2,645 | 2.25 |
| PMTR-28 | RI | EEM | 298 | 148 | 32 | 0 | 15 | 646 | 3 | 60 | 41 | 101 | 1,160 | 3.80 |
| PMTR-29 | RI | EEM | 478 | 74 | 40 | 0 | 15 | 372 | 4 | 29 | 24 | 54 | 219 | 1.43 |
| PMTR-30 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 3 | 26 | 21 | 47 | 544 | 3.83 |
| PMTR-32 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 137 | 3 | 13 | 21 | 34 | 323 | 2.68 |
| PMTR-34 | RI | EEM | 956 | 148 | 80 | 0 | 15 | 808 | 8 | 65 | 54 | 119 | 639 | 1.62 |
| PMTR-35 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 1 | 26 | 17 | 43 | 475 | 3.47 |
| PMTR-37 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 275 | 1 | 26 | 17 | 43 | 475 | 3.47 |
| PMTR-38 | RI | EEM | 742 | 148 | 36 | 0 | 15 | 1,689 | 2 | 78 | 15 | 94 | 434 | 1.51 |
| PMTR-39 | RI | EEM | 830 | 148 | 70 | 0 | 15 | 4,007 | 5 | 196 | 38 | 234 | 2,772 | 4.05 |
| PMTR-40 | RI | EEM | 830 | 148 | 70 | 0 | 15 | 4,007 | 5 | 196 | 38 | 234 | 2,772 | 4.05 |
| PMTR-41 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 2,003 | 3 | 98 | 19 | 117 | 1,386 | 4.05 |
| PMTR-42 | RI | EEM | 956 | 148 | 80 | 0 | 15 | 9,648 | 13 | 500 | 97 | 598 | 8,882 | 9.67 |
| PMTR-43 | RI | EEM | 647 | 81 | 60 | 0 | 15 | 8,202 | 11 | 433 | 84 | 517 | 7,988 | 12.96 |
| PMTR-44 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 16,404 | 22 | 866 | 169 | 1,035 | 15,977 | 12.96 |
| PMTR-56 | RI | EEM | 2,536 | 258 | 240 | 0 | 15 | 1,551 | 15 | 126 | 170 | 296 | 1,582 | 1.62 |
| PMTR-58 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 137 | 1 | 13 | 17 | 30 | 254 | 2.32 |
| PMTR-65 | RI | EEM | 956 | 148 | 80 | 0 | 15 | 2,364 | 8 | 159 | 54 | 213 | 2,257 | 3.20 |
| PMTR-66 | RI | EEM | 780 | 84 | 70 | 0 | 15 | 3,429 | 12 | 247 | 84 | 332 | 4,597 | 6.79 |
| PMTR-67 | RI | EEM | 780 | 84 | 70 | 0 | 15 | 2,102 | 7 | 139 | 47 | 186 | 2,090 | 3.63 |
| PMTR-69 | RI | EEM | 956 | 148 | 80 | 0 | 15 | 2,364 | 8 | 159 | 54 | 213 | 2,257 | 3.20 |
| PMTR-70 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 1,309 | 2 | 73 | 14 | 87 | 1,251 | 7.69 |
| PMTR-71 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 1,976 | 3 | 110 | 21 | 131 | 1,991 | 11.37 |
| PMTR-72 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 1,309 | 2 | 73 | 14 | 87 | 1,251 | 7.69 |
| PMTR-73 | RI | EEM | 113 | 74 | 0 | 0 | 15 | 1,309 | 2 | 73 | 14 | 87 | 1,251 | 7.69 |
| PMTR-100 | RI | EEM | 2,574 | 169 | 200 | 0 | 15 | 14,802 | 20 | 642 | 125 | 767 | 9,679 | 4.81 |
| PMTR-101 | RI | EEM | 2,574 | 169 | 200 | 0 | 15 | 14,802 | 20 | 642 | 125 | 767 | 9,679 | 4.81 |
| PMTR-102 | RI | EEM | 2,574 | 169 | 200 | 0 | 15 | 14,802 | 20 | 642 | 125 | 767 | 9,679 | 4.81 |
| PMTR-103 | RI | EEM | 2,574 | 169 | 200 | 0 | 15 | 14,802 | 20 | 642 | 125 | 767 | 9,679 | 4.81 |
| PMTR-104 | RI | EEM | 3,316 | 272 | 270 | 0 | 15 | 9,086 | 27 | 403 | 172 | 574 | 5,308 | 2.60 |
| PMTR-105 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 921 | 4 | 47 | 26 | 73 | 623 | 2.37 |
| PMTR-106 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 14,353 | 56 | 721 | 396 | 1,117 | 14,628 | 5.41 |
| PMTR-107 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 1,620 | 56 | 81 | 396 | 478 | 3,619 | 2.09 |
| PMTR-108 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 8,412 | 56 | 422 | 396 | 819 | 9,492 | 3.86 |
| PMTR-109 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 15,820 | 56 | 794 | 396 | 1,191 | 15,897 | 5.79 |
| PMTR-110 | RI | EEM | 5,367 | 428 | 450 | 0 | 15 | 21,235 | 72 | 969 | 468 | 1,438 | 17,228 | 4.22 |
| PMTR-111 | RI | EEM | 5,367 | 428 | 450 | 0 | 15 | 14,682 | 72 | 670 | 468 | 1,139 | 12,077 | 3.26 |
| PMTR-112 | RI | EEM | 3,933 | 371 | 320 | 0 | 15 | 14,885 | 56 | 672 | 358 | 1,030 | 12,170 | 4.05 |
| PMTR-113 | RI | EEM | 3,933 | 371 | 320 | 0 | 15 | 15,164 | 56 | 685 | 358 | 1,043 | 12,387 | 4.11 |

## Table 2.22. (contd)

### Energy-Efficient Pump Motor Economic Parameters

| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | Life (Years) | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| PMTR-114 | RI | EEM | 8,592 | 582 | 550 | 0 | 15 | 30,101 | 119 | 1,388 | 782 | 2,170 | 25,521 | 3.96 |
| PMTR-115 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 9,819 | 39 | 432 | 244 | 676 | 7,036 | 3.12 |
| PMTR-116 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 3,717 | 39 | 164 | 244 | 407 | 2,410 | 1.73 |
| PMTR-74 | RI | EEM | 830 | 148 | 70 | 0 | 15 | 1,372 | 5 | 67 | 38 | 105 | 551 | 1.61 |
| PMTR-75 | RI | EEM | 415 | 74 | 35 | 0 | 15 | 686 | 3 | 34 | 19 | 53 | 276 | 1.61 |
| PMTR-77 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 2,199 | 5 | 156 | 14 | 170 | 1,464 | 2 39 |
| PMTR-78 | RI | EEM | 8,592 | 582 | 550 | 0 | 15 | 10,996 | 119 | 436 | 673 | 1,109 | 9,759 | 2.13 |
| PMTR-79 | RI | EEM | 8,592 | 582 | 550 | 0 | 15 | 8,687 | 119 | 401 | 782 | 1,183 | 8,516 | 1.99 |
| PMTR-80 | RI | EEM | 8,592 | 582 | 550 | 0 | 15 | 15,374 | 119 | 709 | 782 | 1,491 | 13,826 | 2.60 |
| PMTR-81 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 4,176 | 16 | 212 | 113 | 325 | 4,141 | 4.92 |
| PMTR-82 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 1 | 46 | 4 | 50 | 586 | 4.05 |
| PMTR-83 | RI | EEM | 6,801 | 479 | 500 | 0 | 15 | 19,352 | 90 | 892 | 587 | 1,479 | 15,910 | 3.35 |
| PMTR-84 | RI | EEM | 6,801 | 479 | 500 | 0 | 15 | 22,785 | 90 | 1,051 | 587 | 1,637 | 18,636 | 3.75 |
| PMTR-85 | RI | EEM | 6,801 | 479 | 500 | 0 | 15 | 11,247 | 90 | 519 | 587 | 1,105 | 9,474 | 2.40 |
| PMTR-86 | RI | EEM | 1,268 | 129 | 120 | 0 | 15 | 5,720 | 21 | 292 | 156 | 448 | 5,949 | 5.66 |
| PMTR-88 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 9,108 | 12 | 442 | 86 | 529 | 7,257 | 6.43 |
| PMTR-89 | RI | EEM | 1,294 | 162 | 120 | 0 | 15 | 7,752 | 11 | 363 | 71 | 434 | 5,634 | 5.22 |
| PMTR-90 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 3,617 | 11 | 172 | 73 | 245 | 2,762 | 3.61 |
| PMTR-91 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 3,617 | 11 | 172 | 73 | 245 | 2,762 | 3.61 |
| PMTR-92 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 9,731 | 39 | 428 | 244 | 672 | 6,970 | 3.10 |
| PMTR-93 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 28,416 | 39 | 1,250 | 244 | 1,494 | 21,124 | 7.37 |
| PMTR-94 | RI | EEM | 3,346 | 242 | 270 | 0 | 15 | 28,416 | 39 | 1,250 | 244 | 1,494 | 21,124 | 7.37 |
| PMTR-99 | RI | EEM | 1,042 | 105 | 90 | 0 | 15 | 2,893 | 11 | 137 | 73 | 211 | 2,171 | 3.05 |
| PMTR-117 | RI | EEM | 149 | 74 | 16 | 0 | 15 | 645 | 3 | 53 | 25 | 78 | 1,059 | 6.12 |
| PMTR-118 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 3 | 46 | 21 | 67 | 885 | 5.61 |
| PMTR-119 | RI | EEM | 133 | 74 | 15 | 0 | 15 | 549 | 3 | 46 | 21 | 67 | 885 | 5.61 |
| PMTR-120 | RI | EEM | 4,680 | 504 | 420 | 0 | 15 | 31,006 | 42 | 1,454 | 283 | 1,737 | 23,238 | 5.88 |
| PMTR-121 | RI | EEM | 2,340 | 252 | 210 | 0 | 15 | 15,503 | 21 | 727 | 142 | 868 | 11,619 | 5.88 |
| PMTR-122 | RI | EEM | 266 | 148 | 30 | 0 | 15 | 1,365 | 5 | 76 | 43 | 119 | 1,508 | 4.93 |
| Totals: | Pumps | | 154,908 | 14,346 | 12,054 | 0 | | 537,385 | 1,913 | 25,642 | 12,705 | 38,347 | 444,531 | 3.83 |

## Table 2.23. Building VSD EROs

### Existing Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| MTR-418a | ADMIN | 00281 | AHU | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 12 | 726 | 462 | 505 | 0 | 0 | 6 | 11 |
| MTR-422a | ADMIN | 989 | RTU | 2 | 3 | 82.0% | 522 | 332 | 363 | 0 | 0 | 12 | 2,849 | 1,812 | 1,984 | 0 | 0 | 22 | 44 |
| MTR-423a | ADMIN | 00988 | AHU | 2 | 7.5 | 85.5% | 522 | 332 | 363 | 0 | 0 | 12 | 6,832 | 4,345 | 4,757 | 0 | 0 | 52 | 105 |
| MTR-426a | ADMIN | 00988 | RTU | 2 | 3 | 82.0% | 522 | 332 | 363 | 0 | 0 | 12 | 2,849 | 1,812 | 1,984 | 0 | 0 | 22 | 44 |
| MTR-427a | ADMIN | 00988 | RTU | 1 | 1.5 | 80.5% | 522 | 332 | 363 | 0 | 0 | 12 | 726 | 462 | 505 | 0 | 0 | 6 | 11 |
| MTR-430a | ADMIN | 00988 | RTU | 2 | 3 | 82.0% | 522 | 332 | 363 | 0 | 0 | 12 | 2,849 | 1,812 | 1,984 | 0 | 0 | 22 | 44 |
| MTR-51a | ADMIN | 00243 | FCU | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 242 | 154 | 168 | 0 | 0 | 4 | 2 |
| MTR-52a | ADMIN | 00828 | FCU | 1 | 1 | 80.5% | 522 | 332 | 363 | 0 | 0 | 6 | 242 | 154 | 168 | 0 | 0 | 4 | 2 |
| MTR-55a | ADMIN | 00988 | AHU | 3 | 5 | 83.5% | 522 | 332 | 363 | 0 | 0 | 6 | 6,995 | 4,449 | 4,871 | 0 | 0 | 54 | 27 |
| MTR-433a | BRK/ADM | 00273 | AHU | 2 | 3 | 82.0% | 522 | 747 | 525 | 0 | 0 | 12 | 2,849 | 4,078 | 2,866 | 0 | 0 | 22 | 44 |
| MTR-435a | BRK/ADM | 00275 | AHU | 2 | 3 | 82.0% | 522 | 747 | 525 | 0 | 0 | 12 | 2,849 | 4,078 | 2,866 | 0 | 0 | 22 | 44 |
| MTR-40a | CLINIC | 00171 | cond. | 6 | 1.5 | 80.5% | 0 | 0 | 1,215 | 0 | 2,846 | 12 | 0 | 0 | 5,067 | 0 | 11,868 | 33 | 67 |
| MTR-436a | CLINIC | 00171 | return | 1 | 7.5 | 85.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 3,422 | 2,284 | 10,208 | 0 | 0 | 26 | 52 |
| MTR-437a | CLINIC | 00171 | AHU | 1 | 15 | 83.6% | 523 | 349 | 1,560 | 0 | 0 | 12 | 7,000 | 4,671 | 20,881 | 0 | 0 | 54 | 107 |
| MTR-438a | CLINIC | 00171 | evap | 1 | 25 | 89.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 10,959 | 7,313 | 32,690 | 0 | 0 | 84 | 168 |
| MTR-522a | DGR | 00308 | 6650 cfm | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 1,427 | 953 | 4,258 | 0 | 0 | 11 | 22 |
| MTR-523a | DGR | 00308 | 6650 cfm | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 1,427 | 953 | 4,258 | 0 | 0 | 11 | 22 |
| MTR-524a | DGR | 00308 | | 1 | 5 | 83.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 2,336 | 1,559 | 6,969 | 0 | 0 | 18 | 36 |
| MTR-525a | DGR | 00308 | | 1 | 1.5 | 80.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 727 | 485 | 2,168 | 0 | 0 | 6 | 11 |
| MTR-443a | DINING | 00254 | AHU | 6 | 2 | 80.5% | 523 | 349 | 1,560 | 0 | 0 | 12 | 5,816 | 3,881 | 17,348 | 0 | 0 | 44 | 89 |
| MTR-444a | DINING | 00254 | AHU | 4 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 12 | 5,710 | 3,810 | 17,031 | 0 | 0 | 44 | 87 |
| MTR-451a | HOSPITL | 00166 | AHU-2 | 1 | 15 | 86.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 6,766 | 10,168 | 29,159 | 20,944 | 46,286 | 52 | 103 |
| MTR-452a | HOSPITL | 00166 | AHU-1 | 1 | 10 | 85.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 4,563 | 6,858 | 19,666 | 14,126 | 31,219 | 35 | 70 |
| MTR-453a | HOSPITL | 00166 | AHU-4 | 1 | 7.5 | 82.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 3,569 | 5,363 | 15,379 | 11,047 | 24,413 | 27 | 55 |
| MTR-454a | HOSPITL | 00166 | AHU-3 | 1 | 20 | 88.2% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 8,847 | 13,296 | 38,129 | 27,387 | 60,526 | 68 | 135 |
| MTR-455a | HOSPITL | 00166 | AHU | 2 | 2 | 80.5% | 523 | 786 | 2,254 | 1,619 | 3,578 | 12 | 1,939 | 2,914 | 8,355 | 6,001 | 13,263 | 15 | 30 |
| MTR-458a | MWR | 01313 | indr fan | 1 | 1.5 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 727 | 1,093 | 3,133 | 0 | 0 | 6 | 11 |
| MTR-459a | MWR | 01313 | indr fan | 1 | 1 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 485 | 728 | 2,089 | 0 | 0 | 4 | 7 |
| MTR-45a | MWR | 01322 | A/C | 1 | 1.5 | 80.5% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 844 | 0 | 1,978 | 6 | 3 |
| MTR-463a | MWR | 01322 | A/C heat | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-465a | MWR | 01322 | A/C supply | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-467a | MWR | 01322 | RTU 1 | 1 | 3 | 82.0% | 523 | 786 | 2,254 | 0 | 0 | 12 | 1,427 | 2,145 | 6,152 | 0 | 0 | 11 | 22 |
| MTR-468a | MWR | 01322 | RTU 3 | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-470a | MWR | 01322 | A/C heat | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-471a | MWR | 01322 | RTU 1 | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-472a | MWR | 01322 | RTU 2 | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-473a | MWR | 01322 | RTU 3 | 1 | 2 | 80.5% | 523 | 786 | 2,254 | 0 | 0 | 12 | 969 | 1,457 | 4,178 | 0 | 0 | 7 | 15 |
| MTR-34a | REC | 00905 | | 1 | 30 | 89.0% | 522 | 332 | 1,740 | 108 | 3,113 | 12 | 6,563 | 4,174 | 21,877 | 1,358 | 39,140 | 101 | 201 |
| MTR-35a | REC | 00905 | | 1 | 35 | 89.0% | 522 | 332 | 1,740 | 108 | 3,113 | 12 | 7,657 | 4,870 | 25,523 | 1,584 | 45,663 | 117 | 235 |
| MTR-478a | REC | 00905 | A/C AHU | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 6 | 1,427 | 953 | 4,258 | 0 | 0 | 11 | 5 |
| MTR-479a | REC | 00905 | A/C AHU | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 6 | 1,427 | 953 | 4,258 | 0 | 0 | 11 | 5 |
| MTR-480a | REC | 00905 | A/C AHU | 1 | 3 | 82.0% | 523 | 349 | 1,560 | 0 | 0 | 6 | 1,427 | 953 | 4,258 | 0 | 0 | 11 | 5 |
| MTR-50a | WHS-CLD | 00862 | 60.6 tons | 2 | 5 | 83.5% | 0 | 0 | 1,215 | 0 | 2,846 | 6 | 0 | 0 | 5,427 | 0 | 12,713 | 36 | 18 |

## Table 2.23. (contd)

### Energy-Efficient Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| EEM only: | | | | | | | | | | | | | | | | | | | |
| MTR-418a | EEM | ADMIN | 00281 | AHU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 10 |
| MTR-422a | EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 2,611 | 1,660 | 1,818 | 0 | 0 | 20 | 40 |
| MTR-423a | EEM | ADMIN | 00988 | AHU | 2 | 7.5 | 91.7% | 522 | 332 | 363 | 0 | 0 | 6,370 | 4,051 | 4,435 | 0 | 0 | 49 | 98 |
| MTR-426a | EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 2,611 | 1,660 | 1,818 | 0 | 0 | 20 | 40 |
| MTR-427a | EEM | ADMIN | 00988 | RTU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 675 | 429 | 470 | 0 | 0 | 5 | 10 |
| MTR-430a | EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 2,611 | 1,660 | 1,818 | 0 | 0 | 20 | 40 |
| MTR-51a | EEM | ADMIN | 00243 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 225 | 143 | 157 | 0 | 0 | 3 | 2 |
| MTR-52a | EEM | ADMIN | 00828 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 225 | 143 | 157 | 0 | 0 | 3 | 2 |
| MTR-55a | EEM | ADMIN | 00988 | AHU | 3 | 5 | 90.2% | 522 | 332 | 363 | 0 | 0 | 6,476 | 4,119 | 4,509 | 0 | 0 | 50 | 25 |
| MTR-433a | EEM | BRK/ADM | 00273 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 2,611 | 3,736 | 2,626 | 0 | 0 | 20 | 40 |
| MTR-435a | EEM | BRK/ADM | 00275 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 2,611 | 3,736 | 2,626 | 0 | 0 | 20 | 40 |
| MTR-40a | EEM | CLINIC | 00171 | cond. | 6 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 4,715 | 0 | 11,045 | 31 | 62 |
| MTR-436a | EEM | CLINIC | 00171 | return | 1 | 7.5 | 91.7% | 523 | 349 | 1,560 | 0 | 0 | 3,191 | 2,129 | 9,518 | 0 | 0 | 24 | 49 |
| MTR-437a | EEM | CLINIC | 00171 | AHU | 1 | 15 | 93.0% | 523 | 349 | 1,560 | 0 | 0 | 6,293 | 4,199 | 18,770 | 0 | 0 | 48 | 96 |
| MTR-438a | EEM | CLINIC | 00171 | evap | 1 | 25 | 94.1% | 523 | 349 | 1,560 | 0 | 0 | 10,366 | 6,917 | 30,918 | 0 | 0 | 79 | 159 |
| MTR-522a | EEM | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 10 | 20 |
| MTR-523a | EEM | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 10 | 20 |
| MTR-524a | EEM | DGR | 00308 | | 1 | 5 | 90.2% | 523 | 349 | 1,560 | 0 | 0 | 2,163 | 1,443 | 6,451 | 0 | 0 | 17 | 33 |
| MTR-525a | EEM | DGR | 00308 | | 1 | 1.5 | 86.5% | 523 | 349 | 1,560 | 0 | 0 | 677 | 451 | 2,018 | 0 | 0 | 5 | 10 |
| MTR-443a | EEM | DINING | 00254 | AHU | 6 | 2 | 86.6% | 523 | 349 | 1,560 | 0 | 0 | 5,406 | 3,608 | 16,126 | 0 | 0 | 41 | 83 |
| MTR-444a | EEM | DINING | 00254 | AHU | 4 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 5,231 | 3,491 | 15,603 | 0 | 0 | 40 | 80 |
| MTR-451a | EEM | HOSPITL | 00166 | AHU-2 | 1 | 15 | 93.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 6,293 | 9,457 | 27,121 | 19,480 | 43,051 | 48 | 96 |
| MTR-452a | EEM | HOSPITL | 00166 | AHU-1 | 1 | 10 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 4,255 | 6,394 | 18,337 | 13,171 | 29,108 | 33 | 65 |
| MTR-453a | EEM | HOSPITL | 00166 | AHU-4 | 1 | 7.5 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 3,191 | 4,796 | 13,753 | 9,878 | 21,831 | 24 | 49 |
| MTR-454a | EEM | HOSPITL | 00166 | AHU-3 | 1 | 20 | 93.4% | 523 | 786 | 2,254 | 1,619 | 3,578 | 8,355 | 12,556 | 36,006 | 25,862 | 57,156 | 64 | 128 |
| MTR-455a | EEM | HOSPITL | 00166 | AHU | 2 | 2 | 86.6% | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,802 | 2,708 | 7,767 | 5,579 | 12,329 | 14 | 28 |
| MTR-458a | EEM | MWR | 01313 | indr fan | 1 | 1.5 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 677 | 1,017 | 2,916 | 0 | 0 | 5 | 10 |
| MTR-459a | EEM | MWR | 01313 | indr fan | 1 | 1 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 451 | 678 | 1,944 | 0 | 0 | 3 | 7 |
| MTR-45a | EEM | MWR | 01322 | A/C | 1 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 786 | 0 | 1,841 | 5 | 3 |
| MTR-463a | EEM | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-465a | EEM | MWR | 01322 | A/C supply | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-467a | EEM | MWR | 01322 | RTU 1 | 1 | 3 | 89.5% | 523 | 786 | 2,254 | 0 | 0 | 1,308 | 1,965 | 5,636 | 0 | 0 | 10 | 20 |
| MTR-468a | EEM | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-470a | EEM | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-471a | EEM | MWR | 01322 | RTU 1 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-472a | EEM | MWR | 01322 | RTU 2 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-473a | EEM | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 901 | 1,354 | 3,883 | 0 | 0 | 7 | 14 |
| MTR-34a | EEM | REC | 00905 | | 1 | 30 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 6,207 | 3,948 | 20,691 | 1,284 | 37,019 | 95 | 190 |
| MTR-35a | EEM | REC | 00905 | | 1 | 35 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 7,242 | 4,606 | 24,140 | 1,498 | 43,188 | 111 | 222 |
| MTR-478a | EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 10 | 5 |
| MTR-479a | EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 10 | 5 |
| MTR-480a | EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,308 | 873 | 3,901 | 0 | 0 | 10 | 5 |
| MTR-50a | EEM | WHS-CLD | 00862 | 60.6 tons | 2 | 5 | 90.2% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 5,024 | 0 | 11,769 | 33 | 17 |

## Table 2.23. (contd)

### Energy-Efficient Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| VSD to existing motor: | | | | | | | | | | | | | | | | | | | |
| MTR-418b | VSD only | ADMIN | 00281 | AHU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 210 | 134 | 147 | 0 | 0 | 6 | 11 |
| MTR-422b | VSD only | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 826 | 526 | 575 | 0 | 0 | 22 | 44 |
| MTR-423b | VSD only | ADMIN | 00988 | AHU | 2 | 7.5 | 91.7% | 522 | 332 | 363 | 0 | 0 | 1,981 | 1,260 | 1,379 | 0 | 0 | 52 | 105 |
| MTR-426b | VSD only | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 826 | 526 | 575 | 0 | 0 | 22 | 44 |
| MTR-427b | VSD only | ADMIN | 00988 | RTU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 210 | 134 | 147 | 0 | 0 | 6 | 11 |
| MTR-430b | VSD only | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 826 | 526 | 575 | 0 | 0 | 22 | 44 |
| MTR-51b | VSD only | ADMIN | 00243 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 70 | 45 | 49 | 0 | 0 | 4 | 2 |
| MTR-52b | VSD only | ADMIN | 00828 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 70 | 45 | 49 | 0 | 0 | 4 | 2 |
| MTR-55b | VSD only | ADMIN | 00988 | AHU | 3 | 5 | 90.2% | 522 | 332 | 363 | 0 | 0 | 2,029 | 1,290 | 1,413 | 0 | 0 | 54 | 27 |
| MTR-433b | VSD only | BRK/ADM | 00273 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 826 | 1,182 | 831 | 0 | 0 | 22 | 44 |
| MTR-435b | VSD only | BRK/ADM | 00275 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 826 | 1,182 | 831 | 0 | 0 | 22 | 44 |
| MTR-40b | VSD only | CLINIC | 00171 | cond. | 6 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 2,533 | 0 | 5,934 | 33 | 67 |
| MTR-436b | VSD only | CLINIC | 00171 | return | 1 | 7.5 | 91.7% | 523 | 349 | 1,560 | 0 | 0 | 993 | 662 | 2,960 | 0 | 0 | 26 | 52 |
| MTR-437b | VSD only | CLINIC | 00171 | AHU | 1 | 15 | 93.0% | 523 | 349 | 1,560 | 0 | 0 | 2,030 | 1,355 | 6,055 | 0 | 0 | 54 | 107 |
| MTR-438b | VSD only | CLINIC | 00171 | evap | 1 | 25 | 94.1% | 523 | 349 | 1,560 | 0 | 0 | 3,178 | 2,121 | 9,480 | 0 | 0 | 84 | 168 |
| MTR-522b | VSD only | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 714 | 476 | 2,129 | 0 | 0 | 11 | 22 |
| MTR-523b | VSD only | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 714 | 476 | 2,129 | 0 | 0 | 11 | 22 |
| MTR-524b | VSD only | DGR | 00308 | | 1 | 5 | 90.2% | 523 | 349 | 1,560 | 0 | 0 | 1,168 | 780 | 3,484 | 0 | 0 | 18 | 36 |
| MTR-525b | VSD only | DGR | 00308 | | 1 | 1.5 | 86.5% | 523 | 349 | 1,560 | 0 | 0 | 364 | 243 | 1,084 | 0 | 0 | 6 | 11 |
| MTR-443b | VSD only | DINING | 00254 | AHU | 6 | 2 | 86.6% | 523 | 349 | 1,560 | 0 | 0 | 1,687 | 1,126 | 5,031 | 0 | 0 | 44 | 89 |
| MTR-444b | VSD only | DINING | 00254 | AHU | 4 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,656 | 1,105 | 4,939 | 0 | 0 | 44 | 87 |
| MTR-451b | VSD only | HOSPITL | 00166 | AHU-2 | 1 | 15 | 93.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,962 | 2,949 | 8,456 | 6,074 | 13,423 | 52 | 103 |
| MTR-452b | VSD only | HOSPITL | 00166 | AHU-1 | 1 | 10 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,323 | 1,989 | 5,703 | 4,097 | 9,053 | 35 | 70 |
| MTR-453b | VSD only | HOSPITL | 00166 | AHU-4 | 1 | 7.5 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 1,035 | 1,555 | 4,460 | 3,204 | 7,080 | 27 | 55 |
| MTR-454b | VSD only | HOSPITL | 00166 | AHU-3 | 1 | 20 | 93.4% | 523 | 786 | 2,254 | 1,619 | 3,578 | 2,566 | 3,856 | 11,057 | 7,942 | 17,552 | 68 | 135 |
| MTR-455b | VSD only | HOSPITL | 00166 | AHU | 2 | 2 | 86.6% | 523 | 786 | 2,254 | 1,619 | 3,578 | 562 | 845 | 2,423 | 1,740 | 3,846 | 15 | 30 |
| MTR-458b | VSD only | MWR | 01313 | indr fan | 1 | 1.5 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 211 | 317 | 909 | 0 | 0 | 6 | 11 |
| MTR-459b | VSD only | MWR | 01313 | indr fan | 1 | 1 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 141 | 211 | 606 | 0 | 0 | 4 | 7 |
| MTR-45b | VSD only | MWR | 01322 | A/C | 1 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 422 | 0 | 989 | 6 | 3 |
| MTR-463b | VSD only | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-465b | VSD only | MWR | 01322 | A/C supply | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-467b | VSD only | MWR | 01322 | RTU 1 | 1 | 3 | 89.5% | 523 | 786 | 2,254 | 0 | 0 | 414 | 622 | 1,784 | 0 | 0 | 11 | 22 |
| MTR-468b | VSD only | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-470b | VSD only | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-471b | VSD only | MWR | 01322 | RTU 1 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-472b | VSD only | MWR | 01322 | RTU 2 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-473b | VSD only | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 281 | 422 | 1,212 | 0 | 0 | 7 | 15 |
| MTR-34b | VSD only | REC | 00905 | | 1 | 30 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 3,282 | 2,087 | 10,939 | 679 | 19,570 | 101 | 201 |
| MTR-35b | VSD only | REC | 00905 | | 1 | 35 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 3,828 | 2,435 | 12,762 | 792 | 22,832 | 117 | 235 |
| MTR-478b | VSD only | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 414 | 276 | 1,235 | 0 | 0 | 11 | 5 |
| MTR-479b | VSD only | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 414 | 276 | 1,235 | 0 | 0 | 11 | 5 |
| MTR-480b | VSD only | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 414 | 276 | 1,235 | 0 | 0 | 11 | 5 |
| MTR-50b | VSD only | WHS-CLD | 00862 | 60.6 tons | 2 | 5 | 90.2% | 0 | 0 | 1,215 | 0 | 2,846 | 0 | 0 | 2,714 | 0 | 6,357 | 36 | 18 |

## Table 2.23. (contd)

### Energy-Efficient Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| Add VSD and EEM: | | | | | | | | | | | | | | | | | | | |
| MTR-418c | VSD & EEM | ADMIN | 00281 | AHU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 457 | 196 | 125 | 136 | 0 | 5 | 10 |
| MTR-422c | VSD & EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 1,766 | 757 | 482 | 527 | 0 | 20 | 40 |
| MTR-423c | VSD & EEM | ADMIN | 00988 | AHU | 2 | 7.5 | 91.7% | 522 | 332 | 363 | 0 | 0 | 4,308 | 1,847 | 1,175 | 1,286 | 0 | 49 | 98 |
| MTR-426c | VSD & EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 1,766 | 757 | 482 | 527 | 0 | 20 | 40 |
| MTR-427c | VSD & EEM | ADMIN | 00988 | RTU | 1 | 1.5 | 86.5% | 522 | 332 | 363 | 0 | 0 | 457 | 196 | 125 | 136 | 0 | 5 | 10 |
| MTR-430c | VSD & EEM | ADMIN | 00988 | RTU | 2 | 3 | 89.5% | 522 | 332 | 363 | 0 | 0 | 1,766 | 757 | 482 | 527 | 0 | 20 | 40 |
| MTR-51c | VSD & EEM | ADMIN | 00243 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 152 | 65 | 42 | 45 | 0 | 3 | 2 |
| MTR-52c | VSD & EEM | ADMIN | 00828 | FCU | 1 | 1 | 86.5% | 522 | 332 | 363 | 0 | 0 | 152 | 65 | 42 | 45 | 0 | 3 | 2 |
| MTR-55c | VSD & EEM | ADMIN | 00988 | AHU | 3 | 5 | 90.2% | 522 | 332 | 363 | 0 | 0 | 4,380 | 1,878 | 1,194 | 1,308 | 0 | 50 | 25 |
| MTR-433c | VSD & EEM | BRK/ADM | 00273 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 2,602 | 757 | 1,083 | 761 | 0 | 20 | 40 |
| MTR-435c | VSD & EEM | BRK/ADM | 00275 | AHU | 2 | 3 | 89.5% | 522 | 747 | 525 | 0 | 0 | 2,602 | 757 | 1,083 | 761 | 0 | 20 | 40 |
| MTR-40c | VSD & EEM | CLINIC | 00171 | cond. | 6 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 7,880 | 0 | 0 | 2,358 | 0 | 31 | 62 |
| MTR-436c | VSD & EEM | CLINIC | 00171 | return | 1 | 7.5 | 91.7% | 523 | 349 | 1,560 | 0 | 0 | 4,303 | 925 | 618 | 2,760 | 0 | 24 | 49 |
| MTR-437c | VSD & EEM | CLINIC | 00171 | AHU | 1 | 15 | 93.0% | 523 | 349 | 1,560 | 0 | 0 | 8,486 | 1,825 | 1,218 | 5,443 | 0 | 48 | 96 |
| MTR-438c | VSD & EEM | CLINIC | 00171 | evap | 1 | 25 | 94.1% | 523 | 349 | 1,560 | 0 | 0 | 13,978 | 3,006 | 2,006 | 8,966 | 0 | 79 | 159 |
| MTR-522c | VSD & EEM | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 3,041 | 654 | 436 | 1,950 | 0 | 10 | 20 |
| MTR-523c | VSD & EEM | DGR | 00308 | 6650 cfm | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 3,041 | 654 | 436 | 1,950 | 0 | 10 | 20 |
| MTR-524c | VSD & EEM | DGR | 00308 | | 1 | 5 | 90.2% | 523 | 349 | 1,560 | 0 | 0 | 5,028 | 1,081 | 722 | 3,225 | 0 | 17 | 33 |
| MTR-525c | VSD & EEM | DGR | 00308 | | 1 | 1.5 | 86.5% | 523 | 349 | 1,560 | 0 | 0 | 1,573 | 338 | 226 | 1,009 | 0 | 5 | 10 |
| MTR-443c | VSD & EEM | DINING | 00254 | AHU | 6 | 2 | 86.6% | 523 | 349 | 1,560 | 0 | 0 | 7,291 | 1,568 | 1,046 | 4,677 | 0 | 41 | 83 |
| MTR-444c | VSD & EEM | DINING | 00254 | AHU | 4 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 7,054 | 1,517 | 1,012 | 4,525 | 0 | 40 | 80 |
| MTR-451c | VSD & EEM | HOSPITL | 00166 | AHU-2 | 1 | 15 | 93.0% | 523 | 786 | 2,254 | 1,619 | 3,578 | 30,567 | 1,825 | 2,743 | 7,865 | 5,649 | 48 | 96 |
| MTR-452c | VSD & EEM | HOSPITL | 00166 | AHU-1 | 1 | 10 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 20,667 | 1,234 | 1,854 | 5,318 | 3,820 | 33 | 65 |
| MTR-453c | VSD & EEM | HOSPITL | 00166 | AHU-4 | 1 | 7.5 | 91.7% | 523 | 786 | 2,254 | 1,619 | 3,578 | 15,500 | 925 | 1,391 | 3,988 | 2,865 | 24 | 49 |
| MTR-454c | VSD & EEM | HOSPITL | 00166 | AHU-3 | 1 | 20 | 93.4% | 523 | 786 | 2,254 | 1,619 | 3,578 | 40,581 | 2,423 | 3,641 | 10,442 | 7,500 | 64 | 128 |
| MTR-455c | VSD & EEM | HOSPITL | 00166 | AHU | 2 | 2 | 86.6% | 523 | 786 | 2,254 | 1,619 | 3,578 | 8,754 | 523 | 785 | 2,252 | 1,618 | 14 | 28 |
| MTR-458c | VSD & EEM | MWR | 01313 | indr fan | 1 | 1.5 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 1,337 | 196 | 295 | 846 | 0 | 5 | 10 |
| MTR-459c | VSD & EEM | MWR | 01313 | indr fan | 1 | 1 | 86.5% | 523 | 786 | 2,254 | 0 | 0 | 891 | 131 | 197 | 564 | 0 | 3 | 7 |
| MTR-45c | VSD & EEM | MWR | 01322 | A/C | 1 | 1.5 | 86.5% | 0 | 0 | 1,215 | 0 | 2,846 | 1,313 | 0 | 0 | 393 | 0 | 5 | 3 |
| MTR-463c | VSD & EEM | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,760 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-465c | VSD & EEM | MWR | 01322 | A/C supply | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-467c | VSD & EEM | MWR | 01322 | RTU 1 | 1 | 3 | 89.5% | 523 | 786 | 2,254 | 0 | 0 | 2,584 | 379 | 570 | 1,635 | 0 | 10 | 20 |
| MTR-468c | VSD & EEM | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-470c | VSD & EEM | MWR | 01322 | A/C heat | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-471c | VSD & EEM | MWR | 01322 | RTU 1 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-472c | VSD & EEM | MWR | 01322 | RTU 2 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-473c | VSD & EEM | MWR | 01322 | RTU 3 | 1 | 2 | 86.6% | 523 | 786 | 2,254 | 0 | 0 | 1,780 | 261 | 393 | 1,126 | 0 | 7 | 14 |
| MTR-34c | VSD & EEM | REC | 00905 | | 1 | 30 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 34,575 | 3,104 | 1,974 | 10,346 | 642 | 95 | 190 |
| MTR-35c | VSD & EEM | REC | 00905 | | 1 | 35 | 94.1% | 522 | 332 | 1,740 | 108 | 3,113 | 40,337 | 3,621 | 2,303 | 12,070 | 749 | 111 | 222 |
| MTR-478c | VSD & EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,764 | 379 | 253 | 1,131 | 0 | 10 | 5 |
| MTR-479c | VSD & EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,764 | 379 | 253 | 1,131 | 0 | 10 | 5 |
| MTR-480c | VSD & EEM | REC | 00905 | A/C AHU | 1 | 3 | 89.5% | 523 | 349 | 1,560 | 0 | 0 | 1,764 | 379 | 253 | 1,131 | 0 | 10 | 5 |
| MTR-50c | VSD & EEM | WHS-CLD | 00862 | 60.6 tons | 2 | 5 | 90.2% | 0 | 0 | 1,215 | 0 | 2,846 | 8,397 | 0 | 0 | 2,512 | 0 | 33 | 17 |

## Table 2.23. (contd)

### Energy-Efficient Motor & VSD Economic Parameters

| ID | RI or ROF | ERO | EEM Economic Parameters: Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | VSD Economic Parameters: VSD Price (1994 $) | Additional Cost (1994 $) | Additional O&M (1994 $) | Rebate Incentive (1994 $) | Life (Years) | Annual Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTR-422a | RI | EEM | 830 | 148 | 70 | 0 | NA | NA | NA | NA | 15 | 557 | 5 | 46 | 38 | 84 | 186 | 1.20 |
| MTR-423a | RI | EEM | 1,294 | 162 | 120 | 0 | NA | NA | NA | NA | 15 | 1,077 | 11 | 85 | 71 | 156 | 842 | 1.63 |
| MTR-426a | RI | EEM | 830 | 148 | 70 | 0 | NA | NA | NA | NA | 15 | 557 | 5 | 46 | 38 | 84 | 186 | 1.20 |
| MTR-430a | RI | EEM | 830 | 148 | 70 | 0 | NA | NA | NA | NA | 15 | 557 | 5 | 46 | 38 | 84 | 186 | 1.20 |
| MTR-55a | RI | EEM | 1,434 | 222 | 120 | 0 | NA | NA | NA | NA | 15 | 1,212 | 6 | 101 | 68 | 170 | 686 | 1.45 |
| MTR-433a | RI | EEM | 830 | 148 | 70 | 0 | NA | NA | NA | NA | 15 | 821 | 5 | 61 | 38 | 99 | 443 | 1.49 |
| MTR-435a | RI | EEM | 830 | 148 | 70 | 0 | NA | NA | NA | NA | 15 | 821 | 5 | 61 | 38 | 99 | 443 | 1.49 |
| MTR-436a | RI | EEM | 647 | 81 | 60 | 0 | NA | NA | NA | NA | 15 | 1,076 | 5 | 75 | 35 | 111 | 985 | 2.47 |
| MTR-437a | RI | EEM | 1,042 | 105 | 90 | 0 | NA | NA | NA | NA | 15 | 3,290 | 16 | 251 | 118 | 368 | 4,888 | 5.62 |
| MTR-438a | RI | EEM | 1,658 | 136 | 135 | 0 | NA | NA | NA | NA | 15 | 2,762 | 14 | 183 | 86 | 269 | 2,333 | 2.41 |
| MTR-522a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 556 | 3 | 39 | 18 | 58 | 394 | 1.87 |
| MTR-523a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 556 | 3 | 39 | 18 | 57 | 392 | 1.86 |
| MTR-524a | RI | EEM | 478 | 74 | 40 | 0 | NA | NA | NA | NA | 15 | 807 | 4 | 55 | 26 | 81 | 735 | 2.44 |
| MTR-444a | RI | EEM | 1,660 | 296 | 140 | 0 | NA | NA | NA | NA | 15 | 2,225 | 11 | 163 | 76 | 239 | 1,588 | 1.87 |
| MTR-463a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-465a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-467a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 815 | 3 | 56 | 19 | 75 | 664 | 2.46 |
| MTR-468a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-470a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-471a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-472a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-473a | RI | EEM | 442 | 74 | 20 | 0 | NA | NA | NA | NA | 15 | 465 | 2 | 31 | 10 | 41 | 15 | 1.03 |
| MTR-478a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 556 | 1 | 41 | 16 | 56 | 335 | 1.74 |
| MTR-479a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 556 | 1 | 41 | 16 | 56 | 335 | 1.74 |
| MTR-480a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 556 | 1 | 41 | 16 | 56 | 335 | 1.74 |
| MTR-50a | RI | EEM | 956 | 148 | 80 | 0 | NA | NA | NA | NA | 15 | 1,347 | 4 | 58 | 44 | 102 | 344 | 1.34 |
| MTR-451c | RI | VSD & EEM | 1,042 | 105 | 90 | 0 | 2,769 | 36,000 | 10 | 1,085 | 15 | 82,756 | 11 | 4,859 | 73 | 4,932 | 28,576 | 1.74 |
| MTR-452c | RI | VSD & EEM | 780 | 84 | 70 | 0 | 2,168 | 24,000 | 10 | 734 | 15 | 55,766 | 7 | 3,273 | 47 | 3,320 | 18,999 | 1.72 |
| MTR-453c | RI | VSD & EEM | 647 | 81 | 60 | 0 | 1,600 | 18,000 | 10 | 550 | 15 | 44,271 | 9 | 2,597 | 63 | 2,660 | 17,118 | 1.87 |
| MTR-454c | RI | VSD & EEM | 1,268 | 129 | 120 | 0 | 3,481 | 48,000 | 10 | 1,441 | 15 | 107,604 | 11 | 6,319 | 72 | 6,391 | 35,397 | 1.69 |
| MTR-455c | RI | VSD & EEM | 884 | 148 | 40 | 0 | 2,376 | 9,600 | 20 | 311 | 15 | 23,718 | 3 | 1,390 | 21 | 1,411 | 5,955 | 1.47 |
| MTR-34c | RI | VSD & EEM | 1,969 | 140 | 175 | 0 | 4,645 | 100 | 10 | 864 | 15 | 38,537 | 16 | 2,397 | 103 | 2,500 | 35,113 | 7.04 |
| MTR-35c | RI | VSD & EEM | 1,969 | 140 | 175 | 0 | 4,645 | 100 | 10 | 1,008 | 15 | 44,960 | 19 | 2,796 | 120 | 2,917 | 42,432 | 8.48 |
| Totals: | | EEM | 18,903 | 2,926 | 1,485 | 0 | NA | NA | NA | NA | | 23,961 | 121 | 1,702 | 891 | 2,592 | 16,406 | 1.81 |
| | | VSD & EEM | 8,559 | 827 | 730 | 0 | 21,684 | 135,800 | 80 | 5,993 | | 397,613 | 76 | 23,632 | 499 | 24,131 | 183,591 | 2.15 |

# Table 2.24. Pump Variable Speed Drive EROs

## Existing Pump Motor Operating Parameters

| | Equipment Location and Description | | | | | | Operating Schedule | | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Bldg Type | Fac. No. | Type | No. of Units | HP | Existing Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | No. of Months On Peak | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| PMTR-8a | ADMIN | 00281 | hot wtr | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 12 | 484 | 308 | 337 | 0 | 11 | 4 | 7 |
| PMTR-9a | ADMIN | 00281 | hot wtr | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 12 | 484 | 308 | 337 | 0 | 11 | 4 | 7 |
| PMTR-7a | ADMIN | 00985 | hi eff | 2 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 6 | 4,664 | 2,966 | 3,247 | 0 | 54 | 36 | 18 |
| PMTR-3a | ADMIN | 00988 | chilled wtr | 1 | 5 | 0.790 | 522 | 332 | 363 | 0 | 0 | 6 | 2,465 | 1,568 | 1,716 | 0 | 28 | 19 | 9 |
| PMTR-2a | ADMIN | 00988 | chilled wtr | 1 | 3 | 0.749 | 522 | 332 | 363 | 0 | 0 | 6 | 1,560 | 992 | 1,086 | 0 | 18 | 12 | 6 |
| PMTR-1a | ADMIN | 00988 | imp | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 6 | 4 | 2 |
| PMTR-4a | ADMIN | 00988 | cooling twr | 1 | 3 | 0.749 | 522 | 332 | 363 | 0 | 0 | 6 | 1,560 | 992 | 1,086 | 0 | 18 | 12 | 6 |
| PMTR-5a | ADMIN | 00988 | cooling twr | 1 | 10 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 4,555 | 2,897 | 3,171 | 0 | 52 | 35 | 17 |
| PMTR-6a | ADMIN | 00988 | cooling twr | 1 | 20 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 9,109 | 5,793 | 6,343 | 0 | 105 | 70 | 35 |
| PMTR-11a | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.805 | 522 | 747 | 525 | 0 | 0 | 6 | 484 | 692 | 487 | 0 | 11 | 7 | 4 |
| PMTR-14a | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.805 | 522 | 747 | 525 | 0 | 0 | 6 | 484 | 692 | 487 | 0 | 11 | 7 | 4 |
| PMTR-10a | BRK/ADM | 00110 | chilled wtr | 1 | 1 | 0.805 | 522 | 747 | 525 | 0 | 0 | 6 | 242 | 346 | 243 | 0 | 6 | 4 | 2 |
| PMTR-16a | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 6 | 6,753 | 9,664 | 6,792 | 0 | 155 | 103 | 52 |
| PMTR-17a | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 6 | 6,753 | 9,664 | 6,792 | 0 | 155 | 103 | 52 |
| PMTR-15a | BRK/ADM | 00273 | cooling twr | 1 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 6 | 3,376 | 4,832 | 3,396 | 0 | 78 | 52 | 26 |
| PMTR-12a | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.855 | 522 | 747 | 525 | 0 | 0 | 6 | 1,708 | 2,444 | 1,718 | 0 | 39 | 26 | 13 |
| PMTR-13a | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.850 | 522 | 747 | 525 | 0 | 0 | 6 | 1,718 | 2,459 | 1,728 | 0 | 39 | 26 | 13 |
| PMTR-31a | DINING | 00254 | chilled wtr | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 12 | 3,416 | 2,173 | 2,378 | 0 | 157 | 52 | 105 |
| PMTR-36a | GROCERY | 00920 | cooling twr | 2 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 6 | 967 | 615 | 674 | 0 | 11 | 7 | 4 |
| PMTR-47a | MTRPOOL | 00857 | chiller wtr | 1 | 2 | 0.820 | 522 | 332 | 363 | 0 | 0 | 6 | 475 | 302 | 331 | 0 | 11 | 7 | 4 |
| PMTR-45a | MTRPOOL | 00873 | chiller wtr | 3 | 1.5 | 0.805 | 522 | 332 | 363 | 0 | 0 | 6 | 1,088 | 692 | 758 | 0 | 25 | 17 | 8 |
| PMTR-46a | MTRPOOL | 00873 | chiller wtr | 4 | 1.5 | 0.805 | 522 | 332 | 363 | 0 | 0 | 6 | 1,451 | 923 | 1,010 | 0 | 33 | 22 | 11 |
| PMTR-61a | PLT-BLDG | 00109 | cooling twr | 2 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 6 | 2,332 | 1,483 | 1,624 | 0 | 54 | 36 | 18 |
| PMTR-51a | PLT-BLDG | 00109 | chilled wtr | 1 | 3 | 0.820 | 522 | 332 | 363 | 0 | 0 | 6 | 712 | 453 | 496 | 0 | 16 | 11 | 5 |
| PMTR-56a | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.865 | 522 | 332 | 363 | 0 | 0 | 6 | 9,004 | 5,727 | 6,269 | 0 | 207 | 138 | 69 |
| PMTR-57a | PLT-BLDG | 00253 | chiller, centri. | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 3,416 | 2,173 | 2,378 | 0 | 79 | 52 | 26 |
| PMTR-54a | PLT-BLDG | 00253 | chiller | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 3,416 | 2,173 | 2,378 | 0 | 79 | 52 | 26 |
| PMTR-55a | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.865 | 522 | 332 | 363 | 0 | 0 | 6 | 9,004 | 5,727 | 6,269 | 0 | 207 | 138 | 69 |
| PMTR-59a | PLT-BLDG | 00253 | cooling twr | 2 | 15 | 0.865 | 522 | 332 | 363 | 0 | 0 | 6 | 6,753 | 4,295 | 4,702 | 0 | 155 | 103 | 52 |
| PMTR-50a | PLT-BLDG | 00263 | 975 gal/min | 1 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 1,708 | 1,086 | 1,189 | 0 | 39 | 26 | 13 |
| PMTR-52a | PLT-BLDG | 00263 | chilled wtr | 1 | 7.5 | 0.820 | 522 | 332 | 363 | 0 | 0 | 6 | 1,781 | 1,133 | 1,240 | 0 | 41 | 27 | 14 |
| PMTR-48a | PLT-BLDG | 00263 | imp | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 3,416 | 2,173 | 2,378 | 0 | 79 | 52 | 26 |
| PMTR-49a | PLT-BLDG | 00263 | 690 gal/min | 1 | 3 | 0.820 | 522 | 332 | 363 | 0 | 0 | 6 | 712 | 453 | 496 | 0 | 16 | 11 | 5 |
| PMTR-53a | PLT-BLDG | 00263 | chilled water | 1 | 25 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 5,693 | 3,621 | 3,964 | 0 | 131 | 87 | 44 |
| PMTR-62a | PLT-BLDG | 00263 | CWP | 1 | 2 | 0.805 | 522 | 332 | 363 | 0 | 0 | 6 | 484 | 308 | 337 | 0 | 11 | 7 | 4 |
| PMTR-60a | PLT-BLDG | 00263 | cooling twr | 1 | 25 | 0.855 | 522 | 332 | 363 | 0 | 0 | 6 | 5,693 | 3,621 | 3,964 | 0 | 131 | 87 | 44 |
| PMTR-64a | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 6 | 1,166 | 742 | 812 | 0 | 27 | 18 | 9 |
| PMTR-63a | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 6 | 1,166 | 742 | 812 | 0 | 27 | 18 | 9 |

## Table 2.24. (contd)

### Energy-Efficient Pump Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| EEM only: | | | | | | | | | | | | | | | | | | | |
| PMTR-8a | EEM | ADMIN | 00281 | hot wtr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 7 |
| PMTR-9a | EEM | ADMIN | 00281 | hot wtr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 7 |
| PMTR-7a | EEM | ADMIN | 00985 | hi eff | 2 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 4,317 | 2,746 | 3,006 | 0 | 0 | 33 | 17 |
| PMTR-3a | EEM | ADMIN | 00988 | chilled wtr | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 2,159 | 1,373 | 1,503 | 0 | 0 | 17 | 8 |
| PMTR-2a | EEM | ADMIN | 00988 | chilled wtr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 1,305 | 830 | 909 | 0 | 0 | 10 | 5 |
| PMTR-1a | EEM | ADMIN | 00988 | imp | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 3 | 2 |
| PMTR-4a | EEM | ADMIN | 00988 | cooling twr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 1,305 | 830 | 909 | 0 | 0 | 10 | 5 |
| PMTR-5a | EEM | ADMIN | 00988 | cooling twr | 1 | 10 | 0.917 | 522 | 332 | 363 | 0 | 0 | 4,247 | 2,701 | 2,957 | 0 | 0 | 33 | 16 |
| PMTR-6a | EEM | ADMIN | 00988 | cooling twr | 1 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 8,339 | 5,303 | 5,806 | 0 | 0 | 64 | 32 |
| PMTR-11a | EEM | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.866 | 522 | 747 | 525 | 0 | 0 | 450 | 643 | 452 | 0 | 0 | 7 | 3 |
| PMTR-14a | EEM | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.866 | 522 | 747 | 525 | 0 | 0 | 450 | 643 | 452 | 0 | 0 | 7 | 3 |
| PMTR-10a | EEM | BRK/ADM | 00110 | chilled wtr | 1 | 1 | 0.865 | 522 | 747 | 525 | 0 | 0 | 225 | 322 | 226 | 0 | 0 | 3 | 2 |
| PMTR-16a | EEM | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 6,281 | 8,988 | 6,317 | 0 | 0 | 96 | 48 |
| PMTR-17a | EEM | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 6,281 | 8,988 | 6,317 | 0 | 0 | 96 | 48 |
| PMTR-15a | EEM | BRK/ADM | 00273 | cooling twr | 1 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 3,140 | 4,494 | 3,158 | 0 | 0 | 48 | 24 |
| PMTR-12a | EEM | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 747 | 525 | 0 | 0 | 1,592 | 2,279 | 1,602 | 0 | 0 | 24 | 12 |
| PMTR-13a | EEM | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 747 | 525 | 0 | 0 | 1,592 | 2,279 | 1,602 | 0 | 0 | 24 | 12 |
| PMTR-31a | EEM | DINING | 00254 | chilled wtr | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 3,185 | 2,026 | 2,218 | 0 | 0 | 49 | 98 |
| PMTR-36a | EEM | GROCERY | 00920 | cooling twr | 2 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 900 | 573 | 627 | 0 | 0 | 7 | 3 |
| PMTR-47a | EEM | MTRPOOL | 00857 | chiller wtr | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 7 | 3 |
| PMTR-45a | EEM | MTRPOOL | 00873 | chiller wtr | 3 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,013 | 644 | 705 | 0 | 0 | 16 | 8 |
| PMTR-46a | EEM | MTRPOOL | 00873 | chiller wtr | 4 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,351 | 859 | 940 | 0 | 0 | 21 | 10 |
| PMTR-61a | EEM | PLT-BLDG | 00109 | cooling twr | 2 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 2,159 | 1,373 | 1,503 | 0 | 0 | 33 | 17 |
| PMTR-51a | EEM | PLT-BLDG | 00109 | chilled wtr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 653 | 415 | 454 | 0 | 0 | 10 | 5 |
| PMTR-56a | EEM | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 8,339 | 5,303 | 5,806 | 0 | 0 | 128 | 64 |
| PMTR-57a | EEM | PLT-BLDG | 00253 | chiller, centri. | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 3,185 | 2,026 | 2,218 | 0 | 0 | 49 | 24 |
| PMTR-54a | EEM | PLT-BLDG | 00253 | chiller | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 3,185 | 2,026 | 2,218 | 0 | 0 | 49 | 24 |
| PMTR-55a | EEM | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 8,339 | 5,303 | 5,806 | 0 | 0 | 128 | 64 |
| PMTR-59a | EEM | PLT-BLDG | 00253 | cooling twr | 2 | 15 | 0.930 | 522 | 332 | 363 | 0 | 0 | 6,281 | 3,995 | 4,373 | 0 | 0 | 96 | 48 |
| PMTR-50a | EEM | PLT-BLDG | 00263 | 975 gal/min | 1 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 1,592 | 1,013 | 1,109 | 0 | 0 | 24 | 12 |
| PMTR-52a | EEM | PLT-BLDG | 00263 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 1,592 | 1,013 | 1,109 | 0 | 0 | 24 | 12 |
| PMTR-48a | EEM | PLT-BLDG | 00263 | imp | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 3,185 | 2,026 | 2,218 | 0 | 0 | 49 | 24 |
| PMTR-49a | EEM | PLT-BLDG | 00263 | 690 gal/min | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 653 | 415 | 454 | 0 | 0 | 10 | 5 |
| PMTR-53a | EEM | PLT-BLDG | 00263 | chilled water | 1 | 25 | 0.941 | 522 | 332 | 363 | 0 | 0 | 5,173 | 3,290 | 3,602 | 0 | 0 | 79 | 40 |
| PMTR-62a | EEM | PLT-BLDG | 00263 | CWP | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 450 | 286 | 313 | 0 | 0 | 7 | 3 |
| PMTR-60a | EEM | PLT-BLDG | 00263 | cooling twr | 1 | 25 | 0.941 | 522 | 332 | 363 | 0 | 0 | 5,173 | 3,290 | 3,602 | 0 | 0 | 79 | 40 |
| PMTR-64a | EEM | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 1,079 | 686 | 752 | 0 | 0 | 17 | 8 |
| PMTR-63a | EEM | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 1,079 | 686 | 752 | 0 | 0 | 17 | 8 |

## Table 2.24. (contd)

### Energy-Efficient Pump Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| VSD to existing motor: | | | | | | | | | | | | | | | | | | | |
| PMTR-8b | VSD only | ADMIN | 00281 | hot wtr | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 140 | 89 | 98 | 0 | 0 | 4 | 7 |
| PMTR-9b | VSD only | ADMIN | 00281 | hot wtr | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 140 | 89 | 98 | 0 | 0 | 4 | 7 |
| PMTR-7b | VSD only | ADMIN | 00985 | hi eff | 2 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 1,352 | 860 | 942 | 0 | 0 | 36 | 18 |
| PMTR-3b | VSD only | ADMIN | 00988 | chilled wtr | 1 | 5 | 0.790 | 522 | 332 | 363 | 0 | 0 | 715 | 455 | 498 | 0 | 0 | 19 | 9 |
| PMTR-2b | VSD only | ADMIN | 00988 | chilled wtr | 1 | 3 | 0.749 | 522 | 332 | 363 | 0 | 0 | 452 | 288 | 315 | 0 | 0 | 12 | 6 |
| PMTR-1b | VSD only | ADMIN | 00988 | imp | 1 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 140 | 89 | 98 | 0 | 0 | 4 | 2 |
| PMTR-4b | VSD only | ADMIN | 00988 | cooling twr | 1 | 3 | 0.749 | 522 | 332 | 363 | 0 | 0 | 452 | 288 | 315 | 0 | 0 | 12 | 6 |
| PMTR-5b | VSD only | ADMIN | 00988 | cooling twr | 1 | 10 | 0.855 | 522 | 332 | 363 | 0 | 0 | 1,321 | 840 | 920 | 0 | 0 | 35 | 17 |
| PMTR-6b | VSD only | ADMIN | 00988 | cooling twr | 1 | 20 | 0.855 | 522 | 332 | 363 | 0 | 0 | 2,642 | 1,680 | 1,839 | 0 | 0 | 70 | 35 |
| PMTR-11b | VSD only | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.805 | 522 | 747 | 525 | 0 | 0 | 140 | 201 | 141 | 0 | 0 | 7 | 4 |
| PMTR-14b | VSD only | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.805 | 522 | 747 | 525 | 0 | 0 | 140 | 201 | 141 | 0 | 0 | 7 | 4 |
| PMTR-10b | VSD only | BRK/ADM | 00110 | chilled wtr | 1 | 1 | 0.805 | 522 | 747 | 525 | 0 | 0 | 70 | 100 | 71 | 0 | 0 | 4 | 2 |
| PMTR-16b | VSD only | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 1,958 | 2,802 | 1,970 | 0 | 0 | 103 | 52 |
| PMTR-17b | VSD only | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 1,958 | 2,802 | 1,970 | 0 | 0 | 103 | 52 |
| PMTR-15b | VSD only | BRK/ADM | 00273 | cooling twr | 1 | 15 | 0.865 | 522 | 747 | 525 | 0 | 0 | 979 | 1,401 | 985 | 0 | 0 | 52 | 26 |
| PMTR-12b | VSD only | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.855 | 522 | 747 | 525 | 0 | 0 | 495 | 709 | 498 | 0 | 0 | 26 | 13 |
| PMTR-13b | VSD only | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.850 | 522 | 747 | 525 | 0 | 0 | 498 | 713 | 501 | 0 | 0 | 26 | 13 |
| PMTR-31b | VSD only | DINING | 00254 | chilled wtr | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 991 | 630 | 690 | 0 | 0 | 52 | 105 |
| PMTR-36b | VSD only | GROCERY | 00920 | cooling twr | 2 | 1 | 0.805 | 522 | 332 | 363 | 0 | 0 | 281 | 178 | 195 | 0 | 0 | 7 | 4 |
| PMTR-47b | VSD only | MTRPOOL | 00857 | chiller wtr | 1 | 2 | 0.820 | 522 | 332 | 363 | 0 | 0 | 138 | 88 | 96 | 0 | 0 | 7 | 4 |
| PMTR-45b | VSD only | MTRPOOL | 00873 | chiller wtr | 3 | 1.5 | 0.805 | 522 | 332 | 363 | 0 | 0 | 316 | 201 | 220 | 0 | 0 | 17 | 8 |
| PMTR-46b | VSD only | MTRPOOL | 00873 | chiller wtr | 4 | 1.5 | 0.805 | 522 | 332 | 363 | 0 | 0 | 421 | 268 | 293 | 0 | 0 | 22 | 11 |
| PMTR-61b | VSD only | PLT-BLDG | 00109 | cooling twr | 2 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 676 | 430 | 471 | 0 | 0 | 36 | 18 |
| PMTR-51b | VSD only | PLT-BLDG | 00109 | chilled wtr | 1 | 3 | 0.820 | 522 | 332 | 363 | 0 | 0 | 207 | 131 | 144 | 0 | 0 | 11 | 5 |
| PMTR-56b | VSD only | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,611 | 1,661 | 1,818 | 0 | 0 | 138 | 69 |
| PMTR-57b | VSD only | PLT-BLDG | 00253 | chiller, centri. | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 991 | 630 | 690 | 0 | 0 | 52 | 26 |
| PMTR-54b | VSD only | PLT-BLDG | 00253 | chiller | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 991 | 630 | 690 | 0 | 0 | 52 | 26 |
| PMTR-55b | VSD only | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.865 | 522 | 332 | 363 | 0 | 0 | 2,611 | 1,661 | 1,818 | 0 | 0 | 138 | 69 |
| PMTR-59b | VSD only | PLT-BLDG | 00253 | cooling twr | 2 | 15 | 0.865 | 522 | 332 | 363 | 0 | 0 | 1,958 | 1,246 | 1,364 | 0 | 0 | 103 | 52 |
| PMTR-50b | VSD only | PLT-BLDG | 00263 | 975 gal/min | 1 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 495 | 315 | 345 | 0 | 0 | 26 | 13 |
| PMTR-52b | VSD only | PLT-BLDG | 00263 | chilled wtr | 1 | 7.5 | 0.820 | 522 | 332 | 363 | 0 | 0 | 516 | 328 | 360 | 0 | 0 | 27 | 14 |
| PMTR-48b | VSD only | PLT-BLDG | 00263 | imp | 2 | 7.5 | 0.855 | 522 | 332 | 363 | 0 | 0 | 991 | 630 | 690 | 0 | 0 | 52 | 26 |
| PMTR-49b | VSD only | PLT-BLDG | 00263 | 690 gal/min | 1 | 3 | 0.820 | 522 | 332 | 363 | 0 | 0 | 207 | 131 | 144 | 0 | 0 | 11 | 5 |
| PMTR-53b | VSD only | PLT-BLDG | 00263 | chilled water | 1 | 25 | 0.855 | 522 | 332 | 363 | 0 | 0 | 1,651 | 1,050 | 1,150 | 0 | 0 | 87 | 44 |
| PMTR-62b | VSD only | PLT-BLDG | 00263 | CWP | 1 | 2 | 0.805 | 522 | 332 | 363 | 0 | 0 | 140 | 89 | 98 | 0 | 0 | 7 | 4 |
| PMTR-60b | VSD only | PLT-BLDG | 00263 | cooling twr | 1 | 25 | 0.855 | 522 | 332 | 363 | 0 | 0 | 1,651 | 1,050 | 1,150 | 0 | 0 | 87 | 44 |
| PMTR-64b | VSD only | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 338 | 215 | 235 | 0 | 0 | 18 | 9 |
| PMTR-63b | VSD only | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.835 | 522 | 332 | 363 | 0 | 0 | 338 | 215 | 235 | 0 | 0 | 18 | 9 |

## Table 2.24. (contd)

### Energy-Efficient Pump Motor & VSD Operating Parameters

| | Equipment Location and Description | | | | | | | Operating Schedule | | | | | Energy Consumption | | | | | Energy Demand | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ERO Descript | Bldg Type | Fac No | Type | No of Units | HP | EEM Motor (Eff) | Summer On Peak (Hours) | Summer Mid Peak (Hours) | Winter Mid Peak (Hours) | Summer Off Peak (Hours) | Winter Off Peak (Hours) | Summer On-Peak (kWh) | Summer Mid-Peak (kWh) | Winter Mid-Peak (kWh) | Summer Off-Peak (kWh) | Winter Off-Peak (kWh) | On-Peak Summer (kW-mo) | Mid-Peak Winter (kW-mo) |
| VSD and EEM: | | | | | | | | | | | | | | | | | | | |
| PMTR-8c | VSD & EEM | ADMIN | 00281 | hot wtr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 131 | 83 | 91 | 0 | 0 | 3 | 7 |
| PMTR-9c | VSD & EEM | ADMIN | 00281 | hot wtr | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 131 | 83 | 91 | 0 | 0 | 3 | 7 |
| PMTR-7c | VSD & EEM | ADMIN | 00985 | hi eff | 2 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 1,252 | 796 | 872 | 0 | 0 | 33 | 17 |
| PMTR-3c | VSD & EEM | ADMIN | 00988 | chilled wtr | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 626 | 398 | 436 | 0 | 0 | 17 | 8 |
| PMTR-2c | VSD & EEM | ADMIN | 00988 | chilled wtr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 379 | 241 | 264 | 0 | 0 | 10 | 5 |
| PMTR-1c | VSD & EEM | ADMIN | 00988 | imp | 1 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 131 | 83 | 91 | 0 | 0 | 3 | 2 |
| PMTR-4c | VSD & EEM | ADMIN | 00988 | cooling twr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 379 | 241 | 264 | 0 | 0 | 10 | 5 |
| PMTR-5c | VSD & EEM | ADMIN | 00988 | cooling twr | 1 | 10 | 0.917 | 522 | 332 | 363 | 0 | 0 | 1,232 | 783 | 857 | 0 | 0 | 33 | 16 |
| PMTR-6c | VSD & EEM | ADMIN | 00988 | cooling twr | 1 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 2,418 | 1,538 | 1,684 | 0 | 0 | 64 | 32 |
| PMTR-11c | VSD & EEM | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.866 | 522 | 747 | 525 | 0 | 0 | 130 | 187 | 131 | 0 | 0 | 7 | 3 |
| PMTR-14c | VSD & EEM | BRK/ADM | 00099 | chilled wtr | 1 | 2 | 0.866 | 522 | 747 | 525 | 0 | 0 | 130 | 187 | 131 | 0 | 0 | 7 | 3 |
| PMTR-10c | VSD & EEM | BRK/ADM | 00110 | chilled wtr | 1 | 1 | 0.865 | 522 | 747 | 525 | 0 | 0 | 65 | 93 | 66 | 0 | 0 | 3 | 2 |
| PMTR-16c | VSD & EEM | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 1,821 | 2,607 | 1,832 | 0 | 0 | 96 | 48 |
| PMTR-17c | VSD & EEM | BRK/ADM | 00273 | cooling twr | 2 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 1,821 | 2,607 | 1,832 | 0 | 0 | 96 | 48 |
| PMTR-15c | VSD & EEM | BRK/ADM | 00273 | cooling twr | 1 | 15 | 0.930 | 522 | 747 | 525 | 0 | 0 | 911 | 1,303 | 916 | 0 | 0 | 48 | 24 |
| PMTR-12c | VSD & EEM | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 747 | 525 | 0 | 0 | 462 | 661 | 464 | 0 | 0 | 24 | 12 |
| PMTR-13c | VSD & EEM | BRK/ADM | 00273 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 747 | 525 | 0 | 0 | 462 | 661 | 464 | 0 | 0 | 24 | 12 |
| PMTR-31c | VSD & EEM | DINING | 00254 | chilled wtr | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 924 | 587 | 643 | 0 | 0 | 49 | 98 |
| PMTR-36c | VSD & EEM | GROCERY | 00920 | cooling twr | 2 | 1 | 0.865 | 522 | 332 | 363 | 0 | 0 | 261 | 166 | 182 | 0 | 0 | 7 | 3 |
| PMTR-47c | VSD & EEM | MTRPOOL | 00857 | chiller wtr | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 130 | 83 | 91 | 0 | 0 | 7 | 3 |
| PMTR-45c | VSD & EEM | MTRPOOL | 00873 | chiller wtr | 3 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 294 | 187 | 205 | 0 | 0 | 16 | 8 |
| PMTR-46c | VSD & EEM | MTRPOOL | 00873 | chiller wtr | 4 | 1.5 | 0.865 | 522 | 332 | 363 | 0 | 0 | 392 | 249 | 273 | 0 | 0 | 21 | 10 |
| PMTR-61c | VSD & EEM | PLT-BLDG | 00109 | cooling twr | 2 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 626 | 398 | 436 | 0 | 0 | 33 | 17 |
| PMTR-51c | VSD & EEM | PLT-BLDG | 00109 | chilled wtr | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 189 | 120 | 132 | 0 | 0 | 10 | 5 |
| PMTR-56c | VSD & EEM | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 2,418 | 1,538 | 1,684 | 0 | 0 | 128 | 64 |
| PMTR-57c | VSD & EEM | PLT-BLDG | 00253 | chiller, centri. | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 924 | 587 | 643 | 0 | 0 | 49 | 24 |
| PMTR-54c | VSD & EEM | PLT-BLDG | 00253 | chiller | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 924 | 587 | 643 | 0 | 0 | 49 | 24 |
| PMTR-55c | VSD & EEM | PLT-BLDG | 00253 | chiller | 2 | 20 | 0.934 | 522 | 332 | 363 | 0 | 0 | 2,418 | 1,538 | 1,684 | 0 | 0 | 128 | 64 |
| PMTR-59c | VSD & EEM | PLT-BLDG | 00253 | cooling twr | 2 | 15 | 0.930 | 522 | 332 | 363 | 0 | 0 | 1,821 | 1,158 | 1,268 | 0 | 0 | 96 | 48 |
| PMTR-50c | VSD & EEM | PLT-BLDG | 00263 | 975 gal/min | 1 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 462 | 294 | 322 | 0 | 0 | 24 | 12 |
| PMTR-52c | VSD & EEM | PLT-BLDG | 00263 | chilled wtr | 1 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 462 | 294 | 322 | 0 | 0 | 24 | 12 |
| PMTR-48c | VSD & EEM | PLT-BLDG | 00263 | imp | 2 | 7.5 | 0.917 | 522 | 332 | 363 | 0 | 0 | 924 | 587 | 643 | 0 | 0 | 49 | 24 |
| PMTR-49c | VSD & EEM | PLT-BLDG | 00263 | 690 gal/min | 1 | 3 | 0.895 | 522 | 332 | 363 | 0 | 0 | 189 | 120 | 132 | 0 | 0 | 10 | 5 |
| PMTR-53c | VSD & EEM | PLT-BLDG | 00263 | chilled water | 1 | 25 | 0.941 | 522 | 332 | 363 | 0 | 0 | 1,500 | 954 | 1,045 | 0 | 0 | 79 | 40 |
| PMTR-62c | VSD & EEM | PLT-BLDG | 00263 | CWP | 1 | 2 | 0.866 | 522 | 332 | 363 | 0 | 0 | 130 | 83 | 91 | 0 | 0 | 7 | 3 |
| PMTR-60c | VSD & EEM | PLT-BLDG | 00263 | cooling twr | 1 | 25 | 0.941 | 522 | 332 | 363 | 0 | 0 | 1,500 | 954 | 1,045 | 0 | 0 | 79 | 40 |
| PMTR-64c | VSD & EEM | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 313 | 199 | 218 | 0 | 0 | 17 | 8 |
| PMTR-63c | VSD & EEM | PLT-BLDG | 00263 | CWP heat | 1 | 5 | 0.902 | 522 | 332 | 363 | 0 | 0 | 313 | 199 | 218 | 0 | 0 | 17 | 8 |

## Table 2.24. (contd)

### Energy-Efficient Pump Motor & VSD Economic Parameters

| | | | EEM Economic Parameters | | | | VSD Economic Parameters | | | | | Annual Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | RI or ROF | ERO | Equip Price (1994 $) | Labor Cost (1994 $) | Rebate Incentive (1994 $) | Maint. Cost (1994 $) | VSD Price (1994 $) | Additional Cost (1994 $) | Additional O&M (1994 $) | Rebate Incentive (1994 $) | Life (Years) | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| PMTR-2a | RI | EEM | 415 | 74 | 35 | 0 | NA | NA | NA | NA | 15 | 593 | 3 | 54 | 36 | 90 | 920 | 3.03 |
| PMTR-12a | RI | EEM | 647 | 81 | 60 | 0 | NA | NA | NA | NA | 15 | 397 | 3 | 28 | 29 | 57 | 59 | 1.09 |
| PMTR-13a | RI | EEM | 647 | 81 | 60 | 0 | NA | NA | NA | NA | 15 | 431 | 3 | 31 | 32 | 63 | 165 | 1.25 |
| PMTR-31a | RI | EEM | 1,294 | 162 | 120 | 0 | NA | NA | NA | NA | 15 | 539 | 11 | 43 | 71 | 113 | 109 | 1.08 |
| PMTR-52a | RI | EEM | 647 | 81 | 60 | 0 | NA | NA | NA | NA | 15 | 439 | 4 | 38 | 51 | 89 | 615 | 1.92 |
| PMTR-53a | RI | EEM | 1,658 | 136 | 135 | 0 | NA | NA | NA | NA | 15 | 1,214 | 12 | 103 | 139 | 242 | 1,874 | 2.13 |
| PMTR-55a | RI | EEM | 2,536 | 258 | 240 | 0 | NA | NA | NA | NA | 15 | 1,551 | 15 | 126 | 170 | 296 | 1,582 | 1.62 |
| PMTR-3c | RI | VSD & EEM | 478 | 74 | 40 | 0 | 1,368 | 3,000 | 10 | 52 | 15 | 4,288 | 4 | 424 | 42 | 467 | 1,112 | 1.23 |
| PMTR-4c | RI | VSD & EEM | 415 | 74 | 35 | 0 | 1,368 | 100 | 10 | 31 | 15 | 2,755 | 3 | 272 | 36 | 309 | 2,630 | 2.39 |
| PMTR-5c | RI | VSD & EEM | 780 | 84 | 70 | 0 | 2,168 | 100 | 10 | 102 | 15 | 7,750 | 4 | 768 | 38 | 806 | 9,792 | 4.31 |
| PMTR-6c | RI | VSD & EEM | 1,268 | 129 | 120 | 0 | 3,481 | 100 | 10 | 200 | 15 | 15,605 | 9 | 1,546 | 101 | 1,647 | 22,062 | 5.74 |
| PMTR-7c | RI | VSD & EEM | 956 | 148 | 80 | 0 | 2,736 | 200 | 20 | 104 | 15 | 7,957 | 4 | 788 | 44 | 832 | 8,900 | 3.31 |
| PMTR-15c | RI | VSD & EEM | 1,042 | 105 | 90 | 0 | 2,769 | 100 | 10 | 111 | 15 | 8,474 | 5 | 755 | 59 | 814 | 8,859 | 3.32 |
| PMTR-16c | RI | VSD & EEM | 2,084 | 210 | 180 | 0 | 5,538 | 200 | 20 | 222 | 15 | 16,948 | 11 | 1,510 | 119 | 1,629 | 17,717 | 3.32 |
| PMTR-17c | RI | VSD & EEM | 2,084 | 210 | 180 | 0 | 5,538 | 200 | 20 | 222 | 15 | 16,948 | 11 | 1,510 | 119 | 1,629 | 17,717 | 3.32 |
| PMTR-59c | RI | VSD & EEM | 2,084 | 210 | 180 | 0 | 5,538 | 200 | 20 | 151 | 15 | 11,501 | 11 | 1,139 | 119 | 1,258 | 11,266 | 2.46 |
| PMTR-60c | RI | VSD & EEM | 1,658 | 136 | 135 | 0 | 4,420 | 100 | 10 | 124 | 15 | 9,779 | 12 | 969 | 139 | 1,108 | 10,980 | 2.81 |
| PMTR-61c | RI | VSD & EEM | 956 | 148 | 80 | 0 | 2,736 | 200 | 20 | 52 | 15 | 3,978 | 4 | 394 | 44 | 438 | 2,066 | 1.53 |
| Totals: | EEM | | 7,844 | 873 | 710 | 0 | 0 | 0 | 0 | 0 | | 5,165 | 51 | 423 | 528 | 951 | 5,324 | 1.66 |
| | VSD & EEM | | 13,805 | 1,528 | 1,190 | 0 | 37,660 | 4,500 | 160 | 1,371 | | 105,985 | 77 | 10,074 | 862 | 10,936 | 113,102 | 3.05 |

## 2.10 FEDS Air Conditioner/Chiller EROs

Air conditioning/chiller EROs are analyzed by the Level-2 software. Energy and demand savings are based on the difference in coefficient of performance (COP) between new, high-efficiency replacement equipment and the existing equipment. Additional savings can result from the interactive effects of other EROs reducing the overall cooling load, which in turn results in a smaller replacement unit.

The following possible retrofits are considered by the Level-2 software:

- Package Units - replace with newer more efficient unit. There are two categories of package units: single zone (1.5 to 20 tons) and multi-zone (20 to 150 tons).

- Single Building Electric Chiller - replace with newer more efficient unit. There are four categories of electric chillers: large (75 to 200 tons) and small (20 to 75 tons) reciprocating, and large (500 to 1,200 tons) and small (200 to 500 tons) centrifugal.

- District Chilled Water - switch from district chilled water to single building electric chiller. FEDS is currently only implemented for buildings. Hence the only retrofit of district cooling systems is conversion to a building-level centralized system.

The FEDS software will also model existing heat pumps, window/room air conditioners, and evaporative coolers, but the current version of Level-2 does not analyze retrofit options for any of these A/C types.

### 2.10.1 Replace Existing A/C with High-Efficiency A/C

**Description**

Almost every building at Fort Irwin has some type of air conditioning equipment; however, much of this equipment is evaporative coolers, and is therefore not applicable for any Level-2 EROs. Energy and demand savings can be realized by replacing the existing conventional air conditioning equipment with new high-efficiency equipment. In addition, new environmental regulations call for the elimination of CFC refrigerants in the future. New equipment is available with non-CFC refrigerants to meet these regulations with efficiencies comparable to the best CFC-based models.

**Assumptions**

Technical assumptions are as follows:

- A/C equipment type and size was allowed to default based on Level-2 assumptions. These defaults were then modified with available data gathered from on-site inspections and/or the Real Property List.

- Existing units have efficiencies based on equipment type and age from a survey of manufacturers data over the last 20 years.

- New unit efficiencies are as follows:

| Equipment Type | Description | COP |
|---|---|---|
| 1 | Small Centrifugal (200-500 ton) | 5.86 |
| 2 | Large Centrifugal (500-1200 ton) | 5.17 |
| 3 | Small Reciprocating (20-75 ton) | 2.85 |
| 4 | Large Reciprocating (75-200 ton) | 3.63 |
| 6 | Small Package (1.5-20 ton) | 2.45 |
| 7 | Large Package (20-150 ton) | 2.63 |

- Existing and retrofit equipment size, energy use and demand are calculated based on building load calculations performed by the FEDS software.

- Packaged units have an expected equipment life of 12 years; chillers have an expected equipment life of 20 years.

Costs to implement the ERO are as follows:

- First cost of replacing equipment, including material and installation, is given in terms of capacity (in MBtu) as shown in the following table.

| Equipment Type | First Cost Equation |
|---|---|
| 1 | $52404.9*(Cap.)^{0.673846}$ |
| 2 | $52404.9*(Cap.)^{0.673846}$ |
| 3 | $13130.72e^{1.469094*(Cap.)}$ |
| 4 | 2346.001+49563.57*(Cap.) |
| 6 | 272.6239+68357.43*(Cap.) |
| 7 | $92082.77*(Cap.)^{0.514841}$ |

**Results**

Qualitative results of the ERO analysis appear in Table 2.25. The table contains specific energy, cost, and economic data for each piece of A/C equipment considered for replacement.

## Table 2.25. FEDS Air Conditioning EROs

| Building Set | Existing Technology | Retrofit Technology | Retro Number | Exist Eff., COP or Lamp Wattage | Retro. Eff., COP or Lamp Wattage | Existing Fuel | Retrofit Fuel | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Present Value of Installed Cost (1994$) | Value of Energy & Demand Savings (1994$) | Annualized Energy & Demand Savings (1994$) | Net Present Value (1994$) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ADMINISTRATION-07 | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons) | 3 | 2.55 | 3.63 | Elec. | Elec. | 257 | 19 | 71,588 | 95,029 | 9,604 | 23,441 | 1.3 |
| CLINIC-01 | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons) | 1 | 2.65 | 3.63 | Elec. | Elec. | 63 | 18 | 27,057 | 35,674 | 3,180 | 8,617 | 1.3 |
| GUEST HOUSES-02 | Electric Package Unit | Split System Residential AC Unit (1.5 to 5.4167 tons) | 10 | 2.21 | 2.78 | Elec. | Elec. | 93 | 19 | 3,197 | 3,590 | 3,702 | 394 | 1.1 |
| HOSPITAL | Electric Conv Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons) | 1 | 2.97 | 5.86 | Elec. | Elec. | 373 | 62 | 41,206 | 116,316 | 13,705 | 75,110 | 2.8 |
| MWR-02 | Electric Air Cool Heat Pump | Air to Air Heat Pump w/ Supplementary Elec. Heat Coil | 16 | 2.08 | 2.64 | Elec. | Elec. | 123 | 26 | 22,852 | 23,786 | 5,209 | 934 | 1.0 |
| TOTALS | | | 31 | | | | | 909 | 144 | 165,900 | 274,395 | 35,400 | 108,496 | 1.7 |

## 2.11 Central Chiller Plant EROs

This section presents three EROs related to the central chillers located in Buildings 253, 263 and 273. These chillers serve small distribution loops connected to barracks, a dining facility, and several office buildings. Chilled water is supplied 24 hours/day, year-round. The first two EROs consider the possible connection of the chilled water loops served by Buildings 253 and 263. The remainder of this introduction is related to these two options. The last ERO deals with chilled water and condenser water temperature reset based on outside air temperature for all three central chillers.

According to site personnel, the chillers in Buildings 253 and 263 are oversized for the load. In Building 253, there are two 250-ton chillers (both R-11), one of which can usually more than handle the entire load. In Building 263, there is a 350-ton chiller that has broken down due to operating at extremely low loads. This chiller was originally rated for 550 tons, but was recently converted to R-134a, which resulted in a 200-ton loss of capacity. The Fort has been considering connecting the two distribution loops to better make use of the available capacity and combination of chiller sizes.

In 1985, a study was conducted to determine the feasibility of adding thermal energy storage (TES) to the chillers at Building 253. At that time, the Building 263 chilled water loop had not yet been constructed. The study concluded that TES was too expensive based on a simple payback of 18.8 years for a two-tank chilled water system, or 13 years for a eutectic salt ice storage system. Changes in the electric rate structure, improvements in TES technology, and the combined load from both chilled water loops may now make TES a more attractive option.

Two ERO options are considered here: connecting the two chilled water loops and adding a 100-ton chiller to meet low loads, or connecting the two loops and adding TES. Both of these options will result in lower energy and demand charges, and increased equipment life due to better operating conditions. Please note that all of the following tables and calculations were based on average monthly profiles; each month is represented by a single daily profile. In this context, the percentages are more important than the number of hours in each block.

Assumptions common to both EROs:

- Existing chiller load, based on outdoor temperature, was estimated for the Building 253 loop from information in the 1985 TES study (DMJM Energy Systems 1985) and conversations with Fort personnel. Data were interpolated for each hour from the estimated values in the following table. This load was prorated by square footage to apply to the Building 263 loop.

| Outdoor Temperature | Chiller Tonnage Required |
|---|---|
| 110 | 350 |
| 100 | 300 |
| 90 | 250 |
| 80 | 185 |
| 70 | 120 |
| <60 | 50 |

- Outdoor temperatures were found in the China Lake TMY weather tape. A 24-hr average temperature profile was generated for each month. Daily average chiller loads were estimated from the weather data and assumed load above. The following table details the load range, number of hours in each range (12 mo*24 hr = 288 total hours), and percentage of time in each range.

| | Bldg. 253 | | Bldg. 263 | |
|---|---|---|---|---|
| Load Range (tons) | No. of Hours | Percent of Hours | No. of Hours | Percent of Hours |
| 0-49 | 0 | NA | 134 | 47% |
| 50-74 | 131 | 45% | 34 | 12% |
| 75-99 | 25 | 9% | 26 | 9% |
| 100-124 | 18 | 6% | 28 | 10% |
| 125-149 | 18 | 6% | 20 | 7% |
| 150-174 | 21 | 7% | 23 | 8% |
| 175-199 | 13 | 5% | 19 | 7% |
| 200-224 | 13 | 5% | 4 | 1% |
| 225-249 | 16 | 6% | 0 | NA |
| 250-274 | 12 | 4% | 0 | NA |
| 275-299 | 15 | 5% | 0 | NA |
| 300-324 | 6 | 2% | 0 | NA |

- Chiller efficiency was assumed to be a function of percent of full load capacity as follows:

| Percent of Full Load | Efficiency (kW/ton) |
|---|---|
| 10 | 1.5 |
| 20 | 1.0 |
| 30 | 0.9 |
| 40 | 0.8 |
| 50-70 | 0.75 |
| 80-100 | 0.7 |

- The chilled water loop connection between the two plants is estimated to cost $80,000 if the Corps of Engineers does the work. This estimate was provided by the Fort energy manager.

The new chiller option and the TES option are mutually exclusive, that is, only one of the two EROs can be implemented. Based on the assumptions and analysis presented in this section, the TES option is the most cost-effective option. However, full analyses are shown for both options since both have a positive NPV and other (non-economic) factors may make the new chiller option more feasible.

## 2.11.1 Chilled Water Loop Connection and New Chiller

### Description

Both chilled water loops operate year-round, with a variable load depending on outdoor conditions. As shown above, approximately 45% of the time the chillers are severely underloaded, resulting in poor equipment operation and inefficiency. In general, chillers operate most efficiently at or near their rated capacity. Based on information from the 1985 TES study (DMJM Energy Systems 1985), it is estimated that a 100-ton chiller could handle the entire load from both loops for much of the winter season. If the load exceeds this chiller's capacity, other chillers could be brought on-line as needed to meet the load. This would allow the chillers to be run fully loaded to optimize efficiency. During the summer, the larger chillers could be base-loaded to within 100 tons of the load, and the 100-ton unit could be used to meet the remaining demand. This is a common operating strategy where multiple, increasing capacity chillers are available.

Controlling the chillers to obtain the most economical operation at each load condition could be done in a number of ways. The simplest system involves manually turning the chillers on and off in response to chilled water supply and return temperatures and outdoor air temperature. This requires monitoring at both chiller plants to ensure that the appropriate chillers are active to meet the load. More complex systems may involve electronic control systems that can either monitor and control the chillers from a remote location, or automatically regulate chiller operation to meet the load based on chilled water and outdoor air temperatures.

### Assumptions

In addition to the common assumptions listed above, the technical assumptions are as follows:

- The combined hours at each load are shown in the following table. The majority of the time the chillers are operating at minimal load due to low outdoor temperatures. Most of the hours in the 75-99 ton block are actually 82 tons: 50 tons from the Building 253 loop and 32 tons from the Building 263 loop.

| Load Range (tons) | No. of Hours | Percent of Hours |
|---|---|---|
| 75-99 | 123 | 42.7% |
| 100-124 | 11 | 3.8% |
| 125-149 | 16 | 5.6% |
| 150-174 | 8 | 2.8% |
| 175-199 | 15 | 5.2% |
| 200-224 | 12 | 4.2% |
| 225-249 | 9 | 3.1% |
| 250-274 | 12 | 4.2% |
| 275-299 | 9 | 3.1% |
| 300-324 | 10 | 3.5% |
| 325-349 | 7 | 2.4% |
| 350-374 | 10 | 3.5% |
| 375-399 | 10 | 3.5% |
| 400-424 | 5 | 1.7% |
| 425-449 | 10 | 3.5% |
| 450-474 | 11 | 3.8% |
| 475-499 | 5 | 1.7% |
| 500-524 | 5 | 1.7% |

- The number of hours at each active chiller capacity is shown in the following table. Chillers besides the new 100-ton unit are assumed to be loaded to within 20 tons of their full capacity before another chiller is brought on-line. The new 100-ton unit is assumed to be loaded up to its full-rated capacity before another chiller is started.

| Active Capacity (tons) | No. of Hours | Percent of Hours |
|---|---|---|
| 100 | 125 | 43.4% |
| 250 | 61 | 21.2% |
| 350 (100 + 250) | 40 | 13.9% |
| 450 (100 + 350) | 33 | 11.4% |
| 500 (2 x 250) | 22 | 7.6% |
| 600 (2 x 250 + 100) | 7 | 2.4% |

- Annual savings are calculated from the average daily profiles for each month. The chiller efficiency for each hour is found depending on the load as described above. The efficiency in kW/ton is multiplied by the required tonnage to find the electric demand (kW) at each hour. This is multiplied by an average 30 days/month and summed over the year to calculate the electric energy (kWh).

In addition to the common assumptions listed above, the cost assumptions are as follows:

- The new 100-ton chiller is estimated to cost $73,700, including cooling tower, pumps, and installation.

- No costs were included for a control system. It is assumed that the chillers would be controlled manually. If an electronic system is considered, it should be viewed in conjunction with any plans for a basewide EMCS or SCADA system in mind.

**Results**

The complete quantitative results of this ERO appear in Table 2.26. The table contains specific energy, cost, and economic performance data. Although this ERO has a positive NPV, it is eliminated from further consideration by the TES option discussed below.

**Budget Implications.** The initial cost of this ERO is $153,700 for all cost-effective implementations.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in electric energy savings of 324,609 kWh at a value of $19,240, and electric demand savings of 401 kW-months at a value of $3,165.

**Operations and Maintenance.** An additional $750 per year (approximately 1% of chiller first cost) is assumed for the new chiller to cover normal operating maintenance.

## 2.11.2 Chilled Water Loop Connection and Thermal Energy Storage

### Description

Fort Irwin's electric utility, Southern California Edison (SCE), is summer-peaking, due mostly to the growth of installed electrically driven air conditioning. Accordingly, SCE charges more for both energy and demand during its on-peak period—the period when the majority of the air conditioning takes place. Thermal energy storage (TES) can be used to avoid these high on-peak energy and demand rates by making and storing ice or chilled-water off-peak for use during the on-peak period. In addition, TES can be used to remove the "load following" characteristics of the chillers, i.e. the chillers can be run at a constant full load instead of varying with the instantaneous load conditions. This will both save energy and extend the life of the chillers. It has been suggested that continuous steady operation of a chiller (or any other electric appliance) can possibly double the equipment life.

There are two principal techniques for TES, ice storage and chilled-water storage. Each method has its advantages and disadvantages depending on the size of the load, space available, chilling equipment, etc. For this analysis, chilled-water storage is considered since the chillers are already in place and there is plenty of room for the larger storage tank required for chilled water. The current chilled-water storage design favors stratified storage that stores warm, secondary return water and cooled, chiller discharge water in the same tank. Chilled-water storage systems normally charge with output chilled-water from standard chillers operating at normal air-conditioning temperatures. Detailed information regarding the design and operation of stratified chilled-water storage can be found in (EPRI 1988).

As discussed above, there are already plans to connect the two chilled water loops. By adding TES to the combined system, the existing chillers can be operated in an optimized manner. Chillers are operated fully loaded during the off-peak periods to meet the instantaneous load as well as charge the storage. During the on-peak period, the chillers are shut down and the storage discharged to provide the required cooling energy. This frees the chillers from operation at part loads where efficiency is reduced, as well as operation during the more expensive on-peak period. One myth about TES is that even though demand charges will be reduced, energy consumption will increase. This is not always the case. The efficiency improvement due to full-load operation can lead to significant energy savings.

The full capacity of the TES system is only required during the warmest part of the year. During this time, the chillers are operating eighteen hours a day to charge the storage tank to provide the six hours of on-peak cooling. The rest of the year, the full capacity of the storage tank is not required during the on-peak period, but the system can still be used for storage. As the required storage decreases, the time when the storage is discharging can be increased. For example, in December, one chiller may be required to run (fully loaded) for only six hours to provide chilled water for the rest of the day. By careful observation and planning the system can be optimized to get the full benefit from the TES all year.

### Assumptions

In addition to the common assumptions listed above, the technical assumptions are as follows:

- No increase in efficiency is assumed for operation during the cooler, night-time off-peak period. Greater efficiency improvements due to full-load operation will overshadow any savings due to lower condenser water temperatures.

- The combined hours at each load are shown in the following table. The majority of the time the chillers are operating at minimal load due to low outdoor temperatures. Most of the hours in the 75-99 ton block are actually 82 tons: 50 tons from the Building 253 loop, and 32 tons from the Building 263 loop.

| Load Range (tons) | No. of Hours | Percent of Hours |
|---|---|---|
| 75-99 | 123 | 42.7% |
| 100-124 | 11 | 3.8% |
| 125-149 | 16 | 5.6% |
| 150-174 | 8 | 2.8% |
| 175-199 | 15 | 5.2% |
| 200-224 | 12 | 4.2% |
| 225-249 | 9 | 3.1% |
| 250-274 | 12 | 4.2% |
| 275-299 | 9 | 3.1% |
| 300-324 | 10 | 3.5% |
| 325-349 | 7 | 2.4% |
| 350-374 | 10 | 3.5% |
| 375-399 | 10 | 3.5% |
| 400-424 | 5 | 1.7% |
| 425-449 | 10 | 3.5% |
| 450-474 | 11 | 3.8% |
| 475-499 | 5 | 1.7% |
| 500-524 | 5 | 1.7% |

- The number of hours at each active chiller capacity is shown in the following table. Chillers are fully loaded at all times, either meeting the instantaneous load, charging the storage, or both. Over 53% of the time the chillers are off, and the TES is meeting the load, in comparison to the existing situation where at least two chillers are operating at all times.

| Chiller Tonnage | Number of Hours | Percent of Hours |
|---|---|---|
| Off | 155 | 53.8% |
| 250 | 7 | 2.4% |
| 350 | 57 | 19.8% |
| 500 (2x250) | 28 | 9.7% |
| 600 (250 + 350) | 41 | 14.2% |

- The following table illustrates the basis for the savings calculations for the peak month (July). The second column is the chilled water tonnage required each hour. The third column is the active chiller tonnage—the tonnage of chilled water being produced each hour. The fourth column is the difference between the active capacity and the required tonnage, or the tons stored. The last column is the cumulative amount stored. It may be easier to visualize if the day is assumed to start at 1800 hours (the end of the on-peak period). For each hour after 1800, an amount of cooling is added to the storage until 1200 hours (the start of the on-peak period). At this time, the chillers are cut-off and the storage provides the cooling. For this month, the required storage is the sum of the tons required during the on-peak period, 3,541 ton-hrs.

| Hour of the Day | Tons Required | Active Capacity | Tons Stored each Hour | Cumulative Storage |
|---|---|---|---|---|
| 0 | 330 | 600 | 270 | 1,330 |
| 1 | 311 | 600 | 289 | 1,619 |
| 2 | 283 | 600 | 317 | 1,936 |
| 3 | 273 | 600 | 327 | 2,263 |
| 4 | 259 | 600 | 341 | 2,604 |
| 5 | 266 | 600 | 334 | 2,938 |
| 6 | 305 | 600 | 295 | 3,233 |
| 7 | 352 | 600 | 248 | 3,381 |
| 8 | 397 | 500 | 103 | 3,484 |
| 9 | 437 | 500 | 63 | 3,548 |
| 10 | 461 | 500 | 0 | 0 |
| 11 | 481 | 500 | 0 | 0 |
| 12 | 499 | 0 | -499 | 0 |
| 13 | 512 | 0 | -512 | 0 |
| 14 | 518 | 0 | -518 | 0 |
| 15 | 522 | 0 | -522 | 0 |
| 16 | 512 | 0 | -512 | 0 |
| 17 | 496 | 0 | -496 | 0 |
| 18 | 466 | 600 | 134 | 134 |
| 19 | 441 | 600 | 159 | 159 |
| 20 | 408 | 600 | 192 | 352 |
| 21 | 387 | 600 | 213 | 565 |
| 22 | 365 | 600 | 235 | 800 |
| 23 | 340 | 600 | 260 | 1,060 |

In other months, it may be better to try to meet the entire load during a shorter time period. The following table shows the same type of information for January, where the entire daily load is met in the first six hours of the day, which happens to be the super-off-peak period, with the lowest electric rates during the winter season.

| Hour of the Day | Tons Required | Active Capacity | Tons Stored each Hour | Cumulative Storage |
|---|---|---|---|---|
| 0 | 82 | 350 | 268 | 268 |
| 1 | 82 | 350 | 268 | 535 |
| 2 | 82 | 350 | 268 | 803 |
| 3 | 82 | 350 | 268 | 1,070 |
| 4 | 82 | 350 | 268 | 1,338 |
| 5 | 82 | 250 | 168 | 1,505 |
| 6 | 82 | 0 | 0 | 0 |
| 7 | 82 | 0 | 0 | 0 |
| 8 | 82 | 0 | 0 | 0 |
| 9 | 82 | 0 | 0 | 0 |
| 10 | 82 | 0 | 0 | 0 |
| 11 | 82 | 0 | 0 | 0 |
| 12 | 82 | 0 | 0 | 0 |
| 13 | 82 | 0 | 0 | 0 |
| 14 | 82 | 0 | 0 | 0 |
| 15 | 82 | 0 | 0 | 0 |
| 16 | 82 | 0 | 0 | 0 |
| 17 | 82 | 0 | 0 | 0 |
| 18 | 82 | 0 | 0 | 0 |
| 19 | 82 | 0 | 0 | 0 |
| 20 | 82 | 0 | 0 | 0 |
| 21 | 82 | 0 | 0 | 0 |
| 22 | 82 | 0 | 0 | 0 |
| 23 | 82 | 0 | 0 | 0 |

Using a spreadsheet, the active capacity was modified hourly to just meet the required monthly storage during the off-peak period and still allow each chiller to run as close to full load as possible. It is recommended that the chilled water use be metered to determine actual usage patterns before designing any TES system for these two chilled water loops.

- The peak storage required occurs in July, when 3,541 ton-hrs are required during the on-peak period. Normally, TES is sized to meet the load on the peak day. Since this is an monthly average, the actual storage required was assumed to be 4,000 ton-hrs. Assuming that 90% of the storage tank can be used effectively for TES, a 365,000-gallon tank is required.

- The storage tank is assumed to be partially buried, pre-stressed concrete approximately 20 ft deep and 56 ft in diameter. It is assumed that there is room for the storage tank somewhere between the two chiller plants near the proposed chilled water loop cross-tie line.

- It is assumed that the TES will not result in any significant increase in pumping energy. If the system is designed properly, a minimum of controls are required.

In addition to the common assumptions listed above, the cost assumptions are as follows:

- The concrete tank will cost approximately $300,000. Excavation and backfill are assumed to cost $12,000. Design of the system, including the diffuser inside the tank, are assumed to cost approximately $20,000. An additional $20,000 is estimated for miscellaneous piping, valves, etc., to connect the TES to the chilled water system.

- The electric utility (SCE) provides rebates as an incentive for the installation of TES systems. This rebate is $200/kW of peak load shifted. For this ERO, approximately 390 kW will be shifted off-peak, for a total rebate of $78,000.

- An additional $1,500/yr is assumed for operations and maintenance of the TES system.

**Results**

The complete quantitative results of this ERO appear in Table 2.26. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial cost of this ERO is $432,000 for all cost-effective implementations. As discussed above, there is a $78,000 rebate available from SCE for the installation of the TES system.

**Energy and Cost Savings.** It is estimated that implementation of this ERO will result in electric energy savings of 322,122 kWh at a value of $43,446, and electric demand savings of 2,110 kW-months at a value of $30,478.

**Operations and Maintenance.** An additional $1,500 per year is assumed for the TES system to cover normal operating maintenance.

### 2.11.3 Chiller Water Temperature Reset ERO

**Description**

Large water-cooled chillers are typically selected for 45°F leaving-chilled-water temperature and 95°F leaving-condenser-water temperature. Anything that can be done to raise the chilled water temperature and lower the condenser water temperature is going to save energy. It has been shown that for every degree of temperature change, there is a 1.5% change in chiller efficiency (Competitek 1991).

The easiest way to raise the chilled water temperature is manually, by trial and error. Most systems can operate effectively at 2-4°F higher temperature with no noticeable impact on cooling performance. If this is the case, the setpoint should be increased further, until the temperature is just low enough to meet the load. Of course, this temperature will vary by season, and it may be necessary to return to the 45°F setpoint during the hottest days of the year. There are two possible problems that may arise from this action: inadequate capacity, and loss of humidity control. Inadequate capacity is usually a function of the air handling system. Using the trial and error approach, the system with the most marginal capacity can be found, and the temperature setpoint adjusted to just meet that system. Loss of humidity control in a area like Fort Irwin should not be of concern, since this is usually associated with the dehumidifying ability of the coil.

The easiest way to lower condenser water temperature is to run the cooling tower more. Before this step is undertaken, a thorough examination of the cooling tower is in order, to determine the energy trade-offs between operating the chiller versus operating the cooling tower. There are three factors to consider: 1) type of cooling tower, 2) local climate conditions, and 3) operating hours. The type of cooling tower is important since it determines the tower fan energy. A forced draft tower uses about three times as much fan energy as an induced draft tower; therefore an induced draft tower makes temperature reset more viable. In a very humid local climate, the cooling tower has to work harder to provide the same amount of cooling as it does in a dry area. Again, the climate of Fort Irwin makes this option more attractive. The last item to consider is operating hours, which have an effect on both chiller and cooling tower efficiency.

**Assumptions**

The technical assumptions are as follows:

- The three chiller plants (Bldgs. 253, 263, and 273) represent the majority of the water-cooled chillers on the Fort and are therefore the only chillers considered for this ERO. The tonnage of these chillers was found during site visits and from the Real Property List and is assumed correct.

- The existing cooling energy was derived from the cooling EUIs developed in Volume 2 of this report. The EUI was multiplied by the total square footage served by each chiller to calculate the annual energy consumption.

- The chillers are assumed to operate at 0.75 kW/ton, an average standard efficiency for water-cooled chillers.

- Chilled water temperature is assumed to be raised by 5°F and condenser water temperature is assumed to be lowered by 5°F, resulting in a 15% increase in efficiency. Actual temperature resets will be a function of the individual chiller, cooling tower, and air handling systems and may require some trial and error testing before the optimum setpoints are found.

The cost assumptions are as follows:

- It should be relatively easy to adjust these temperature setpoints in most cases. For this ERO an initial labor charge of $30, and an annual $30 maintenance increase is assumed. These charges should cover the initial temperature reset and any necessary modifications over the course of the year to match the seasonal weather variations.

**Results**

The complete quantitative results of this ERO appear in Table 2.27. The table contains specific energy, cost, and economic performance data. Analysis of this ERO was carried out independently of the new chiller and TES EROs discussed above. Any savings estimated here are for existing chiller operating conditions.

**Budget Implications.** The initial cost of this ERO is $90 for all cost-effective implementations.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in electric energy savings of 273,806 kWh/yr at an annualized value of $18,938, and electric demand savings of 1,129 kW-months at a value of $12,387.

**Operations and Maintenance.** An additional $30 per year is assumed for each chiller to cover any necessary modifications to the temperature setpoints during the year.

**Table 2.26.** Central Chiller Plant EROs

Central Chiller Plant Operating Parameters

| ID | Equipment | Number of Units | Rating (Ton) | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Winter | | Summer | | Winter |
| | | | | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Existing Chillers | 3 | 2x250, 1x350 | 210,164 | 217,510 | 369,499 | 336,394 | 452,314 | 1,444 | 1,313 | 1,452 |
| 2 | Existing Chillers | 3 | 2x250, 1x350 | 210,164 | 217,510 | 369,499 | 336,394 | 452,314 | 1,444 | 1,313 | 1,452 |

Central Chiller Plant ERO Operating Parameters

| ID | Description of Replacement | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Summer | | | Winter | | Summer | | Winter |
| | | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Connect B/253 & B/263, Add 100 ton chiller | 194,749 | 196,476 | 324,433 | 248,391 | 293,556 | 1,347 | 1,191 | 1,130 |
| 2 | Connect B/253 & B/263, Add TES | 0 | 274,500 | 459,300 | 37,500 | 490,500 | 0 | 1,610 | 350 |

Central Chiller Plant Economic Parameters

| ID | First Cost (1994 $) | Addn'l Maint. Cost (1994 $) | Utility Rebate (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | 153,700 | 750 | 0 | 25 | 324,609 | 401 | 19,240 | 3,165 | 22,405 | 219,207 | 2.43 |
| 2 | 432,000 | 1,500 | 78,000 | 25 | 322,122 | 2,110 | 43,446 | 30,478 | 73,924 | 893,186 | 3.52 |

## Table 2.27. Chilled and Condenser Water Temperature Reset EROs

### Existing Chiller Operating Parameters

| | Equipment Description | | | Operating Schedule | | | | | | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Summer | | | Winter | | | Summer | | | Winter | | Summer | | Winter |
| ID | Facility Number | Equipment | kW/ton | On Peak Hours | Mid Peak Hours | Off Peak Hours | Mid Peak Hours | Off Peak Hours | No. of Months On Peak | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Bldg. 253 | 2-250 ton chillers | 0.75 | 282 | 404 | 627 | 284 | 144 | 6 | 105,872 | 151,506 | 235,067 | 106,480 | 54,153 | 1,500 | 750 | 750 |
| 2 | Bldg. 263 | 554 ton chiller | 0.75 | 227 | 324 | 503 | 228 | 116 | 6 | 94,212 | 134,820 | 209,179 | 94,753 | 48,189 | 1,662 | 831 | 831 |
| 3 | Bldg. 273 | 200 ton chiller | 0.75 | 639 | 914 | 1,419 | 643 | 327 | 6 | 95,832 | 137,138 | 212,775 | 96,382 | 49,017 | 600 | 300 | 300 |

### Chilled Water and Condenser Water Reset ERO Parameters

| | | | Operating Schedule | | | | | | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Summer | | | Winter | | | Summer | | | Winter | | Summer | | Winter |
| ID | ERO Description | kW/ton | On Peak Hours | Mid Peak Hours | Off Peak Hours | Mid Peak Hours | Off Peak Hours | No. of Months On Peak | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | 5 Degree Reset | 0.6375 | 282 | 404 | 627 | 284 | 144 | 6 | 89,991 | 128,780 | 199,807 | 90,508 | 46,030 | 1,275 | 638 | 638 |
| 2 | 5 Degree Reset | 0.6375 | 227 | 324 | 503 | 228 | 116 | 6 | 80,080 | 114,597 | 177,802 | 80,540 | 40,960 | 1,413 | 706 | 706 |
| 3 | 5 Degree Reset | 0.6375 | 639 | 914 | 1,419 | 643 | 327 | 6 | 81,457 | 116,567 | 180,859 | 81,925 | 41,665 | 510 | 255 | 255 |

### Chiller Reset Economic Parameters

| | Installation Labor Cost | Annual O&M | ERO Life | First Year Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings | Demand Savings | Energy Savings | Demand Savings | Total Savings | NPV | |
| ID | (1994 $) | (1994 $) | (Years) | (kWh) | (kW-mo) | (1994 $) | (1994 $) | (1994 $) | (1994 $) | SIR |
| 1 | 30 | 30 | 25 | 97,962 | 450 | 6,775 | 4,939 | 11,714 | 201,183 | 6,707.11 |
| 2 | 30 | 30 | 25 | 87,173 | 499 | 6,029 | 5,472 | 11,502 | 197,519 | 6,584.96 |
| 3 | 30 | 30 | 25 | 88,672 | 180 | 6,133 | 1,976 | 8,108 | 139,087 | 4,637.24 |
| Totals: | | | | | | | | | | |
| | 90 | 90 | | 273,806 | 1,129 | 18,938 | 12,387 | 31,324 | 537,789 | 5,975.43 |

## 2.12 Domestic Refrigeration EROs

### Description

New appliance standards that went into effect on January 1, 1990, eliminated the most inefficient refrigerator models from the market (Turiel 1990). New standards that took effect on January 1, 1993, made the least efficient 1993 models 26–28% more efficient than the average 1989 model. With the 1993 standard in effect, the incremental costs of design features needed to meet the standard are expected to increase the price of mass-produced units by 12.5%. It is reasonable to expect that replacement of all units with those that meet the 1993 standard will be economically attractive. This ERO was analyzed as a "replace immediately" option only, since there will be no choice but to replace units that fail with units meeting the new standard.

This ERO involves 1,897 full-sized units in family housing and 433 units in commercial building breakrooms, including barracks at Fort Irwin.

### Assumptions

The following technical data and assumptions pertain to the ERO evaluation:

- Non-energy operations and maintenance (O&M) costs are the same for the retrofit models as for the current models. Refrigerator O&M includes replacement if the refrigeration system fails and repair of shelves and cleaning of coils, drip pans, and finished surfaces.

- Each family housing unit contains one full-size refrigerator with a DOE energy rating of 1,000 kWh/yr; actual consumption is 1,296 kWh/yr, and the peak factor (percent of refrigerators affecting peak load) is 0.90.

- Existing units are assumed to be 27% less efficient than the replacement units. A 17-cubic foot model was chosen from the GSA "catalog" as a replacement. Energy consumption for this model is 946 kWh/yr.

### Results

The complete quantitative results of this ERO appear in Table 2.28. The table contains specific energy, cost and economic performance data. This ERO has no positive NPV options.

## Table 2.28. Refrigeration EROs

### Existing Refrigerator Operating Parameters

| ID | Application | Size (cu.ft.) | # of units | Peak Factor | Average Load (kW/unit | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Summer | | | Winter | | Summer | | Winter |
| | | | | | | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Comm. Bldg Breakrms | 17 | 433 | 0.9 | 0.249 | 56,491 | 84,899 | 174,875 | 243,464 | 386,475 | 433 | 227 | 1,113 |
| 2 | Family Housing | 17 | 1,897 | 0.9 | 0.249 | 247,563 | 372,055 | 766,357 | 1,066,935 | 1,693,653 | 1,897 | 996 | 4,877 |

### Efficient Refrigerator Operating Parameters

| ID | Application | Size (cu.ft.) | # of units | Peak Factor | Average Load (kW/unit) | Annual Energy Consumption | | | | | Sum Coincident Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Summer | | | Winter | | Summer | | Winter |
| | | | | | | On Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | Mid Peak (kWh/yr) | Off Peak (kWh/yr) | On Peak (kW-mo) | Mid Peak (kW-mo) | Mid Peak (kW-mo) |
| 1 | Comm. Bldg Breakrms | 17 | 433 | 0.9 | 0.182 | 41,235 | 61,971 | 127,648 | 177,714 | 282,103 | 316 | 166 | 812 |
| 2 | Family Housing | 17 | 1,897 | 0.9 | 0.182 | 180,706 | 271,577 | 559,393 | 778,797 | 1,236,262 | 1,385 | 727 | 3,560 |

### Efficient Refrigerator ERO Economics

| ID | Economic Parameters | | First Year Energy & Demand Savings | | | | Life Cycle Cost | | |
|---|---|---|---|---|---|---|---|---|---|
| | First Cost (1994 $) | Life (yr) | Energy (kWh) | Demand (kW-mo) | Energy (1994 $) | Demand (1994 $) | Total (1994 $) | NPV ($) | SIR |
| 1 | 286,928 | 15 | 255,534 | 479 | 5,471 | 1,196 | 6,666 | (35,461) | 0.88 |
| 2 | 1,257,407 | 15 | 1,119,828 | 2,099 | 23,973 | 5,241 | 29,215 | (155,403) | 0.88 |

## 2.13 Modular Building EROs

Most of the new construction at Fort Irwin since the mid-1980s (excluding family housing) has been in the form of modular buildings. These are buildings that are manufactured off-site and brought to the Fort in sections. They are then connected together to form buildings in a manner similar to mobile homes. The modular buildings differ generally only in their furnishings, lighting, orientation, equipment brands and number of modules. The modular buildings are all-electric, and the energy use is thought to be particularly inefficient in these buildings.

From 21 December 1989 to 27 January 1992, two of the modular buildings (Bldgs. 567 and 571) were extensively monitored by PNL as part of a separate study sponsored by FORSCOM. The purpose of this test was to monitor electrical demands by end use and to monitor the response of the HVAC systems to internal and external loads. Several EROs that were evaluated as a result of this study are included here for formal LCC analysis. Additional detail on the end-use metering on these two buildings can be found in Armstrong and Keller (1994).

Since the metering provided unusually accurate estimates of the existing energy use for the modular buildings, it was decided to group all of the EROs pertaining to the modular buildings together so that common assumptions regarding energy consumption would be used. This may result in some reproduction as several of these EROs are analyzed elsewhere in this report for other building types. There are nine EROs analyzed below. The first five are identical to those analyzed as part of the metering.

Another group of EROs for modular buildings will be analyzed by the Level-2 software, and are included with the Level-2 results. These EROs include wall and ceiling insulation, DHW, lighting, and heat pump replacement.

Keep in mind that the results below are for individual EROs only; there has been no attempt to include any interactive effects between the EROs. In addition, the first four EROs all consider energy savings from adding controls. In each case, the full cost of the control system is included. If several of these EROs were implemented, costs would be reduced as some parts of the necessary controls systems may be used for several EROs.

It is recommended that any new modular buildings be specified with the energy saving controls, equipment, and envelope construction described below. Most of these measures could be applied either during module construction, or during building set-up to make the new buildings as efficient as possible.

Assumptions common to all modular office building EROs:

- There are 47 modular office/admin. buildings considered for these EROs. Additional modular buildings used for other purposes were not included since their existing energy use could not be assumed to be the same as the two metered office-type buildings.

- There are a total of 223,920 $ft^2$ of modular office space. Each module is 720 $ft^2$ (60 ft x 12 ft), for a total of 311 modules.

- The observed EUIs for the two metered buildings were 13.7 kWh/ft$^2$-yr for Building 567 and 10.4 kWh/ft$^2$-yr for Building 571. From these results, an average 12.05 kWh/ft$^2$-yr was assumed for all modular office buildings. This EUI, multiplied by the total modular office area, results in an annual electric energy use of 2,698,236 kWh. This total was split into the various electric rate periods by the ratio of the number of hours in each time period.

- Each module has its own thermostat and 3-ton heat pump.

### 2.13.1 Night and Weekend Setback

**Description**

Primary HVAC energy can be saved by implementing night and weekend setback schedules with an optimal start feature. Additional energy can be saved by including controls to prevent simultaneous heating and cooling.

The modular buildings currently use a separate thermostat to control the heat pump in each module. The large number of thermostats makes implementation of night setback a practical impossibility. An attractive solution is to add a central controller to each building. The controller will enable heating or cooling based on the average temperature sensed by multiple sensors. This will allow the heat pumps to heat or cool but not both. With a central control deadband of 1°C and module thermostat deadbands of 3 to 4°C, there will be ample margin for variation in individual setpoints to satisfy occupants' comfort criteria. At night and on weekends the central control will operate with a lower heating setpoint of 12 to 15°C and will disable cooling entirely. Time to recover from night setback will be estimated by an optimal start algorithm based on average indoor temperature, outdoor temperature, and daytime heating setpoint. This will allow a low night heating setpoint to be used without the penalty of having to initiate recovery on a fixed, early morning (worst-case) schedule.

A lower-cost alternative to the EMCS-type controller described above is a full-featured electronic thermostat wired to enable the heating and cooling modes of the individual module thermostats. Another alternative is to include sufficient inputs with the central control to measure the air temperature at each zone and completely replace the existing thermostats.

**Assumptions**

The technical assumptions are as follows:

- Results predict that elimination of simultaneous heating and cooling will save 4,000 kWh/yr in Bldg. 567 and 2,000 kWh/yr in Bldg. 571. Implementation of night and weekend setback with optimal start should save at least 6,000 kWh/yr in Bldg. 567 and 7,000 kWh/yr in Bldg. 571.

- An average savings of 9,500 kWh/yr and 46.5 kW-mo per building was assumed based on the results.

The cost assumptions are as follows:

- The small commercial building EMCS control market is large and very competitive. A number of manufacturers offer 16-point (e.g., 8 analog in, 8 digital out) units for under $1,500. Four temperature sensors and one outdoor temperature sensor will cost $300 and installation labor and programming will cost $500 per building assuming 10 or more buildings are involved. Wiring to existing thermostats will

cost about $100 and thermostat replacement (if necessary) will cost about $100 each including labor. Maximum total cost is therefore about $3,200 per building. Note that the cost to expand the EMCS controller and add four additional room temperature sensors may be no more than the cost to replace all of the thermostats.

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial installed cost of all cost-effective implementations of this ERO is $150,400.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 441,800 kWh, for a cost savings of $24,835. Annual demand savings are estimated to be 2,186 kW-months, for a cost savings of $6,096.

## 2.13.2 Two-Speed Fan Motor

**Description**

Each heat pump has a supply air fan that operates continuously during occupied hours. A two-speed fan can be operated at two-thirds speed during occupied hours when there is no heating or cooling load. The measure requires replacement of the fan motor and installation of a relay to select high speed only when the heat pump compressor is on.

**Assumptions**

The technical assumptions are as follows:

- The fans in Buildings 567 and 571 use over 5,000 kWh/yr during fan-only operation. This can be reduced by 3,500 kWh/yr by replacing the fan motors with two-speed motors.
- There are 15 fan motors in the two metered buildings, for a total savings of 233 kWh/yr per fan.
- Demand savings will be minimal, since the fans will still be able to run at the high speed, which will most likely occur during the peak periods.

The cost assumption is as follows:

- It is estimated to cost $230 per fan to retrofit the heat pump units with two-speed fan motors.

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

### 2.13.3 Two-Speed Compressor

**Description**

The existing heat pumps have single-speed compressors. A heat pump equipped with a two-speed compressor operates more efficiently at part load by obtaining much closer approach temperatures in the evaporator and condenser heat exchangers and by dissipating less energy in the form of refrigerant loop friction losses. A two-stage expansion valve and two-stage room thermostat controls must also be provided with this retrofit.

**Assumptions**

The technical assumptions are as follows:

- Heat pumps can satisfy the loads 90% of the time at 60% of current capacity. Energy use under these conditions will be reduced by 25% in heating mode and 30% in cooling mode. This is estimated to reduce annual HVAC energy in the two metered buildings by 16,000 kWh and HVAC demand by 68.4 kW-mo.

- There are 15 heat pump compressors in the two metered buildings, for a total savings of 1,067 kWh/yr and 4.56 kW-mo per compressor.

The cost assumptions are as follows:

- The cost of a two-speed, three-ton compressor is $400; installation labor cost is $150; additional controls will cost about $200, installed, for a total of $750 per heat pump unit.

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial installed cost of all cost-effective implementations of this ERO is $240,507.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 331,733 kWh, for a cost savings of $19,917. Annual demand savings are estimated to be 1,418 kW-months, for a cost savings of $19,435.

### 2.13.4 Economizer Cooling

**Description**

Economizer cooling can be added to the existing system in a number of ways. The simplest system would involve one economizer damper retrofit package per heat pump. However, such a retrofit may not be feasible due to the compact nature of the heat pump units. We therefore consider a system that adds a filtered outdoor air fan unit, an exhaust fan unit, and an EMCS unit and variable-speed motor controller for every four modules. A back-draft damper will be provided at each heat pump supply air outlet and a motorized damper will be installed where the outside air duct branches to each of the four supply air ducts.

The EMCS will monitor the existing thermostat signals as well as exhaust and outside air temperatures and relative humidities and will control the new exhaust and supply air fan speeds and open or close the motorized dampers accordingly.

**Assumptions**

The technical assumptions are as follows:

- Energy and demand savings were calculated from the monitored compressor loads by applying a nominal cooling COP of 2.5 and assuming a supply air flow rate of 1,000 cfm per supply fan. On this basis, economizer cooling will save about 7,140 kWh/yr on workdays and 2,020 kWh/yr on non-workdays in Building 567. Demand savings will be about 35 kW-mo.

- Savings calculated for building 567 are assumed to be representative of all of the modular office buildings.

- It is assumed that economizer cooling will be limited to the winter season (Oct. through May). Therefore the savings were apportioned in the following manner: 7,140 kWh during the winter mid-peak period, and 2,020 kWh during the winter off-peak period. Demand savings all occur during the winter mid-peak period.

The cost assumptions are as follows:

- The costs for the economizer system for Building 567 are as follows: outside air fan (2): $1,700; outside air ductwork, installed: $2,160; motorized dampers (8): $1,600; exhaust fan with backdraft damper and curb, installed (2): $2,140; variable-speed drive, installed (2): $2,376; temperature & RH sensors, installed (3): $375; EMCS unit (2): $3,000; EMCS sensor and actuator interface: $850. The estimated total first cost for the retrofit is $14,200.

- Since the economizer package is applied once for every four modules, the total cost for all 311 modules is assumed to be $7,100 multiplied by 78 (311/4).

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

## 2.13.5 Reflective Roof

**Description**

The existing roof is a black EDPM membrane. White reflective roof coating materials are available to reduce heat gains from absorbed solar radiation.

**Assumptions**

The technical assumptions are as follows:

- Solar energy incident on the two metered buildings amounts to about 2,000,000 kWh per year. About 2% of this, or 40,000 kWh/yr, contributes to the aggregate annual cooling load estimated at 115,000 kWh (thermal) based on a COP of 2.5. White roofs will eliminate at least half of the 40,000 kWh/yr thermal load for an annual--mostly on-peak--electric load savings of 8,000 kWh and 33 kW-mo.

- There are 15 modules in the two metered buildings, for a total savings of 533 kWh/yr and 2.2 kW-mo per module. Savings was estimated to be 3,000 kWh/yr during both the summer on- and mid-peak periods, and 2,000 kWh/yr during the winter mid-peak period. Demand savings are assumed to all occur during the summer on-peak period.

The cost assumptions are as follows:

- The cost of coating the roof is estimated to be $\$1.00/ft^2$; the total cost for each module is therefore \$720. Renewal of the coating at 5-year intervals is assumed.

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

**Budget Implications**. The initial installed cost of all cost-effective implementations of this ERO is \$223,920.

**Energy and Cost Savings**. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 165,867 kWh, for a cost savings of \$16,015. Annual demand savings are estimated to be 684 kW-months, for a cost savings of \$13,111.

### 2.13.6 Double-Pane Windows

**Description**

Modular buildings have single-pane aluminum frame windows. Energy can be saved by replacing these windows with double-pane windows. Replacement window frames should be either vinyl or aluminum with a thermal break.

**Assumptions**

The technical assumptions are as follows:

- Percent of windows on each side of the building was estimated from observations during the site visit.

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the

cooling energy. The weather data used to determine this is from the China Lake TMY weather file.

- Single-pane windows have a U-value of 0.98 (Btu/hr-ft$^2$-F) and U-value for multi-glazed is 0.7 (Btu/hr-ft$^2$-F).

- The conductive heat loss or gain through the window was determined by the equation: $Q = UA\Delta T$. The temperature difference was determined by the average temperature for each month during the heating season from the TMY data for China Lake. The cooling season temperature was the average temperature difference for the entire cooling season, also from China Lake TMY data. It should be noted that this was broken up into each rate schedule (i.e., on, mid, .... peak)

- To determine the operating hours, each day (week day or week-end) was broken into on, mid, off, or super off hours, and then appropriately prorated for the season.

The cost assumptions are as follows:

- Double-pane windows are assumed to be \$9/ft$^2$ for materials and \$8/ft$^2$ for labor taken as an average from several sources (Means: Building Construction Cost Data 1992; The Richardson Rapid System, Process Plant Construction Estimating Standards, Volume 2, 1992; cost estimate from a manufacturer of efficient windows).

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. There are no cost-effective options for this ERO.

## 2.13.7 Shade Screens

**Description**

Shade screens are used to replace existing metal or fabric insect screens attached to the exterior of each window frame. The shade screen is made up of rows of miniature louvers which allow light to penetrate only at certain angles. By reducing the amount of sunlight which enters through the windows, cooling load can be substantially reduced. See the shade screen ERO in the manual envelope ERO section for more details about the design and operation of shade screens.

**Assumptions**

The technical assumptions are as follows:

- Percent of windows on each side of the building was estimated from observations during the site visits.

- All the months during the summer season (June through September) are assumed to contribute to the cooling energy. The weather data used to determine this is from the China Lake TMY weather file.

- The present shading coefficient is assumed to be 1.0 (i.e., no shading) and the proposed shading coefficient is assumed to be 0.3.

- Solar insolation attributing to heat gain through the windows was calculated from solar heat gain factor (Btu/h-ft$^2$) (SHGF) (from ASHRAE Fundamentals 1993, pg. 27.21-.22) assuming Fort Irwin is at 35 degrees latitude. Buildings are assumed to be oriented 45° from north; therefore, the SHGF used are for the NE, SE, NW, and SW faces of the building.

- Solar time, used by ASHRAE Fundamentals, was converted to Pacific Time to account for on, mid, and off peak energy consumption during the summer season.

- Each side of the building was analyzed separately to determine the best economic choices for installation of shade screens.

The cost assumptions are as follows:

- Shade screens is assumed to cost \$5.00/ft$^2$ including labor.

- SCE has a rebate of \$0.30/ft$^2$ of window films or screens. The rebate applies to southwest and southeast facing windows only.

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. Shade screens are cost-effective options on the southeast, southwest and northwest facing windows.

**Budget Implications.** The initial installed cost of all cost-effective implementations of this ERO is \$16,450.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 29,191 kWh, for a cost savings of \$2,907. Annual demand savings are estimated to be 137 kW-months, for a cost savings of \$2,343.

### 2.13.8 Crawl Space Insulation

**Description**

Insulation can be added between the floor joists in the crawl space under each modular building to insulate the floor. The modular buildings are installed anywhere from three to six feet (depending on site elevation) above the ground on raised supports, allowing easy access to install insulation. Plywood skirting is already in place around the exterior of each building, which will protect the insulation. Two insulation levels are analyzed, R-19 and R-30.

**Assumptions**

The technical assumptions are as follows:

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy.

- The existing floor U-value is 0.359 (Btu/hr-ft$^2$-F) assuming no insulation.
- The proposed floor U-value is 0.0499 (Btu/hr-ft$^2$-F) assuming insulation of R-19.
- The proposed floor U-value is 0.0355 (Btu/hr-ft$^2$-F) assuming insulation of R-30.
- The floor is assumed to be wood joists on 16" centers (2' x 8' boards).
- The crawl space is assumed to be vented, therefore, for conductive heat exchange it is treated as an outside wall.

The cost assumptions are as follows:

- R-19: material = \$0.39/ft$^2$, labor = \$0.14/ft$^2$
- R-30: material = \$0.60/ft$^2$, labor = \$0.16/ft$^2$
  (from Means: Building Construction Cost Data 1992)

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data. The most cost-effective insulation choice is R-19.

**Budget Implications.** The initial installed cost of all cost-effective implementations of this ERO is \$124,770.

**Energy and Cost Savings.** It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 293,454 kWh, for a cost savings of \$24,461. Annual demand savings are estimated to be 1,039 kW-mo, for a cost savings of \$14,300.

### 2.13.9 Weatherization

**Description**

Weatherization consists of caulking, weatherstripping and installing/replacing door seals to provide a tight seal to limit or eliminate infiltration. This will result in energy savings and increased occupant comfort.

**Assumptions**

The technical assumptions are as follows:

- The months with an average outdoor air temperature below 65°F were considered to contribute to the heating energy consumption during the winter season. These months are November through March. All the months during the summer season (June through September) are assumed to contribute to the cooling energy.
- Existing air leakage is assumed to be "average," 0.3 cfm/ft$^2$; proposed air leakage values are assumed to be "tight," 0.1 cfm/ft$^2$ (from ASHRAE Fundamentals, 1993, pg. 23.16).

- Heat gain calculations for heat gain or loss is from ASHRAE Fundamentals, 1993, pg. 25.13.

- It was assumed 2 doors per building with dimensions of 3' x 7'. Window dimensions were approximated from site visits.

The cost assumptions are as follows:

- Caulking: material = $0.06/ft, labor = $0.72/ft

- Weatherstripping material = $2.20/ft, labor = $1.92/ft

- Door Strips material = $2.60/ft, labor = $3.84/ft
(from Means: Building Construction Cost Data 1992)

**Results**

The complete quantitative results of this ERO appear in Table 2.29. The table contains specific energy, cost, and economic performance data.

**Budget Implications**. The initial installed cost of all cost-effective implementations of this ERO is $8,967.

**Energy and Cost Savings**. It is estimated that all cost-effective implementations of this ERO will result in an annual energy savings of 363,654 kWh, for a cost savings of $26,363. Annual demand savings are estimated to be 904 kW-months, for a cost savings of $11,800.

## Table 2.29. Modular Office EROs

### Existing Modular Trailer Operating Parameters

| ID | Equipment Description | Number of Units | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Annual Total (kWh/yr) | Summer | | | Winter | | Summer | | Winter |
| | | | | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| MT-1 | Thermostat | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-2 | Fan motor | 311 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-3 | 3 ton heat pump | 311 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-4 | 3 ton heat pump | 78 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-5 | Black EDPM | 311 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-6 | Single pane window | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-7 | Single pane window | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-8 | Single pane window | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-9 | Single pane window | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-10 | Single pane window | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-11a | No Flr Ins. | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-11b | No Flr Ins. | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |
| MT-12 | Poor Weatherstrip | 47 | 2,698,236 | 161,894 | 242,841 | 485,682 | 701,541 | 1,106,277 | 6,105 | 5,728 | 11,062 |

### Modular Trailer ERO Operating Parameters

| ID | Description of Replacement | Number of Units | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Annual Total (kWh/yr) | Summer | | | Winter | | Summer | | Winter |
| | | | | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| MT-1 | Night Setback | 47 | 2,256,436 | 140,744 | 221,691 | 383,833 | 607,541 | 902,626 | 6,105 | 4,635 | 9,969 |
| MT-2 | 2-speed fan motor | 311 | 2,625,669 | 157,540 | 236,310 | 472,620 | 682,674 | 1,076,524 | 6,105 | 5,728 | 11,062 |
| MT-3 | 2-speed compressor | 311 | 2,366,503 | 141,990 | 212,985 | 425,970 | 615,291 | 970,266 | 5,160 | 5,492 | 10,826 |
| MT-4 | Economizer cooling | 78 | 2,267,716 | 161,894 | 242,841 | 485,682 | 365,961 | 1,011,337 | 6,105 | 5,728 | 8,332 |
| MT-5 | Reflective roof | 311 | 2,532,369 | 99,694 | 180,641 | 485,682 | 660,075 | 1,106,277 | 5,421 | 5,728 | 11,062 |
| MT-6 | Double pane windows | 47 | 2,670,103 | 160,334 | 241,281 | 483,768 | 700,245 | 1,084,475 | 6,075 | 5,722 | 11,030 |
| MT-7 | Shade Screens - NE side | 47 | 2,690,722 | 160,422 | 241,484 | 480,998 | 701,541 | 1,106,277 | 6,094 | 5,725 | 11,062 |
| MT-8 | Shade Screens - SE side | 47 | 2,687,451 | 160,280 | 239,093 | 480,260 | 701,541 | 1,106,277 | 6,093 | 5,718 | 11,062 |
| MT-9 | Shade Screens - SW side | 47 | 2,687,344 | 153,497 | 241,114 | 484,915 | 701,541 | 1,106,277 | 6,041 | 5,724 | 11,062 |
| MT-10 | Shade Screens - NW side | 47 | 2,690,722 | 156,231 | 241,757 | 484,916 | 701,541 | 1,106,277 | 6,062 | 5,726 | 11,062 |
| MT-11a | Crawl Space Ins.: R-19 | 47 | 2,404,782 | 70,147 | 130,243 | 448,150 | 689,486 | 1,066,755 | 5,402 | 5,427 | 11,028 |
| MT-11b | Crawl Space Ins.: R-30 | 47 | 2,391,110 | 65,873 | 124,997 | 446,401 | 688,925 | 1,064,914 | 5,369 | 5,413 | 11,026 |
| MT-12 | Weatherization | 47 | 2,334,582 | 87,451 | 151,479 | 455,229 | 662,416 | 978,007 | 5,535 | 5,484 | 10,973 |

### Modular Trailer ERO Economic Parameters

| ID | First Cost (1994 $) | Rebate Amount (1994 $) | Life (Years) | First Year Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| MT-1 | 150,400 | 0 | 15 | 441,800 | 2,186 | 24,835 | 6,096 | 30,931 | 314,125 | 3.09 |
| MT-3 | 240,507 | 0 | 15 | 331,733 | 1,418 | 19,917 | 19,435 | 39,353 | 328,228 | 2.36 |
| MT-5 | 223,920 | 0 | 25 | 165,867 | 684 | 16,015 | 13,111 | 29,126 | 277,647 | 2.24 |
| MT-8 | 6,138 | 982 | 10 | 10,785 | 22 | 697 | 261 | 958 | 4,039 | 1.78 |
| MT-9 | 6,138 | 982 | 10 | 10,892 | 69 | 1,317 | 1,244 | 2,561 | 32,627 | 7.33 |
| MT-10 | 6,138 | 0 | 10 | 7,514 | 46 | 893 | 838 | 1,731 | 18,344 | 3.99 |
| MT-11a | 124,770 | 0 | 25 | 293,454 | 1,039 | 24,461 | 14,300 | 38,761 | 542,721 | 5.35 |
| MT-12 | 8,967 | 0 | 25 | 363,654 | 904 | 26,363 | 11,800 | 38,162 | 648,218 | 73.29 |

## 2.14 Transmission and Distribution EROs

Even with efficiencies near 95%, distribution transformers represent the largest component of transmission and distribution (T&D) system energy consumption. Thus, the reduction of transformer loss is the primary energy resource opportunity in this section. Two additional T&D EROs, conservation voltage reduction and power factor correction, and a discussion of power distribution system renovations are presented following the transformer ERO analysis.

### 2.14.1 Transformer EROs

As described in Volume 2: Baseline Detail (Richman et al. 1994), transformer loss consists of both load and no-load loss. The load loss, developed by resistive heating in the transformer windings, varies as a function of the load squared (an $I^2R$ relationship). No-load losses are developed in the core of the transformer, and are not a function of the power system load. Since average transformer loads at Fort Irwin are lower than the average capacities, a lot of the transformer loss is no-load. Therefore, the transformer energy consumption will not be affected greatly as a result of other ERO implementation throughout the base.

A total of eight transformer EROs have been considered for Fort Irwin. Both retrofit and phased implementation (replace immediately and replace-on-failure, respectively) are analyzed for the following options:

- Replace transformers with amorphous core transformers.
- Replace transformers with improved silicon steel core transformers.
- Replace transformers with amorphous core transformers and improved winding efficiency.
- Replace transformers with improved silicon steel core transformers and improved winding efficiency.

The tradeoff of efficiency and cost is a major factor in the specification and construction of transformers. Transformers can be built at several efficiency levels for a given capacity size. Typical transformer losses, which are representative of conventional transformer technology, are given in Volume 2 for transformer sizes found at Fort Irwin.

Amorphous steel transformer cores are a relatively recent development. Transformer no-load losses can be reduced by about 70% when amorphous steel is used for the transformer core. However, the amorphous steel is more expensive than conventional transformer core silicon steel, increasing the cost of a typical distribution transformer by about 40% (Brooks et al. 1986). As amorphous core transformers are typically smaller than 1,000 kVA, this analysis only considered the amorphous core option for transformers less than 1,000 kVA capacity.

Using improved silicon steel for transformer cores is another method of reducing transformer no-load loss. This can result in no-load loss reduction of about 25% with a corresponding increase in transformer cost of 20%, as compared to a conventional transformer (Brooks et al. 1986).

Both of the technologies described above affect only the no-load loss through the use of improved core materials. However, load-loss reduction is also possible by using more winding material to reduce the

resistance and hence the load loss of the transformer. This practice is common in the manufacture of transformers, with the tradeoff of efficiency and cost as major factors in the specification and construction of transformers.

In order to determine the cost-effectiveness of each of the transformer EROs, the transformer cost, loss reduction potential, and the value of losses must be determined. The methodology used for estimating each is given below.

**Cost Estimation**

Because transformers can be specified and manufactured in many different configurations, obtaining costs that can be widely applied is difficult. For example, the transformer efficiency and cost is usually optimized for the customer's specific cost of energy, in order to minimize the total owning cost (initial cost plus total value of energy loss over the life of the equipment). In order to estimate transformer cost, the 1992 Means Electrical Cost Data was used (Means 1992a). These values were then adjusted by 3.75% to account for the escalation in materials and labor for 1993. Means is used by contractors for estimating the cost of a project, and tends to slightly overstate the actual cost of a project. This method of estimating cost is therefore conservative, as it slightly overstates the cost of the project. Used in the context of this analysis, it is useful for estimating the cost of a contractor-installed project, since major transformer retrofit work would likely be performed by a contractor.

The Means cost data was separated into material and labor categories. The material cost is the direct transformer cost, while the labor cost includes the labor, installation equipment, and contractor overhead and profit. These costs are given in Means for a variety of transformer types and voltages, which are given in Figures 2.1 and 2.2.

Hardware cost for the large transformers (greater than 750 kVA) are given below. These costs were estimated using a Westinghouse transformer price list (Westinghouse Electric Corporation 1987), adjusted to 1992 dollars using Means historical cost data (an escalation factor of 12%). Once again, these figures were then escalated by 3.75% to bring everything to 1993 dollars.

Large Transformer Hardware Cost

| Primary (volts) | Secondary (volts) | Capacity (kVA) | Cost ($ 1992) |
|---|---|---|---|
| 69,000 | 12,000 | 2,500 | 44,033 |
| | | 3,750 | 48,677 |
| | | 7,500 | 76,686 |
| | | 10,000 | 92,373 |
| 69,000 | 4,160 | 3,750 | 47,732 |
| 12,000 | 4,160 | 2,000 | 23,409 |
| | | 5,000 | 38,343 |
| 12,000 | 2,400 | 750 | 16,406 |
| | | 1,000 | 17,528 |
| 12,000 | 480 | 750 | 16,243 |
| | | 1,000 | 17,354 |
| | | 1,500 | 19,579 |
| | | 2,000 | 22,948 |
| | | 2,500 | 25,346 |
| 12,000 | 208 | 750 | 17,055 |
| | | 1,000 | 18,743 |
| 4160 | 480 | 750 | 15,529 |
| | | 1,500 | 20,068 |

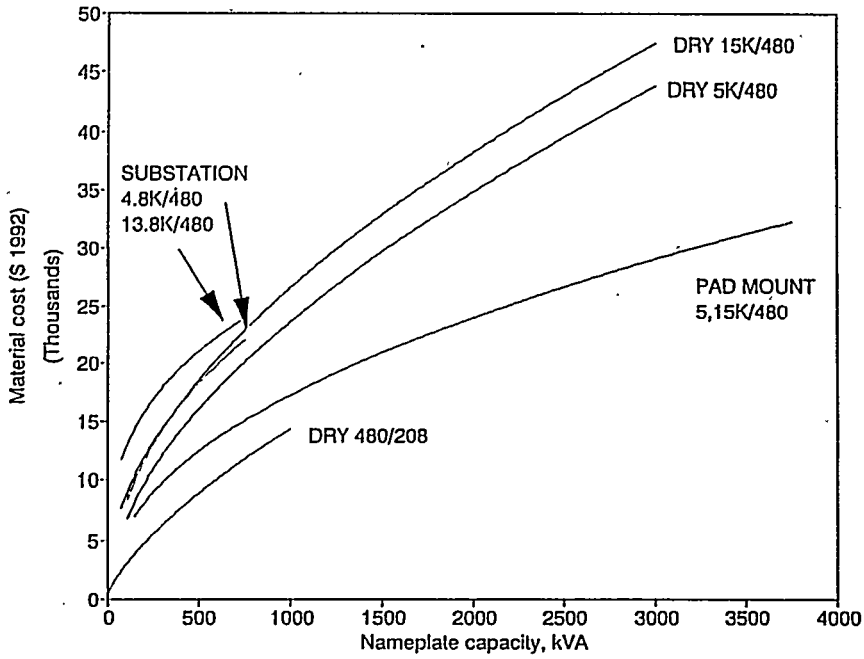



**Figure 2.1.** Means Transformer Material Cost

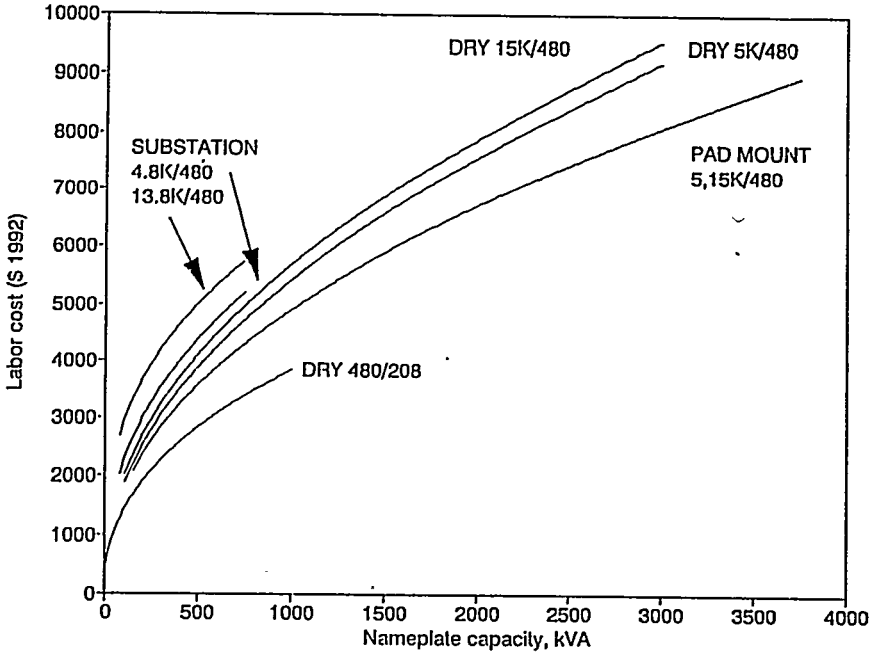



**Figure 2.2.** Means Transformer Labor Cost

The Means data shown in these two figures was used to create scaling relationships between transformer size and cost. The material cost data was separated into two categories: transformers with capacity less than or equal to 100 kVA, and transformers with capacity greater than 100 kVA and less than 750 kVA. A curve fit of the data was performed for each, with the resulting equations used to estimate the cost of all transformers within that category.

For transformers rated under 100 kVA, data for dry-type units with voltage rating of 240/480-120/208 was used for the curve fit. A scaling factor of 1.2 was included to adjust the cost for distribution voltage. Equation 2.1 gives the material cost estimate for transformers in this size category.

$$\text{Material cost} = 175\ S^{0.608}\ \text{(dollars)} \tag{2.1}$$

where $S$ = Transformer capacity, kVA; $0 < S \leq 100$

For transformer sizes larger than 100 kVA and less than 750 kVA, the curve fit used the pad mount 5,15 kV voltage category data. Equation 2.2 gives the hardware cost algorithm for transformers in this size category.

$$\text{Material cost} = 639\ S^{0.477}\ \text{(dollars)} \tag{2.2}$$

where $S$ = Transformer capacity, kVA; $100 < S < 750$

All transformers have similar labor costs, which were combined into a single curve-fit and is given in Equation 2.3.

$$\text{Labor cost} = 209\ S^{0.457}\ \text{(dollars)} \tag{2.3}$$

where $S$ = Transformer capacity, kVA

Finally, the costs are adjusted by the city cost index, which account for differences in material cost and labor rates for various parts of the country with respect to the national average. For the Fort Irwin area of California, the material cost index is 1.0 and the labor cost index is 1.1.

While the old transformers being removed have some salvage value, this analysis assumes the benefit will be approximately equal to the labor demolition and disposal costs and could be subsequently ignored.

**Loss Reduction**

As mentioned previously, transformers can be specified with virtually any efficiency over a fairly broad range. Typical transformer losses, which are representative of conventional transformer technology, are given in the baseline report for transformer sizes found at Fort Irwin.

Amorphous core transformer no-load loss is approximately 30% of a conventional unit, with an estimated cost 1.4 times that of a conventional unit (Brooks et al. 1986). Since amorphous cores are not available for large transformers, it is assumed in this analysis that the amorphous core option is only available for sizes of 1000 kVA or smaller. Improved silicon steel transformers have approximately 75% of a conventional unit's no-load loss, and have an estimated capital cost of 1.2 times the present cost of a conventional distribution transformer (Brooks et al. 1986). For both of the above technologies, it is assumed that the load loss can be reduced by 20% with a 10% increase in the capital cost as compared to a conventional transformer, which is based calculations based on Westinghouse Electric Corporation technical data (1981).

**Annual Energy Savings**

The annual savings of the various transformer EROs considered are calculated in a three-step process. First, the peak power demand reduction is calculated and multiplied by the monthly demand charges over the year. Second, the no-load loss reduction is multiplied by the weighted average of energy cost. Finally, the load-loss reduction is computed as described below.

Since the load loss varies as a function of the square of the load, and different energy rates apply based on time-of-use, a detailed load consumption model has been developed for this analysis. An arbitrary load duration curve, shown in Figure 2.3, is assumed, and is expressed using Equation 2.4. The slope of the curve is determined by "a", which is a function of the load factor (average power divided by peak power). When "a" is zero, the power profile is flat and the load factor is equal to one.

$$P=e^{-at} \tag{2.4}$$

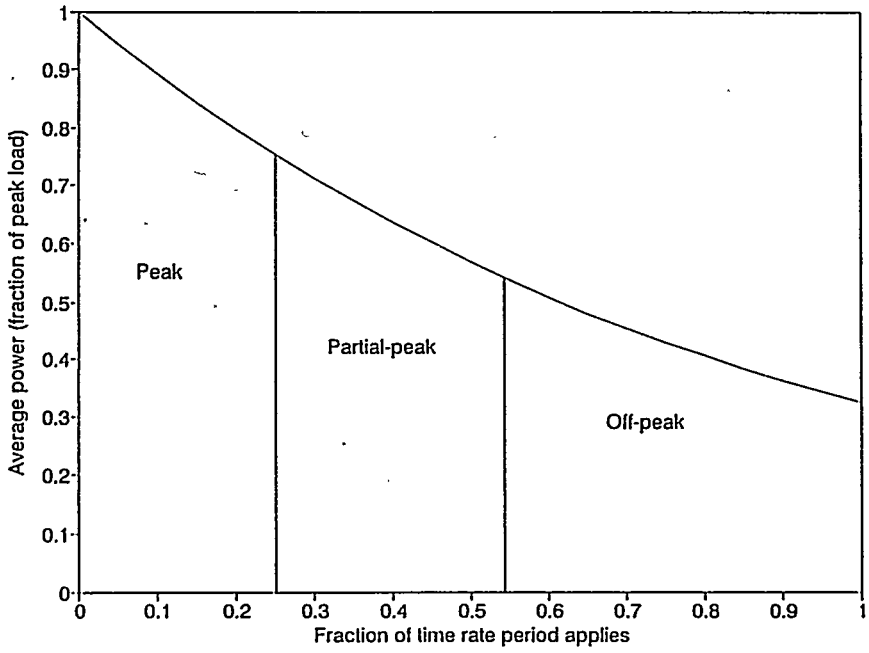



**Figure 2.3.** Weekly Load Duration Curve Used for Time-of-Loss Calculation

The average power is given in Equation 2.5, which is the same as the load factor since the peak power is normalized.

$$F_{LD}=\int_0^1 e^{-at} \tag{2.5}$$

where $F_{LD}$ = Load Factor

The factor "a" can be explicitly calculated as a function of the load factor, $F_{LD}$. This transcendental equation was solved by iteration with a curve-fit applied to the data, which is given in Equation 2.6.

$$a=10.277e^{-3.779F_{LD}} \tag{2.6}$$

where $F_{LD}$ = Load Factor; accurate over the range $0.3 \leq F_{LD} \leq 0.8$

The average power consumed during each of the rate periods (peak, partial-peak, and off-peak) is given in Equations 2.7, 2.8, and 2.9, respectively, where $T_i$ is the fraction of time when that particular rate applies. The total load loss for each of the rate periods is the normalized square of these averages, as shown in Figure 2.4.

$$P_{ave}(On-Peak)=\frac{1}{aT_1}[1-e^{-aT_1}] \tag{2.7}$$

$$P_{ave}(Mid-Peak)=\frac{1}{aT_2}[e^{-aT_1}-e^{-a(T_1+T_2)}] \tag{2.8}$$

$$P_{ave}(Off-Peak)=\frac{1}{aT_3}[e^{-a(T_1+T_2)}-e^{-a}] \tag{2.9}$$

**Results**

The four transformer EROs described previously are shown below. Both replace immediately and replace-on-failure options have been analyzed. The complete quantitative results of this ERO appear in Table 2.30. This table contains specific energy, cost, and economic data related to the transformer EROs.

| ERO No. | Description | Cost Factor | Loss Red. (%) No-Load | Load |
|---|---|---|---|---|
| 1 | Improved silicon steel core | 1.2 | 25 | 0 |
| 2 | Amorphous core | 1.4 | 70 | 0 |
| 3 | Improved silicon steel/windings | 1.3 | 25 | 20 |
| 4 | Amorphous core/improved windings | 1.5 | 70 | 20 |

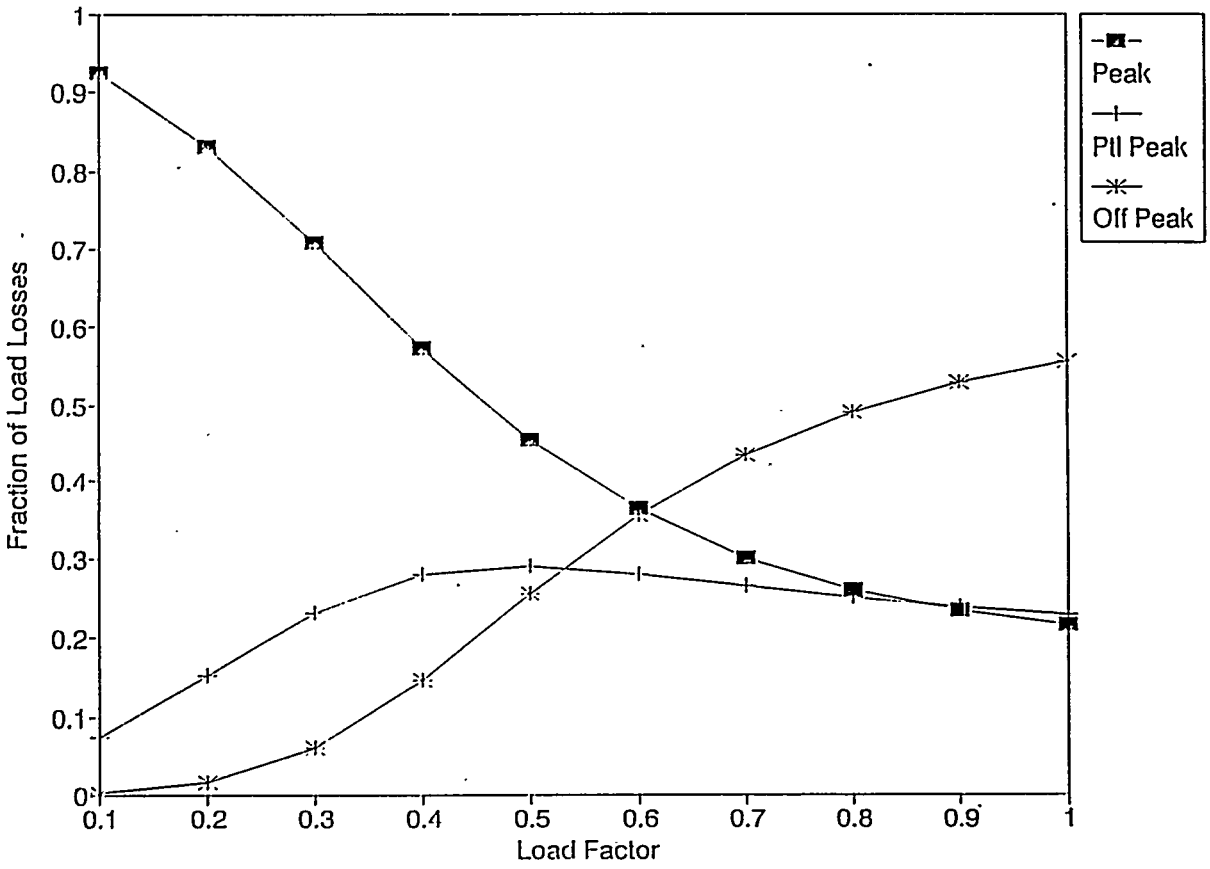



**Figure 2.4.** Load Loss Distribution Between Rate Periods

From Table 2.30, ERO #4 (amorphous core/improved windings) is the most cost-effective ERO for all transformer categories below 1,000 kVA. ERO #3 is the most cost-effective ERO for the 7,500 kVA substation transformers.

**Budget Implications.** The replace immediately implementation of this ERO is estimated to cost $19,305. The replace-on-failure implementations of this ERO are estimated to have a first cost of $3,364,580.

**Energy and Cost Savings**

The estimated annual energy savings for the replace immediately implementation of this ERO are 16,283 kWh, for a cost savings of $1,037. The associated demand savings are estimated to be 104 kW-months, for a cost savings of $804.

The estimated annual energy savings for the replace-on-failure implementations of this ERO are 1,134,891 kWh, for a cost savings of $35,276. The associated demand savings are estimated to be 3,516 kW-months, for a cost savings of $13,235. These summarized energy and cost savings are based on 100% implementation of all replace-on-failure options, which may not take place for several years.

**Conclusions**

There is only one cost-effective transformer ERO where it is worth replacing operating transformers. The full material and labor cost investment is too high to offset the accumulated energy cost savings. However, there is significant potential for energy savings with an aggressively pursued replace-on-failure strategy. Many of the existing transformers are within one year of their estimated 30-year lives. Annual energy savings would accrue as the new energy-efficient transformers are substituted for conventional transformers, with eventually the entire stock consisting of high-efficiency transformers.

The no-load loss on a transformer is highly dependent on the size of the unit. As shown in the baseline report, the average transformer capacity for Fort Irwin is much greater than the actual peak load, resulting in much higher no-load losses at the base. The potential to reduce this loss, by using transformer sizes closer to the actual requirements, is discussed below.

Transformer overload results in greater temperature rises than the unit is designed to tolerate, with the result of shortening the transformer life through insulation degradation. This temperature rise is dependent on the ambient temperature, pre-load conditions, and duration of the peak loads, which make it difficult to quantify. An example is that a minimum life expectancy of 20 years can be expected at 95°C and 100°C hot-spot temperatures for transformers rated for 55°C and 65°C rise, respectively (Gönen 1986). A more practical guideline is that transformers can be regularly loaded at 150% to 200% of nominal capacity without serious reduction in insulation life (ANSI/IEEE C57.92-1981).

When practical, transformers should be sized to minimize the total owning cost estimated over the life of the transformer. This includes the initial hardware, installation, and the accumulated energy loss costs. However, considerations of projected load growth or special circumstances need to be included when determining the size. Special considerations might include loads which are critical for Fort Irwin to perform its mission, which must be protected to the greatest extent practical against interruptions in electricity supply. This requirement warrants increased transformer size in exchange for enhanced reliability.

Based on metered consumption data and the connected transformer capacity, there is most likely opportunities to reduce transformer sizes at Fort Irwin. Not only would this result in reduced transformer energy consumption, but would also provide capital and labor cost savings as compared to installing transformers with the same capacity as before. Coupled with the energy-efficient units analyzed in this report, new strategies for transformer installation could result in significant cost savings.

## 2.14.2 Conservation Voltage Reduction

Energy can be saved by reducing Fort Irwin's distribution voltage by a small amount. This approach to energy conservation is known as conservation voltage reduction (CVR). The magnitude of the voltage reduction is constrained by the requirement that service entrance voltage be maintained above the standard minimum (5% below nominal) at all buildings and other loads on the distribution system.

How a given piece of end-use equipment responds to CVR can be described in terms of input (energy savings), output (service provided), and service life. The most common loads (lights, fans and pumps) respond with input and output reductions approximately proportional to the voltage reduction and a small (but hard to quantify) increase in service life. Loads controlled by feedback (refrigeration, air conditioning, most electric heaters, and computers or others that involve dc power supplies) respond, on the average, with practically no change in service, energy consumption, or service life.

An aggressive CVR implementation will use feedback from the most heavily loaded transformer near the end of each feeder to regulate substation voltage. A milder implementation will involve simply reducing the main transformer setpoints or tap points at each substation by a small (typically 0.5 to 2%) fixed amount. An intermediate implementation is possible using an open-loop control scheme in which the setpoint is varied with load.

**Description**

The ERO evaluated here consists of changing the voltage tap points of the main transformers. A fixed voltage reduction of 1% is appropriate for Fort Irwin because the distribution system is not heavily loaded and the simple change in setpoint does not involve any increase in maintenance activity. Open- or closed-loop control schemes are probably not necessary at Fort Irwin because the distribution lines and transformers are not heavily loaded.

**Assumptions**

The technical assumptions are as follows:

- There are five 37.5-MVA transformers at the main substation.
- Worst-case building service entrance voltages are currently at least 1% above the minimum acceptable voltage (i.e., a 1% voltage tap point reduction is feasible).
- A load-to-voltage reduction factor of 0.85 for the transformers is assumed based on factors of 0.76 for residential, 0.41 for industrial and 0.99 for commercial (Lovins et al. 1989, p. 296).

Costs to implement the ERO are based on the following assumptions:

- A semi-annual check of distribution voltage is assumed to be a part of the existing preventive maintenance program.
- The labor to change the tap points initially will cost $200 per transformer; there are five transformers at the main substation.

**Results**

The complete quantitative results of this ERO appear in Table 2.31. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The total first cost of implementing the ERO is estimated to be $1,000.

**Energy, Demand, and Cost Savings.** Annual energy savings of 613,632 kWh and cost savings of $39,042 per year will result from this ERO. Demand savings (including kVAR costs) are estimated to be 2,128 kW-months per year with a cost savings of $17,148 per year.

### 2.14.3 Power Factor Correction

Power factor correction reduces losses in the transmission system and generators of the supplying utility and reduces or eliminates excess reactive load charges that a large customer typically incurs each month. The more aggressive power factor correction measures can also reduce losses in a site's distribution lines and transformers.

Low power factors are usually due to the load current lagging the voltage (i.e., to the reactive component of a load). The reactive component is a significant part of any motor, transformer or inductive ballast load. The current associated with the reactive component does not contribute to the service provided by the load and does not result directly in a power demand. However, indirect power consumption due to resistance ($I^2R$) loss occurs in the T&D system.

A lagging power factor can be corrected (brought closer to unity power factor) by installing capacitors. Power factor correcting capacitors are most effective when installed at each load that has a reactive component. Power-factor corrected inductive ballasts are the most common implementation of this approach. However, it is generally not economical to retrofit capacitors to each load because of the high cost per load. The practical alternative implementations are 1) service entrance capacitors (advantage: reduced transformer loss), 2) capacitors on primary and secondary of each distribution transformer (eliminates most of the excitation current with fixed capacitors), 3) at the substation (most economical place to install switched banks or modulating reactors), and 4) distributed along feeder lines.

#### Description

Only the simplest implementations are considered here because the site's reactive loads are expected to change significantly with implementation of other electric EROs. Power correction by fixed capacitors at the substation will reduce losses in the main transformers that result from lagging power factor but will not affect the corresponding losses in the rest of the site's distribution system. More importantly, these implementations will reduce losses in the transmission and generation system and eliminate the excess reactive load charges that Fort Irwin has been paying monthly.

The option analyzed for power factor correction at Fort Irwin was to size the capacitors to correct the power factor to 1 (unity). This option will remove the monthly excess reactive load charge by completely correcting the power factor, giving slightly lower losses in the main transformers as well.

#### Assumptions

The technical assumptions are as follows:

- The ratio of reactive baseload to reactive peak load is taken to be 0.5 (i.e., equal to the ratio of real power baseload to peak load that has been observed in a year of continuous power monitoring at the site).

- The largest monthly peak reactive and excess reactive loads at Fort Irwin were 9 MVAR.

- Losses at the main transformers due to poor power factor, calculated as part of a similar study for Fort Drum, NY, are as follows: 0.2172 kWh saved per actual kVAR and 0.000388 kW per actual kVAR. It is assumed that these losses (when weighted for actual kVARs) provide reasonable estimates of the losses that occur in substation transformers of the type typically found on military bases.

Cost estimates are based on the following data.

- Labor and material costs of the ERO [Means, manufacturers, 1992c] are as follows:

| ERO Item Description | Material ($/MVAR) | Labor ($/MVAR) | Total ($/MVAR) | Annualized O&M Cost ($/yr) |
|---|---|---|---|---|
| 9 kV Static | 2,815 | 695 | 3,510 | 0.2% |

**Results**

The complete quantitative results of this ERO appear in Table 2.31. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The total first cost of implementing the ERO is estimated to be $31,590.

**Energy, Demand and Cost Savings.** Annual energy savings of 15,454 kWh and cost savings of $983 per year will result from this ERO. Demand savings are estimated to be 1,476 kW-mo and 71,150 excess KVAR-mo per year, corresponding to a cost savings of $22,677 per year.

**Operation and Maintenance.** There is a finite probability of equipment failure during the nominal life of the power factor correction equipment. The product of failure probability and replacement cost is reflected in the O&M cost estimate.

### 2.14.4 Power Distribution Equipment Renovations

The following section discusses potential energy savings due to improvements in the power distribution system. The analysis was completed at the request of the Fort Irwin energy manager.

A large amount of electricity and electric capacity is delivered throughout the electrical distribution system at Fort Irwin. This creates a natural potential for energy savings. The quality, type, and capacity of distribution lines, connections and transformer equipment can have a major effect on the amount of line and equipment losses throughout the system. Losses associated with transformer equipment are analyzed and discussed in Section 2.14.1. Other potential savings may be available in the quality and layout of connections and other equipment.

One currently available renovation system consists of the cleaning of contacts, balancing of panel distributions, and installing control equipment to de-energize unneeded areas. This system is operated on a lease basis that derives payment from a savings estimation prepared by the installing company. The estimation is prepared by the installing company after inspecting utility bills and the power distribution system. No other information or examples of current installations was available prior to the finalization of this report.

The proposed renovations appear to be generally maintenance-oriented. Installed equipment is retained on a temporary basis and is removed if leases are not continued. Without additional information on the actual technologies applied and examples of the savings estimation process, it is inappropriate to recommend the pursuit of this type of system renovation.

## Table 2.30. Transformer EROs

### Existing Transformer Operating Parameters

| | Existing Equipment Characterisitics | | | | | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Summer | | | Winter | | Summer | | Winter |
| ID | Description | Size (kVA) | Phase | Number of Units | Year Installed (Year) | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 1 | Transformer | 5 | 1 | 2 | 1973 | 41 | 103 | 952 | 73 | 101 | 183 | 245 | 350 | 1 | 1 | 2 |
| 2 | Transformer | 10 | 1 | 13 | 1963 | 68 | 136 | 9,753 | 724 | 1,008 | 1,862 | 2,512 | 3,647 | 11 | 10 | 17 |
| 3 | Transformer | 10 | 1 | 9 | 1973 | 68 | 136 | 6,752 | 501 | 698 | 1,289 | 1,739 | 2,525 | 7 | 7 | 12 |
| 4 | Transformer | 10 | 1 | 3 | 1983 | 68 | 136 | 2,251 | 167 | 233 | 430 | 580 | 842 | 2 | 2 | 4 |
| 5 | Transformer | 10 | 1 | 2 | 1973 | 68 | 136 | 1,500 | 111 | 155 | 286 | 387 | 561 | 2 | 2 | 3 |
| 6 | Transformer | 10 | 3 | 18 | 1973 | 88 | 247 | 18,926 | 1,487 | 2,034 | 3,649 | 4,874 | 6,883 | 24 | 22 | 37 |
| 7 | Transformer | 10 | 3 | 12 | 1963 | 88 | 247 | 12,617 | 991 | 1,356 | 2,432 | 3,249 | 4,588 | 16 | 15 | 25 |
| 8 | Transformer | 10 | 3 | 14 | 1963 | 68 | 136 | 10,503 | 780 | 1,085 | 2,005 | 2,706 | 3,927 | 12 | 11 | 18 |
| 9 | Transformer | 10 | 3 | 3 | 1963 | 68 | 136 | 2,251 | 167 | 233 | 430 | 580 | 842 | 2 | 2 | 4 |
| 10 | Transformer | 15 | 1 | 15 | 1983 | 84 | 198 | 14,412 | 1,099 | 1,517 | 2,764 | 3,712 | 5,320 | 17 | 16 | 26 |
| 11 | Transformer | 15 | 1 | 8 | 1973 | 84 | 198 | 7,686 | 586 | 809 | 1,474 | 1,980 | 2,838 | 9 | 8 | 14 |
| 12 | Transformer | 15 | 1 | 13 | 1963 | 84 | 198 | 12,490 | 952 | 1,315 | 2,395 | 3,217 | 4,611 | 15 | 14 | 23 |
| 13 | Transformer | 15 | 3 | 15 | 1973 | 106 | 280 | 18,700 | 1,454 | 1,995 | 3,598 | 4,816 | 6,837 | 23 | 21 | 36 |
| 14 | Transformer | 15 | 3 | 6 | 1963 | 106 | 280 | 7,480 | 582 | 798 | 1,439 | 1,926 | 2,735 | 9 | 9 | 14 |
| 15 | Transformer | 15 | 3 | 6 | 1983 | 106 | 280 | 7,480 | 582 | 798 | 1,439 | 1,926 | 2,735 | 9 | 9 | 14 |
| 16 | Transformer | 15 | 3 | 11 | 1963 | 84 | 198 | 10,569 | 806 | 1,112 | 2,027 | 2,722 | 3,902 | 13 | 12 | 19 |
| 17 | Transformer | 15 | 3 | 18 | 1973 | 87 | 198 | 17,767 | 1,347 | 1,862 | 3,404 | 4,576 | 6,578 | 21 | 19 | 32 |
| 18 | Transformer | 25 | 1 | 4 | 1963 | 118 | 304 | 5,516 | 427 | 587 | 1,061 | 1,421 | 2,021 | 7 | 6 | 10 |
| 19 | Transformer | 25 | 1 | 6 | 1973 | 118 | 304 | 8,274 | 641 | 880 | 1,591 | 2,131 | 3,032 | 10 | 9 | 16 |
| 20 | Transformer | 25 | 1 | 4 | 1983 | 118 | 304 | 5,516 | 427 | 587 | 1,061 | 1,421 | 2,021 | 7 | 6 | 10 |
| 21 | Transformer | 25 | 3 | 31 | 1963 | 149 | 430 | 55,604 | 4,391 | 5,997 | 10,729 | 14,318 | 20,169 | 73 | 66 | 110 |
| 22 | Transformer | 25 | 3 | 18 | 1973 | 149 | 430 | 32,286 | 2,549 | 3,482 | 6,230 | 8,314 | 11,711 | 42 | 39 | 64 |
| 23 | Transformer | 25 | 3 | 6 | 1983 | 149 | 430 | 10,762 | 850 | 1,161 | 2,077 | 2,771 | 3,904 | 14 | 13 | 21 |
| 24 | Transformer | 25 | 3 | 3 | 1963 | 118 | 304 | 4,137 | 320 | 440 | 795 | 1,065 | 1,516 | 5 | 5 | 8 |
| 25 | Transformer | 25 | 3 | 3 | 1973 | 118 | 304 | 4,137 | 320 | 440 | 795 | 1,065 | 1,516 | 5 | 5 | 8 |
| 26 | Transformer | 25 | 3 | 6 | 1983 | 118 | 304 | 8,274 | 641 | 880 | 1,591 | 2,131 | 3,032 | 10 | 9 | 16 |
| 27 | Transformer | 25 | 3 | 18 | 1973 | 118 | 304 | 24,822 | 1,922 | 2,640 | 4,773 | 6,393 | 9,095 | 31 | 28 | 47 |
| 28 | Transformer | 25 | 3 | 6 | 1983 | 118 | 304 | 8,274 | 641 | 880 | 1,591 | 2,131 | 3,032 | 10 | 9 | 16 |
| 29 | Transformer | 37.5 | 1 | 12 | 1963 | 166 | 404 | 22,958 | 1,760 | 2,425 | 4,407 | 5,913 | 8,453 | 28 | 25 | 43 |
| 30 | Transformer | 37.5 | 1 | 18 | 1973 | 166 | 404 | 34,436 | 2,640 | 3,638 | 6,610 | 8,869 | 12,679 | 41 | 38 | 64 |
| 31 | Transformer | 37.5 | 1 | 5 | 1983 | 166 | 404 | 9,566 | 733 | 1,011 | 1,836 | 2,464 | 3,522 | 12 | 11 | 18 |
| 32 | Transformer | 37.5 | 3 | 6 | 1963 | 198 | 585 | 14,394 | 1,141 | 1,557 | 2,779 | 3,706 | 5,210 | 19 | 17 | 29 |
| 33 | Transformer | 37.5 | 3 | 3 | 1973 | 198 | 585 | 7,197 | 571 | 778 | 1,390 | 1,853 | 2,605 | 9 | 9 | 14 |
| 34 | Transformer | 37.5 | 3 | 3 | 1983 | 198 | 585 | 7,197 | 571 | 778 | 1,390 | 1,853 | 2,605 | 9 | 9 | 14 |
| 35 | Transformer | 37.5 | 3 | 2 | 1963 | 166 | 404 | 3,826 | 293 | 404 | 734 | 985 | 1,409 | 5 | 4 | 7 |
| 36 | Transformer | 37.5 | 3 | 3 | 1983 | 166 | 404 | 5,739 | 440 | 606 | 1,102 | 1,478 | 2,113 | 7 | 6 | 11 |
| 37 | Transformer | 37.5 | 3 | 6 | 1963 | 166 | 404 | 11,479 | 880 | 1,213 | 2,203 | 2,956 | 4,226 | 14 | 13 | 21 |
| 38 | Transformer | 37.5 | 3 | 6 | 1983 | 166 | 404 | 11,479 | 880 | 1,213 | 2,203 | 2,956 | 4,226 | 14 | 13 | 21 |
| 39 | Transformer | 45 | 3 | 7 | 1963 | 223 | 683 | 19,105 | 1,525 | 2,076 | 3,693 | 4,919 | 6,892 | 26 | 23 | 39 |
| 40 | Transformer | 45 | 3 | 2 | 1973 | 223 | 683 | 5,459 | 436 | 593 | 1,055 | 1,405 | 1,969 | 7 | 7 | 11 |
| 41 | Transformer | 45 | 3 | 4 | 1983 | 223 | 683 | 10,917 | 871 | 1,186 | 2,110 | 2,811 | 3,938 | 15 | 13 | 22 |
| 42 | Transformer | 50 | 1 | 37 | 1963 | 185 | 535 | 82,447 | 6,513 | 8,894 | 15,909 | 21,230 | 29,901 | 108 | 99 | 163 |
| 43 | Transformer | 50 | 1 | 8 | 1973 | 185 | 535 | 17,826 | 1,408 | 1,923 | 3,440 | 4,590 | 6,465 | 23 | 21 | 35 |
| 44 | Transformer | 50 | 1 | 17 | 1983 | 185 | 535 | 37,881 | 2,992 | 4,086 | 7,310 | 9,754 | 13,738 | 49 | 45 | 75 |
| 45 | Transformer | 50 | 3 | 6 | 1963 | 246 | 734 | 17,932 | 1,424 | 1,942 | 3,464 | 4,617 | 6,484 | 24 | 22 | 36 |
| 46 | Transformer | 50 | 3 | 3 | 1973 | 246 | 734 | 8,966 | 712 | 971 | 1,732 | 2,309 | 3,242 | 12 | 11 | 18 |
| 47 | Transformer | 50 | 3 | 6 | 1983 | 246 | 734 | 17,932 | 1,424 | 1,942 | 3,464 | 4,617 | 6,484 | 24 | 22 | 36 |
| 48 | Transformer | 50 | 3 | 2 | 1963 | 185 | 535 | 4,457 | 352 | 481 | 860 | 1,148 | 1,616 | 6 | 5 | 9 |
| 49 | Transformer | 50 | 3 | 3 | 1973 | 185 | 535 | 6,685 | 528 | 721 | 1,290 | 1,721 | 2,424 | 9 | 8 | 13 |

## Table 2.30. (contd)

### Existing Transformer Operating Parameters

| ID | Existing Equipment Characterisitics | | | | | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Summer | | | Winter | | Summer | | Winter |
| | Description | Size (kVA) | Phase | Number of Units | Year Installed (Year) | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 50 | Transformer | 50 | 3 | 7 | 1963 | 234 | 748 | 20,296 | 1,632 | 2,218 | 3,929 | 5,226 | 7,291 | 28 | 25 | 42 |
| 51 | Transformer | 50 | 3 | 3 | 1973 | 234 | 748 | 8,698 | 700 | 950 | 1,684 | 2,240 | 3,125 | 12 | 11 | 18 |
| 52 | Transformer | 50 | 3 | 6 | 1983 | 234 | 748 | 17,396 | 1,399 | 1,901 | 3,368 | 4,479 | 6,250 | 24 | 22 | 36 |
| 53 | Transformer | 75 | 1 | 13 | 1963 | 285 | 700 | 42,794 | 3,286 | 4,526 | 8,217 | 11,021 | 15,744 | 52 | 48 | 80 |
| 54 | Transformer | 75 | 1 | 16 | 1973 | 285 | 700 | 52,670 | 4,044 | 5,570 | 10,113 | 13,565 | 19,378 | 64 | 59 | 98 |
| 55 | Transformer | 75 | 1 | 23 | 1983 | 285 | 700 | 75,712 | 5,813 | 8,007 | 14,538 | 19,500 | 27,855 | 92 | 84 | 141 |
| 56 | Transformer | 75 | 3 | 10 | 1973 | 360 | 990 | 42,782 | 3,350 | 4,586 | 8,242 | 11,017 | 15,586 | 55 | 50 | 83 |
| 57 | Transformer | 75 | 3 | 3 | 1983 | 360 | 990 | 12,835 | 1,005 | 1,376 | 2,473 | 3,305 | 4,676 | 16 | 15 | 25 |
| 58 | Transformer | 75 | 3 | 3 | 1973 | 360 | 990 | 12,835 | 1,005 | 1,376 | 2,473 | 3,305 | 4,676 | 16 | 15 | 25 |
| 59 | Transformer | 100 | 1 | 12 | 1963 | 355 | 920 | 49,859 | 3,864 | 5,307 | 9,589 | 12,840 | 18,260 | 62 | 57 | 95 |
| 60 | Transformer | 100 | 1 | 6 | 1973 | 355 | 920 | 24,930 | 1,932 | 2,653 | 4,794 | 6,420 | 9,130 | 31 | 28 | 47 |
| 61 | Transformer | 100 | 1 | 11 | 1983 | 355 | 920 | 45,704 | 3,542 | 4,864 | 8,790 | 11,770 | 16,738 | 57 | 52 | 87 |
| 62 | Transformer | 100 | 3 | 3 | 1963 | 445 | 1,130 | 15,546 | 1,200 | 1,651 | 2,988 | 4,004 | 5,703 | 19 | 18 | 29 |
| 63 | Transformer | 100 | 3 | 3 | 1973 | 445 | 1,130 | 15,546 | 1,200 | 1,651 | 2,988 | 4,004 | 5,703 | 19 | 18 | 29 |
| 64 | Transformer | 100 | 3 | 3 | 1983 | 445 | 1,130 | 15,546 | 1,200 | 1,651 | 2,988 | 4,004 | 5,703 | 19 | 18 | 29 |
| 65 | Transformer | 100 | 3 | 2 | 1963 | 355 | 920 | 8,310 | 644 | 884 | 1,598 | 2,140 | 3,043 | 10 | 9 | 16 |
| 66 | Transformer | 100 | 3 | 3 | 1983 | 473 | 11,130 | 50,328 | 5,692 | 7,077 | 10,454 | 12,923 | 14,182 | 141 | 126 | 195 |
| 67 | Transformer | 100 | 3 | 3 | 1963 | 416 | 798 | 13,653 | 1,007 | 1,404 | 2,604 | 3,517 | 5,120 | 15 | 14 | 23 |
| 68 | Transformer | 112.5 | 3 | 2 | 1983 | 530 | 1,270 | 12,171 | 931 | 1,283 | 2,335 | 3,135 | 4,487 | 15 | 13 | 22 |
| 69 | Transformer | 112.5 | 3 | 1 | 1963 | 530 | 1,270 | 6,086 | 465 | 642 | 1,168 | 1,567 | 2,244 | 7 | 7 | 11 |
| 70 | Transformer | 112.5 | 3 | 1 | 1983 | 530 | 1,270 | 6,086 | 465 | 642 | 1,168 | 1,567 | 2,244 | 7 | 7 | 11 |
| 71 | Transformer | 150 | 3 | 2 | 1963 | 560 | 1,690 | 13,650 | 1,087 | 1,480 | 2,638 | 3,515 | 4,931 | 18 | 17 | 28 |
| 72 | Transformer | 150 | 3 | 1 | 1983 | 560 | 1,690 | 6,825 | 543 | 740 | 1,319 | 1,757 | 2,465 | 9 | 8 | 14 |
| 73 | Transformer | 167 | 1 | 8 | 1983 | 500 | 1,600 | 49,578 | 3,989 | 5,418 | 9,598 | 12,765 | 17,809 | 68 | 62 | 102 |
| 74 | Transformer | 167 | 3 | 1 | 1963 | 500 | 1,600 | 6,197 | 499 | 677 | 1,200 | 1,596 | 2,226 | 8 | 8 | 13 |
| 75 | Transformer | 167 | 3 | 3 | 1983 | 633 | 3,212 | 27,576 | 2,421 | 3,208 | 5,426 | 7,096 | 9,425 | 47 | 42 | 68 |
| 76 | Transformer | 225 | 3 | 3 | 1983 | 880 | 2,420 | 31,373 | 2,456 | 3,363 | 6,044 | 8,079 | 11,430 | 40 | 37 | 61 |
| 77 | Transformer | 225 | 3 | 1 | 1973 | 880 | 2,420 | 10,458 | 819 | 1,121 | 2,015 | 2,693 | 3,810 | 13 | 12 | 20 |
| 78 | Transformer | 300 | 3 | 4 | 1983 | 1,050 | 3,250 | 51,558 | 4,123 | 5,610 | 9,971 | 13,275 | 18,579 | 70 | 64 | 105 |
| 79 | Transformer | 300 | 3 | 1 | 1983 | 749 | 3,202 | 10,197 | 866 | 1,158 | 1,994 | 2,625 | 3,554 | 16 | 15 | 24 |
| 80 | Transformer | 300 | 3 | 2 | 1983 | 1,050 | 3,250 | 25,779 | 2,061 | 2,805 | 4,985 | 6,638 | 9,290 | 35 | 32 | 52 |
| 81 | Transformer | 300 | 3 | 1 | 1963 | 1,050 | 3,250 | 12,889 | 1,031 | 1,402 | 2,493 | 3,319 | 4,645 | 17 | 16 | 26 |
| 82 | Transformer | 500 | 3 | 1 | 1983 | 1,600 | 5,200 | 19,922 | 1,607 | 2,181 | 3,859 | 5,129 | 7,145 | 27 | 25 | 41 |
| 83 | Transformer | 500 | 3 | 4 | 1963 | 1,600 | 5,200 | 79,688 | 6,429 | 8,725 | 15,435 | 20,517 | 28,582 | 110 | 100 | 165 |
| 84 | Transformer | 500 | 3 | 5 | 1983 | 1,600 | 5,200 | 99,610 | 8,036 | 10,907 | 19,294 | 25,646 | 35,727 | 137 | 126 | 207 |
| 85 | Transformer | 750 | 3 | 1 | 1973 | 1,800 | 7,600 | 24,398 | 2,068 | 2,767 | 4,769 | 6,280 | 8,516 | 38 | 35 | 56 |
| 86 | Transformer | 750 | 3 | 1 | 1983 | 1,800 | 7,600 | 24,398 | 2,068 | 2,767 | 4,769 | 6,280 | 8,516 | 38 | 35 | 56 |
| 87 | Transformer | 7,500 | 3 | 5 | 1973 | 11,600 | 50,600 | 795,373 | 67,828 | 90,600 | 155,640 | 204,702 | 276,603 | 1,258 | 1,142 | 1,853 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| | ERO Equipment Characterisitics | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | Winter |
| ID | ERO Description | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 1a | Improved Silicon Steel (No Load Loss Reduction) | 31 | 103 | 773 | 63 | 85 | 150 | 199 | 276 | 1 | 1 | 2 |
| 2a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 7,816 | 609 | 835 | 1,504 | 2,013 | 2,855 | 10 | 9 | 15 |
| 3a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 5,411 | 421 | 578 | 1,042 | 1,394 | 1,977 | 7 | 6 | 10 |
| 4a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 1,804 | 140 | 193 | 347 | 465 | 659 | 2 | 2 | 3 |
| 5a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 1,203 | 94 | 128 | 231 | 310 | 439 | 2 | 1 | 2 |
| 6a | Improved Silicon Steel (No Load Loss Reduction) | 66 | 247 | 15,456 | 1,280 | 1,724 | 3,008 | 3,979 | 5,465 | 23 | 21 | 34 |
| 7a | Improved Silicon Steel (No Load Loss Reduction) | 66 | 247 | 10,304 | 853 | 1,149 | 2,005 | 2,652 | 3,643 | 15 | 14 | 23 |
| 8a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 8,418 | 656 | 899 | 1,620 | 2,168 | 3,075 | 11 | 10 | 16 |
| 9a | Improved Silicon Steel (No Load Loss Reduction) | 51 | 136 | 1,804 | 140 | 193 | 347 | 465 | 659 | 2 | 2 | 3 |
| 10a | Improved Silicon Steel (No Load Loss Reduction) | 63 | 198 | 11,652 | 934 | 1,270 | 2,254 | 3,000 | 4,193 | 16 | 14 | 24 |
| 11a | Improved Silicon Steel (No Load Loss Reduction) | 63 | 198 | 6,214 | 498 | 677 | 1,202 | 1,600 | 2,236 | 8 | 8 | 13 |
| 12a | Improved Silicon Steel (No Load Loss Reduction) | 63 | 198 | 10,098 | 810 | 1,101 | 1,954 | 2,600 | 3,634 | 14 | 13 | 21 |
| 13a | Improved Silicon Steel (No Load Loss Reduction) | 80 | 280 | 15,216 | 1,246 | 1,684 | 2,955 | 3,917 | 5,414 | 22 | 20 | 33 |
| 14a | Improved Silicon Steel (No Load Loss Reduction) | 80 | 280 | 6,087 | 498 | 674 | 1,182 | 1,567 | 2,166 | 9 | 8 | 13 |
| 15a | Improved Silicon Steel (No Load Loss Reduction) | 80 | 280 | 6,087 | 498 | 674 | 1,182 | 1,567 | 2,166 | 9 | 8 | 13 |
| 16a | Improved Silicon Steel (No Load Loss Reduction) | 63 | 198 | 8,544 | 685 | 932 | 1,653 | 2,200 | 3,075 | 12 | 11 | 18 |
| 17a | Improved Silicon Steel (No Load Loss Reduction) | 65 | 198 | 14,337 | 1,142 | 1,556 | 2,771 | 3,692 | 5,176 | 19 | 18 | 29 |
| 18a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 4,482 | 365 | 494 | 870 | 1,154 | 1,599 | 6 | 6 | 10 |
| 19a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 6,723 | 548 | 741 | 1,305 | 1,731 | 2,398 | 10 | 9 | 14 |
| 20a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 4,482 | 365 | 494 | 870 | 1,154 | 1,599 | 6 | 6 | 10 |
| 21a | Improved Silicon Steel (No Load Loss Reduction) | 112 | 430 | 45,485 | 3,787 | 5,093 | 8,861 | 11,708 | 16,035 | 68 | 62 | 101 |
| 22a | Improved Silicon Steel (No Load Loss Reduction) | 112 | 430 | 26,411 | 2,199 | 2,957 | 5,145 | 6,798 | 9,311 | 39 | 36 | 59 |
| 23a | Improved Silicon Steel (No Load Loss Reduction) | 112 | 430 | 8,804 | 733 | 986 | 1,715 | 2,266 | 3,104 | 13 | 12 | 20 |
| 24a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 3,362 | 274 | 371 | 652 | 865 | 1,199 | 5 | 4 | 7 |
| 25a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 3,362 | 274 | 371 | 652 | 865 | 1,199 | 5 | 4 | 7 |
| 26a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 6,723 | 548 | 741 | 1,305 | 1,731 | 2,398 | 10 | 9 | 14 |
| 27a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 20,169 | 1,644 | 2,224 | 3,914 | 5,193 | 7,194 | 29 | 26 | 43 |
| 28a | Improved Silicon Steel (No Load Loss Reduction) | 89 | 304 | 6,723 | 548 | 741 | 1,305 | 1,731 | 2,398 | 10 | 9 | 14 |
| 29a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 18,594 | 1,500 | 2,035 | 3,601 | 4,787 | 6,670 | 26 | 23 | 39 |
| 30a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 27,891 | 2,250 | 3,053 | 5,402 | 7,181 | 10,005 | 38 | 35 | 58 |
| 31a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 7,747 | 625 | 848 | 1,501 | 1,995 | 2,779 | 11 | 10 | 16 |
| 32a | Improved Silicon Steel (No Load Loss Reduction) | 149 | 585 | 11,791 | 986 | 1,325 | 2,299 | 3,035 | 4,147 | 18 | 16 | 26 |
| 33a | Improved Silicon Steel (No Load Loss Reduction) | 149 | 585 | 5,896 | 493 | 662 | 1,149 | 1,518 | 2,073 | 9 | 8 | 13 |
| 34a | Improved Silicon Steel (No Load Loss Reduction) | 149 | 585 | 5,896 | 493 | 662 | 1,149 | 1,518 | 2,073 | 9 | 8 | 13 |
| 35a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 3,099 | 250 | 339 | 600 | 798 | 1,112 | 4 | 4 | 6 |
| 36a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 4,648 | 375 | 509 | 900 | 1,197 | 1,667 | 6 | 6 | 10 |
| 37a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 9,297 | 750 | 1,018 | 1,801 | 2,394 | 3,335 | 13 | 12 | 19 |
| 38a | Improved Silicon Steel (No Load Loss Reduction) | 125 | 404 | 9,297 | 750 | 1,018 | 1,801 | 2,394 | 3,335 | 13 | 12 | 19 |
| 39a | Improved Silicon Steel (No Load Loss Reduction) | 167 | 683 | 15,685 | 1,321 | 1,771 | 3,062 | 4,037 | 5,494 | 24 | 22 | 36 |
| 40a | Improved Silicon Steel (No Load Loss Reduction) | 167 | 683 | 4,481 | 377 | 506 | 875 | 1,153 | 1,570 | 7 | 6 | 10 |
| 41a | Improved Silicon Steel (No Load Loss Reduction) | 167 | 683 | 8,963 | 755 | 1,012 | 1,750 | 2,307 | 3,140 | 14 | 13 | 20 |
| 42a | Improved Silicon Steel (No Load Loss Reduction) | 139 | 535 | 67,452 | 5,618 | 7,555 | 13,141 | 17,363 | 23,774 | 101 | 92 | 150 |
| 43a | Improved Silicon Steel (No Load Loss Reduction) | 139 | 535 | 14,584 | 1,215 | 1,633 | 2,841 | 3,754 | 5,140 | 22 | 20 | 32 |
| 44a | Improved Silicon Steel (No Load Loss Reduction) | 139 | 535 | 30,991 | 2,581 | 3,471 | 6,038 | 7,977 | 10,923 | 46 | 42 | 69 |
| 45a | Improved Silicon Steel (No Load Loss Reduction) | 185 | 734 | 14,699 | 1,232 | 1,653 | 2,867 | 3,783 | 5,163 | 22 | 20 | 33 |
| 46a | Improved Silicon Steel (No Load Loss Reduction) | 185 | 734 | 7,349 | 616 | 827 | 1,433 | 1,892 | 2,582 | 11 | 10 | 17 |
| 47a | Improved Silicon Steel (No Load Loss Reduction) | 185 | 734 | 14,699 | 1,232 | 1,653 | 2,867 | 3,783 | 5,163 | 22 | 20 | 33 |
| 48a | Improved Silicon Steel (No Load Loss Reduction) | 139 | 535 | 3,646 | 304 | 408 | 710 | 939 | 1,285 | 5 | 5 | 8 |
| 49a | Improved Silicon Steel (No Load Loss Reduction) | 139 | 535 | 5,469 | 456 | 613 | 1,066 | 1,408 | 1,928 | 8 | 7 | 12 |
| 50a | Improved Silicon Steel (No Load Loss Reduction) | 176 | 748 | 16,707 | 1,418 | 1,897 | 3,267 | 4,300 | 5,825 | 26 | 24 | 39 |
| 51a | Improved Silicon Steel (No Load Loss Reduction) | 176 | 748 | 7,160 | 608 | 813 | 1,400 | 1,843 | 2,497 | 11 | 10 | 17 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| ID | ERO Equipment Characterisitics | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | Winter |
| | ERO Description | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 52a | Improved Silicon Steel (No Load Loss Reduction) | 176 | 748 | 14,321 | 1,216 | 1,626 | 2,800 | 3,686 | 4,993 | 22 | 20 | 33 |
| 53a | Improved Silicon Steel (No Load Loss Reduction) | 214 | 700 | 34,677 | 2,802 | 3,801 | 6,719 | 8,928 | 12,428 | 48 | 44 | 72 |
| 54a | Improved Silicon Steel (No Load Loss Reduction) | 214 | 700 | 42,680 | 3,448 | 4,678 | 8,269 | 10,988 | 15,296 | 59 | 54 | 89 |
| 55a | Improved Silicon Steel (No Load Loss Reduction) | 214 | 700 | 61,352 | 4,957 | 6,724 | 11,887 | 15,796 | 21,989 | 85 | 78 | 128 |
| 56a | Improved Silicon Steel (No Load Loss Reduction) | 270 | 990 | 34,895 | 2,879 | 3,882 | 6,787 | 8,983 | 12,365 | 51 | 46 | 76 |
| 57a | Improved Silicon Steel (No Load Loss Reduction) | 270 | 990 | 10,469 | 864 | 1,165 | 2,036 | 2,695 | 3,709 | 15 | 14 | 23 |
| 58a | Improved Silicon Steel (No Load Loss Reduction) | 270 | 990 | 10,469 | 864 | 1,165 | 2,036 | 2,695 | 3,709 | 15 | 14 | 23 |
| 59a | Improved Silicon Steel (No Load Loss Reduction) | 266 | 920 | 40,527 | 3,307 | 4,473 | 7,866 | 10,433 | 14,447 | 58 | 52 | 86 |
| 60a | Improved Silicon Steel (No Load Loss Reduction) | 266 | 920 | 20,263 | 1,653 | 2,237 | 3,933 | 5,217 | 7,224 | 29 | 26 | 43 |
| 61a | Improved Silicon Steel (No Load Loss Reduction) | 266 | 920 | 37,149 | 3,031 | 4,100 | 7,210 | 9,564 | 13,243 | 53 | 48 | 79 |
| 62a | Improved Silicon Steel (No Load Loss Reduction) | 334 | 1,130 | 12,621 | 1,026 | 1,389 | 2,448 | 3,249 | 4,509 | 18 | 16 | 27 |
| 63a | Improved Silicon Steel (No Load Loss Reduction) | 334 | 1,130 | 12,621 | 1,026 | 1,389 | 2,448 | 3,249 | 4,509 | 18 | 16 | 27 |
| 64a | Improved Silicon Steel (No Load Loss Reduction) | 334 | 1,130 | 12,621 | 1,026 | 1,389 | 2,448 | 3,249 | 4,509 | 18 | 16 | 27 |
| 65a | Improved Silicon Steel (No Load Loss Reduction) | 266 | 920 | 6,754 | 551 | 746 | 1,311 | 1,739 | 2,408 | 10 | 9 | 14 |
| 66a | Improved Silicon Steel (No Load Loss Reduction) | 355 | 11,130 | 47,219 | 5,507 | 6,800 | 9,880 | 12,121 | 12,912 | 140 | 124 | 192 |
| 67a | Improved Silicon Steel (No Load Loss Reduction) | 312 | 798 | 10,919 | 844 | 1,160 | 2,099 | 2,812 | 4,003 | 13 | 12 | 21 |
| 68a | Improved Silicon Steel (No Load Loss Reduction) | 398 | 1,270 | 9,849 | 792 | 1,076 | 1,907 | 2,536 | 3,538 | 13 | 12 | 20 |
| 69a | Improved Silicon Steel (No Load Loss Reduction) | 398 | 1,270 | 4,925 | 396 | 538 | 953 | 1,268 | 1,769 | 7 | 6 | 10 |
| 70a | Improved Silicon Steel (No Load Loss Reduction) | 398 | 1,270 | 4,925 | 396 | 538 | 953 | 1,268 | 1,769 | 7 | 6 | 10 |
| 71a | Improved Silicon Steel (No Load Loss Reduction) | 420 | 1,690 | 11,197 | 940 | 1,261 | 2,185 | 2,882 | 3,929 | 17 | 16 | 25 |
| 72a | Improved Silicon Steel (No Load Loss Reduction) | 420 | 1,690 | 5,598 | 470 | 631 | 1,092 | 1,441 | 1,964 | 9 | 8 | 13 |
| 73a | Improved Silicon Steel (No Load Loss Reduction) | 375 | 1,600 | 40,815 | 3,466 | 4,635 | 7,980 | 10,505 | 14,229 | 64 | 58 | 94 |
| 74a | Improved Silicon Steel (No Load Loss Reduction) | 375 | 1,600 | 5,102 | 433 | 579 | 998 | 1,313 | 1,779 | 8 | 7 | 12 |
| 75a | Improved Silicon Steel (No Load Loss Reduction) | 475 | 3,212 | 23,416 | 2,173 | 2,837 | 4,658 | 6,023 | 7,725 | 45 | 40 | 64 |
| 76a | Improved Silicon Steel (No Load Loss Reduction) | 660 | 2,420 | 25,590 | 2,111 | 2,847 | 4,977 | 6,587 | 9,067 | 37 | 34 | 56 |
| 77a | Improved Silicon Steel (No Load Loss Reduction) | 660 | 2,420 | 8,530 | 704 | 949 | 1,659 | 2,196 | 3,022 | 12 | 11 | 19 |
| 78a | Improved Silicon Steel (No Load Loss Reduction) | 788 | 3,250 | 42,357 | 3,574 | 4,788 | 8,272 | 10,902 | 14,821 | 65 | 59 | 97 |
| 79a | Improved Silicon Steel (No Load Loss Reduction) | 562 | 3,202 | 8,556 | 768 | 1,012 | 1,691 | 2,201 | 2,884 | 15 | 14 | 22 |
| 80a | Improved Silicon Steel (No Load Loss Reduction) | 788 | 3,250 | 21,178 | 1,787 | 2,394 | 4,136 | 5,451 | 7,410 | 33 | 30 | 48 |
| 81a | Improved Silicon Steel (No Load Loss Reduction) | 788 | 3,250 | 10,589 | 893 | 1,197 | 2,068 | 2,725 | 3,705 | 16 | 15 | 24 |
| 82a | Improved Silicon Steel (No Load Loss Reduction) | 1,200 | 5,200 | 16,417 | 1,398 | 1,868 | 3,212 | 4,225 | 5,713 | 26 | 24 | 38 |
| 83a | Improved Silicon Steel (No Load Loss Reduction) | 1,200 | 5,200 | 65,667 | 5,593 | 7,473 | 12,847 | 16,901 | 22,854 | 104 | 94 | 153 |
| 84a | Improved Silicon Steel (No Load Loss Reduction) | 1,200 | 5,200 | 82,084 | 6,991 | 9,342 | 16,059 | 21,126 | 28,567 | 129 | 118 | 191 |
| 85a | Improved Silicon Steel (No Load Loss Reduction) | 1,350 | 7,600 | 20,455 | 1,832 | 2,415 | 4,041 | 5,263 | 6,905 | 36 | 33 | 53 |
| 86a | Improved Silicon Steel (No Load Loss Reduction) | 1,350 | 7,600 | 20,455 | 1,832 | 2,415 | 4,041 | 5,263 | 6,905 | 36 | 33 | 53 |
| 87a | Improved Silicon Steel (No Load Loss Reduction) | 8,700 | 50,600 | 668,311 | 60,249 | 79,253 | 132,184 | 171,931 | 224,694 | 1,200 | 1,084 | 1,737 |
| 1c | Amorphous Core (No Load Loss Reduction) | 12 | 103 | 449 | 43 | 56 | 90 | 116 | 144 | 1 | 1 | 1 |
| 2c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 4,330 | 401 | 523 | 861 | 1,114 | 1,431 | 8 | 7 | 12 |
| 3c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 2,998 | 277 | 362 | 596 | 771 | 991 | 6 | 5 | 8 |
| 4c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 999 | 92 | 121 | 199 | 257 | 330 | 2 | 2 | 3 |
| 5c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 666 | 62 | 81 | 132 | 171 | 220 | 1 | 1 | 2 |
| 6c | Amorphous Core (No Load Loss Reduction) | 26 | 247 | 9,210 | 908 | 1,166 | 1,855 | 2,368 | 2,913 | 20 | 18 | 28 |
| 7c | Amorphous Core (No Load Loss Reduction) | 26 | 247 | 6,140 | 605 | 778 | 1,237 | 1,578 | 1,942 | 13 | 12 | 19 |
| 8c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 4,663 | 432 | 564 | 927 | 1,199 | 1,541 | 9 | 8 | 13 |
| 9c | Amorphous Core (No Load Loss Reduction) | 20 | 136 | 999 | 92 | 121 | 199 | 257 | 330 | 2 | 2 | 3 |
| 10c | Amorphous Core (No Load Loss Reduction) | 25 | 198 | 6,683 | 638 | 827 | 1,337 | 1,719 | 2,163 | 14 | 12 | 19 |
| 11c | Amorphous Core (No Load Loss Reduction) | 25 | 198 | 3,564 | 340 | 441 | 713 | 917 | 1,154 | 7 | 7 | 10 |
| 12c | Amorphous Core (No Load Loss Reduction) | 25 | 198 | 5,792 | 553 | 716 | 1,159 | 1,489 | 1,874 | 12 | 11 | 17 |
| 13c | Amorphous Core (No Load Loss Reduction) | 32 | 280 | 8,946 | 872 | 1,124 | 1,798 | 2,300 | 2,853 | 19 | 17 | 27 |
| 14c | Amorphous Core (No Load Loss Reduction) | 32 | 280 | 3,579 | 349 | 450 | 719 | 920 | 1,141 | 8 | 7 | 11 |
| 15c | Amorphous Core (No Load Loss Reduction) | 32 | 280 | 3,579 | 349 | 450 | 719 | 920 | 1,141 | 8 | 7 | 11 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| ID | ERO Equipment Characterisitics | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | Winter |
| | ERO Description | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 16c | Amorphous Core (No Load Loss Reduction) | 25 | 198 | 4,901 | 468 | 606 | 981 | 1,260 | 1,586 | 10 | 9 | 14 |
| 17c | Amorphous Core (No Load Loss Reduction) | 26 | 198 | 8,162 | 774 | 1,005 | 1,631 | 2,099 | 2,653 | 16 | 15 | 23 |
| 18c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 2,621 | 254 | 328 | 526 | 674 | 838 | 5 | 5 | 8 |
| 19c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 3,931 | 381 | 492 | 789 | 1,011 | 1,258 | 8 | 7 | 12 |
| 20c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 2,621 | 254 | 328 | 526 | 674 | 838 | 5 | 5 | 8 |
| 21c | Amorphous Core (No Load Loss Reduction) | 45 | 430 | 27,271 | 2,701 | 3,466 | 5,499 | 7,011 | 8,594 | 60 | 53 | 84 |
| 22c | Amorphous Core (No Load Loss Reduction) | 45 | 430 | 15,835 | 1,568 | 2,013 | 3,193 | 4,071 | 4,990 | 35 | 31 | 49 |
| 23c | Amorphous Core (No Load Loss Reduction) | 45 | 430 | 5,278 | 523 | 671 | 1,064 | 1,357 | 1,663 | 12 | 10 | 16 |
| 24c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 1,966 | 191 | 246 | 395 | 505 | 629 | 4 | 4 | 6 |
| 25c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 1,966 | 191 | 246 | 395 | 505 | 629 | 4 | 4 | 6 |
| 26c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 3,931 | 381 | 492 | 789 | 1,011 | 1,258 | 8 | 7 | 12 |
| 27c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 11,794 | 1,144 | 1,477 | 2,368 | 3,032 | 3,773 | 25 | 22 | 35 |
| 28c | Amorphous Core (No Load Loss Reduction) | 35 | 304 | 3,931 | 381 | 492 | 789 | 1,011 | 1,258 | 8 | 7 | 12 |
| 29c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 10,739 | 1,031 | 1,334 | 2,151 | 2,761 | 3,461 | 22 | 20 | 31 |
| 30c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 16,108 | 1,547 | 2,001 | 3,227 | 4,142 | 5,191 | 33 | 30 | 47 |
| 31c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 4,474 | 430 | 556 | 896 | 1,151 | 1,442 | 9 | 8 | 13 |
| 32c | Amorphous Core (No Load Loss Reduction) | 59 | 585 | 7,107 | 707 | 906 | 1,434 | 1,827 | 2,233 | 16 | 14 | 22 |
| 33c | Amorphous Core (No Load Loss Reduction) | 59 | 585 | 3,553 | 353 | 453 | 717 | 913 | 1,116 | 8 | 7 | 11 |
| 34c | Amorphous Core (No Load Loss Reduction) | 59 | 585 | 3,553 | 353 | 453 | 717 | 913 | 1,116 | 8 | 7 | 11 |
| 35c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 1,790 | 172 | 222 | 359 | 460 | 577 | 4 | 3 | 5 |
| 36c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 2,685 | 258 | 334 | 538 | 690 | 865 | 6 | 5 | 8 |
| 37c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 5,369 | 516 | 667 | 1,076 | 1,381 | 1,730 | 11 | 10 | 16 |
| 38c | Amorphous Core (No Load Loss Reduction) | 50 | 404 | 5,369 | 516 | 667 | 1,076 | 1,381 | 1,730 | 11 | 10 | 16 |
| 39c | Amorphous Core (No Load Loss Reduction) | 67 | 683 | 9,530 | 954 | 1,221 | 1,926 | 2,450 | 2,980 | 21 | 19 | 30 |
| 40c | Amorphous Core (No Load Loss Reduction) | 67 | 683 | 2,723 | 272 | 349 | 550 | 700 | 851 | 6 | 5 | 9 |
| 41c | Amorphous Core (No Load Loss Reduction) | 67 | 683 | 5,445 | 545 | 698 | 1,100 | 1,400 | 1,703 | 12 | 11 | 17 |
| 42c | Amorphous Core (No Load Loss Reduction) | 56 | 535 | 40,460 | 4,008 | 5,144 | 8,158 | 10,401 | 12,747 | 88 | 79 | 125 |
| 43c | Amorphous Core (No Load Loss Reduction) | 56 | 535 | 8,748 | 867 | 1,112 | 1,764 | 2,249 | 2,756 | 19 | 17 | 27 |
| 44c | Amorphous Core (No Load Loss Reduction) | 56 | 535 | 18,590 | 1,842 | 2,364 | 3,748 | 4,779 | 5,857 | 41 | 36 | 57 |
| 45c | Amorphous Core (No Load Loss Reduction) | 74 | 734 | 8,878 | 884 | 1,134 | 1,792 | 2,282 | 2,786 | 20 | 18 | 28 |
| 46c | Amorphous Core (No Load Loss Reduction) | 74 | 734 | 4,439 | 442 | 567 | 896 | 1,141 | 1,393 | 10 | 9 | 14 |
| 47c | Amorphous Core (No Load Loss Reduction) | 74 | 734 | 8,878 | 884 | 1,134 | 1,792 | 2,282 | 2,786 | 20 | 18 | 28 |
| 48c | Amorphous Core (No Load Loss Reduction) | 56 | 535 | 2,187 | 217 | 278 | 441 | 562 | 689 | 5 | 4 | 7 |
| 49c | Amorphous Core (No Load Loss Reduction) | 56 | 535 | 3,281 | 325 | 417 | 661 | 843 | 1,034 | 7 | 6 | 10 |
| 50c | Amorphous Core (No Load Loss Reduction) | 70 | 748 | 10,248 | 1,033 | 1,320 | 2,074 | 2,634 | 3,186 | 23 | 21 | 33 |
| 51c | Amorphous Core (No Load Loss Reduction) | 70 | 748 | 4,392 | 443 | 566 | 889 | 1,129 | 1,366 | 10 | 9 | 14 |
| 52c | Amorphous Core (No Load Loss Reduction) | 70 | 748 | 8,784 | 886 | 1,132 | 1,778 | 2,258 | 2,731 | 20 | 18 | 28 |
| 53c | Amorphous Core (No Load Loss Reduction) | 86 | 700 | 20,067 | 1,930 | 2,496 | 4,021 | 5,160 | 6,460 | 41 | 37 | 59 |
| 54c | Amorphous Core (No Load Loss Reduction) | 86 | 700 | 24,698 | 2,376 | 3,072 | 4,949 | 6,351 | 7,950 | 51 | 46 | 72 |
| 55c | Amorphous Core (No Load Loss Reduction) | 86 | 700 | 35,504 | 3,415 | 4,416 | 7,115 | 9,129 | 11,429 | 73 | 66 | 104 |
| 56c | Amorphous Core (No Load Loss Reduction) | 108 | 990 | 20,699 | 2,032 | 2,614 | 4,166 | 5,322 | 6,565 | 44 | 40 | 63 |
| 57c | Amorphous Core (No Load Loss Reduction) | 108 | 990 | 6,210 | 610 | 784 | 1,250 | 1,596 | 1,970 | 13 | 12 | 19 |
| 58c | Amorphous Core (No Load Loss Reduction) | 108 | 990 | 6,210 | 610 | 784 | 1,250 | 1,596 | 1,970 | 13 | 12 | 19 |
| 59c | Amorphous Core (No Load Loss Reduction) | 107 | 920 | 23,728 | 2,305 | 2,973 | 4,765 | 6,101 | 7,585 | 50 | 45 | 71 |
| 60c | Amorphous Core (No Load Loss Reduction) | 107 | 920 | 11,864 | 1,152 | 1,486 | 2,382 | 3,050 | 3,792 | 25 | 22 | 35 |
| 61c | Amorphous Core (No Load Loss Reduction) | 107 | 920 | 21,751 | 2,113 | 2,725 | 4,368 | 5,592 | 6,953 | 46 | 41 | 65 |
| 62c | Amorphous Core (No Load Loss Reduction) | 134 | 1,130 | 7,357 | 712 | 919 | 1,476 | 1,892 | 2,358 | 15 | 14 | 22 |
| 63c | Amorphous Core (No Load Loss Reduction) | 134 | 1,130 | 7,357 | 712 | 919 | 1,476 | 1,892 | 2,358 | 15 | 14 | 22 |
| 64c | Amorphous Core (No Load Loss Reduction) | 134 | 1,130 | 7,357 | 712 | 919 | 1,476 | 1,892 | 2,358 | 15 | 14 | 22 |
| 65c | Amorphous Core (No Load Loss Reduction) | 107 | 920 | 3,955 | 384 | 495 | 794 | 1,017 | 1,264 | 8 | 7 | 12 |
| 66c | Amorphous Core (No Load Loss Reduction) | 142 | 11,130 | 41,624 | 5,173 | 6,300 | 8,847 | 10,678 | 10,626 | 137 | 122 | 187 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| ID | ERO Description | ERO Equipment Characteristics: No Load Loss (Watts) | Load Loss (Watts) | Energy: Annual Total (kWh/yr) | Energy: Summer On-Peak (kWh/yr) | Energy: Summer Mid-Peak (kWh/yr) | Energy: Summer Off-Peak (kWh/yr) | Energy: Winter Mid-Peak (kWh/yr) | Energy: Winter Off-Peak (kWh/yr) | Demand: Summer On-Peak (kW-mo) | Demand: Summer Mid-Peak (kW-mo) | Demand: Winter Mid-Peak (kW-mo) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67c | Amorphous Core (No Load Loss Reduction) | 125 | 798 | 5,998 | 551 | 721 | 1,191 | 1,543 | 1,993 | 11 | 10 | 16 |
| 68c | Amorphous Core (No Load Loss Reduction) | 159 | 1,270 | 5,669 | 543 | 703 | 1,135 | 1,458 | 1,831 | 12 | 10 | 16 |
| 69c | Amorphous Core (No Load Loss Reduction) | 159 | 1,270 | 2,835 | 271 | 351 | 568 | 729 | 915 | 6 | 5 | 8 |
| 70c | Amorphous Core (No Load Loss Reduction) | 159 | 1,270 | 2,835 | 271 | 351 | 568 | 729 | 915 | 6 | 5 | 8 |
| 71c | Amorphous Core (No Load Loss Reduction) | 168 | 1,690 | 6,780 | 677 | 867 | 1,369 | 1,743 | 2,124 | 15 | 14 | 21 |
| 72c | Amorphous Core (No Load Loss Reduction) | 168 | 1,690 | 3,390 | 338 | 433 | 685 | 871 | 1,062 | 8 | 7 | 11 |
| 73c | Amorphous Core (No Load Loss Reduction) | 150 | 1,600 | 25,042 | 2,525 | 3,226 | 5,069 | 6,437 | 7,785 | 57 | 51 | 80 |
| 74c | Amorphous Core (No Load Loss Reduction) | 150 | 1,600 | 3,130 | 316 | 403 | 634 | 805 | 973 | 7 | 6 | 10 |
| 75c | Amorphous Core (No Load Loss Reduction) | 190 | 3,212 | 15,928 | 1,727 | 2,168 | 3,276 | 4,091 | 4,666 | 41 | 37 | 57 |
| 76c | Amorphous Core (No Load Loss Reduction) | 264 | 2,420 | 15,179 | 1,490 | 1,917 | 3,055 | 3,902 | 4,814 | 33 | 29 | 46 |
| 77c | Amorphous Core (No Load Loss Reduction) | 264 | 2,420 | 5,060 | 497 | 639 | 1,018 | 1,301 | 1,605 | 11 | 10 | 15 |
| 78c | Amorphous Core (No Load Loss Reduction) | 315 | 3,250 | 25,795 | 2,586 | 3,309 | 5,215 | 6,630 | 8,054 | 58 | 52 | 81 |
| 79c | Amorphous Core (No Load Loss Reduction) | 225 | 3,202 | 5,603 | 592 | 748 | 1,146 | 1,440 | 1,677 | 14 | 12 | 19 |
| 80c | Amorphous Core (No Load Loss Reduction) | 315 | 3,250 | 12,897 | 1,293 | 1,655 | 2,607 | 3,315 | 4,027 | 29 | 26 | 41 |
| 81c | Amorphous Core (No Load Loss Reduction) | 315 | 3,250 | 6,449 | 647 | 827 | 1,304 | 1,658 | 2,014 | 14 | 13 | 20 |
| 82c | Amorphous Core (No Load Loss Reduction) | 480 | 5,200 | 10,108 | 1,022 | 1,305 | 2,047 | 2,598 | 3,136 | 23 | 21 | 32 |
| 83c | Amorphous Core (No Load Loss Reduction) | 480 | 5,200 | 40,430 | 4,088 | 5,220 | 8,188 | 10,392 | 12,543 | 92 | 83 | 130 |
| 84c | Amorphous Core (No Load Loss Reduction) | 480 | 5,200 | 50,538 | 5,109 | 6,524 | 10,235 | 12,990 | 15,679 | 115 | 103 | 162 |
| 85c | Amorphous Core (No Load Loss Reduction) | 540 | 7,600 | 13,357 | 1,409 | 1,781 | 2,730 | 3,432 | 4,005 | 33 | 30 | 46 |
| 86c | Amorphous Core (No Load Loss Reduction) | 540 | 7,600 | 13,357 | 1,409 | 1,781 | 2,730 | 3,432 | 4,005 | 33 | 30 | 46 |
| 1e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 31 | 82 | 726 | 57 | 78 | 140 | 187 | 265 | 1 | 1 | 1 |
| 2e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 7,415 | 556 | 772 | 1,418 | 1,910 | 2,759 | 8 | 8 | 13 |
| 3e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 5,133 | 385 | 534 | 982 | 1,322 | 1,910 | 6 | 5 | 9 |
| 4e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 1,711 | 128 | 178 | 327 | 441 | 637 | 2 | 2 | 3 |
| 5e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 1,141 | 86 | 119 | 218 | 294 | 424 | 1 | 1 | 2 |
| 6e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 66 | 198 | 14,447 | 1,148 | 1,565 | 2,791 | 3,720 | 5,223 | 19 | 18 | 29 |
| 7e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 66 | 198 | 9,631 | 766 | 1,044 | 1,861 | 2,480 | 3,482 | 13 | 12 | 19 |
| 8e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 7,985 | 599 | 831 | 1,527 | 2,057 | 2,971 | 9 | 8 | 14 |
| 9e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 51 | 109 | 1,711 | 128 | 178 | 327 | 441 | 637 | 2 | 2 | 3 |
| 10e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 63 | 158 | 10,977 | 846 | 1,164 | 2,109 | 2,827 | 4,031 | 13 | 12 | 21 |
| 11e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 63 | 158 | 5,855 | 451 | 621 | 1,125 | 1,508 | 2,150 | 7 | 7 | 11 |
| 12e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 63 | 158 | 9,514 | 733 | 1,009 | 1,828 | 2,450 | 3,493 | 12 | 11 | 18 |
| 13e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 80 | 224 | 14,263 | 1,121 | 1,534 | 2,750 | 3,673 | 5,185 | 18 | 17 | 28 |
| 14e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 80 | 224 | 5,705 | 449 | 613 | 1,100 | 1,469 | 2,074 | 7 | 7 | 11 |
| 15e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 80 | 224 | 5,705 | 449 | 613 | 1,100 | 1,469 | 2,074 | 7 | 7 | 11 |
| 16e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 63 | 158 | 8,050 | 621 | 854 | 1,547 | 2,073 | 2,956 | 10 | 9 | 15 |
| 17e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 65 | 158 | 13,528 | 1,037 | 1,429 | 2,597 | 3,484 | 4,982 | 16 | 15 | 25 |
| 18e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 4,206 | 329 | 451 | 810 | 1,083 | 1,532 | 5 | 5 | 8 |
| 19e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 6,309 | 494 | 676 | 1,216 | 1,625 | 2,299 | 8 | 7 | 12 |
| 20e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 4,206 | 329 | 451 | 810 | 1,083 | 1,532 | 5 | 5 | 8 |
| 21e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 112 | 344 | 42,459 | 3,392 | 4,617 | 8,210 | 10,932 | 15,309 | 57 | 52 | 86 |
| 22e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 112 | 344 | 24,654 | 1,969 | 2,681 | 4,767 | 6,348 | 8,889 | 33 | 30 | 50 |
| 23e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 112 | 344 | 8,218 | 656 | 894 | 1,589 | 2,116 | 2,963 | 11 | 10 | 17 |
| 24e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 3,155 | 247 | 338 | 608 | 812 | 1,149 | 4 | 4 | 6 |
| 25e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 3,155 | 247 | 338 | 608 | 812 | 1,149 | 4 | 4 | 6 |
| 26e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 6,309 | 494 | 676 | 1,216 | 1,625 | 2,299 | 8 | 7 | 12 |
| 27e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 18,927 | 1,482 | 2,029 | 3,647 | 4,874 | 6,896 | 24 | 22 | 37 |
| 28e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 89 | 243 | 6,309 | 494 | 676 | 1,216 | 1,625 | 2,299 | 8 | 7 | 12 |
| 29e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 17,493 | 1,356 | 1,862 | 3,364 | 4,505 | 6,406 | 22 | 20 | 33 |
| 30e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 26,240 | 2,034 | 2,793 | 5,047 | 6,758 | 9,608 | 33 | 30 | 50 |
| 31e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 7,289 | 565 | 776 | 1,402 | 1,877 | 2,669 | 9 | 8 | 14 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| ERO Equipment Characteristics | | | | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | Winter |
| ID | ERO Description | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) |
| 32e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 149 | 468 | 10,994 | 882 | 1,199 | 2,127 | 2,831 | 3,955 | 15 | 14 | 23 |
| 33e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 149 | 468 | 5,497 | 441 | 600 | 1,064 | 1,415 | 1,978 | 7 | 7 | 11 |
| 34e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 149 | 468 | 5,497 | 441 | 600 | 1,064 | 1,415 | 1,978 | 7 | 7 | 11 |
| 35e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 2,916 | 226 | 310 | 561 | 751 | 1,068 | 4 | 3 | 6 |
| 36e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 4,373 | 339 | 466 | 841 | 1,126 | 1,601 | 5 | 5 | 8 |
| 37e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 8,747 | 678 | 931 | 1,682 | 2,253 | 3,203 | 11 | 10 | 17 |
| 38e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 125 | 323 | 8,747 | 678 | 931 | 1,682 | 2,253 | 3,203 | 11 | 10 | 17 |
| 39e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 167 | 546 | 14,600 | 1,179 | 1,600 | 2,828 | 3,759 | 5,234 | 20 | 18 | 30 |
| 40e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 167 | 546 | 4,171 | 337 | 457 | 808 | 1,074 | 1,495 | 6 | 5 | 9 |
| 41e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 167 | 546 | 8,343 | 674 | 914 | 1,616 | 2,148 | 2,991 | 12 | 11 | 17 |
| 42e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 139 | 428 | 62,959 | 5,031 | 6,847 | 12,174 | 16,211 | 22,695 | 85 | 78 | 128 |
| 43e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 139 | 428 | 13,613 | 1,088 | 1,481 | 2,632 | 3,505 | 4,907 | 18 | 17 | 28 |
| 44e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 139 | 428 | 28,927 | 2,312 | 3,146 | 5,593 | 7,448 | 10,428 | 39 | 36 | 59 |
| 45e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 185 | 587 | 13,699 | 1,101 | 1,496 | 2,652 | 3,527 | 4,923 | 19 | 17 | 28 |
| 46e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 185 | 587 | 6,849 | 550 | 748 | 1,326 | 1,764 | 2,462 | 9 | 9 | 14 |
| 47e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 185 | 587 | 13,699 | 1,101 | 1,496 | 2,652 | 3,527 | 4,923 | 19 | 17 | 28 |
| 48e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 139 | 428 | 3,403 | 272 | 370 | 658 | 876 | 1,227 | 5 | 4 | 7 |
| 49e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 139 | 428 | 5,105 | 408 | 555 | 987 | 1,314 | 1,840 | 7 | 6 | 10 |
| 50e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 176 | 598 | 15,519 | 1,263 | 1,710 | 3,011 | 3,995 | 5,540 | 22 | 20 | 33 |
| 51e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 176 | 598 | 6,651 | 541 | 733 | 1,290 | 1,712 | 2,374 | 9 | 9 | 14 |
| 52e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 176 | 598 | 13,302 | 1,083 | 1,466 | 2,581 | 3,425 | 4,748 | 19 | 17 | 28 |
| 53e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 214 | 560 | 32,612 | 2,532 | 3,475 | 6,274 | 8,399 | 11,932 | 41 | 37 | 62 |
| 54e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 214 | 560 | 40,138 | 3,116 | 4,278 | 7,722 | 10,337 | 14,686 | 50 | 46 | 77 |
| 55e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 214 | 560 | 57,698 | 4,479 | 6,149 | 11,100 | 14,859 | 21,111 | 72 | 66 | 110 |
| 56e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 270 | 792 | 32,648 | 2,586 | 3,528 | 6,303 | 8,407 | 11,825 | 43 | 39 | 65 |
| 57e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 270 | 792 | 9,794 | 776 | 1,058 | 1,891 | 2,522 | 3,547 | 13 | 12 | 20 |
| 58e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 270 | 792 | 9,794 | 776 | 1,058 | 1,891 | 2,522 | 3,547 | 13 | 12 | 20 |
| 59e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 266 | 736 | 38,021 | 2,979 | 4,079 | 7,326 | 9,791 | 13,845 | 49 | 45 | 74 |
| 60e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 266 | 736 | 19,010 | 1,490 | 2,039 | 3,663 | 4,895 | 6,923 | 24 | 22 | 37 |
| 61e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 266 | 736 | 34,852 | 2,731 | 3,739 | 6,716 | 8,975 | 12,692 | 45 | 41 | 68 |
| 62e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 334 | 904 | 11,852 | 925 | 1,268 | 2,282 | 3,052 | 4,324 | 15 | 14 | 23 |
| 63e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 334 | 904 | 11,852 | 925 | 1,268 | 2,282 | 3,052 | 4,324 | 15 | 14 | 23 |
| 64e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 334 | 904 | 11,852 | 925 | 1,268 | 2,282 | 3,052 | 4,324 | 15 | 14 | 23 |
| 65e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 266 | 736 | 6,337 | 497 | 680 | 1,221 | 1,632 | 2,308 | 8 | 7 | 12 |
| 66e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 355 | 8,904 | 39,641 | 4,517 | 5,606 | 8,248 | 10,178 | 11,092 | 113 | 100 | 155 |
| 67e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 312 | 638 | 10,376 | 773 | 1,075 | 1,982 | 2,673 | 3,873 | 12 | 11 | 18 |
| 68e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 398 | 1,016 | 9,273 | 717 | 985 | 1,783 | 2,388 | 3,400 | 11 | 10 | 18 |
| 69e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 398 | 1,016 | 4,636 | 358 | 493 | 891 | 1,194 | 1,700 | 6 | 5 | 9 |
| 70e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 398 | 1,016 | 4,636 | 358 | 493 | 891 | 1,194 | 1,700 | 6 | 5 | 9 |
| 71e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 420 | 1,352 | 10,430 | 840 | 1,141 | 2,020 | 2,685 | 3,744 | 14 | 13 | 22 |
| 72e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 420 | 1,352 | 5,215 | 420 | 570 | 1,010 | 1,343 | 1,872 | 7 | 7 | 11 |
| 73e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 375 | 1,280 | 37,910 | 3,086 | 4,178 | 7,355 | 9,760 | 13,531 | 54 | 49 | 80 |
| 74e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 375 | 1,280 | 4,739 | 386 | 522 | 919 | 1,220 | 1,691 | 7 | 6 | 10 |
| 75e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 475 | 2,570 | 21,229 | 1,887 | 2,492 | 4,187 | 5,462 | 7,200 | 37 | 33 | 54 |
| 76e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 660 | 1,936 | 23,942 | 1,896 | 2,587 | 4,622 | 6,165 | 8,671 | 31 | 29 | 48 |
| 77e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 660 | 1,936 | 7,981 | 632 | 862 | 1,541 | 2,055 | 2,890 | 10 | 10 | 16 |
| 78e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 788 | 2,600 | 39,406 | 3,188 | 4,324 | 7,637 | 10,145 | 14,112 | 55 | 50 | 82 |
| 79e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 562 | 2,562 | 7,830 | 673 | 897 | 1,535 | 2,015 | 2,709 | 13 | 11 | 19 |
| 80e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 788 | 2,600 | 19,703 | 1,594 | 2,162 | 3,818 | 5,073 | 7,056 | 27 | 25 | 41 |
| 81e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 788 | 2,600 | 9,851 | 797 | 1,081 | 1,909 | 2,536 | 3,528 | 14 | 13 | 21 |
| 82e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 1,200 | 4,160 | 15,237 | 1,244 | 1,682 | 2,958 | 3,923 | 5,430 | 22 | 20 | 32 |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| | ERO Equipment Characterisitics | | | Energy | | | | | | Demand | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Summer | | | Winter | | Summer | | | Winter |
| ID | ERO Description | No Load Loss (Watts) | Load Loss (Watts) | Annual Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) | |
| 83e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 1,200 | 4,160 | 60,946 | 4,976 | 6,730 | 11,830 | 15,690 | 21,720 | 87 | 79 | 130 | |
| 84e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 1,200 | 4,160 | 76,183 | 6,220 | 8,412 | 14,788 | 19,613 | 27,150 | 108 | 99 | 162 | |
| 85e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 1,350 | 6,080 | 18,730 | 1,607 | 2,143 | 3,669 | 4,820 | 6,490 | 30 | 27 | 44 | |
| 86e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 1,350 | 6,080 | 18,730 | 1,607 | 2,143 | 3,669 | 4,820 | 6,490 | 30 | 27 | 44 | |
| 87e | Imprvd Silicon Steel/Windings (No Load & Load Loss Rdctn) | 8,700 | 40,480 | 610,886 | 52,747 | 70,211 | 119,821 | 157,207 | 210,900 | 995 | 902 | 1,459 | |
| 1g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 12 | 82 | 403 | 37 | 49 | 80 | 104 | 133 | 1 | 1 | 1 | |
| 2g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 3,929 | 348 | 460 | 775 | 1,011 | 1,335 | 7 | 6 | 10 | |
| 3g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 2,720 | 241 | 319 | 536 | 700 | 924 | 5 | 4 | 7 | |
| 4g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 907 | 80 | 106 | 179 | 233 | 308 | 2 | 1 | 2 | |
| 5g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 604 | 54 | 71 | 119 | 156 | 205 | 1 | 1 | 2 | |
| 6g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 26 | 198 | 8,201 | 776 | 1,007 | 1,638 | 2,109 | 2,671 | 16 | 15 | 23 | |
| 7g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 26 | 198 | 5,467 | 517 | 672 | 1,092 | 1,406 | 1,781 | 11 | 10 | 16 | |
| 8g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 4,231 | 375 | 496 | 834 | 1,089 | 1,438 | 7 | 7 | 11 | |
| 9g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 20 | 109 | 907 | 80 | 106 | 179 | 233 | 308 | 2 | 1 | 2 | |
| 10g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 25 | 158 | 6,009 | 550 | 720 | 1,192 | 1,546 | 2,001 | 11 | 10 | 16 | |
| 11g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 25 | 158 | 3,205 | 293 | 384 | 636 | 824 | 1,067 | 6 | 5 | 9 | |
| 12g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 25 | 158 | 5,208 | 477 | 624 | 1,033 | 1,340 | 1,734 | 10 | 9 | 14 | |
| 13g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 32 | 224 | 7,993 | 748 | 974 | 1,593 | 2,056 | 2,624 | 16 | 14 | 22 | |
| 14g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 32 | 224 | 3,197 | 299 | 389 | 637 | 822 | 1,049 | 6 | 6 | 9 | |
| 15g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 32 | 224 | 3,197 | 299 | 389 | 637 | 822 | 1,049 | 6 | 6 | 9 | |
| 16g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 25 | 158 | 4,406 | 403 | 528 | 874 | 1,133 | 1,467 | 8 | 7 | 12 | |
| 17g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 26 | 158 | 7,353 | 668 | 877 | 1,457 | 1,891 | 2,459 | 13 | 12 | 19 | |
| 18g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 2,345 | 218 | 285 | 467 | 603 | 772 | 5 | 4 | 6 | |
| 19g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 3,517 | 327 | 427 | 700 | 905 | 1,158 | 7 | 6 | 10 | |
| 20g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 2,345 | 218 | 285 | 467 | 603 | 772 | 5 | 4 | 6 | |
| 21g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 45 | 344 | 24,245 | 2,305 | 2,990 | 4,847 | 6,235 | 7,868 | 49 | 44 | 70 | |
| 22g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 45 | 344 | 14,078 | 1,339 | 1,736 | 2,814 | 3,620 | 4,568 | 28 | 25 | 40 | |
| 23g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 45 | 344 | 4,693 | 446 | 579 | 938 | 1,207 | 1,523 | 9 | 8 | 13 | |
| 24g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 1,759 | 164 | 213 | 350 | 452 | 579 | 3 | 3 | 5 | |
| 25g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 1,759 | 164 | 213 | 350 | 452 | 579 | 3 | 3 | 5 | |
| 26g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 3,517 | 327 | 427 | 700 | 905 | 1,158 | 7 | 6 | 10 | |
| 27g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 10,552 | 982 | 1,281 | 2,100 | 2,714 | 3,474 | 20 | 18 | 29 | |
| 28g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 35 | 243 | 3,517 | 327 | 427 | 700 | 905 | 1,158 | 7 | 6 | 10 | |
| 29g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 9,638 | 887 | 1,161 | 1,914 | 2,479 | 3,197 | 18 | 16 | 26 | |
| 30g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 14,457 | 1,331 | 1,741 | 2,871 | 3,719 | 4,795 | 27 | 25 | 39 | |
| 31g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 4,016 | 370 | 484 | 798 | 1,033 | 1,332 | 8 | 7 | 11 | |
| 32g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 59 | 468 | 6,310 | 603 | 781 | 1,263 | 1,623 | 2,041 | 13 | 12 | 18 | |
| 33g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 59 | 468 | 3,155 | 301 | 390 | 631 | 811 | 1,021 | 6 | 6 | 9 | |
| 34g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 59 | 468 | 3,155 | 301 | 390 | 631 | 811 | 1,021 | 6 | 6 | 9 | |
| 35g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 1,606 | 148 | 193 | 319 | 413 | 533 | 3 | 3 | 4 | |
| 36g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 2,410 | 222 | 290 | 479 | 620 | 799 | 5 | 4 | 7 | |
| 37g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 4,819 | 444 | 580 | 957 | 1,240 | 1,598 | 9 | 8 | 13 | |
| 38g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 50 | 323 | 4,819 | 444 | 580 | 957 | 1,240 | 1,598 | 9 | 8 | 13 | |
| 39g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 67 | 546 | 8,444 | 812 | 1,050 | 1,692 | 2,171 | 2,719 | 17 | 16 | 25 | |
| 40g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 67 | 546 | 2,413 | 232 | 300 | 483 | 620 | 777 | 5 | 4 | 7 | |
| 41g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 67 | 546 | 4,825 | 464 | 600 | 967 | 1,241 | 1,554 | 10 | 9 | 14 | |
| 42g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 56 | 428 | 35,967 | 3,421 | 4,437 | 7,191 | 9,249 | 11,668 | 72 | 65 | 103 | |
| 43g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 56 | 428 | 7,777 | 740 | 959 | 1,555 | 2,000 | 2,523 | 16 | 14 | 22 | |
| 44g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 56 | 428 | 16,525 | 1,572 | 2,039 | 3,304 | 4,250 | 5,361 | 33 | 30 | 47 | |
| 45g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 74 | 587 | 7,879 | 754 | 976 | 1,577 | 2,026 | 2,546 | 16 | 14 | 23 | |
| 46g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 74 | 587 | 3,939 | 377 | 488 | 789 | 1,013 | 1,273 | 8 | 7 | 11 | |

## Table 2.30. (contd)

### Transformer ERO Operating Parameters

| ID | ERO Description | ERO Equipment Characteristics: No Load Loss (Watts) | Load Loss (Watts) | Energy: Annual Total (kWh/yr) | Energy: Summer On-Peak (kWh/yr) | Energy: Summer Mid-Peak (kWh/yr) | Energy: Summer Off-Peak (kWh/yr) | Energy: Winter Mid-Peak (kWh/yr) | Energy: Winter Off-Peak (kWh/yr) | Demand: Summer On-Peak (kW-mo) | Demand: Summer Mid-Peak (kW-mo) | Demand: Winter Mid-Peak (kW-mo) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 74 | 587 | 7,879 | 754 | 976 | 1,577 | 2,026 | 2,546 | 16 | 14 | 23 |
| 48g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 56 | 428 | 1,944 | 185 | 240 | 389 | 500 | 631 | 4 | 4 | 6 |
| 49g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 56 | 428 | 2,916 | 277 | 360 | 583 | 750 | 946 | 6 | 5 | 8 |
| 50g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 70 | 598 | 9,060 | 878 | 1,133 | 1,818 | 2,329 | 2,901 | 19 | 17 | 27 |
| 51g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 70 | 598 | 3,883 | 376 | 486 | 779 | 998 | 1,243 | 8 | 7 | 12 |
| 52g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 70 | 598 | 7,766 | 753 | 971 | 1,559 | 1,997 | 2,487 | 16 | 15 | 23 |
| 53g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 86 | 560 | 18,002 | 1,660 | 2,171 | 3,577 | 4,630 | 5,964 | 34 | 31 | 49 |
| 54g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 86 | 560 | 22,156 | 2,044 | 2,672 | 4,402 | 5,699 | 7,340 | 42 | 38 | 60 |
| 55g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 86 | 560 | 31,849 | 2,938 | 3,841 | 6,328 | 8,192 | 10,551 | 60 | 54 | 86 |
| 56g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 108 | 792 | 18,452 | 1,739 | 2,260 | 3,682 | 4,745 | 6,025 | 36 | 33 | 52 |
| 57g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 108 | 792 | 5,536 | 522 | 678 | 1,105 | 1,424 | 1,808 | 11 | 10 | 16 |
| 58g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 108 | 792 | 5,536 | 522 | 678 | 1,105 | 1,424 | 1,808 | 11 | 10 | 16 |
| 59g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 107 | 736 | 21,222 | 1,978 | 2,578 | 4,225 | 5,458 | 6,983 | 41 | 37 | 59 |
| 60g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 107 | 736 | 10,611 | 989 | 1,289 | 2,113 | 2,729 | 3,491 | 20 | 18 | 29 |
| 61g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 107 | 736 | 19,454 | 1,813 | 2,364 | 3,873 | 5,003 | 6,401 | 38 | 34 | 54 |
| 62g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 134 | 904 | 6,587 | 611 | 798 | 1,310 | 1,694 | 2,173 | 13 | 11 | 18 |
| 63g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 134 | 904 | 6,587 | 611 | 798 | 1,310 | 1,694 | 2,173 | 13 | 11 | 18 |
| 64g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 134 | 904 | 6,587 | 611 | 798 | 1,310 | 1,694 | 2,173 | 13 | 11 | 18 |
| 65g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 107 | 736 | 3,537 | 330 | 430 | 704 | 910 | 1,164 | 7 | 6 | 10 |
| 66g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 142 | 8,904 | 34,045 | 4,183 | 5,107 | 7,215 | 8,735 | 8,806 | 110 | 98 | 150 |
| 67g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 125 | 638 | 5,454 | 480 | 635 | 1,074 | 1,403 | 1,862 | 9 | 8 | 14 |
| 68g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 159 | 1,016 | 5,093 | 467 | 612 | 1,011 | 1,310 | 1,692 | 10 | 9 | 14 |
| 69g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 159 | 1,016 | 2,546 | 234 | 306 | 505 | 655 | 846 | 5 | 4 | 7 |
| 70g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 159 | 1,016 | 2,546 | 234 | 306 | 505 | 655 | 846 | 5 | 4 | 7 |
| 71g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 168 | 1,352 | 6,013 | 577 | 746 | 1,204 | 1,546 | 1,940 | 12 | 11 | 18 |
| 72g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 168 | 1,352 | 3,007 | 288 | 373 | 602 | 773 | 970 | 6 | 6 | 9 |
| 73g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 150 | 1,280 | 22,137 | 2,146 | 2,769 | 4,443 | 5,692 | 7,087 | 46 | 42 | 66 |
| 74g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 150 | 1,280 | 2,767 | 268 | 346 | 555 | 711 | 886 | 6 | 5 | 8 |
| 75g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 190 | 2,570 | 13,741 | 1,441 | 1,823 | 2,805 | 3,531 | 4,141 | 34 | 30 | 47 |
| 76g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 264 | 1,936 | 13,532 | 1,275 | 1,658 | 2,700 | 3,480 | 4,419 | 27 | 24 | 38 |
| 77g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 264 | 1,936 | 4,511 | 425 | 553 | 900 | 1,160 | 1,473 | 9 | 8 | 13 |
| 78g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 315 | 2,600 | 22,844 | 2,201 | 2,845 | 4,579 | 5,874 | 7,346 | 47 | 42 | 67 |
| 79g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 225 | 2,562 | 4,876 | 497 | 634 | 989 | 1,253 | 1,503 | 11 | 10 | 16 |
| 80g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 315 | 2,600 | 11,422 | 1,100 | 1,422 | 2,290 | 2,937 | 3,673 | 24 | 21 | 34 |
| 81g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 315 | 2,600 | 5,711 | 550 | 711 | 1,145 | 1,468 | 1,836 | 12 | 11 | 17 |
| 82g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 480 | 4,160 | 8,927 | 868 | 1,119 | 1,793 | 2,295 | 2,852 | 19 | 17 | 27 |
| 83g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 480 | 4,160 | 35,709 | 3,471 | 4,476 | 7,172 | 9,181 | 11,409 | 75 | 68 | 107 |
| 84g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 480 | 4,160 | 44,636 | 4,338 | 5,595 | 8,964 | 11,477 | 14,262 | 94 | 84 | 133 |
| 85g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 540 | 6,080 | 11,632 | 1,184 | 1,509 | 2,359 | 2,990 | 3,591 | 27 | 24 | 38 |
| 86g | Amorph. Core/Imprvd Windings (No Load & Load Loss Rdctn) | 540 | 6,080 | 11,632 | 1,184 | 1,509 | 2,359 | 2,990 | 3,591 | 27 | 24 | 38 |

## Table 2.30. (contd)

Transformer ERO Economic Parameters

| ID | RI/ ROF | Time to Failure | First Cost (1994 $) | Xfmr Life (years) | First Year Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1g | ROF | 10 | 2,445 | 30 | 550 | 1 | 17 | 5 | 22 | 167 | 1.09 |
| 2g | ROF | 1 | 23,238 | 30 | 5,824 | 15 | 333 | 100 | 433 | 3,430 | 1.15 |
| 3g | ROF | 10 | 16,088 | 30 | 4,032 | 10 | 124 | 37 | 161 | 1,279 | 1.11 |
| 4g | ROF | 20 | 5,363 | 30 | 1,344 | 3 | 12 | 4 | 15 | 120 | 1.04 |
| 5g | ROF | 10 | 3,575 | 30 | 896 | 2 | 28 | 8 | 36 | 284 | 1.11 |
| 6g | ROF | 10 | 32,176 | 30 | 10,725 | 29 | 331 | 110 | 440 | 4,594 | 1.19 |
| 7g | ROF | 1 | 21,451 | 30 | 7,150 | 20 | 410 | 136 | 546 | 5,690 | 1.27 |
| 8g | ROF | 1 | 25,026 | 30 | 6,272 | 16 | 358 | 108 | 466 | 3,694 | 1.15 |
| 9g | ROF | 1 | 5,363 | 30 | 1,344 | 3 | 77 | 23 | 100 | 792 | 1.15 |
| 10g | ROF | 20 | 33,531 | 30 | 8,403 | 22 | 73 | 23 | 96 | 751 | 1.04 |
| 11g | ROF | 10 | 17,883 | 30 | 4,482 | 12 | 138 | 43 | 181 | 1,421 | 1.11 |
| 12g | ROF | 1 | 29,060 | 30 | 7,283 | 19 | 417 | 131 | 548 | 4,289 | 1.15 |
| 13g | ROF | 10 | 33,531 | 30 | 10,706 | 29 | 330 | 107 | 437 | 4,341 | 1.18 |
| 14g | ROF | 1 | 13,412 | 30 | 4,283 | 12 | 245 | 80 | 325 | 3,226 | 1.25 |
| 15g | ROF | 20 | 13,412 | 30 | 4,283 | 12 | 37 | 12 | 49 | 490 | 1.07 |
| 16g | ROF | 1 | 24,589 | 30 | 6,162 | 16 | 352 | 111 | 463 | 3,629 | 1.15 |
| 17g | ROF | 10 | 40,237 | 30 | 10,415 | 27 | 320 | 100 | 420 | 3,408 | 1.11 |
| 18g | ROF | 1 | 11,865 | 30 | 3,171 | 8 | 182 | 59 | 240 | 1,979 | 1.17 |
| 19g | ROF | 10 | 17,798 | 30 | 4,757 | 13 | 146 | 47 | 194 | 1,598 | 1.12 |
| 20g | ROF | 20 | 11,865 | 30 | 3,171 | 8 | 28 | 9 | 37 | 300 | 1.05 |
| 21g | ROF | 1 | 91,954 | 30 | 31,359 | 87 | 1,798 | 603 | 2,400 | 24,602 | 1.28 |
| 22g | ROF | 10 | 53,393 | 30 | 18,208 | 50 | 561 | 188 | 750 | 7,688 | 1.20 |
| 23g | ROF | 20 | 17,798 | 30 | 6,069 | 17 | 53 | 18 | 71 | 724 | 1.07 |
| 24g | ROF | 1 | 8,899 | 30 | 2,378 | 6 | 136 | 44 | 180 | 1,484 | 1.17 |
| 25g | ROF | 10 | 8,899 | 30 | 2,378 | 6 | 73 | 24 | 97 | 799 | 1.12 |
| 26g | ROF | 20 | 17,798 | 30 | 4,757 | 13 | 41 | 13 | 55 | 451 | 1.05 |
| 27g | ROF | 10 | 53,393 | 30 | 14,271 | 38 | 439 | 142 | 582 | 4,794 | 1.12 |
| 28g | ROF | 20 | 17,798 | 30 | 4,757 | 13 | 41 | 13 | 55 | 451 | 1.05 |
| 29g | ROF | 1 | 44,599 | 30 | 13,319 | 35 | 762 | 242 | 1,004 | 9,008 | 1.21 |
| 30g | ROF | 10 | 66,899 | 30 | 19,979 | 53 | 615 | 195 | 810 | 7,274 | 1.15 |
| 31g | ROF | 20 | 18,583 | 30 | 5,550 | 15 | 48 | 15 | 64 | 570 | 1.06 |
| 32g | ROF | 1 | 22,300 | 30 | 8,084 | 23 | 464 | 157 | 620 | 6,535 | 1.30 |
| 33g | ROF | 10 | 11,150 | 30 | 4,042 | 11 | 125 | 42 | 167 | 1,759 | 1.21 |
| 34g | ROF | 20 | 11,150 | 30 | 4,042 | 11 | 35 | 12 | 47 | 497 | 1.08 |
| 35g | ROF | 1 | 7,433 | 30 | 2,220 | 6 | 127 | 40 | 167 | 1,501 | 1.21 |
| 36g | ROF | 20 | 11,150 | 30 | 3,330 | 9 | 29 | 9 | 38 | 342 | 1.06 |
| 37g | ROF | 1 | 22,300 | 30 | 6,660 | 18 | 381 | 121 | 502 | 4,504 | 1.21 |
| 38g | ROF | 20 | 22,300 | 30 | 6,660 | 18 | 58 | 18 | 76 | 684 | 1.06 |
| 39g | ROF | 1 | 28,801 | 30 | 10,660 | 30 | 612 | 209 | 821 | 8,730 | 1.31 |
| 40g | ROF | 10 | 8,229 | 30 | 3,046 | 9 | 94 | 32 | 126 | 1,342 | 1.22 |
| 41g | ROF | 20 | 16,458 | 30 | 6,092 | 17 | 53 | 18 | 71 | 758 | 1.08 |
| 42g | ROF | 1 | 161,458 | 30 | 46,481 | 129 | 2,664 | 894 | 3,558 | 30,841 | 1.20 |
| 43g | ROF | 10 | 34,910 | 30 | 10,050 | 28 | 310 | 104 | 414 | 3,590 | 1.14 |
| 44g | ROF | 20 | 74,183 | 30 | 21,356 | 59 | 186 | 63 | 249 | 2,151 | 1.05 |
| 45g | ROF | 1 | 26,182 | 30 | 10,053 | 28 | 577 | 195 | 772 | 8,357 | 1.33 |
| 46g | ROF | 10 | 13,091 | 30 | 5,027 | 14 | 155 | 53 | 208 | 2,249 | 1.23 |
| 47g | ROF | 20 | 26,182 | 30 | 10,053 | 28 | 88 | 30 | 117 | 1,270 | 1.09 |
| 48g | ROF | 1 | 8,727 | 30 | 2,512 | 7 | 144 | 48 | 192 | 1,667 | 1.20 |

## Table 2.30. (contd)

Transformer ERO Economic Parameters

| ID | RI/ ROF | Time to Failure | First Cost (1994 $) | Xfmr Life (years) | First Year Energy and Demand Savings: Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | Life Cycle Cost: NPV (1994 $) | SIR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 49g | ROF | 10 | 13,091 | 30 | 3,769 | 10 | 116 | 39 | 155 | 1,346 | 1.14 |
| 50g | ROF | 1 | 30,546 | 30 | 11,236 | 32 | 645 | 224 | 869 | 9,199 | 1.31 |
| 51g | ROF | 10 | 13,091 | 30 | 4,815 | 14 | 149 | 52 | 200 | 2,122 | 1.22 |
| 52g | ROF | 20 | 26,182 | 30 | 9,631 | 28 | 84 | 29 | 113 | 1,198 | 1.08 |
| 53g | ROF | 1 | 71,180 | 30 | 24,792 | 65 | 1,419 | 452 | 1,871 | 18,533 | 1.27 |
| 54g | ROF | 10 | 87,606 | 30 | 30,513 | 81 | 939 | 299 | 1,239 | 12,277 | 1.19 |
| 55g | ROF | 20 | 125,933 | 30 | 43,863 | 116 | 382 | 122 | 504 | 4,982 | 1.07 |
| 56g | ROF | 10 | 54,754 | 30 | 24,330 | 66 | 750 | 247 | 997 | 11,516 | 1.29 |
| 57g | ROF | 20 | 16,426 | 30 | 7,299 | 20 | 64 | 21 | 85 | 976 | 1.11 |
| 58g | ROF | 10 | 16,426 | 30 | 7,299 | 20 | 225 | 74 | 299 | 3,455 | 1.29 |
| 59g | ROF | 1 | 77,221 | 30 | 28,637 | 77 | 1,640 | 531 | 2,171 | 22,337 | 1.30 |
| 60g | ROF | 10 | 38,610 | 30 | 14,318 | 38 | 441 | 143 | 584 | 6,011 | 1.21 |
| 61g | ROF | 20 | 70,786 | 30 | 26,250 | 70 | 229 | 74 | 303 | 3,111 | 1.08 |
| 62g | ROF | 1 | 19,305 | 30 | 8,958 | 24 | 513 | 165 | 678 | 7,912 | 1.42 |
| 63g | ROF | 10 | 19,305 | 30 | 8,958 | 24 | 276 | 89 | 365 | 4,258 | 1.30 |
| 64g | ROF | 20 | 19,305 | 30 | 8,958 | 24 | 78 | 25 | 103 | 1,203 | 1.11 |
| 65g | ROF | 1 | 12,870 | 30 | 4,773 | 13 | 273 | 89 | 362 | 3,723 | 1.30 |
| 66g | RI | NA | 19,305 | 30 | 16,283 | 104 | 1,037 | 804 | 1,842 | 16,432 | 1.85 |
| 67g | ROF | 1 | 19,305 | 30 | 8,199 | 20 | 468 | 139 | 607 | 6,695 | 1.36 |
| 68g | ROF | 20 | 23,054 | 30 | 7,079 | 19 | 62 | 19 | 81 | 589 | 1.05 |
| 69g | ROF | 1 | 11,527 | 30 | 3,539 | 9 | 202 | 64 | 267 | 1,941 | 1.17 |
| 70g | ROF | 20 | 11,527 | 30 | 3,539 | 9 | 31 | 10 | 41 | 294 | 1.05 |
| 71g | ROF | 1 | 26,417 | 30 | 7,637 | 21 | 438 | 149 | 587 | 4,032 | 1.16 |
| 72g | ROF | 20 | 13,209 | 30 | 3,819 | 11 | 33 | 11 | 45 | 306 | 1.04 |
| 73g | ROF | 20 | 111,179 | 30 | 27,441 | 78 | 240 | 83 | 323 | 1,657 | 1.03 |
| 74g | ROF | 1 | 13,897 | 30 | 3,430 | 10 | 197 | 68 | 265 | 1,369 | 1.10 |
| 75g | ROF | 20 | 41,692 | 30 | 13,836 | 47 | 122 | 50 | 172 | 1,495 | 1.07 |
| 76g | ROF | 20 | 48,012 | 30 | 17,842 | 49 | 156 | 51 | 207 | 1,876 | 1.07 |
| 77g | ROF | 10 | 16,004 | 30 | 5,947 | 16 | 183 | 60 | 244 | 2,216 | 1.19 |
| 78g | ROF | 20 | 73,357 | 30 | 28,714 | 81 | 251 | 86 | 337 | 3,218 | 1.08 |
| 79g | ROF | 20 | 18,339 | 30 | 5,321 | 17 | 47 | 18 | 65 | 468 | 1.05 |
| 80g | ROF | 20 | 36,679 | 30 | 14,357 | 41 | 125 | 43 | 168 | 1,609 | 1.08 |
| 81g | ROF | 1 | 18,339 | 30 | 7,178 | 20 | 412 | 141 | 553 | 5,296 | 1.30 |
| 82g | ROF | 20 | 23,358 | 30 | 10,995 | 32 | 96 | 34 | 130 | 1,408 | 1.11 |
| 83g | ROF | 1 | 93,430 | 30 | 43,979 | 126 | 2,525 | 881 | 3,405 | 37,058 | 1.41 |
| 84g | ROF | 20 | 116,788 | 30 | 54,974 | 158 | 480 | 168 | 648 | 7,041 | 1.11 |
| 85g | ROF | 10 | 30,192 | 30 | 12,766 | 40 | 396 | 152 | 547 | 5,623 | 1.25 |
| 86g | ROF | 20 | 30,192 | 30 | 12,766 | 40 | 112 | 43 | 155 | 1,587 | 1.10 |
| 87e | ROF | 10 | 587,523 | 30 | 184,487 | 897 | 5,853 | 3,492 | 9,344 | 107,049 | 1.25 |
| Totals: | | | | | | | | | | | |
| | RI | | 19,305 | | 16,283 | 104 | 1,037 | 804 | 1,842 | 16,432 | 1.85 |
| | ROF | | 3,364,580 | | 1,134,891 | 3,516 | 35,276 | 13,235 | 48,511 | 487,090 | 1.14 |

## Table 2.31. Conservation Voltage Reduction and Power Factor Correction EROs

### Existing T & D Operating Parameters

| ID | Equipment Type | Number of Units | Size (MVA) | Energy | | | | | | Demand | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Annual | Summer | | | Winter | | Summer | | Winter | Total |
| | | | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) | Reactive (kVAR-mo) |
| 1 | Sub. Transformers | 5 | 37.5 | 72,192,000 | 7,138,683 | 9,193,504 | 14,707,296 | 16,775,628 | 24,376,889 | 80,025 | 74,207 | 96,153 | NA |
| 2 | Capacitor Bank | 1 | NA | 72,192,000 | 7,138,683 | 9,193,504 | 14,707,296 | 16,775,628 | 24,376,889 | 80,025 | 74,207 | 96,153 | 71,150 |

### Efficient T & D Operating Parameters

| ID | Description of Replacement | Number of Units | Size (MVA) | Energy | | | | | | Demand | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Annual | Summer | | | Winter | | Summer | | Winter | Total |
| | | | | Total (kWh/yr) | On-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | Mid-Peak (kWh/yr) | Off-Peak (kWh/yr) | On-Peak (kW-mo) | Mid-Peak (kW-mo) | Mid-Peak (kW-mo) | Reactive (kVAR-mo) |
| 1 | Conservation Voltage Reduction | 5 | 37.5 | 71,578,368 | 7,078,004 | 9,115,359 | 14,582,284 | 16,633,035 | 24,169,685 | 79,345 | 73,576 | 95,336 | NA |
| 2 | Power Factor Correction to Unity | 1 | 9 | 72,176,546 | 7,137,155 | 9,191,536 | 14,704,148 | 16,772,037 | 24,371,671 | 79,997 | 73,576 | 95,336 | 0 |

### Efficient T & D ERO Economic Parameters

| ID | First Cost (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Reactive Demand (kVAR-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Reactive Demand (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | 1,000 | 25 | 613,632 | 2,128 | NA | 39,042 | 17,148 | NA | 56,190 | 966,624 | 967.62 |
| 2 | 31,590 | 25 | 15,454 | 1,476 | 71,150 | 983 | 4,889 | 17,788 | 23,660 | 375,744 | 12.89 |

## 2.15 Peak Shifting EROs

Conventional peak shaving EROs (i.e., using diesel generators) cannot be considered at Fort Irwin due to the current rate schedule. SCE prohibits any type of on-site power generation as part of the incremental sales agreement. In addition, strict air quality standards would make most on-site generation extremely costly. For this reason, opportunities for peak shifting were explored. Peak shifting is simply the shifting of electric loads from the on-peak period to the off-peak period. Perhaps the most well-known peak shifting ERO is thermal energy storage, which was discussed in another section. The following ERO proposes adding a new water storage tank to the domestic water supply system so that water well pumping can be eliminated during the on-peak period.

### Description

Water wells at Fort Irwin operate on an intermittent basis throughout the day to maintain necessary pressure and capacity in the water storage tanks. By adding another storage tank and filling it during the off-peak period, it is possible to avoid pumping during the more costly on-peak period. Note that this ERO will not save any energy since the load is simply being shifted from one time period to another, but it will result in lower electricity charges.

The new tank will be placed about halfway between the main cantonment and the Langford Lake Basin water wells, near an existing booster station and 16-inch water line.

### Assumptions

The technical assumptions are as follows:

- There are eleven operating water wells at Fort Irwin. In FY93, they pumped nearly 992 million gallons. Almost half of this was pumped during the four summer months of June, July, August, and September. Assuming that the pumping is the same every day, this is an average of about 4 million gallons per day (mgd) during the summer, and 2.3 mgd during the winter.

- The new water tank has a capacity of 500,000 gallons; enough to completely curtail any pumping during the summer on-peak period from 12 noon to 6 pm.

- Suitable controls are already in place to control the pump operation, ensuring that pumping will not occur during the on-peak period.

- Energy consumption for each utility rate period was estimated as the total consumption for all pumps (calculated by the sum-product of operating hours and power draw) multiplied by the fraction of total energy consumption for the entire Fort in each rate period. Since time-of-day operating profiles for the well pumps were not available, this was assumed to be a good way to apportion consumption and provide a conservative estimate.

- Pumping is assumed to be shifted from the 12 noon to 6 pm time block, to the 12 midnight to 6 am time block. Pump energy used during the summer on-peak period is shifted to the summer off-peak period. Pump energy during the same six hours in the winter (part of the mid-peak period) is shifted to the winter off-peak period.

- All of the pumps currently contribute to the summer on-peak demand. After ERO implementation, summer on-peak demand from the pumps falls to zero, and winter mid-peak demand decreases by 6/15, representing the 6 hours when no pumping takes place.

- Pump capacity and power draw was determined from the SCE well pump tests performed in early 1992. Pump operating hours were collected during a site visit in July, 1993, and represent annual pump run-time from June 3, 1992 to June 2, 1993. The following table details the well pump data:

| Well ID | Capacity gpm | Power Draw kW | Annual Run Hours |
|---|---|---|---|
| I-3 | 513 | 70.5 | 1,820 |
| I-5 | 493 | 62.4 | 3,028 |
| I-6 | 383 | 52.9 | 3,420 |
| I-7 | 1,047 | 133.0 | 3,024 |
| B-1 | 545 | 59.6 | 3,100 |
| B-2 | 119 | 24.8 | 344 |
| B-4 | 414 | 56.9 | 3,262 |
| B-5 | 837 | 87.5 | 2,441 |
| L-1 | 751 | 90.0 | 3,590 |
| L-2 | 664 | 76.4 | 3,195 |
| L-3 | 562 | 69.7 | 1,146 |

The cost assumptions are as follows:

- The costs to build, install, and connect the new tank to the existing water lines are as follows:

| | |
|---|---|
| 500 kgal steel tank, on grade | $184,000 |
| Site clearing, leveling, etc. | $700 |
| Concrete pad: 4,900 ft$^2$, 6" thick | $9,100 |
| 300 ft of 12" dia. pipe | $10,300 |
| Trenching: 300 ft | $1,400 |
| Pipe fittings, valves, etc. | $5,000 |
| Total: | $210,500 |

These costs were estimates from Means and Richardson and include 15% for contractor overhead and profit. Actual project costs may be higher or lower than these estimates depending on actual site conditions.

- There will be an increase in maintenance costs, estimated to be $250 per year, for routine tank, valve, and pipe inspections.

**Results**

The complete quantitative results of this ERO appear in Table 2.32. The table contains specific energy, cost, and economic performance data.

**Budget Implications.** The initial cost of this ERO is $210,500.

**Energy and Cost Savings.** It is estimated that this ERO will result in electric energy cost savings of $25,684, and electric demand savings of 1,097 kW-months, for a cost savings of $16,019. Energy cost savings result from shifting an equal amount of energy consumption from on- and mid-peak periods to off-peak periods.

**Operations and Maintenance.** There will be an increase in maintenance costs, estimated to be $250 per year, for routine tank, valve, and pipe inspections.

## Table 2.32. Peak Shifting EROs

### Existing Well Pump Operating Parameters

| ID | Equipment | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Annual | Summer | | | Winter | | Summer | | Winter |
| | | Total | On-Peak | Mid-Peak | Off-Peak | Mid-Peak | Off-Peak | On-Peak | Mid-Peak | Mid-Peak |
| | | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kW-mo) | (kW-mo) | (kW-mo) |
| 1 | Well Pumps | 2,139,810 | 197,510 | 309,801 | 495,280 | 463,985 | 673,234 | 784 | 784 | 784 |

### ERO Well Pump Operating Parameters

| ID | Description of Replacement | Energy | | | | | | Demand | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Annual | Summer | | | Winter | | Summer | | Winter |
| | | Total | On-Peak | Mid-Peak | Off-Peak | Mid-Peak | Off-Peak | On-Peak | Mid-Peak | Mid-Peak |
| | | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kWh/yr) | (kW-mo) | (kW-mo) | (kW-mo) |
| 1 | Add New 500 KGal. Tank & Reschedule Pump Operating Hrs | 2,139,810 | 0 | 309,801 | 692,790 | 278,391 | 858,828 | 0 | 784 | 470 |

### ERO Well Pump Economic Parameters

| ID | First Cost (1994 $) | Annual O&M Cost (1994 $) | Life Expectancy (Years) | First Year Energy and Demand Savings | | | | | Life Cycle Cost | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Energy Savings (kWh) | Demand Savings (kW-mo) | Energy Savings (1994 $) | Demand Savings (1994 $) | Total Savings (1994 $) | NPV (1994 $) | SIR |
| 1 | 210,500 | 250 | 40 | 0 | 1,097 | 25,684 | 16,019 | 41,703 | 554,481 | 3.63 |

## 2.16 Convert Fleet Vehicles to Compressed Natural Gas

### Description

The Fort Irwin motor vehicle fleet consists of 234 GSA vehicles and 152 vehicles owned by the primary on-site maintenance contractor (Dyncorp). These vehicles presently run on unleaded, premium unleaded gasoline or diesel fuel. These vehicles are general transportation vehicles including: cars, pickups, trucks, vans and wagons. All of these vehicles can be converted to operate on compressed natural gas (CNG) as a primary fuel source. While natural gas is currently not available at Fort Irwin, studies are planned or underway to assess the cost of extending a natural gas pipeline to the main post area. This ERO is analyzed assuming natural gas is already available.

Two options were considered for selecting refueling stations. The first option provides two refueling stations. The first station is intended primarily for use by GSA vehicles and will have 160 slow-fill stations and one two-hose fast-fill station. The second station, intended primarily for contractor use, would have 128 slow-fill stations and no fast-fill stations. This option is based on the assumption that two-thirds of the GSA vehicles and 80% of the contractor vehicles would be refueled at slow-fill stations. This provides for a majority of slow-fill refueling stations. Slow-fill stations use electricity during off hours and are more energy-cost efficient. The energy savings over time may more than offset the higher initial installation cost.

The second option provides two refueling stations each with eighty slow-fill stations and one two-hose fast-fill station. This option is based on the assumption that one-third of the GAS vehicles and two-thirds of the contractor vehicles would be refueled at slow-fill stations. This option will not be as energy-cost efficient but has a lower initial installation cost.

### Converting Gasoline Vehicles to CNG

Most gasoline powered cars and trucks can be converted to operate on CNG in either single fuel (CNG only) or a dual fuel (either gasoline or CNG) configuration. Modifications include changes to the fuel delivery and carburetor system. Fuel injected cars can also be easily converted. The conversion equipment consists of fuel storage cylinders, a pressure regulator, a gas/air mixer, a fuel selector control (for dual fuel use), and a fuel gauge. A typical vehicle can usually be converted to CNG in less than a day.

### Converting Diesel Vehicles to CNG

One of the primary advantages of diesel fuel is its high centane rating which allows the fuel to auto-ignite when sufficiently compressed. Compression ignition simplifies the diesel engine, as compared to spark plug engines, by eliminating the spark plugs, distributors, and other electrical components. Ordinarily, natural gas will not auto-ignite due to its low centane rating. Therefore, some means of igniting the alternative fuel must be provided. Some of the proven ignition methods are to add spark plugs, glow plugs, or use a fumigation system. The traditional thought to have a diesel engine burn natural gas would mean adding spark plugs and associated electronics. Rather than make these extensive engine modifications, a fumigation system can be used. A fumigation system burns natural gas in tandem with diesel fuel. For this type of conversion, diesel is used as a "pilot fuel" for starting and for low engine RPM operation. The amount of natural gas is increased as engine speed increases. Retrofitting a diesel engine to CNG using a fumigation system is very similar to converting a gasoline engine to CNG. The major difference is the need for an RPM monitoring device to control the mixture of diesel and natural gas. The mixture of

fuels is controlled by either mechanical or solenoid switches. Diesel is used to start the engine and is decreased as engine speed increases. When engine speed drops off during gear changes, diesel again becomes the primary fuel.

**Assumptions**

Table 2.33 identifies all the vehicles at Fort Irwin under consideration for conversion to CNG.

The technical assumptions are as follows:

- Gasoline energy content is 125,000 Btu per gallon.
- Diesel energy content is 138,700 Btu per gallon.
- CNG fuel efficiency is 7% greater than gasoline or diesel fuel.
- The fumigation system conversion will operate with an overall average fuel mix ratio of 40% diesel and 60% CNG.
- Vehicle mileage, fuel consumption, fuel cost, and O&M cost are based on records maintained on the base and by assumptions based on typical usage of vehicles on similar bases where actual data was not available.
- The life of the refueling station should exceed the 25-year life-cycle cost analysis.
- The conversion equipment should last close to 25 years.

The cost assumptions are as follows:

- The cost to convert existing vehicles for CNG operation is assumed to be $2,000 for each car and $3,000 for each truck (regardless of size). New CNG vehicles are assumed to be available (through GSA) at approximately the same price as common gas or diesel fueled models.
- O&M costs for vehicles operating on CNG are estimated to be reduced by as much as 50%. For this analysis, an average 25% reduction is assumed.
- The first option for the two refueling stations is estimated to cost $1,080,000 including installation. The cost of the two refueling stations for the second option is estimated to be $963,000 including installation.

**Results**

The complete quantitative results of this ERO appear in Table 2.33. The table contains specific energy, cost, and economic performance data. The most cost-effective implementation of this ERO involves immediate conversion of all vehicles to CNG, and the construction of the filling station described as option two. However, both filling station options have a positive NPV (option one: $9,932,181, option two: $10,091,649). Note that the last two lines in the economics portion of the table contain the summed results of the individual vehicles as well as the energy and costs associated with the filling station.

**Budget Implications.** Implementation cost for vehicle conversion only is estimated to be $1,084,000 for all vehicles identified in Table 2.33. Both conversion equipment and new CNG vehicles are available through normal GSA contracts and/or from the private sector.

Federal tax deductions for the contractor vehicle conversions are available. A tax deduction of $50,000 each for the seven heavy trucks, and $2,000 each for the remaining 145 vehicles would result in a possible tax deduction of $780,000. There are presently no incentives provided for conversion of GSA vehicles. This tax deduction was not included in the cost savings analysis.

**Energy and Cost Savings.** It is estimated that this ERO will reduce annual gasoline consumption by approximately 634,367 gallons per year and diesel by 18,480 gallons per year. Natural gas consumption will increase by approximately 303,925 therms per year. Electrical consumption by the natural gas refueling stations is estimated to be 275,132 kWh per year for option one and 275,080 per year for option two. Net energy savings will be 14,632 MBtu per year for both options.

This results in a fuel cost reduction of $526,524 per year in gasoline and $13,860 per year in diesel. However, there will be a cost increase of $115,887 per year in natural gas and $21,064 per year in electricity for option one or $18,598 per year in electricity for option two. Net energy cost reduction is $403,433 per year for option one and $405,899 per year for option two.

**Operations and Maintenance.** Natural gas has many advantages over liquid fuels like gasoline and diesel. Since it is a gas, it burns more easily and completely. It also burns cooler than gasoline. For these and other reasons, CNG vehicles require less O&M than standard vehicles. Spark plugs last longer and the engine operates cleaner. Oil changes may be less frequent and still be cleaner. Changes in the vehicle performance result in reduced engine, transmission and tire wear. It has been estimated by some sources that these factors may result in increased vehicle life and increase resale value. Some sources have estimated that O&M costs can be reduced by as much as 50%. Furthermore, with overnight slow-fill stations, operator time is no longer wasted waiting in refueling lines at the beginning or end of the day. In the case of fast-fill stations, the refueling time is similar to that of standard fuel vehicles. Net reduction in operations and maintenance cost is estimated to be $376,047 per year.

## Table 2.33. Convert Fleet Vehicles to CNG

### Existing Vehicle Operating Parameters

| ID | Equipment Description | Number of Units | Existing Fuel | Time until Failure (years) | Miles per Year (miles) | Annual Fuel Consumption (gal/yr) | Annualized O&M Costs (1994 $) |
|---|---|---|---|---|---|---|---|
| GSA/Government Vehicles. | | | | | | | |
| G-CNG-1 | Sedan Compact/Midsize | 58 | Gasoline | 1 | 1,599,002 | 51,581 | 140,712 |
| G-CNG-2 | Pickup compact/4dr, under 8510 GVW | 10 | Gasoline | 3 | 350,900 | 29,242 | 47,372 |
| G-CNG-3 | Truck light weight under 8,000 GVW | 21 | Gasoline | 3 | 645,015 | 53,751 | 85,142 |
| G-CNG-4 | Truck med. wght over 8,001, under 17,000 GVW | 48 | Gasoline | 4 | 326,256 | 25,097 | 114,842 |
| G-CNG-5 | Truck heavy weight over 17,001 GVW | 11 | Gasoline | 4 | 151,745 | 15,175 | 13,354 |
| G-CNG-6 | Van multipurpose | 59 | Gasoline | 1 | 1,712,593 | 114,173 | 354,507 |
| G-CNG-7 | Bus multipurpose | 10 | Gasoline | 5 | 233,640 | 46,728 | 20,560 |
| G-CNG-8 | Truck heavy weight over 17,001 GVW | 14 | Diesel | 4 | 232,610 | 23,261 | 67,457 |
| G-CNG-9 | Ambulance patient Transport | 3 | Diesel | 6 | 25,536 | 3,192 | 3,933 |
| Contractor Vehicles: | | | | | | | |
| C-CNG-1 | Sedan compact/Midsize | 16 | Gasoline | 4 | 441,104 | 14,229 | 38,817 |
| C-CNG-2 | Pickup compact/4dr, under 8510 GVW | 72 | Gasoline | 5 | 2,526,480 | 210,540 | 341,075 |
| C-CNG-3 | Truck light weight under 8,000 GVW | 6 | Gasoline | 5 | 184,290 | 15,358 | 24,326 |
| C-CNG-4 | Truck medium weight over 8,001, under 17,000 GVW | 18 | Gasoline | 5 | 122,292 | 9,407 | 43,047 |
| C-CNG-5 | Truck heavy weight over 17,001 GVW | 2 | Gasoline | 6 | 27,590 | 2,759 | 4,249 |
| C-CNG-6 | Van multipurpose | 32 | Gasoline | 5 | 928,864 | 61,924 | 192,275 |
| C-CNG-7 | Truck medium weight over 8,001, under 17,000 GVW | 1 | Diesel | 4 | 6,794 | 523 | 1,970 |
| C-CNG-8 | Truck heavy weight over 17,001 GVW | 5 | Diesel | 6 | 83,075 | 10,384 | 10,551 |

### Energy Efficient Vehicle Operating Parameters

| ID | Description of Replacement | Number of Units | Resulting Fuel | Miles per Year (miles) | Annual Fuel Consumption (gal/yr) | Annual Fuel Consumption (therms/yr) | Annualized O&M Costs (1993 $) |
|---|---|---|---|---|---|---|---|
| GSA/Government Vehicles: | | | | | | | |
| G-CNG-1 | CNG Vehicle | 58 | CNG | 1,599,002 | 0 | 52,767 | 105,534 |
| G-CNG-2 | CNG Vehicle | 10 | CNG | 350,900 | 0 | 29,914 | 35,529 |
| G-CNG-3 | CNG Vehicle | 21 | CNG | 645,015 | 0 | 54,988 | 63,856 |
| G-CNG-4 | CNG Vehicle | 48 | CNG | 326,256 | 0 | 25,674 | 86,132 |
| G-CNG-5 | CNG Vehicle | 11 | CNG | 151,745 | 0 | 15,524 | 10,015 |
| G-CNG-6 | CNG Vehicle | 59 | CNG | 1,712,593 | 0 | 116,799 | 265,880 |
| G-CNG-7 | CNG Vehicle | 10 | CNG | 233,640 | 0 | 47,803 | 15,420 |
| G-CNG-8 | CNG Vehicle | 14 | CNG & Diesel | 232,610 | 9,304 | 14,278 | 50,593 |
| G-CNG-9 | CNG Vehicle | 3 | CNG & Diesel | 25,536 | 1,277 | 1,959 | 2,949 |
| Contractor Vehicles: | | | | | | | |
| C-CNG-1 | CNG Vehicle | 16 | CNG | 441,104 | 0 | 14,556 | 29,113 |
| C-CNG-2 | CNG Vehicle | 72 | CNG | 2,526,480 | 0 | 215,382 | 255,806 |
| C-CNG-3 | CNG Vehicle | 6 | CNG | 184,290 | 0 | 15,711 | 18,245 |
| C-CNG-4 | CNG Vehicle | 18 | CNG | 122,292 | 0 | 9,623 | 32,285 |
| C-CNG-5 | CNG Vehicle | 2 | CNG | 27,590 | 0 | 2,822 | 3,187 |
| C-CNG-6 | CNG Vehicle | 32 | CNG | 928,864 | 0 | 63,349 | 144,206 |
| C-CNG-7 | CNG Vehicle | 1 | CNG & Diesel | 6,794 | 209 | 321 | 1,478 |
| C-CNG-8 | CNG Vehicle | 5 | CNG & Diesel | 83,075 | 4,154 | 6,374 | 7,913 |

**Table 2.33.** (contd)

Energy-Efficient Vehicle ERO Economic Parameters

| ID | PV of Installed Cost (1993 $) | RI or ROF | Life Expectancy (Years) | Energy Savings (MBtu) | Annualized Energy Savings (1993 $) | Annualized O&M Savings (1993 $) | Net Present Value (1993 $) | SIR |
|---|---|---|---|---|---|---|---|---|
| GSA/Government Vehicles: | | | | | | | | |
| G-CNG-1 | 116,000 | RI | 3 | 1,171 | 27,028 | 35,178 | 955,229 | 9.23 |
| G-CNG-2 | 30,000 | RI | 6 | 664 | 15,322 | 11,843 | 437,805 | 15.59 |
| G-CNG-3 | 63,000 | RI | 6 | 1,220 | 28,165 | 21,285 | 788,575 | 13.52 |
| G-CNG-4 | 144,000 | RI | 7 | 570 | 13,150 | 28,711 | 576,875 | 5.01 |
| G-CNG-5 | 33,000 | RI | 9 | 344 | 7,951 | 3,338 | 161,416 | 5.89 |
| G-CNG-6 | 177,000 | RI | 3 | 2,592 | 59,826 | 88,627 | 2,379,452 | 14.44 |
| G-CNG-7 | 30,000 | RI | 10 | 1,061 | 24,485 | 5,140 | 430,166 | 17.01 |
| G-CNG-8 | 42,000 | RI | 9 | 512 | 5,198 | 16,864 | 337,922 | 9.05 |
| G-CNG-9 | 9,000 | RI | 14 | 70 | 713 | 983 | 20,213 | 3.25 |
| Contractor Vehicles: | | | | | | | | |
| C-CNG-1 | 32,000 | RI | 9 | 323 | 7,456 | 9,704 | 263,511 | 9.23 |
| C-CNG-2 | 216,000 | RI | 10 | 4,779 | 110,321 | 85,269 | 3,152,193 | 15.59 |
| C-CNG-3 | 18,000 | RI | 10 | 349 | 8,047 | 6,082 | 225,307 | 13.52 |
| C-CNG-4 | 54,000 | RI | 10 | 214 | 4,929 | 10,762 | 216,209 | 5.00 |
| C-CNG-5 | 6,000 | RI | 12 | 63 | 1,446 | 1,062 | 37,188 | 7.20 |
| C-CNG-6 | 96,000 | RI | 10 | 1,406 | 32,448 | 48,069 | 1,290,550 | 14.44 |
| C-CNG-7 | 3,000 | RI | 9 | 12 | 117 | 493 | 7,493 | 3.50 |
| C-CNG-8 | 15,000 | RI | 10 | 229 | 2,320 | 2,638 | 70,381 | 5.69 |
| Totals: | 1,084,000 | | | 15,577 | 348,923 | 376,047 | 11,400,484 | 11.52 |
| Vehicles with Option 1 Station | | | | | | | | |
| | 2,164,000 | | | 14,638 | 327,858 | 376,047 | 9,932,181 | 5.59 |
| Vehicles with Option 2 Station | | | | | | | | |
| | 2,047,000 | | | 14,638 | 330,325 | 376,047 | 10,091,649 | 5.93 |

# 3.0 Energy Resource Opportunity Impact Study

All energy resource opportunities (EROs) identified in Section 2 of this report are subjected to economic analysis to determine their cost-effectiveness. The economic analysis is part of the FEDS (Facility Energy Decision Screening) process for developing fuel-neutral assessments of facilities to identify and quantify major efficiency resources, supply alternatives, and fuel-switching opportunities. The intent of the assessment is to identify the major resource alternatives available to decision makers. The economic analysis provides an estimate of the magnitude of the cost-effective resource available at a facility using the most realistic assumptions possible. Individual projects should be examined more thoroughly at a project level at the implementation stage.

Section 3.1 discusses the methodology and assumptions used in the economic analysis, and Section 3.2 defines the analysis metrics. Section 3.3 describes the life-cycle cost evaluation method. Section 3.4 discusses the fuel rates used for the evaluation, and Section 3.5 presents the results of the evaluation for Fort Irwin. Section 3.6 presents additional notes on the analysis.

## 3.1 Economic Analysis Methodology and Assumptions

According to the provisions of 10 CFR Part 436, federal agencies are required to analyze all potential energy investments using a life-cycle cost (LCC) methodology developed by the National Institute of Standards and Technology (NIST). The NIST LCC methodology calculates all relevant costs of a project and discounts them to result in present dollars, and then subtracts that sum from a similarly constructed LCC of baseline, current conditions or technology. This difference is called the net present value (NPV) of the action being considered. Actions are cost-effective if the NPV is positive and greater than the NPV of alternative actions. Following this methodology results in minimizing the LCC of energy services at a site.

This economic analysis is central to the Federal Energy Management Program (FEMP) model approach for federal energy efficiency using the FEDS system to develop a fuel-neutral assessment of facilities to identify and quantify energy efficiency resources, supply alternatives, and fuel switching opportunities.

All EROs identified by the FEDS assessment and described in this resource assessment report are therefore subjected to the LCC economic analysis to determine their cost-effectiveness. The purpose of the FEDS assessment is to identify the facility energy efficiency resource alternatives available to decision makers; the economic analysis provides an estimate of the installed cost and energy savings of the cost-effective resource available at a facility using the most current and realistic assumptions possible. Individual projects and actions considered for implementation should be examined and analyzed more thoroughly at a project level prior to design and implementation.

Under the NIST methodology, energy prices are escalated and costs and benefits are discounted using factors taken from the current edition of "Energy Prices and Discount Factors for Life-Cycle Cost Analysis." Costs and benefits are analyzed over a 25-year period, reflecting the average expected remaining life of a typical building. Other key assumptions in the methodology are:

- Prices for all goods and services (e.g., installed cost of a technology) will vary at the same rate as the inflation rate; therefore the "real" rate of inflation is zero.

- Energy or fuel prices vary at a rate different than that of the inflation rate. NIST reports the value by which the energy prices vary from the real rate of inflation (the escalation rate).

- All costs and benefits are discounted using the current federal discount rate (3.1% real for CY 1994).

- All EROs are analyzed for a 25-year period. This does not mean that a 25-year life is assumed for all installed equipment: actual estimates of equipment life are used, and the costs of replacing worn out equipment over a 25-year period are incorporated. The 25-year analysis period also does not mean that all streams of savings from EROs are assumed to endure 25 years: many are assumed to disappear as the existing equipment is replaced with more efficient equipment as part of the baseline.

- The analysis assumes that up-front unconstrained federal financing (at the federal discount rate) is available for all potential energy efficiency improvements and actions.

The last assumption, unconstrained (unlimited) federal financing, is incorporated into the LCC analysis to determine the total cost-effective energy efficiency resource at a site. Therefore, the analysis (under the unconstrained funding assumption) results in a menu of all identified energy project opportunities whose benefits exceed their costs.

In the presence of constraints on the funding available to implement these projects, some method of prioritizing the projects is needed. It is for this reason that a savings to investment ratio (SIR) is calculated to rank order projects starting with the project with the highest SIR. This ranking allows available capital to be allocated to those cost-effective projects in an order that results in the greatest savings per dollar of investment.

For most agencies or facilities, the entire list of cost-effective projects from the LCC analysis is significant and cannot be financed from a single source. Rather, all available funding sources need to be determined. Funding sources include federal funds (MILCON, ECIP, Federal Energy Efficiency Fund); utility financing including utility offered rebates or other financial assistance; and energy services industry-financed projects. Each of these funding sources has its own requirements and its own costs and therefore, the cost-effectiveness of individual projects needs to be evaluated using the LCC analysis adjusted for each potential funding source's costs and constraints.

Many assumptions in addition to those listed above are required in the course of a FEDS assessment. In every case, the analysis team attempts to make the most realistic and defensible assumption. Where uncertainty exists, the team attempts to error on the side of conservatism. Therefore, the resulting estimate of the total cost-effective energy efficiency resource is a minimum estimate of the total potential resource, given the above assumptions. A more exact estimate and/or the development and design of projects may require a detailed facility audit, which is beyond the scope of a FEDS assessment.

### 3.1.1 Building Sector Analysis Methodology and Assumptions

The analysis of EROs within the building sector was performed using the FEDS model, a multi-level energy analysis software system. As discussed in Section 1, there are currently two levels of FEDS: FEDS level-1 (FEDS-1) and FEDS level-2 (FEDS-2). FEDS-1 assesses the likelihood of cost-effective energy projects based on high-level facility inputs and numerous assumptions, while FEDS-2 provides detailed information on energy and cost savings, as well as the estimated investment requirement for specific technology retrofits.

Currently, FEDS-1 and FEDS-2 analyze most major building end uses (heating, cooling, lighting, insulation, and service hot water) including their interactive effects (e.g., the effect a lighting technology has on heating and cooling loads). The analysis provides specific cost, energy and demand, and life-cycle cost information, by cost-effective technology. The FEDS analysis is performed using a sophisticated optimization algorithm that takes into account the complex economic and energy components involved. This optimization algorithm performs energy use simulations for a number of equipment combinations for each building type and finds the optimal set. As part of this algorithm, the FEDS model estimates existing energy consumption for the site based long-term weather data using a 30-year average. While the estimated consumption may not match any single year's consumption, it should represent the site's average consumption over a number of years, assuming other factors remain constant. For a more detailed discussion about the calculation methodology used by FEDS, see PNL, *Facility Energy Decision Screening System User's Guide*, 1993; or Dirks, J.A. and L.E. Wrench, "Facility Energy Decision Screening (FEDS) Software System," *Proceedings of the International Energy and Environmental Congress*, Minneapolis, MN, Aug. 4-5, 1993.

### 3.1.2 Non-Building Sector Analysis Methodology and Assumptions

The FEDS model currently analyzes most building end uses, which include heating, cooling, lighting, insulation, and service hot water. There are other building sector EROs that are not currently part of the FEDS model, including motors, exterior lighting, and some building envelope actions such as double-paned windows and window films. These EROs are evaluated by PNL staff in the same manner that non-building sector EROs (transmission and distribution, vehicles) are evaluated. As with the FEDS analysis, the non-FEDS analysis complies with 10 CFR 436; however, because it is not performed using a complex computer model, there are tradeoffs made between the best methods to perform the calculations and the feasibility of those methods.

There are two main differences between the analysis performed by FEDS and the non-FEDS analysis. First, the FEDS analysis assumes in the baseline situation (what would happen if the ERO was not implemented) that a piece of equipment will be replaced upon failure by the most life-cycle cost-effective piece of equipment, in accordance with 10 CFR 436. The non-FEDS analysis uses a baseline defined in conjunction with site personnel; therefore, the baseline may not always reflect replacement of exhausted equipment with the most life-cycle cost-effective equipment.

Second, the non-FEDS analysis uses actual energy consumption data to determine base energy consumption, and then applies an estimate of savings to that consumption. The FEDS analysis, on the other hand, bases its energy consumption estimate on 30-year average weather data. Ideally, the non-FEDS estimate would be weather-normalized, however the data required for such an effort are difficult to obtain. The result of this is that, unless the actual year's weather was similar to the 30-year average, the consumption estimates will be slightly different, as is the case at Fort Irwin.

## 3.2 Economic Analysis Metrics Used

The EROs described in Section 2 were analyzed in a number of ways, with the intent of presenting a variety of analysis metrics. An analysis metric is a numerical measure of the attractiveness of an ERO as an investment. Different analysis metrics are used for different purposes. Some economic metrics commonly used to evaluate measure effectiveness include net savings and the savings to investment ratio.

### 3.2.1 Net Savings

The most useful analysis metric is the Net Savings, expressed in dollars. The net savings, as described in Section 3.3.6, is the difference between the LCCs of a project and its baseline. This is equivalent to saying that the net savings is the present value of all of the benefits associated with an ERO, less the present value of all of the costs of the ERO. The concept of present value is discussed in more detail in the following paragraphs. The net savings is used to define the cost-effectiveness of an ERO: a negative net savings means that the costs of an ERO outweigh its benefits, while a positive net savings means that the benefits are greater than the costs. The higher the net savings, the better.

The costs and the benefits of an efficiency investment occur at different periods of time, which must be accounted for in the analysis. The timing of the streams of costs and benefits is accounted for in an LCC analysis by converting all streams to present values. Present values account for the fact that a dollar today is worth more than a dollar tomorrow, for two primary reasons: general price inflation and the time value of money. In the face of general price inflation, the purchasing power of a dollar declines over time, and since the true value of money lies in what it is capable of purchasing, inflation causes its value to decline. The time value of money refers to the fact that even in the absence of general price inflation, money received sooner is preferred to money received later.

It is this preference for consuming sooner rather than later that leads to the existence of positive rates of interest, even in the absence of price level inflation. Individuals and firms are willing to pay a premium to obtain goods and services sooner rather than later: the premium they are willing to pay is the "real rate of interest." (Although interest rates are generally positive, negative rates can exist for short periods of time, but cannot persist.) The market rate of interest, or the "nominal" rate, is the real rate plus the rate of inflation (this is a slight simplification).

### 3.2.2 Savings to Investment Ratio

The SIR is used to prioritize a group of minimum LCC EROs. For example, suppose a total of 100 EROs were evaluated. Of these, suppose 25 had negative net savings, leaving 75 EROs to consider. Of these, say that there are 5 groups of mutually exclusive pairs, and that the highest net savings ERO of each group is selected. This results in the elimination of 5 EROs, for a grand total of 70 EROs to be implemented. Suppose the total cost of implementing all 70 is $5 million, and the facility has an annual budget for energy modernization projects of $1 million. The SIR would be used to determine which of the 70 EROs provide the greatest "return on investment," thereby deserving immediate implementation. It is important to note that selection of cost-effective EROs should not be done on the basis of the SIR. That would not minimize the LCC. Rather, it is necessary to select the cost-effective set of EROs on the basis of their net savings. The SIR should only be used for prioritization.

### 3.2.3 Discounted Payback Period

The discounted payback period was calculated to illustrate the time frame over which an investment would pay for itself with savings in energy, demand, O&M, and replacement capital expenditures. The dollar streams used in the payback calculation are discounted to compensate for the time value of money, and annualized values are used to allow for comparison of projects that have differing cost and savings time profiles. The discounted payback should not be used to select among mutually exclusive projects, as this will lead to a failure to acquire much of the cost-effective resource. Discounted payback can be used to prioritize among a set of selected projects. Discounted payback will sort projects in the same order as the SIR.

## 3.3 Life-Cycle Cost Evaluation Method

Federal agencies are required to evaluate energy-related investments on the basis of minimum life-cycle costs (10 CFR Part 436). A life-cycle cost evaluation computes the total long-run costs of a number of potential actions, and selects the action that minimizes the long-run costs. The life-cycle cost (LCC) of a potential investment is the present value of all of the costs associated with the investment over time. The first step in calculating the LCC is the identification of the relevant costs: these are listed in Table 3.1.

### 3.3.1 Life-Cycle Cost Calculation

The LCC of an alternative is calculated by summing the present values of the installed cost, the annual energy cost, the annual O&M cost, and the replacement cost, as shown in Equation 3.1.

$$LCC = PV(IC) + PV(EC) + PV(OM) + PV(REP) \quad (1)$$

where LCC = Life-Cycle Cost
PV(IC) = Present value of installed cost
PV(EC) = Present value of annual energy cost
PV(OM) = Present value of annual O&M cost
PV(REP) = Present value of future replacement cost

**Table 3.1.** Cost Elements in a Life-Cycle Cost Analysis

| Cost Element | Description | Example |
|---|---|---|
| Installed Cost | Cost of materials purchased and the labor required to install them. | Price of an energy efficient lighting fixture, plus cost of labor to install it. |
| Energy Cost | Annual expenditures on energy to operate equipment. | A lighting fixture that draws 100 watts and operates 2,000 hours annually requires 200,000 watt-hours (200 kWh) annually. At an electricity price of $0.10 per kWh, this fixture has an annual energy cost of $20. |
| Non-fuel Operations and Maintenance | Annual expenditures on parts and activities required to operate equipment. | Replacing burned out light bulbs. |
| Replacement Costs | Expenditures to replace equipment upon failure. | Replacing an oil furnace when it is no longer usable. |

### 3.3.2 Installed Cost

The installed cost is the one-time, first cost of an ERO. Replacement of existing equipment in the base-line case is covered by the replacement cost category. The present value of installed cost is used because not all EROs are "Replace Immediately" (RI) actions. In those cases where the ERO is to be implemented immediately, the present value of the installed cost is equal to the installed cost. When implementation of an ERO is scheduled for some future time, however, as in the case of "Replace on Failure" (ROF) EROs, the installed cost paid at that time must be discounted back to the present.
The calculation for the present value of installed cost is equal to:

$$PV(IC) = \frac{IC}{(1+d)^N} \tag{2}$$

where PV(IC) = Present value of installed cost
IC = Installed cost
d = Discount rate
N = Number of years until failure or removal of existing equipment

### 3.3.3 Energy Cost

The present value of the annual energy cost is composed of both energy and demand costs. Energy costs represent the recurring annual expenditures on energy to operate equipment. These costs include both the fuel costs for consumption and the demand charges. The estimated stream of annual energy and demand costs over the analysis period is adjusted to account for increasing real energy prices, and is discounted to determine the present value of the future cost stream. This adjustment for price escalation and discounting is accomplished through the use of a modified uniform present value factor (UPV*). The UPV* incorporates the discount rate and the projected energy price rates of change. For ROF measures, the existing stream of costs is assumed to continue until failure of the existing equipment, at which time the ERO cost stream replaces it. The UPV* is calculated using Equation 3.3.

$$UPV^*_N = \sum_{n=1}^{N} \frac{I_{(1993+n)}}{(1+d)^n} \tag{3}$$

where UPV* = Modified uniform present value factor
n = Counter used to designate each year, with n=1 for the year 1994;
N = Number of periods over which energy costs or savings accrue;
$I_{(1993+n)}$ = Projected average fuel price index, provided by NIST
d = Discount rate

The present value of energy costs is then calculated using Equation 3.4:

$$PV(EC) = AEC \times UPV^*_N \tag{4}$$

where PV(EC) = Present value of energy cost
AEC = Annual energy and demand cost
$UPV^*_N$ = Modified uniform present value factor.

### 3.3.4 Operations and Maintenance Cost

The present value of the annual operations and maintenance (O&M) cost is the discounted stream of annual non-fuel expenditures on parts and activities required to operate the equipment. The present value of the stream of expenditures is calculated using the uniform present value factor (UPV). As with energy costs, for ROF measures the existing stream of costs is assumed to continue until failure of the existing equipment, at which time the ERO cost stream replaces it. The UPV is calculated using Equation 3.5.

$$UPV_N = \frac{(1 + d)^N - 1}{d\,(1 + d)^N} \tag{5}$$

where UPV = Uniform present value factor
d = Discount rate
N = Number of periods over which the costs or savings accrue.

The present value of operations and maintenance savings is then given by Equation 3.6.

$$PV(OM) = OM \times UPV_N \tag{6}$$

where PV(OM) = Present value of annual O&M costs
OM = Annual O&M expenditures
$UPV_N$ = Uniform present value factor.

### 3.3.5 Replacement Cost

Although the installed cost category covers the first cost of implementing an ERO, subsequent equipment installations fall into the replacement cost category, as do all equipment costs associated with the baseline case. Unlike energy and O&M expenditures, replacement costs are not regular, annual expenses. The present value of the replacement cost is the discounted stream of expenditures to replace equipment upon failure. While the cost to replace a piece of equipment is actually borne in the year in which the equipment is bought, the replacement costs are annualized for this analysis. Any part of the annualized cost that would be borne after the analysis period is then subtracted off of the total, in effect adding a salvage value. If the remaining time in the analysis period is less than the life of equipment installed for the ERO, the installed cost will overstate the true cost. The replacement cost calculation corrects for this overstatement. In this type of situation, the PV(Replacement Cost) is negative, corresponding to negative replacement costs (salvage value).

Existing equipment is assumed to have no salvage value or disposal cost. While these may not be entirely accurate assumptions, they partially offset each other. If salvage value is to be included for existing equipment, a few requirements must be met. First, it must be likely that the base will actually carry out a salvage process rather than dispose of the equipment. Regardless of value, if the base does not carry out this process, no savings will be accrued. Second, the salvage value should be the actual value of the equipment in its existing condition, less all costs associated with preparing it for sale and selling it. If this resulting net value is not greater than the disposal cost, then it should be ignored for analysis purposes. The replacement cost is annualized as shown in Equation 3.7, and the PV(Replacement Cost) is calculated using Equation 3.8.

$$REP_A = REP \times \frac{d}{1 - (d + 1)^{-L}} \quad (7)$$

$$PV(REP) = REP_A \times UPV_{25-N} \quad (8)$$

where $REP_A$ = Annualized replacement cost
$REP$ = Replacement cost
$d$ = Discount rate
$L$ = Life of ERO equipment
$N$ = Number of periods until replacement
$PV(REP)$ = Present value of annualized replacement cost
$UPV_N$ = Uniform present value factor, as discussed in Section 3.3.4.

Equation 3.7 yields a present value at the time of replacement, rather than at the beginning of the analysis period. This value must be discounted to current dollars using the single present value factor (SPV). While the UPV is used to calculate the present value of a stream of annual costs or savings, the SPV is used to find the present value of a single non-annual amount. The SPV is calculated using Equation 3.9, and the present value of replacement costs in current dollars is represented by Equation 3.10.

$$SPV_N = \frac{1}{(1 + d)^N} \quad (9)$$

$$PV_c(REP) = PV(REP) \times SPV_N \quad (10)$$

where $PV_c(REP)$ = Current dollar present value
$REP$ = Replacement cost
$d$ = discount rate
$N$ = number of periods until replacement
$SPV_N$ = Single present value factor.

### 3.3.6 Net Savings Calculation

Energy resource opportunities are selected for implementation on the basis of their net savings. The net savings of an ERO is the life-cycle savings of the ERO as compared to not implementing the ERO:

$$NS = LCC - LCC' \quad (11)$$

where $NS$ = the net savings of the ERO,
$LCC$ = the life-cycle cost of the existing situation,
$LCC'$ = the life-cycle cost if the ERO is implemented.

Most EROs are selected according to a very simple rule: if the net savings are positive, then the project should be undertaken. If the net savings are zero or negative, then the ERO should not be implemented. A positive net savings means the long-run costs of the ERO are less than the long-run costs of the existing situation.

The selection criteria can be complicated by a number of factors. If the ERO is part of a set of mutually exclusive options, then only the option with the highest net savings is selected. For example, many of the motors at Fort Irwin can be replaced with energy-efficient models, or a variable speed drive (VSD) can be added to the existing motor, or the existing motor can be replaced with an energy-efficient model with a VSD. The analysis would proceed by calculating the LCC of the existing motors, the LCC of energy-efficient motors, and the LCC of VSDs added to both the existing and the energy-efficient motor. Any of the EROs might be chosen, or it may be optimal to do nothing. If the net savings of two or more EROs considered is positive, then the ERO with the highest net savings would be selected.

### 3.3.7 Savings to Investment Ratio Calculation

The savings to investment ratio (SIR) is equal to the total savings of an ERO divided by the installed cost of that ERO. Any ERO with an SIR greater than 1 indicates that the savings outweigh the costs. Thus, an SIR of 1 denotes a net savings of 0. As noted earlier, the SIR is only to be used as a prioritization measure, rather than a selection device. Equation 3.12 defines the SIR.

$$SIR = \frac{PV(ES) + PV(OMS) + PV(REPS)}{PV(IC)} \tag{12}$$

where SIR = Savings to investment ratio of an ERO,
PV(ES) = Present value of energy savings of an ERO,
PV(OMS) = Present value of O&M savings of an ERO,
PV(REPS) = Present value of replacement savings of an ERO, and
PV(IC) = Present value of the installed cost of an ERO.

### 3.3.8 Discounted Payback Period Calculation

The discounted payback period is the present value of the installed cost divided by the annualized present value of total savings. Equations 3.14 and 3.15 show the calculation of the annualized present value of total savings, and equation 3.16 shows the calculation of the discounted payback period.

$$TS = PV(ES) + PV(OMS) + PV(REPS) \tag{13}$$

where TS = present value of total savings associated with an ERO,
PV(ES) = Present value of energy and demand savings of an ERO,
PV(OMS) = Present value of O&M savings of an ERO,
PV(REPS) = Present value of replacement savings of an ERO.

$$ATS = TS \times \frac{d}{1-(d+1)^{-P}} \quad (14)$$

where ATS = annualized total savings associated with an ERO,
TS = present value of total savings associated with an ERO,
d = discount rate
P = analysis period.

$$DPB = \frac{PV(IC)}{ATS} \quad (15)$$

where DPB = discounted payback period,
PV(IC) = Present value of the installed cost of an ERO,
ATS = annualized total savings associated with an ERO.

## 3.4 Fuel Cost Determination

In order to examine the energy resource opportunities (EROs) at Fort Irwin, marginal fuel costs must be calculated. The marginal, or avoided, cost of fuel service is used in conjunction with the estimated energy savings of an ERO to calculate the dollar value of those savings. While the costs of propane, gasoline, and diesel are straight-forward because they are flat rates, the cost of electricity at Fort Irwin is complicated by the structure of the rate schedule under which Fort Irwin purchases its electricity and the uncertainty regarding that rate in the future.

Fort Irwin purchases its electricity from Southern California Edison (SCE) under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate (ISR) rider. The ISR essentially adds a declining block rate component to the time-of-use structure in that it provides a base level of energy at a fixed monthly charge, while consumption above the base level is billed at the incremental rate, which is lower than the base energy rate in most cases. The structure is unlike a declining block rate structure in that Fort Irwin is billed for the base level of energy regardless of whether it is used, so valuing energy savings becomes more complicated if consumption drops below this level. In the process of determining the appropriate marginal rate for use in this analysis, it was determined that there is some uncertainty as to whether Fort Irwin will be able to renew the ISR contract when it expires in 1996-97. Because of this uncertainty, it was determined that the appropriate marginal rates to use would be those found in the TOU-8 schedule. For further discussion and explanation, see Appendix A of this report.

## 3.5 Summary of ERO Impact Study

Table 3.2 defines the assumptions that are common to all of the EROs analyzed. The rates in effect are straightforward; however, mention should be made as to the calculation of the full cost of energy. In a forthcoming PNL report, "Determining Appropriate Energy Costs for Federal Residential Building Standards Analysis," by S. A. Shankle et al., the authors note that the appropriate cost of energy to use in determining the correct level of investment in energy-efficient construction should include the following elements (shown after Table 3.2 on the next page):

**Table 3.2.** Assumptions Used in LCC Analysis

| | |
|---|---|
| Discount Rate: | 3.1% real |
| Analysis Period: | 25 years |
| Current Fuel Prices: | |
| Natural Gas: | $0.35/Therm |
| Electricity: | |
| Summer On-Peak | $0.13752/kWh |
| Summer Mid-Peak | $0.06517/kWh |
| Summer Off-Peak | $0.04077/kWh |
| Winter Mid-Peak | $0.07688/kWh |
| Winter Off-Peak | $0.04335/kWh |
| Electricity Demand: | |
| Summer On-Peak | $18.90/kW |
| Summer Mid-Peak | $2.35/kW |
| Winter Mid-Peak | $3.15/kW |
| Propane (LPG): | $0.473/gallon |
| Gasoline: | $0.83/gallon |
| Diesel: | $0.67/gallon |
| Fuel Conversion Factors: | |
| Natural Gas: | 10.00 Therms/MBtu |
| Electricity: | 292.997 kWh/MBtu |
| Propane: | 10.526 gallons/MBtu |
| Gasoline: | 8.0000 gallons/MBtu |
| Diesel: | 7.1942 gallons/MBtu |

1. Energy rates paid to the supplier by the federal facility;

2. Avoidable demand charges;

3. Avoidable distribution system losses;

4. Avoidable distribution system capital costs;

5. Avoidable external costs of energy supply and distribution.

The incorporation of the above elements is referred to as the "full cost" of energy. Current federal life-cycle costing methods do not include the cost of environmental externalities unless they are reflected in some manner within the utility bill. The external cost of energy will increasingly become internalized within the LCC process, however, due to such factors as utility least-cost planning, the 1990 Amendments to the Clean Air Act, and emissions trading. As these costs become internalized, they will be reflected in the actual cost of energy paid by the facility, and will no longer need to receive separate consideration.

Table 3.3 defines the column headings used in the remaining tables in this section. One of the distinctions made is between first year energy savings and full implementation energy savings. First year energy savings are those savings that should be experienced after the first year of the analysis. These savings will be zero for EROs that will not be implemented immediately. Full implementation energy savings are those savings that should be experienced after the ERO has been fully implemented; either after the first year, or sometime in the future. Differences in these numbers can be caused when an ERO is implemented in steps; for example, when a variable speed drive (VSD) is added immediately to an existing motor, there are immediate savings associated with that action (first year savings); however, the second part of the ERO is to replace the existing motor when it fails with an energy efficient motor. Once this has been done, the equipment should experience the full savings of the ERO action, that is the full implementation savings.

**Table 3.3.** Description of Column Headings

All Tables (Except Summaries)

| Column Heading | Description | Unit |
|---|---|---|
| End Use | Designates the general end-use of an ERO. | End Use |
| Building Type | Designates the building type used in building (FEDS) analysis; descriptive field in non-building analysis - designates the specific equipment or facility affected. | Building Type |
| Use Area | Designates the specific equipment or facility affected. | Use Area |
| Existing Technology | Equipment that is affected by the ERO | Equipment |
| Resulting Technology | Describes the ERO. See Section 2 of this document for complete descriptions of each ERO. Also indicates whether the ERO is to be done now or in the future (RI vs. ROF) for non-building EROs. | Description |

Annual Energy and Demand Reduction Tables - FEDS (Building) EROs

| Column Heading | Description | Unit |
|---|---|---|
| Retrofit Energy Savings | Energy savings attributable to the retrofit measure. | MBtu per year |
| Retrofit Demand Savings | Demand savings attributable to the retrofit measure. | kW per month |
| Energy Savings due to Interactive Effects | Energy savings resulting from the retrofit measure including all interactive savings. | MBtu per year |

| Column Heading | Description | Unit |
|---|---|---|
| Demand Savings due to Interactive Effects | Demand Savings resulting from the retrofit measure including all interactive savings. | kW per month |
| Net Savings | Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost. | 1994 Constant dollars |
| Savings to Investment Ratio | Present value of total savings divided by present value of installed cost. | None |
| Discounted Payback Period | Present value of installed cost divided by annualized value of total savings. | Years. |

Annual Energy and Demand Reduction Tables - Manual (Non-Building) EROs

| Column Heading | Description | Unit |
|---|---|---|
| First Year Energy Savings | Energy savings that will be realized in the first year. | MBtu per year |
| First Year Demand Savings | Demand savings that will be realized in the first year. | kW-month per year |
| Full Implementation Energy Savings | Energy savings that will be realized once the ERO is fully implemented. | MBtu per year |
| Full Implementation Demand Savings | Demand Savings that will be realized once the ERO is fully implemented. | kW-month per year |
| Net Savings | Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost. | 1994 Constant dollars |
| Savings to Investment Ratio | Present value of total savings divided by present value of installed cost. | None |
| Discounted Payback Period | Present value of installed cost divided by annualized value of total savings. | Years. |

**Table 3.3.** (contd)

Present Value of Costs and Savings Tables

| Column Heading | Description | Unit |
|---|---|---|
| Present Value of Installed Cost | Present value of the labor and materials cost of implementing the ERO. Equals actual cost for immediate EROs, discounted cost for ROF EROs. | 1994 Constant dollars |
| Present Value of Rebate | Present value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years. | 1994 Constant dollars |
| Present Value of Net Installed Cost | Present value of the installed cost less the present value of any rebate available for the ERO. | 1994 Constant dollars |
| Present Value of Energy Savings | Present value of the energy cost savings that will be realized after implementation of ERO. | 1994 Constant dollars |
| Present Value of Demand Savings | Present value of the electricity demand cost savings that will be realized after implementation of the ERO. | 1994 Constant dollars |
| Present Value of O&M Savings | Present value of the stream of maintenance cost reductions attributable to the ERO. May be negative, indicating ERO has higher maintenance costs than the current equipment. | 1994 Constant dollars |
| Present Value of Replacement Savings | Present value of the stream of replacement cost savings attributable to the ERO. May be negative, indicating that the ERO has higher replacement costs than the current equipment. | 1994 Constant dollars |
| Present Value of Total Savings | Sum of energy, demand, O&M, and replacement savings associated with the ERO. | 1994 Constant dollars |
| Net Savings | Reduction in life-cycle cost due to ERO. Equals present value of total savings less present value of installed cost. | 1994 Constant dollars |
| Savings to Investment Ratio | Present value of total savings divided by present value of installed cost. | None |
| Discounted Payback Period | Present value of installed cost divided by annualized value of total savings. | Years. |
| First Cost (FEDS tables only) | The initial capital cost of the measure if it were to be installed immediately. | 1994 Constant dollars |

**Table 3.3.** (contd)

Annualized Values of Costs and Savings Tables

| Column Heading | Description | Unit |
|---|---|---|
| Annualized Installed Cost | Annualized value of the labor and materials cost of implementing the ERO. Equals actual cost for immediate EROs, discounted cost for ROF EROs. Calculated from the present value. | 1994 Constant dollars |
| Annualized Value of Rebate | Annualized value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years. Calculated from the present value. | 1994 Constant dollars |
| Annualized Net Installed Cost | Annualized value of the installed cost less the available rebate for the ERO. Calculated from the present value. | 1994 Constant dollars |
| Annualized Energy Savings | Annualized value of the energy cost savings that will be realized after implementation of ERO. Calculated from the present value. | 1994 Constant dollars |
| Annualized Demand Savings | Annualized value of the electricity demand cost savings that will be realized after implementation of the ERO. Calculated from the present value. | 1994 Constant dollars |
| Annualized O&M Savings | Annualized value of the stream of maintenance cost reductions attributable to the ERO. May be negative, indicating ERO has higher maintenance costs than the current equipment. Calculated from the present value. | 1994 Constant dollars |
| Annualized Replacement Savings | Annualized value of the stream of replacement cost savings attributable to the ERO. May be negative, indicating that the ERO has higher replacement costs than the current equipment. Calculated from the present value. | 1994 Constant dollars |
| Annualized Total Savings | Sum of energy, demand, O&M, and replacement savings associated with the ERO. | 1994 Constant dollars |
| Annualized Net Savings | Annualized reduction in life-cycle cost due to ERO. Equals annualized total savings less annualized installed cost. | 1994 Constant dollars |
| Savings to Investment Ratio | Annualized total savings divided by present value of installed cost. | None |

**Table 3.3.** (contd)

Cumulative Annual Energy and Demand Reduction Tables

| Column Heading | Description | Unit |
|---|---|---|
| Cumulative First Year Energy Savings | Energy savings that would be realized in the first year if all EROs with equal and higher SIRs were implemented. | MBtu per year |
| Cumulative First Year Demand Savings | Demand savings that would be realized in the first year if all EROs with equal and higher SIRs were implemented. | kW-month per year |
| Cumulative Full Implementation Energy Savings | Energy savings that would be realized once the ERO is fully implemented, if all EROs with equal and higher SIRs were implemented. | MBtu per year |
| Cumulative Full Implementation Demand Savings | Demand Savings that would be realized once the ERO is fully implemented, if all EROs with equal and higher SIRs were implemented. | kW-month per year |
| Cumulative Net Savings | Reduction in life-cycle cost if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings less cumulative value of installed cost. | 1994 Constant dollars |
| Cumulative Savings to Investment Ratio | SIR of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings divided by cumulative value of installed cost. | None |
| Cumulative Discounted Payback Period | Discounted payback of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of installed cost divided by annualized cumulative value of total savings. | Years. |
| Individual ERO Savings to Investment Ratio | Present value of total savings divided by present value of installed cost for individual ERO. | None |

**Table 3.3.** (contd)

Cumulative Present Value of Costs and Savings Tables

| Column Heading | Description | Unit |
|---|---|---|
| Cumulative Present Value of Installed Cost | Present value of the labor and materials cost of implementing entire project, if all EROs with equal and higher SIRs were implemented | 1994 Constant dollars |
| Cumulative Present Value of Rebate | Present value of the rebate available for ERO equipment. Equals actual rebate for immediate EROs, discounted rebate for ROF EROs occurring within three years. | 1994 Constant dollars |
| Cumulative Present Value of Net Installed Cost | Present value of the installed cost less the present value of any rebate available for the ERO. | 1994 Constant dollars |
| Cumulative Present Value of Energy Savings | Present value of the energy cost savings that would be realized after implementation of ERO, if all EROs with equal and higher SIRs were implemented. | 1994 Constant dollars |
| Cumulative Present Value of Demand Savings | Present value of the electricity demand cost savings that would be realized after implementation of the ERO, if all EROs with equal and higher SIRs were implemented. | 1994 Constant dollars |
| Cumulative Present Value of O&M Savings | Present value of the stream of maintenance cost reductions, if all EROs with equal and higher SIRs were implemented. | 1994 Constant dollars |
| Cumulative Present Value of Replacement Savings | Present value of the stream of replacement cost savings, if all EROs with equal and higher SIRs were implemented. | 1994 Constant dollars |
| Cumulative Present Value of Total Savings | Sum of energy, demand, O&M, and replacement savings if all EROs with equal and higher SIRs were implemented | 1994 Constant dollars |
| Cumulative Net Savings | Reduction in life-cycle cost if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings less cumulative value of installed cost. | 1994 Constant dollars |
| Cumulative SIR | SIR of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of total savings divided by cumulative value of installed cost. | None |

**Table 3.3.** (contd)

| Column Heading | Description | Unit |
|---|---|---|
| Cumulative Discounted Payback Period | Discounted payback of entire project if all EROs with equal and higher SIRs were implemented. Equals cumulative value of installed cost divided by annualized cumulative value of total savings. | Years. |
| Individual ERO SIR | Present value of total savings divided by present value of installed cost for individual ERO. | None |

The annual energy and demand reductions and the present values of costs and savings for all EROs are presented in Tables 3.5 and 3.6. All tables have been sub-divided into two groups: building EROs (evaluated using FEDS-2) and non-building EROs (non-FEDS evaluation process). Many EROs have negative net savings, and so are not cost-effective. Many others are cost-effective, but are inferior to an alternative ERO. Tables 3.7 and 3.8 present the annual energy and demand reductions and the present values of costs and savings for all cost-effective EROs that are not excluded by an ERO with a higher net savings. The annualized values of the costs and savings for these EROs are given in Table 3.9. Tables 3.10 and 3.11 present cumulative values for the energy and demand reductions and the costs and savings for the cost-effective EROs. The cumulative values are calculated by sorting the EROs by their SIRs, and then summing the values over the EROs. The resulting table allows the reader to compare the total energy, demand, and dollar savings available for any given level of total investment. A cumulative SIR is calculated as well. The cumulative SIR shows the SIR of all EROs up to that point, if all were implemented as a single project. The SIR of each individual ERO is shown as well, to illustrate how the EROs were sorted. Cumulative values are presented for non-building EROs only, as EROs calculated using the FEDS process cannot be summed due to the fact that not all interactive effects are accounted for on an individual ERO basis.

The total energy, demand, and dollar savings, as well as the overall net savings and SIR are presented in Table 3.14. The cost-effective efficiency resource at Fort Irwin is estimated to be over 132,200 MBtu for building EROs; and 156,000 MBtu the first year for non-building EROs, rising to over 160,000 MBtu after full implementation of all non-building EROs. Building EROs represent monthly demand savings of almost 3,600 kW; and the non-building EROs represent demand savings of 54,000 kW the first year, and almost 59,000 kW after all non-building EROs have been fully implemented.

Estimated annual energy consumption using FEDS-2 is approximately 546,600 MBtu (see Section 3.1.2 for discussion), including chilled water and district hot water. The building energy savings would be equivalent to 24% of estimated annual energy consumption. Typical annual energy consumption, as determined by actual consumption figures, at Fort Irwin is approximately 1,100,000 MBtu. This number includes fuel use by vehicles; if vehicle fuel use is excluded, then total estimated energy consumption at Fort Irwin is approximately 500,000 MBtu. The non-building energy savings would be equivalent to 14.6% of typical annual total energy consumption (see Table S.2 in Volume 2 for annual totals). Demand savings would be equivalent to 14.5% of typical annual electricity demand.

These savings can be broken down further into electricity and fossil fuel savings. For building EROs, the estimated annual electricity consumption at Fort Irwin is 89,120 MWh. Full implementation of all electric EROs results in a reduction of 16,040 MWh. This represents a reduction of approximately 18% over total electricity consumption. The estimated annual fossil fuel consumption (propane) at Fort Irwin is 209,100 MBtu. Full implementation of all fossil fuel EROs results in net conservation of 71,020 MBtu. This represents net conservation of 34% of total consumption. The end uses of chilled water and district hot water were not broken out by fuel. The estimated annual chilled water use is 2,007,000 ton-hours. Full implementation of all chilled water EROs results in a reduction of 330,700 ton-hours, or 16% of total consumption. The estimated annual district hot water use is 9,238 MBtu. Full implementation of all district hot water EROs results in a reduction of 7,680 MBtu, or 83% of total consumption.

For non-building EROs, the estimated annual electricity consumption at Fort Irwin is 79,760 MWh. Full implementation of all electric EROs results in a reduction of 12,150 MWh. This represents a reduction of approximately 15.2% over total electricity consumption. The estimated annual fossil fuel consumption (propane, gasoline, and diesel) at Fort Irwin is 823,830 MBtu. Full implementation of all fossil fuel EROs results in conservation of 187,350 MBtu and a new load of 68,780 MBtu (natural gas for vehicles) for a net reduction of 118,570 MBtu. This represents conservation of 22.7% of total consumption, new load of 8.3%, and an overall decrease of 14.4%.

The total cost-effective resource for building EROs would require an investment with a present value of almost $7.7 million and would generate overall savings with a present value of $33.7 million. The net savings of the investment would be $26.0 million, with an overall SIR of 4.39. The annualized value of the energy and demand savings would be $2.0 million, or 20% of estimated annual energy and demand costs (FEDS-2 calculated expenditures to be $10.3 million).

The total cost-effective resource for non-building EROs would require an investment with a present value of over $16.2 million, would generate energy and demand savings with a present value of over $45.7 million, and would generate overall savings with a present value of $53.6 million. The net savings of the investment would be almost $37.6 million, with an overall SIR of 3.35. The annualized value of the energy and demand savings would be almost $2.7 million, or 25% of estimated annual energy costs (see Table S.2 in Volume 2 for annual totals). 1992 expenditures for electricity, propane, gasoline, and diesel were taken from Volume 2 and adjusted with prices used in the LCC analysis to calculate this percentage. See section 3.6 of Volume 3 for an explanation of this adjustment process.

The cost-effective ERO results have been aggregated by ERO category. The ERO category results are presented in Table 3.12, and the annualized values for non-building EROs are in Table 3.13. For building EROs, hot water EROs represent the greatest efficiency resource, accounting for 30.7% of the total energy savings. Heating and lighting EROs also represent significant savings; with heating EROs accounting for approximately 29% and lighting accounting for approximately 26% of the total 132,230 MBtu savings. Cost information broken out by ERO category is not available for building EROs at this time.

For non-building EROs, vehicles represent the greatest efficiency resource, accounting for $10.1 million of the total $37.6 million net savings and only $2.0 million of the total $16 million installed cost. The remaining non-building ERO categories have net savings ranging from $0.3 million to $9.4 million. The highest SIR is represented by the air conditioning EROs.

The LCC results have also been combined into a fuel balance table, as presented in Table 3.15. For the buildings EROs, this table (Table 3.15a) shows the existing energy use, resulting energy use, and net conservation for each fuel, plus the end uses of chilled water and district hot water. The non-building ERO

table (Table 3.15b) shows the existing energy use, conservation, new load, resulting use, and net conservation for each fuel. Similar figures are also provided for demand. The new load columns are necessary due to the fuel-switch to natural gas and electricity for the vehicles EROs. The net conservation columns are the difference between conservation and new load. The resulting use columns are derived by subtracting net conservation from existing use.

### 3.5.1 Additional Notes

- The minimum LCC ERO for family housing HVAC was determined to be a natural gas heat pump, with a net savings of $6.9 million. This measure was evaluated to demonstrate the savings potential of the gas heat pump, however, because the technology is not commercially available, the next best ERO, a ground source heat pump, was the recommended measure.

- Tables 3.5b and 3.6b report the LCC values for individual vehicle EROs. These tables do not include the construction costs of the filling stations; however, beginning with Tables 3.6 and 3.7, the cost-effective vehicle EROs are aggregated into one line, with filling station costs included in the LCC figures. All vehicle EROs were determined to be cost-effective, however, converting the vehicles immediately was the recommended solution in all cases. There were also two options for filling stations. While both were determined to be cost-effective, option 2 had the greatest net savings and is therefore the station represented in Tables 3.6 through 3.15. For a more detailed explanation on the vehicle EROs, see the vehicles section within Section 2.0.

- Lighting control EROs were calculated under two scenarios: the first assumed that controls would be added to the existing fixtures, and the second assumed that existing fixtures had been replaced with T-8 fixtures. Because the FEDS model calculated T-8 fixtures to be cost-effective, the results presented in Tables 3.6 on assume that controls are placed on the T-8 fixtures. Lighting controls were found to be cost-effective under both scenarios, with the same measures recommended in each measure for the different fixtures. The only difference occurs in the level of savings associated with the two scenarios, as the T-8 lighting does not require as much electricity as existing fixtures for daily operation.

- As mentioned in Section 3.5, total expenditures on energy during 1992, as found in Volume 2, were adjusted with current prices in order to estimate the percentage of dollar savings available. Only those expenditures for fuels in which EROs were proposed have been included for this analysis; expenditures for jet fuels (JP-4 and JP-8) were not included. Table 3.4 lists 1992 expenditures, the adjustment factor used for the conversion, and the adjusted expenditures for each fuel type.

  The adjustment factor is the ratio of the prices used in the LCC analysis to the prices used in the Volume 2 baseline report. Prices for diesel, gasoline, and propane were assumed to be the same, however, the amount of gasoline consumed was assumed to be higher than that reported in Volume 2. The difference in the expenditure level for gasoline, then, is due to an adjustment in the assumed amount of fuel purchased; the price was not assumed to have changed.

  Electricity expenditures were adjusted by recalculating the energy bills using the TOU-8 rates without the incremental sales rate. The rate used for each time period is reported in Table 3.2. Rates for reactive demand (kVAR) were assumed to remain constant under both the TOU-8 rate schedule and the ISR schedule, so no adjustment was made to kVAR charges.

**Table 3.4.** Summary of Expenditure Adjustment Process

| 1992 Fuel | Adjustment Expenditures | Adjusted Factor | Expenditures |
|---|---|---|---|
| Diesel | $2,491,088 | 1 | $2,491,088 |
| Electricity | $6,271,513 | See discussion | $6,512,309 |
| Gasoline | $446,098 | See discussion | $649,960 |
| Natural Gas | $0 | 0 | $0 |
| Propane | $1,120293 | 1 | $1,120,293 |
| Totals | $10,253,155 | | $10,663,157 |

- Rebates were assumed to be available for implementation of some EROs. Because of the uncertainty of rebate values over time, it was assumed that only those EROs implemented immediately or within the first three years of the analysis period would be eligible for a rebate.

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | ADMINISTRATION-01 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-01 | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 15 | 1 | 13 | 1 | 5,348 | 3 40 | 5 3 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL62 FL 1X8 2F96T12 STD2 | FL131 FL 1X8 2F96T12ES ELC2 RFF | 25 | 2 | 26 | 2 | 7,625 | 2 40 | 7 4 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 33 | 2 | 31 | 2 | 12,388 | 3 40 | 5 3 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL1 FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 49 | 4 | 43 | 4 | 19,687 | 4 30 | 4 2 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN11 INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 2 | 0 | 1 | 0 | 670 | 6 00 | 3 0 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN28 INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 14 | 1 | 12 | 1 | 7,596 | 7 10 | 2 5 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | EX1 EXIT INC (2x20) | EX6 EXIT - LED | 17 | 1 | 11 | 1 | 7,822 | 5 50 | 3 2 |
| Hot Water | ADMINISTRATION-01 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 19 | 0 | 19 | 0 | 169 | 2 70 | 1 0 |
| Hot Water | ADMINISTRATION-01 | ADMINISTRATION | Electric SHW Heater | 0 76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 1 | 0 | 1 | 0 | 586 | 3 60 | 1 5 |
| Roof | ADMINISTRATION-01 | ADMINISTRATION | Roof Insulation R Value 20.05 | Suspended Ceiling Increase Insulation by R 8 | 1 | 1 | 64 | 0 | 3 012 | 1 70 | 11 9 |
| Wall | ADMINISTRATION-01 | ADMINISTRATION | Wall Insulation R Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-02 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-02 | ADMINISTRATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | FL1 FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 RFF | 650 | 45 | 750 | 73 | 371,348 | 5 80 | 3 1 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 18 | 1 | 19 | 2 | 8,770 | 4 30 | 4 2 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | EX1 EXIT INC (2x20) | EX6 EXIT LED | 50 | 2 | 42 | 3 | 28,923 | 6 50 | 2 7 |
| Hot Water | ADMINISTRATION-02 | ADMINISTRATION | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | ADMINISTRATION-02 | ADMINISTRATION | Roof Insulation R-Value 30.00 | Attic Ceiling Increase insulation by R 19 | 1 | 1 | 44 | 5 | 3,011 | 1 20 | 15 3 |
| Wall | ADMINISTRATION-02 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Blow in Insulation Increase Insulation by R 6 5 | 1 | 1 | 80 | 8 | 8,409 | 1 50 | 12 9 |
| Heating | ADMINISTRATION-03 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-03 | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 70 | 5 | 100 | 5 | 35,536 | 4 60 | 4 0 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL82 FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12FS ELC2 | 152 | 10 | 184 | 10 | 74,494 | 3 20 | 5 6 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EFF1 RFF | 113 | 8 | 115 | 8 | 20,233 | 1 40 | 13 1 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 226 | 15 | 227 | 15 | 100,866 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL1 FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 880 | 58 | 833 | 58 | 388,869 | 4 90 | 3 7 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL13 FL 2X4 4F40T12 EEF2 | FL237 FL 2X4 3F32T8 ELC3 REF | 205 | 14 | 211 | 14 | 91,159 | 4 00 | 4 5 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | IN37 INC 75 FLD | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | IN6 INC 2-60 CEIL | FL182 CFL 2-13 + BLST UNIT | 31 | 2 | 80 | 2 | 25,715 | 14 20 | 1 3 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 31 | 2 | 80 | 2 | 24,584 | 10 70 | 1 7 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 63 | 4 | 93 | 4 | 45,027 | 26 90 | 0 7 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 527 | 18 | 368 | 18 | 243,847 | 5 40 | 3 3 |
| Hot Water | ADMINISTRATION-03 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 126 | 0 | 126 | 0 | 2,217 | 4 30 | 1 1 |
| Roof | ADMINISTRATION-03 | ADMINISTRATION | Roof Insulation R-Value 0 00 | Suspended Ceiling Increase insulation by R-11 | 1 | 1 | 625 | 0 | 53,462 | 3.70 | 5 5 |
| Wall | ADMINISTRATION-03 | ADMINISTRATION | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 2 | 0 | 2 | 0 | 153 | 3 00 | 7 0 |
| Cooling | ADMINISTRATION-03a | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 2 | 0 | 1 | 0 | 717 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL82 FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 4 | 0 | 3 | 0 | 1,574 | 3 00 | 5 9 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12FS EEF1 REF | 3 | 0 | 2 | 0 | 451 | 1 40 | 13 2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 5 | 0 | 4 | 0 | 2,296 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL1 FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 21 | 1 | 18 | 1 | 8,940 | 4 80 | 3 7 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL13 FL 2X4 4F40T12 EEF2 | FL237 FL 2X4 3F32T8 ELC3 REF | 5 | 0 | 4 | 0 | 2,063 | 3 90 | 4 6 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN37 INC 75 FLD | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN6 INC 2 60 CEIL | FL182 CFL 2-13 + BLST UNIT | 1 | 0 | 1 | 0 | 455 | 11 00 | 1 6 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 1 | 0 | 1 | 0 | 429 | 8 20 | 2 2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 1 | 0 | 1 | 0 | 941 | 24 30 | 0 7 |
| Hot Water | ADMINISTRATION-03a | ADMINISTRATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 4 | 0 | 3 | 0 | 1,987 | 5 60 | 3 2 |
| Roof | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 2 | 0 | 2 | 0 | 36 | 3 20 | 1 4 |
| Wall | ADMINISTRATION-03a | ADMINISTRATION | Roof Insulation R-Value 0 00 | Suspended Ceiling Increase Insulation by R 8 | 1 | 1 | 21 | 0 | 1,693 | 3 30 | 6 2 |
| Heating | ADMINISTRATION-04 | ADMINISTRATION | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-04 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 11 | 1 | 14 | 1 | 5,875 | 4 70 | 3 9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL82 FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 23 | 2 | 26 | 3 | 11,138 | 3 10 | 5 8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 17 | 1 | 18 | 2 | 3,066 | 1 40 | 13 3 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 34 | 2 | 40 | 4 | 18,435 | 4 60 | 3 9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL1 FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 134 | 9 | 163 | 14 | 77,596 | 5 90 | 3 1 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL13 FL 2X4 4F40T12 EEF2 | FL237 FL 2X4 3F32T8 ELC3 REF | 31 | 2 | 36 | 3 | 17,195 | 4 60 | 3 9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN37 INC 75 FLD | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN6 INC 2-60 CEIL | FL182 CFL 2-13 + BLST UNIT | 5 | 0 | 7 | 1 | 3,796 | 13 30 | 1 4 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 5 | 0 | 7 | 1 | 3,616 | 9 90 | 1 8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 10 | 1 | 13 | 1 | 8,016 | 30 10 | 0 6 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 25 | 1 | 26 | 1 | 15,075 | 6 80 | 2 6 |
| Hot Water | ADMINISTRATION-04 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 6 | 0 | 6 | 0 | 103 | 3 70 | 1 3 |
| Roof | ADMINISTRATION-04 | ADMINISTRATION | Roof Insulation R Value 0 00 | Suspended Ceiling Increase insulation by R-38 | 1 | 1 | 52 | 6 | 15,017 | 2 80 | 6 7 |
| Wall | ADMINISTRATION-04 | ADMINISTRATION | Wall Insulation R Value 0 00 | Blow in Insulation Increase Insulation by R-6 5 | 1 | 1 | 75 | 6 | 16,717 | 2 80 | 6 6 |
| Heating | ADMINISTRATION-05 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-05 | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 166 | 12 | 189 | 12 | 67,420 | 3 60 | 5 0 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN11 INC 100 CEIL | FL189 CFL 2-15 CEIL FIXT | 74 | 5 | 104 | 5 | 41,711 | 7 50 | 2 4 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN28 INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN29 INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN30 INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN7 INC 3-60 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | EX1 EXIT - INC (2x20) | EX6 EXIT LED | 67 | 2 | 85 | 2 | 36,529 | 6 20 | 2 9 |
| Hot Water | ADMINISTRATION-05 | ADMINISTRATION | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | ADMINISTRATION-05 | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling Increase insulation by R 19 | 1 | 1 | 1198 | 0 | 93,966 | 3.30 | 6.2 |
| Wall | ADMINISTRATION-05 | ADMINISTRATION | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-06 | ADMINISTRATION | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-06 | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 59 | 4 | 48 | 4 | 24,359 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 26 | 2 | 22 | 2 | 11,746 | 7 00 | 2 6 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN28. INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN29: INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN7: INC 3 60 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | EX1· EXIT - INC (2x20) | EX6 EXIT LED | 50 | 2 | 39 | 2 | 23,868 | 5 60 | 3 2 |
| Hot Water | ADMINISTRATION-06 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 10 | 0 | 10 | 0 | 176 | 3 70 | 1.3 |
| Roof | ADMINISTRATION-06 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling Increase insulation by R 8 | 1 | 1 | 47 | 0 | 1,704 | 1.50 | 13 9 |
| Wall | ADMINISTRATION-06 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Interior Masonary Surface Increase Insulation by R-4.3 | 1 | 1 | 161 | 0 | 125 | 1 00 | 20.9 |
| Heating | ADMINISTRATION-06a | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-06a | ADMINISTRATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | FL3. FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 17 | 1 | 22 | 1 | 7,928 | 4 60 | 3 9 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN11: INC 100 CEIL | FL189. CFL 2 15 CEIL FIXT | 7 | 0 | 11 | 0 | 4,065 | 8 40 | 2 2 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN28 INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN29. INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN7: INC 3 60 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | EX1. EXIT - INC (2x20) | EX6 EXIT - LED | 8 | 0 | 12 | 0 | 4,815 | 6 50 | 2 8 |
| Hot Water | ADMINISTRATION-06a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 6 | 0 | 6 | 0 | 101 | 3 40 | 1 3 |
| Roof | ADMINISTRATION-06a | ADMINISTRATION | Roof Insulation R-Value 20.05 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | ADMINISTRATION-06a | ADMINISTRATION | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-07 | ADMINISTRATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-07 | ADMINISTRATION | Electric Conv Chiller | Air Cooled Reciprocating Chiller (75 to 200 tons cooling) | 257 | 19 | 317 | 19 | 23,441 | 1 30 | 7 7 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106· FL 1X4 2F40T12ES ELC2 | 63 | 4 | 70 | 5 | 26,459 | 2 80 | 6 4 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105· FL 2X4 2F40T12ES ELC2 | 50 | 3 | 55 | 4 | 20,899 | 2 80 | 6.4 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6· EXIT LED | 26 | 1 | 30 | 1 | 14,930 | 6 60 | 2 7 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182· CFL 2 13 + BLST UNIT | 17 | 1 | 22 | 1 | 12,573 | 12.20 | 1.5 |
| Hot Water | ADMINISTRATION-07 | ADMINISTRATION | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | ADMINISTRATION-07 | ADMINISTRATION | Roof Insulation R-Value 8.90 | Suspended Ceiling Increase insulation by R 30 | 1 | 1 | 248 | 1 | 45,331 | 2.50 | 7 4 |
| Wall | ADMINISTRATION-07 | ADMINISTRATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-07a | ADMINISTRATION | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-07a | ADMINISTRATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 15 | 1 | 18 | 2 | 7,113 | 3.00 | 6 0 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 12 | 1 | 11 | 1 | 5,413 | 2.90 | 6 1 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | EX1· EXIT - INC (2x20) | EX6: EXIT LED | 6 | 0 | 5 | 0 | 3,368 | 6 10 | 2 9 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | IN6: INC 2-60 CEIL | FL182: CFL 2 13 + BLST UNIT | 4 | 0 | 3 | 0 | 2,938 | 11 80 | 1 5 |
| Hot Water | ADMINISTRATION-07a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 9 | 0 | 9 | 0 | 87 | 1 80 | 2.6 |
| Roof | ADMINISTRATION-07a | ADMINISTRATION | Roof Insulation R-Value 8 90 | Suspended Ceiling· Increase insulation by R-38 | 1 | 1 | 91 | 10 | 30,648 | 4 50 | 4.3 |
| Wall | ADMINISTRATION-07a | ADMINISTRATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-08 | ADMINISTRATION | Hot Water (Generated) Forced Air Furnace | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-08 | ADMINISTRATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-08 | ADMINISTRATION | Chilled Water Chill Water Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 17 | 1 | 21 | 1 | 6,977 | 2 70 | 6 6 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 41 | 3 | 57 | 3 | 17,714 | 2 90 | 6 2 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 969 | 67 | 1326 | 75 | 450,751 | 3 50 | 5 1 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 9 | 0 | 7 | 0 | 4,165 | 5.50 | 3 2 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 17 | 1 | 24 | 1 | 12,535 | 11 90 | 1 5 |
| Hot Water | ADMINISTRATION-08 | ADMINISTRATION | Hot Water (Generated) Steam Central Heer | LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 79 | 0 | 79 | 0 | 47,518 | 35 60 | 0 6 |
| Hot Water | ADMINISTRATION-08 | ADMINISTRATION | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | ADMINISTRATION-08 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling Increase insulation by R-19 | 1 | 1 | 133 | 6 | 15,128 | 1.50 | 12 1 |
| Wall | ADMINISTRATION-08 | ADMINISTRATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ADMINISTRATION-09 | ADMINISTRATION | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ADMINISTRATION-09 | ADMINISTRATION | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ADMINISTRATION-09 | ADMINISTRATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 3517 | 244 | 4175 | 385 | 1,804,162 | 3 80 | 4 8 |
| Lights | ADMINISTRATION-09 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6· EXIT - LED | 153 | 5 | 185 | 9 | 90,435 | 6 70 | 2 7 |
| Hot Water | ADMINISTRATION-09 | ADMINISTRATION | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 38 | 4 | 38 | 4 | 7,146 | 18.10 | 0 3 |
| Roof | ADMINISTRATION-09 | ADMINISTRATION | Roof Insulation R-Value 30 00 | Attic Ceiling Increase insulation by R 19 | 1 | 1 | 182 | 42 | 31,962 | 1 40 | 13 4 |
| Wall | ADMINISTRATION-09 | ADMINISTRATION | Wall Insulation R-Value 19.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | BARRACKS-01 | BARRACKS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | BARRACKS-01 | BARRACKS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-01 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 8 | 0 | 5 | 0 | 1,818 | 2 40 | 7 4 |
| Lights | BARRACKS-01 | BARRACKS | FL82· FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 2 | 0 | 589 | 1 60 | 10 8 |
| Lights | BARRACKS-01 | BARRACKS | FL94: FL 1X4 2F40T12ES EEF2 | FL106· FL 1X4 2F40T12ES ELC2 | 1 | 0 | 1 | 0 | 88 | 1.20 | 15.0 |
| Lights | BARRACKS-01 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 8 | 0 | 5 | 0 | 1,818 | 2 40 | 7 4 |
| Lights | BARRACKS-01 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 3 | 0 | 1 | 0 | 1,002 | 4 50 | 3 9 |
| Lights | BARRACKS-01 | BARRACKS | IN28. INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-01 | BARRACKS | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-01 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 12 | 0 | 9 | 0 | 5,006 | 5 40 | 3 3 |
| Lights | BARRACKS-01 | BARRACKS | EX1: EXIT - INC (2x20) | EX6· EXIT LED | 8 | 0 | 4 | 0 | 3,662 | 5 20 | 3 4 |
| Hot Water | BARRACKS-01 | BARRACKS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators | 19 | 0 | 19 | 0 | 324 | 4 20 | 1 1 |
| Roof | BARRACKS-01 | BARRACKS | Roof Insulation R-Value 11.00 | Attic Ceiling Increase insulation by R 11 | 1 | 1 | 29 | 0 | 926 | 1 40 | 14 9 |
| Wall | BARRACKS-01 | BARRACKS | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | BARRACKS-02 | BARRACKS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | BARRACKS-02 | BARRACKS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-02 | BARRACKS | FL4 FL 1X4 2F40T12 STD2 | FL52· FL 1X4 2F32T8 ELC2 | 252 | 10 | 222 | 10 | 65,396 | 2 60 | 6 9 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | BARRACKS-02 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 117 | 4 | 78 | 4 | 20,386 | 1.70 | 10.5 |
| Lights | BARRACKS-02 | BARRACKS | FL94: FL 1X4 2F40T12ES REF2 | FL106: FL 1X4 2F40T12ES ELC2 | 38 | 1 | 29 | 1 | 3,500 | 1.20 | 14.5 |
| Lights | BARRACKS-02 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 252 | 10 | 222 | 10 | 65,395 | 2.60 | 6.9 |
| Lights | BARRACKS-02 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 99 | 4 | 61 | 4 | 33,252 | 4.70 | 3.8 |
| Lights | BARRACKS-02 | BARRACKS | IN28: INC 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-02 | BARRACKS | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-02 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 384 | 15 | 335 | 15 | 169,131 | 3.70 | 3.1 |
| Lights | BARRACKS-02 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 268 | 9 | 222 | 9 | 128,861 | 5.60 | 3.2 |
| Hot Water | BARRACKS-02 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 2000 | 0 | 2000 | 0 | 162,771 | 17.70 | 1.0 |
| Roof | BARRACKS-02 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 887 | 0 | 36,568 | 1.50 | 13.4 |
| Wall | BARRACKS-02 | BARRACKS | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1 | 1 | 1059 | 0 | 7,666 | 1.10 | 19.3 |
| Heating | BARRACKS-03 | BARRACKS | Other Fuels Conv. Boiler | Add Automatic Electric Damper | 17 | 0 | 17 | 0 | 724 | 4.80 | 2.3 |
| Cooling | BARRACKS-03 | BARRACKS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-03 | BARRACKS | FL194: CFL 2-15 WALL FIXT | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-03 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 2 | 0 | 2 | 0 | 886 | 5.10 | 3.5 |
| Lights | BARRACKS-03 | BARRACKS | IN15: INC 60 TABLE LAMP | FL181: CFL 13 + BLST UNIT | 38 | 1 | 24 | 1 | 15,791 | 5.40 | 3.3 |
| Lights | BARRACKS-03 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 50 | 2 | 32 | 2 | 23,368 | 5.50 | 3.2 |
| Hot Water | BARRACKS-03 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 204 | 0 | 204 | 0 | 9,427 | 7.00 | 1.5 |
| Roof | BARRACKS-03 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 723 | 0 | 70,533 | 8.50 | 2.5 |
| Wall | BARRACKS-03 | BARRACKS | Wall Insulation R-Value 7.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | BARRACKS-04 | BARRACKS | Hot Water (Generated) Fan Coil | New Conventional Individual Building LPG Boiler | 132 | 0 | -133 | 0 | 29,390 | 3.60 | 3.4 |
| Cooling | BARRACKS-04 | BARRACKS | Chilled Water Chill Water Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-04 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 41 | 2 | 48 | 2 | 9,456 | 1.90 | 9.3 |
| Lights | BARRACKS-04 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 5 | 0 | 1,079 | 2.70 | 6.6 |
| Lights | BARRACKS-04 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 53 | 2 | 66 | 2 | 27,623 | 6.00 | 3.0 |
| Hot Water | BARRACKS-04 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 329 | 0 | 329 | 0 | 30,483 | 8.70 | 2.4 |
| Hot Water | BARRACKS-04 | BARRACKS | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 127 | 0 | 127 | 0 | 33,667 | 16.10 | 0.8 |
| Roof | BARRACKS-04 | BARRACKS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 3522 | 6 | 345,751 | 13.10 | 1.5 |
| Wall | BARRACKS-04 | BARRACKS | Wall Insulation R-Value 7.00 | Blow-in Insulation: Increase Insulation by R-24 | 1 | 1 | 592 | 1 | 31,507 | 2.00 | 9.6 |
| Heating | BARRACKS-05 | BARRACKS | Other Fuels Conv. Furn. | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | BARRACKS-05 | BARRACKS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-05 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 1 | 0 | 1 | 0 | 227 | 1.70 | 10.4 |
| Lights | BARRACKS-05 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 0 | 0 | 0 | 0 | 22 | 2.10 | 8.4 |
| Lights | BARRACKS-05 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2 | 0 | 1 | 0 | 742 | 5.20 | 3.4 |
| Hot Water | BARRACKS-05 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 41 | 0 | 41 | 0 | 3,754 | 8.80 | 2.4 |
| Roof | BARRACKS-05 | BARRACKS | Roof Insulation R-Value 30.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | BARRACKS-05 | BARRACKS | Wall Insulation R-Value 19.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | BARRACKS-06 | BARRACKS | Hot Water (Generated) Fan Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | BARRACKS-06 | BARRACKS | Chilled Water Chill Water Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-06 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 14 | 1 | 19 | 1 | 3,500 | 2.60 | 9.0 |
| Lights | BARRACKS-06 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL28: FL 1X4 2F40T12 ELC2 | 1 | 0 | 1 | 0 | 270 | 2.60 | 7.0 |
| Lights | BARRACKS-06 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 18 | 1 | 23 | 1 | 9,280 | 5.90 | 3.0 |
| Hot Water | BARRACKS-06 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 314 | 0 | 314 | 0 | 28,395 | 7.40 | 2.8 |
| Roof | BARRACKS-06 | BARRACKS | Roof Insulation R-Value 30.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | BARRACKS-06 | BARRACKS | Wall Insulation R-Value 19.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | BARRACKS-07 | BARRACKS | Hot Water (Generated) Fan Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | BARRACKS-07 | BARRACKS | Chilled Water Chill Water Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | BARRACKS-07 | BARRACKS | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 26 | 1 | 41 | 1 | 3,545 | 1.40 | 12.7 |
| Lights | BARRACKS-07 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 15 | 1 | 25 | 1 | 4,885 | 3.10 | 5.9 |
| Lights | BARRACKS-07 | BARRACKS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 22 | 1 | 38 | 1 | 8,262 | 3.90 | 4.6 |
| Lights | BARRACKS-07 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 204 | 7 | 273 | 7 | 104,108 | 5.90 | 3.0 |
| Lights | BARRACKS-07 | BARRACKS | IN3: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 92 | 4 | 122 | 4 | 42,401 | 5.90 | 3.0 |
| Hot Water | BARRACKS-07 | BARRACKS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 216 | 8 | 280 | 8 | 106,053 | 7.90 | 2.3 |
| Roof | BARRACKS-07 | BARRACKS | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 768 | 0 | 768 | 0 | 364,573 | 19.30 | 1.1 |
| Wall | BARRACKS-07 | BARRACKS | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 1135 | 1 | 99,867 | 2.80 | 6.9 |
| Heating | CHAPEL-01 | CHAPEL | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | CHAPEL-01 | CHAPEL | Other Fuels Conv. Furn. | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CHAPEL-01 | CHAPEL | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CHAPEL-01 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 30 | 3 | 37 | 4 | 24,042 | 21.30 | 0.8 |
| Lights | CHAPEL-01 | CHAPEL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 6 | 0 | 7 | 1 | 3,331 | 3.90 | 4.6 |
| Lights | CHAPEL-01 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 6 | 0 | 4,766 | 6.50 | 2.7 |
| Hot Water | CHAPEL-01 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 9 | 0 | 9 | 0 | 146 | 3.20 | 1.4 |
| Roof | CHAPEL-01 | CHAPEL | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 108 | 9 | 36,330 | 11.20 | 1.7 |
| Wall | CHAPEL-01 | CHAPEL | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1 | 1 | 69 | 5 | 17,848 | 4.50 | 4.2 |
| Heating | CHAPEL-02 | CHAPEL | Other Fuels Conv. Boiler | Add Automatic Electric Damper | 7 | 0 | 7 | 0 | 345 | 3.40 | 3.9 |
| Cooling | CHAPEL-02 | CHAPEL | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CHAPEL-02 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 137 | 12 | 137 | 12 | 79,788 | 15.60 | 1.2 |
| Lights | CHAPEL-02 | CHAPEL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 26 | 2 | 24 | 2 | 9,719 | 2.80 | 6.4 |
| Lights | CHAPEL-02 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 7 | 0 | 3,985 | 5.60 | 3.2 |
| Hot Water | CHAPEL-02 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 18 | 0 | 18 | 0 | 304 | 3.90 | 1.2 |
| Roof | CHAPEL-02 | CHAPEL | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 62 | 0 | 656 | 1.10 | 18.8 |
| Wall | CHAPEL-02 | CHAPEL | Wall Insulation R-Value 5.32 | Interior Masonry Surface: Increase Insulation by R-4.3 | 1 | 1 | 134 | 0 | 5,511 | 1.60 | 12.9 |
| Heating | CLINIC-01 | CLINIC | Other Fuels Conv. Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | CLINIC-01 | CLINIC | Electric Conv. Chiller | Air-Cooled Reciprocating Chiller (75 to 210 tons cooling) | 63 | 18 | 61 | 18 | 8,617 | 1.30 | 8.8 |
| Lights | CLINIC-01 | CLINIC | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 4 | 0 | 4 | 0 | 1,768 | 2.90 | 6.1 |
| Lights | CLINIC-01 | CLINIC | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 14 | 1 | 15 | 1 | 7,223 | 5.60 | 3.2 |
| Lights | CLINIC-01 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 7 | 0 | 8 | 0 | 3,518 | 5.70 | 3.2 |
| Lights | CLINIC-01 | CLINIC | FL2: FL 2X4 3F40T12 STD1.2 | FL236: FL 2X4 3F32T8 ELC3 | 45 | 3 | 50 | 3 | 25,146 | 7.10 | 2.6 |
| Lights | CLINIC-01 | CLINIC | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 86 | 6 | 99 | 6 | 47,187 | 6.90 | 2.6 |
| Lights | CLINIC-01 | CLINIC | HS13: HPS 70 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | CLINIC 01 | CLINIC | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 9 | 0 | 10 | 0 | 5,196 | 6 20 | 2 9 |
| Hot Water | CLINIC 01 | CLINIC | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | CLINIC 01 | CLINIC | Roof Insulation R Value 20 05 | Suspended Ceiling Increase insulation by R 19 | 1 | 1 | 10 | 0 | 158 | 1 10 | 17 6 |
| Wall | CLINIC 01 | CLINIC | Wall Insulation R-Value 19.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | CLINIC 02 | CLINIC | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | CLINIC 02 | CLINIC | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLINIC 02 | CLINIC | FL82. FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 21 | 1 | 19 | 1 | 9,876 | 3 70 | 4 8 |
| Lights | CLINIC 02 | CLINIC | FL62: FL 1X8 2F96T12 STD2 | FL131 FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 2 | 0 | 911 | 3 10 | 5 8 |
| Lights | CLINIC 02 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 18 | 1 | 14 | 1 | 7,950 | 4 80 | 3.8 |
| Lights | CLINIC 02 | CLINIC | FL79: FL 2X4 4F40T12ES STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 14 | 1 | 11 | 1 | 6,151 | 4 00 | 4 5 |
| Lights | CLINIC 02 | CLINIC | IN1: INC 40 CEIL | FL178. CFL 9 + BLST UNIT | 1 | 0 | 0 | 0 | 476 | 6 40 | 2 8 |
| Lights | CLINIC 02 | CLINIC | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 7 | 0 | 5 | 0 | 3,840 | 9 20 | 1 9 |
| Lights | CLINIC 02 | CLINIC | IN6: INC 2 60 CEIL | FL182. CFL 2 13 + BLST UNIT | 3 | 0 | 1 | 0 | 1,636 | 11 90 | 1.5 |
| Lights | CLINIC 02 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 126 | 4 | 74 | 4 | 57,148 | 5 40 | 3 3 |
| Hot Water | CLINIC 02 | CLINIC | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 28 | 0 | 28 | 0 | 421 | 2 90 | 1 6 |
| Roof | CLINIC 02 | CLINIC | Roof Insulation R-Value 0.00 | Suspended Ceiling Increase insulation by R-19 | 1 | 1 | 71 | 0 | 6,563 | 6 90 | 3 0 |
| Wall | CLINIC 02 | CLINIC | Wall Insulation R-Value 0.00 | Blow in Insulation. Increase Insulation by R 6.5 | 1 | 1 | 285 | 0 | 5,049 | 1 20 | 17 4 |
| Heating | COMMISSARIES | COMMISSARIES | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | COMMISSARIES | COMMISSARIES | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 13 | 1 | 18 | 1 | 7,051 | 3 90 | 4 7 |
| Lights | COMMISSARIES | COMMISSARIES | FL63: FL 1X8 1F96T12 STD1 | FL126. FL 1X8 1F96T12ES EEF1 REF | 49 | 2 | 63 | 3 | 12,217 | 1 80 | 10 0 |
| Lights | COMMISSARIES | COMMISSARIES | FL61: FL 1X8 4F96T12 STD2 | FL130 FL 1X8 4F96T12ES ELC2 REF | 12 | 1 | 15 | 1 | 5,614 | 6 40 | 2 9 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 6 | 0 | 8 | 0 | 2,784 | 3 50 | 5 2 |
| Lights | COMMISSARIES | COMMISSARIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 6 | 0 | 8 | 0 | 3,145 | 6 70 | 2 7 |
| Lights | COMMISSARIES | COMMISSARIES | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 2 | 0 | 2 | 0 | 527 | 3 40 | 5 3 |
| Lights | COMMISSARIES | COMMISSARIES | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 84 | 4 | 108 | 6 | 45,775 | 5 90 | 3 0 |
| Lights | COMMISSARIES | COMMISSARIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 72 | 3 | 95 | 5 | 34,536 | 4 90 | 3 7 |
| Lights | COMMISSARIES | COMMISSARIES | EX2: EXIT - INC (2x15) | EX6 EXIT - LED | 8 | 0 | 10 | 0 | 11,656 | 10 50 | 1 7 |
| Lights | COMMISSARIES | COMMISSARIES | HS15: HPS 150 PEND | LS4. LPS 90 PEND | 21 | 1 | 28 | 1 | 5,116 | 1 80 | 10 1 |
| Lights | COMMISSARIES | COMMISSARIES | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 5 | 0 | 6 | 0 | 2,405 | 11 40 | 1 6 |
| Lights | COMMISSARIES | COMMISSARIES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 6 | 0 | 8 | 0 | 3,921 | 12 70 | 1 4 |
| Lights | COMMISSARIES | COMMISSARIES | IN8: INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 11 | 0 | 14 | 1 | 7,548 | 40 60 | 0 4 |
| Hot Water | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 197 | 0 | 197 | 0 | 20,374 | 89 30 | 0 2 |
| Roof | COMMISSARIES | COMMISSARIES | Roof Insulation R-Value 8 90 | Suspended Ceiling Increase insulation by R-38 | 1 | 1 | 311 | 72 | 178,949 | 3 50 | 5 1 |
| Wall | COMMISSARIES | COMMISSARIES | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | ELECTRONICS 01 | ELECTRONICS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ELECTRONICS 01 | ELECTRONICS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1 | 0 | 1 | 0 | 697 | 5 70 | 3 2 |
| Roof | ELECTRONICS 01 | ELECTRONICS | Roof Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | ELECTRONICS 01 | ELECTRONICS | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | ELECTRONICS 02 | ELECTRONICS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ELECTRONICS 02 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 34 | 2 | 35 | 2 | 14,146 | 4 30 | 4 2 |
| Lights | ELECTRONICS 02 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,252 | 5 80 | 3 1 |
| Roof | ELECTRONICS 02 | ELECTRONICS | Roof Insulation R-Value 30.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | ELECTRONICS 02 | ELECTRONICS | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | ELECTRONICS 03 | ELECTRONICS | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | ELECTRONICS 03 | ELECTRONICS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | ELECTRONICS 03 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 94 | 5 | 105 | 5 | 38,473 | 8 10 | 2 2 |
| Lights | ELECTRONICS 03 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 4 | 0 | 4 | 0 | 2,191 | 6 00 | 3 0 |
| Hot Water | ELECTRONICS 03 | ELECTRONICS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 8 | 0 | 8 | 0 | 153 | 5 70 | 0 8 |
| Roof | ELECTRONICS 03 | ELECTRONICS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 14 | 0 | 952 | 1 50 | 12 4 |
| Wall | ELECTRONICS 03 | ELECTRONICS | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R-4.3 | 1 | 1 | 46 | 0 | 2,977 | 1 70 | 11.5 |
| Heating | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 34 | 1 | 33 | 1 | 15,462 | 4 00 | 4 5 |
| Lights | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 250 | 11 | 126 | 11 | 108,909 | 3 80 | 4 7 |
| Lights | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 157 | 7 | 58 | 7 | 76,042 | 10 30 | 1 7 |
| Hot Water | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 1874 | 0 | 1874 | 0 | 30,079 | 3 30 | 1 4 |
| Roof | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R Value 11 00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 487 | 0 | 8,910 | 1 20 | 17.2 |
| Wall | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | Wall Insulation R-Value 7 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 158 | 7 | 106 | 7 | 80,231 | 4 30 | 4 1 |
| Lights | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1169 | 52 | 774 | 54 | 584,026 | 4 20 | 4 2 |
| Lights | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 731 | 32 | 622 | 34 | 440,282 | 12 50 | 1 4 |
| Hot Water | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | 0.85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 7917 | 0 | 7917 | 0 | 19,267 | 2 00 | 0 5 |
| Roof | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | FH-3 OR MORE 02 | MULTI-FAMILY 3 OR MORE UNIT | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 93 | 4 | 84 | 8 | 37,909 | 3 70 | 4 9 |
| Lights | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 691 | 30 | 598 | 55 | 392,096 | 4 60 | 3 9 |
| Lights | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 432 | 19 | 437 | 35 | 277,242 | 13 30 | 1 3 |
| Hot Water | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 3618 | 0 | 3618 | 0 | 94,393 | 5 50 | 1 2 |
| Roof | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R Value 30 00 | Attic Ceiling. Increase insulation by R-19 | 1 | 1 | 470 | 46 | 29,672 | 1 10 | 16.5 |
| Wall | FH-3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 37 | 2 | -5 | 2 | 11,679 | 3 10 | 5 6 |
| Lights | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN5. INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 273 | 12 | 172 | 12 | 131,907 | 4 10 | 4 3 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 170 | 8 | 117 | 8 | 95,225 | 11 70 | 1 5 |
| Hot Water | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 1730 | 0 | 1730 | 0 | 24,718 | 2 60 | 1 8 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R Value 0 00 | Attic Ceiling: Increase insulation by R 30 | 1 | 1 | 7623 | 0 | 913,862 | 6 80 | 2 9 |
| Wall | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R Value 0 00 | Blow in Insulation: Increase Insulation by R 6 5 | 1 | 1 | 1811 | 0 | 67,286 | 1 90 | 14 8 |
| Heating | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 16 | 1 | 17 | 1 | 6,591 | 2 50 | 7 2 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 9 | 0 | 10 | 0 | 4,446 | 3 40 | 5 1 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN5. INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 60 | 3 | 81 | 3 | 34,587 | 4 70 | 3 8 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN6: INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 53 | 2 | 77 | 2 | 33,450 | 6 20 | 2 9 |
| Hot Water | FH-DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R-Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 15 | 1 | 14 | 1 | 5,673 | 2 40 | 7 4 |
| Lights | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 8 | 0 | 7 | 0 | 2,803 | 1 90 | 9 6 |
| Lights | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN5. INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 308 | 14 | 259 | 14 | 151,270 | 4 30 | 4 3 |
| Lights | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 38 | 2 | 11 | 2 | 17,519 | 9 80 | 1 8 |
| Hot Water | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 668 | 0 | 668 | 0 | 11,795 | 2 20 | 2 9 |
| Roof | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH-DUPLEX 01 | DUPLEX | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-DUPLEX-01 | DUPLEX | IN11: INC 100 CEIL | FL189 CFL 2-15 CFIL FIXT | 61 | 3 | 58 | 3 | 31,627 | 4 40 | 4 1 |
| Lights | FH-DUPLEX 01 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 450 | 20 | 203 | 20 | 257,258 | 4 60 | 3 8 |
| Lights | FH-DUPLEX 01 | DUPLEX | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 282 | 12 | 192 | 12 | 203,631 | 14 80 | 1 2 |
| Hot Water | FH DUPLEX-01 | DUPLEX | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 6234 | 0 | 6234 | 0 | 126,398 | 8 40 | 0 5 |
| Roof | FH DUPLEX-01 | DUPLEX | Roof Insulation R-Value 11 00 | Attic Ceiling: Increase insulation by R 30 | 1 | 1 | 2973 | 13 | 491,496 | 2 90 | 6 6 |
| Wall | FH DUPLEX-01 | DUPLEX | Wall Insulation R-Value 0 00 | Blow in Insulation: Increase Insulation by R 6 5 | 1 | 1 | 2424 | 13 | 364,427 | 2 60 | 7 3 |
| Heating | FH DUPLEX-02 | DUPLEX | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH DUPLEX-02 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 7 | 0 | 15 | 0 | 3,967 | 3 00 | 6 1 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 4 | 0 | 12 | 0 | 2,859 | 4 40 | 4 2 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 27 | 1 | 34 | 1 | 15,920 | 4 70 | 3 8 |
| Lights | FH DUPLEX-02 | DUPLEX | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 24 | 1 | 31 | 1 | 15,134 | 6 20 | 2 9 |
| Hot Water | FH DUPLEX-02 | DUPLEX | Other Fuels SHW Heater | 0 85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 1132 | 0 | 1132 | 0 | 20,386 | 4 60 | 1 0 |
| Roof | FH-DUPLEX-02 | DUPLEX | Roof Insulation R-Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | FH-DUPLEX-02 | DUPLEX | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | FH DUPLEX-03 | DUPLEX | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | FH-DUPLEX-03 | DUPLEX | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | FH-DUPLEX-03 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 40 | 2 | 55 | 2 | 20,904 | 2 90 | 6 1 |
| Lights | FH-DUPLEX-03 | DUPLEX | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 21 | 1 | 35 | 1 | 11,450 | 2 30 | 7 8 |
| Lights | FH-DUPLEX-03 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 827 | 37 | 1146 | 47 | 521,036 | 5 00 | 3 6 |
| Lights | FH-DUPLEX-03 | DUPLEX | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 103 | 5 | 229 | 6 | 78,875 | 15 70 | 1 2 |
| Hot Water | FH-DUPLEX-03 | DUPLEX | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 10311 | 0 | 10311 | 0 | 309,710 | 17 50 | 0 4 |
| Roof | FH-DUPLEX-03 | DUPLEX | Roof Insulation R-Value 30 00 | Attic Ceiling Increase insulation by R-19 | 1 | 1 | 1416 | 53 | 68,504 | 1 20 | 15.5 |
| Wall | FH-DUPLEX-03 | DUPLEX | Wall Insulation R-Value 19,00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | CLUBS-01 | CLUBS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | CLUBS-01 | CLUBS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS-01 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS-01 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 6 | 0 | 1,055 | 2 40 | 7 6 |
| Lights | CLUBS-01 | CLUBS | FL205: FL 2X4 2F40T12HO STD2 | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS 01 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL232. FL 2X4 3F40T12 ELC3 | 13 | 1 | 16 | 1 | 5,926 | 4 10 | 4 4 |
| Lights | CLUBS-01 | CLUBS | EX1: EXIT INC (2x20) | EX6. EXIT LED | 3 | 0 | 3 | 0 | 1,619 | 5 70 | 3 1 |
| Lights | CLUBS-01 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 3 | 0 | 6 | 0 | 1,666 | 6 20 | 2 9 |
| Hot Water | CLUBS-01 | CLUBS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 1 | 0 | 1 | 0 | 16 | 3 30 | 1 4 |
| Roof | CLUBS-01 | CLUBS | Roof Insulation R-Value 8 90 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 45 | 0 | 3,170 | 2 40 | 8 6 |
| Wall | CLUBS-01 | CLUBS | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | CLUBS 02 | CLUBS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | CLUBS 02 | CLUBS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS-02 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | FL123 FL 1X8 1F96T12ES EEF1 | 3 | 0 | 4 | 0 | 1,477 | 1.90 | 9 2 |
| Lights | CLUBS-02 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131 FL 1X8 2F96T12ES FLC2 REF | 12 | 1 | 16 | 1 | 5,422 | 3 90 | 4 7 |
| Lights | CLUBS-02 | CLUBS | FL205: FL 2X4 2F40T12HO STD2 | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS 02 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 63 | 3 | 88 | 5 | 35,976 | 4 90 | 3 7 |
| Lights | CLUBS-02 | CLUBS | EX1: EXIT - INC (2x20) | EX6. EXIT LED | 8 | 0 | 8 | 0 | 4,536 | 6 20 | 2 9 |
| Lights | CLUBS-02 | CLUBS | IN1: INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 12 | 1 | 16 | 1 | 8,007 | 10 80 | 1 7 |
| Hot Water | CLUBS-02 | CLUBS | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | CLUBS-02 | CLUBS | Roof Insulation R Value 20 05 | Suspended Ceiling Increase insulation by R 30 | 1 | 1 | 136 | 20 | 54,331 | 4 50 | 4 1 |
| Wall | CLUBS 02 | CLUBS | Wall Insulation R-Value 0 00 | Interior Masonary Surface Increase Insulation by R 10 9 | 1 | 1 | 103 | 15 | 25,602 | 2 00 | 9 4 |
| Heating | CLUBS-03 | CLUBS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 1 | 0 | 1 | 0 | 30 | 1 30 | 16 5 |
| Cooling | CLUBS-03 | CLUBS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS-03 | CLUBS | FL117 FL 1X8 1F96T12ES STD1 | FL123 FL 1X8 1F96T12ES EEF1 | 5 | 0 | 4 | 0 | 2,132 | 1 90 | 9 5 |
| Lights | CLUBS-03 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131. FL 1X8 2F96T12ES FLC2 REF | 16 | 1 | 18 | 1 | 7,916 | 3 70 | 4 9 |
| Lights | CLUBS 03 | CLUBS | FL205 FL 2X4 2F40T12HO STD2 | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | CLUBS 03 | CLUBS | FL79 FL 2X4 4F40T12ES STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 89 | 5 | 101 | 8 | 49,586 | 4 40 | 4 0 |
| Lights | CLUBS-03 | CLUBS | EX1 EXIT - INC (2x20) | EX6 EXIT LED | 13 | 0 | 15 | 1 | 8,127 | 6 90 | 2 6 |
| Lights | CLUBS 03 | CLUBS | IN5: INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 17 | 1 | 14 | 2 | 10,967 | 9 70 | 1 8 |
| Hot Water | CLUBS 03 | CLUBS | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LFSHs, Aerators | 369 | 0 | 369 | 0 | 38,070 | 75 90 | 0 3 |
| Roof | CLUBS 03 | CLUBS | Roof Insulation R Value 8.90 | Suspended Ceiling Increase insulation by R-38 | 1 | 1 | 278 | 36 | 108,814 | 4 50 | 4 1 |
| Wall | CLUBS-03 | CLUBS | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 1 | 0 | 1 | 0 | 301 | 2 40 | 7 5 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | 133 | 1 80 | 10 1 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 16 | 1 | 19 | 1 | 8,928 | 4 50 | 4 0 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 2 | 0 | 2 | 0 | 1,083 | 11 20 | 1 6 |
| Hot Water | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Electric SHW Heater | 0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 9 | 6 | 9 | 4 | 6,855 | 5 60 | 1 0 |
| Roof | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R-Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric Package Unit | Spld System Residential AC Unit (1 5 to 5 4167 tons cooling) | 93 | 19 | 88 | 18 | 394 | 1 10 | 0 9 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 1 | 0 | 1 | 0 | 369 | 2 60 | 6 9 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | 179 | 1 90 | 9 1 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 18 | 1 | 20 | 1 | 10,320 | 4 70 | 3 8 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 2 | 0 | 2 | 0 | 1,371 | 12 90 | 1 4 |
| Hot Water | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric SHW Heater | 0.76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | -5 | 7 | -5 | 3 | 1,425 | 6 10 | 9 2 |
| Roof | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-30 | 1 | 1 | 210 | 0 | 31,705 | 4 30 | 4 5 |
| Wall | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Wall Insulation R-Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | HANGER | HANGAR | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | HANGER | HANGAR | HS17: HPS 250 PEND | LS5: LPS 135 PEND | 30 | 3 | 26 | 3 | 11,600 | 2 90 | 6 2 |
| Roof | HANGER | HANGAR | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R-30 | 4 | 0 | 2 | 0 | 1,812 | 5 20 | 3 4 |
| Wall | HANGER | HANGAR | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase Insulation by R 13 | 1 | 1 | 1060 | 0 | 118,577 | 19 00 | 1 1 |
| Heating | HOSPITAL | HOSPITAL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 1 | 1 | 1006 | 0 | 89,300 | 5 40 | 3 8 |
| Cooling | HOSPITAL | HOSPITAL | Electric Conv Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling) | 6 | 0 | 6 | 0 | 89 | 1 30 | 9 3 |
| Lights | HOSPITAL | HOSPITAL | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 373 | 62 | 373 | 62 | 75,110 | 2 80 | 3 1 |
| Lights | HOSPITAL | HOSPITAL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 479 | 17 | 492 | 18 | 195,225 | 9 70 | 1 9 |
| Lights | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 250 | 9 | 250 | 9 | 100,566 | 7 90 | 2 3 |
| Hot Water | HOSPITAL | HOSPITAL | Other Fuels Central Boiler | LPG Pulse Combin Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 63 | 2 | 59 | 2 | 32,336 | 5 90 | 3 0 |
| Roof | HOSPITAL | HOSPITAL | Roof Insulation R-Value 8.90 | none | 567 | 0 | 567 | 0 | 31,984 | 6 60 | 2 0 |
| Wall | HOSPITAL | HOSPITAL | Wall Insulation R-Value 0 00 | Interior Masonary Surface Increase Insulation by R-4 3 | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | LABS-01 | LABS | Other Fuels Conv Furn | none | 1 | 1 | 351 | 0 | 11,228 | 1 30 | 15 6 |
| Cooling | LABS-01 | LABS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | LABS-01 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | LABS-01 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 58 | 4 | 49 | 4 | 22,946 | 4 20 | 4 3 |
| Hot Water | LABS-01 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators | 13 | 0 | 9 | 0 | 9,860 | 5 50 | 3 2 |
| Roof | LABS-01 | LABS | Roof Insulation R-Value 20.05 | none | 3 | 0 | 3 | 0 | 45 | 3 30 | 1 4 |
| Wall | LABS-01 | LABS | Wall Insulation R Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | LABS-02 | LABS | Other Fuels Conv Furn | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | LABS-02 | LABS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | LABS-02 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | LABS-02 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 29 | 2 | 23 | 2 | 11,493 | 4 20 | 4 3 |
| Hot Water | LABS-02 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 4 | 0 | 2 | 0 | 1,896 | 5 30 | 3 3 |
| Roof | LABS-02 | LABS | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R 19 | 2 | 0 | 2 | 0 | 26 | 3 40 | 1 4 |
| Wall | LABS-02 | LABS | Wall Insulation R Value 0 00 | none | 1 | 1 | 93 | 0 | 8,009 | 4 80 | 4.3 |
| Heating | MILITARY OTHER-01 | MILITARY OTHER | Other Fuels Conv Furn | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | MILITARY OTHER-01 | MILITARY OTHER | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 34 | 3 | 31 | 3 | 17,741 | 2 70 | 6 5 |
| Hot Water | MILITARY OTHER-01 | MILITARY OTHER | Electric SHW Heater | Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM) | 159 | 5 | 141 | 5 | 77,253 | 5 70 | 3.1 |
| Roof | MILITARY OTHER-01 | MILITARY OTHER | Roof Insulation R Value 0 00 | Attic Ceiling: Increase insulation by R-11 | -1 | 0 | -1 | 0 | 253 | 3 50 | 1 6 |
| Wall | MILITARY OTHER-01 | MILITARY OTHER | Wall Insulation R-Value 0 00 | none | 1 | 1 | 89 | 0 | 5,048 | 2 00 | 10 1 |
| Heating | MILITARY OTHER-02 | MILITARY OTHER | Other Fuels Conv Furn | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 44 | 4 | 41 | 4 | 22,751 | 2 70 | 6 5 |
| Roof | MILITARY OTHER-02 | MILITARY OTHER | Roof Insulation R-Value 8.69 | none | 151 | 5 | 127 | 5 | 72,083 | 5 60 | 3 2 |
| Wall | MILITARY OTHER-02 | MILITARY OTHER | Wall Insulation R Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MILITARY OTHER-03 | MILITARY OTHER | Electric Air Heat Pump | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | MILITARY OTHER-03 | MILITARY OTHER | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 9 | 1 | 10 | 1 | 5,576 | 4 30 | 4 2 |
| Hot Water | MILITARY OTHER-03 | MILITARY OTHER | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp. | 4 | 0 | 5 | 0 | 2,615 | 7 40 | 2 4 |
| Roof | MILITARY OTHER-03 | MILITARY OTHER | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 30 | 0 | 0 | 0 | 0 | 48 | 5 10 | 1 1 |
| Wall | MILITARY OTHER-03 | MILITARY OTHER | Wall Insulation R-Value 19.00 | none | 1 | 1 | 7 | 1 | 1,904 | 1 50 | 12.3 |
| Heating | MILITARY OTHER-04 | MILITARY OTHER | Other Fuels Conv Furn | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | MILITARY OTHER-04 | MILITARY OTHER | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-04 | MILITARY OTHER | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-04 | MILITARY OTHER | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 30 | 3 | 27 | 3 | 20,971 | 19 50 | 0 9 |
| Hot Water | MILITARY OTHER-04 | MILITARY OTHER | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 9 | 1 | 8 | 1 | 4,258 | 4 20 | 4 3 |
| Roof | MILITARY OTHER-04 | MILITARY OTHER | Roof Insulation R-Value 7 15 | Attic Ceiling: Increase insulation by R-19 | 3 | 0 | 3 | 0 | 12 | 1 30 | 3 6 |
| Wall | MILITARY OTHER-04 | MILITARY OTHER | Wall Insulation R-Value 0.00 | none | 1 | 1 | 17 | 0 | 937 | 1 90 | 10 7 |
| Lights | MILITARY OTHER-05 | MILITARY OTHER | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | MILITARY OTHER-05 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 47 | 2 | 48 | 2 | 19,190 | 5 10 | 3 5 |
| Hot Water | MILITARY OTHER-05 | MILITARY OTHER | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 17 | 1 | 17 | 1 | 8,395 | 5 80 | 3 1 |
| Roof | MILITARY OTHER-05 | MILITARY OTHER | Roof Insulation R-Value 0 00 | none | 120 | 0 | 120 | 0 | 12,205 | 39 20 | 0 5 |
| Wall | MILITARY OTHER-05 | MILITARY OTHER | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | FL74: FL 1X8 2F96T12 ELC2 | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 204 | 32 | 208 | 32 | 36,978 | 1 50 | 12 2 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 6 | 1 | 6 | 1 | 1,200 | 1 40 | 15 0 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 243 | 38 | 247 | 38 | 94,241 | 2 90 | 6 1 |
| Roof | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | Roof Insulation R-Value 0 00 | none | 209 | 7 | 212 | 7 | 103,892 | 5 80 | 3 1 |
| Wall | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 1 | 1 | 0 | 0 | NA | NA | NA |
| | | | | | 324 | 46 | 330 | 46 | 32,525 | 1 30 | 14 0 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | FL82. FL 1X4 2F40T12FS STD2 | FL106. FL 1X4 2F40T12FS ELC2 | 4 | 1 | 5 | 1 | 979 | 1.90 | 12.1 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 170 | 24 | 173 | 24 | 63,922 | 3.00 | 5.9 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | EX1. EXIT - INC (2x20) | EX6. EXIT - LED | 13 | 0 | 13 | 0 | 6,561 | 6.00 | 3.0 |
| Roof | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | Roof Insulation R-Value 8.69 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | Wall Insulation R Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | RECREATION-01 | RECREATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-01 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 33 | 4 | 33 | 4 | 21,227 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,190 | 5.70 | 3.1 |
| Lights | RECREATION-01 | RECREATION | IN5: INC 60 CEIL | FL181. CFL 13 + BLST UNIT | 33 | 4 | 33 | 4 | 21,227 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | EX1. EXIT - INC (2x20) | EX6. EXIT - LED | 13 | 0 | 13 | 0 | 6,190 | 5.70 | 3.1 |
| Roof | RECREATION-01 | RECREATION | Roof Insulation R Value 11.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | RECREATION-01 | RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | RECREATION-02 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | 0 | 6 | 0 | 86 | 1.40 | 8.0 |
| Heating | RECREATION-02 | RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | RECREATION-02 | RECREATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-02 | RECREATION | FL82. FL 1X4 2F40T12FS STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 0 | 0 | 1,714 | 2.80 | 6.2 |
| Lights | RECREATION-02 | RECREATION | FL81: FL 2X4 2F40T12ES STD2 | FL105. FL 2X4 2F40T12ES ELC2 | 11 | 1 | 6 | 1 | 5,087 | 3.20 | 5.6 |
| Lights | RECREATION-02 | RECREATION | FL79. FL 2X4 4F40T12ES STD2 | FL232: FL 2X4 3F40T12 ELC3 | 6 | 0 | 1 | 0 | 3,043 | 5.10 | 3.4 |
| Lights | RECREATION-02 | RECREATION | EX1: EXIT - INC (2x20) | EX6. EXIT LED | 4 | 0 | 1 | 0 | 1,751 | 5.00 | 3.4 |
| Lights | RECREATION-02 | RECREATION | IN30. INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-02 | RECREATION | IN5: INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 40 | 2 | 22 | 3 | 24,021 | 8.30 | 2.2 |
| Lights | RECREATION-02 | RECREATION | IN8. INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 5 | 0 | 0 | 0 | 3,050 | 23.70 | 0.7 |
| Lights | RECREATION-02 | RECREATION | MV3: MERC 100 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Hot Water | RECREATION-02 | RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 18 | 0 | 18 | 0 | 298 | 3.60 | 1.3 |
| Roof | RECREATION-02 | RECREATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-30 | 1 | 1 | 4161 | 88 | 868,102 | 23.40 | 0.8 |
| Wall | RECREATION-02 | RECREATION | Wall Insulation R Value 7.00 | Blow in Insulation: Increase insulation by R 2.4 | 1 | 1 | 179 | 9 | 27,337 | 2.30 | 8.2 |
| Heating | RECREATION-03 | RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-03 | RECREATION | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 112 | 14 | 112 | 14 | 57,132 | 16.90 | 1.1 |
| Lights | RECREATION-03 | RECREATION | MH3: MH 100 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-03 | RECREATION | EX1: EXIT - INC (2x20) | EX6. EXIT LED | 8 | 0 | 8 | 0 | 4,129 | 5.70 | 3.1 |
| Roof | RECREATION-03 | RECREATION | Roof Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | RECREATION-03 | RECREATION | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | RECREATION-04 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 3 | 0 | 3 | 0 | 215 | 2.70 | 7.9 |
| Cooling | RECREATION-04 | RECREATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | RECREATION-04 | RECREATION | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 1 | 0 | 1 | 0 | 376 | 2.80 | 6.3 |
| Lights | RECREATION-04 | RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 23 | 1 | 23 | 2 | 12,699 | 5.20 | 3.5 |
| Lights | RECREATION-04 | RECREATION | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 4 | 0 | 1,618 | 3.70 | 4.9 |
| Lights | RECREATION-04 | RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 12 | 1 | 15 | 1 | 7,011 | 5.40 | 3.3 |
| Lights | RECREATION-04 | RECREATION | FL79: FL 2X4 4F40T12ES STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 17 | 1 | 15 | 1 | 8,845 | 4.30 | 4.2 |
| Lights | RECREATION-04 | RECREATION | HS14: HPS 100 PEND | LS3: LPS 55 PEND | 12 | 1 | 13 | 1 | 2,605 | 1.50 | 11.9 |
| Lights | RECREATION-04 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 8 | 0 | 9 | 0 | 5,040 | 6.80 | 2.6 |
| Hot Water | RECREATION-04 | RECREATION | Other Fuels Central Boiler | LPG. Wrap Tank w/ Insulation, LFSHs, Aerators | 76 | 0 | 76 | 0 | 7,379 | 14.10 | 1.5 |
| Roof | RECREATION-04 | RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 109 | 12 | 25,923 | 2.10 | 8.8 |
| Wall | RECREATION-04 | RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Electric Baseboard | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 37 | 3 | 34 | 1 | 24,690 | 17.10 | 1.0 |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 11 | 1 | 9 | 0 | 4,614 | 3.50 | 5.1 |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 8 | 0 | 5 | 0 | 3,264 | 4.70 | 3.7 |
| Hot Water | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 5 | 0 | 5 | 0 | 651 | 14.20 | 0.4 |
| Roof | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 9 | 2 | 1,240 | 2.50 | 7.4 |
| Wall | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0.00 | Blow-in Insulation Increase Insulation by R 6.5 | 1 | 1 | 22 | 5 | 2,295 | 1.70 | 10.5 |
| Heating | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 639 | 58 | 803 | 55 | 512,894 | 20.50 | 0.9 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 182 | 16 | 232 | 16 | 103,462 | 4.30 | 4.2 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 63 | 2 | 66 | 2 | 34,183 | 6.20 | 2.9 |
| Hot Water | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 39 | 4 | 39 | 4 | 4,750 | 25.10 | 0.1 |
| Roof | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 345 | 0 | 87,453 | 4.20 | 4.3 |
| Wall | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 35 | 3 | 34 | 3 | 13,336 | 2.40 | 7.5 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL6: FL 2X2 2F40T12U STD2 | FL54 FL 2X2 2F32T8U ELC2 | 55 | 5 | 58 | 5 | 25,964 | 3.20 | 5.7 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 4 | 0 | 2 | 0 | 1,833 | 3.10 | 5.7 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 200 | 17 | 191 | 17 | 97,060 | 4.00 | 4.5 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 11 | 1 | 7 | 1 | 7,088 | 18.00 | 1.0 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 21 | 1 | 9 | 1 | 8,987 | 5.10 | 3.4 |
| Hot Water | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 55 | 0 | 55 | 0 | 900 | 3.50 | 1.3 |
| Roof | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Roof Insulation R Value 11.00 | Attic Ceiling: Increase Insulation by R 8 | 1 | 1 | 512 | 0 | 52,505 | 10.80 | 1.9 |
| Wall | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Wall Insulation R Value 0.00 | Blow in Insulation Increase Insulation by R 6.5 | 1 | 1 | 223 | 0 | 5,440 | 1.30 | 16.1 |
| Heating | SECURITY-01 | SECURITY | Electric Baseboard | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SECURITY-01 | SECURITY | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SECURITY-01 | SECURITY | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 4 | 0 | 3 | 1 | 2,803 | 42.60 | 0.4 |
| Roof | SECURITY-01 | SECURITY | Roof Insulation R Value 8.69 | Attic Ceiling Increase insulation by R 19 | 1 | 1 | 8 | 1 | 5,275 | 24.10 | 0.8 |
| Wall | SECURITY-01 | SECURITY | Wall Insulation R Value 5.32 | Interior Masonary Surface Increase Insulation by R 10.9 | 1 | 1 | 11 | 0 | 1,876 | 1.50 | 12.1 |
| Heating | SECURITY-02 | SECURITY | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SECURITY-02 | SECURITY | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SECURITY-02 | SECURITY | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 576 | 20 | 555 | 20 | 304,156 | 48.00 | 0.4 |
| Lights | SECURITY-02 | SECURITY | FL1 FL 2X4 4F40T12 STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 162 | 6 | 149 | 6 | 61,156 | 9.00 | 2.0 |
| Lights | SECURITY-02 | SECURITY | EX1 EXIT - INC (2x20) | EX6 EXIT LED | 50 | 2 | 45 | 2 | 24,325 | 5.60 | 3.2 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | SECURITY-02 | SECURITY | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 2 | 1 | 2 | 1 | 1,250 | 3.10 | 1.8 |
| Roof | SECURITY-02 | SECURITY | Roof Insulation R Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | SECURITY-02 | SECURITY | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SECURITY-03 | SECURITY | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SECURITY-03 | SECURITY | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SECURITY-03 | SECURITY | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 499 | 17 | 633 | 28 | 330,336 | 59.90 | 0.3 |
| Lights | SECURITY-03 | SECURITY | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 141 | 5 | 167 | 7 | 68,239 | 11.90 | 1.6 |
| Lights | SECURITY-03 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | 1 | 32 | 1 | 15,610 | 7.00 | 2.6 |
| Hot Water | SECURITY-03 | SECURITY | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | SECURITY-03 | SECURITY | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 10 | 2 | 3,128 | 1.80 | 9.9 |
| Wall | SECURITY-03 | SECURITY | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-02 | SHOPS | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-02 | SHOPS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-02 | SHOPS | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-02 | SHOPS | HS13: HPS 70 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-02 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 71 | 2 | 63 | 3 | 35,215 | 5.70 | 3.1 |
| Hot Water | SHOPS-02 | SHOPS | Electric SHW Heater | Wrap Old Elec Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 2 | 0 | 2 | 0 | 97 | 3.50 | 0.8 |
| Hot Water | SHOPS-02 | SHOPS | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | SHOPS-02 | SHOPS | Roof Insulation R Value 8.69 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 299 | 11 | 38,405 | 2.10 | 8.9 |
| Wall | SHOPS-02 | SHOPS | Wall Insulation R Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-03 | SHOPS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-03 | SHOPS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-03 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 12 | 1 | 11 | 1 | 5,315 | 3.90 | 5.1 |
| Lights | SHOPS-03 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 63 | 4 | 62 | 4 | 29,027 | 4.80 | 3.7 |
| Lights | SHOPS-03 | SHOPS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 236 | 18 | 262 | 18 | 94,171 | 3.80 | 4.8 |
| Lights | SHOPS-03 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 68 | 5 | 66 | 5 | 30,163 | 6.50 | 2.8 |
| Lights | SHOPS-03 | SHOPS | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 6 | 0 | 5 | 0 | 2,664 | 3.50 | 5.1 |
| Lights | SHOPS-03 | SHOPS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 11 | 1 | 10 | 1 | 4,581 | 3.90 | 4.6 |
| Lights | SHOPS-03 | SHOPS | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 13 | 1 | 12 | 1 | 6,948 | 6.50 | 2.7 |
| Lights | SHOPS-03 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 12 | 1 | 11 | 1 | 6,423 | 9.00 | 2.0 |
| Lights | SHOPS-03 | SHOPS | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 23 | 2 | 23 | 2 | 14,394 | 28.00 | 0.6 |
| Lights | SHOPS-03 | SHOPS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 6 | 0 | 5 | 0 | 3,404 | 12.10 | 1.5 |
| Lights | SHOPS-03 | SHOPS | MH36: MH 250 HE PEND | LS4: LPS 90 PEND | 462 | 33 | 469 | 33 | 236,026 | 7.40 | 2.4 |
| Lights | SHOPS-03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 71 | 2 | 61 | 2 | 34,905 | 5.70 | 3.1 |
| Hot Water | SHOPS-03 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 362 | 0 | 362 | 0 | 5,116 | 2.60 | 1.8 |
| Roof | SHOPS-03 | SHOPS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 8 | 1 | 1 | 954 | 0 | 79,720 | 4.20 | 4.9 |
| Wall | SHOPS-03 | SHOPS | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-04 | SHOPS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-04 | SHOPS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-04 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 6 | 0 | 9 | 0 | 4,251 | 6.30 | 2.9 |
| Lights | SHOPS-04 | SHOPS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 16 | 1 | 18 | 1 | 4,497 | 1.60 | 11.1 |
| Lights | SHOPS-04 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 3 | 0 | 6 | 0 | 2,817 | 9.10 | 2.0 |
| Lights | SHOPS-04 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 118 | 9 | 151 | 9 | 64,750 | 7.10 | 2.6 |
| Lights | SHOPS-04 | SHOPS | IN12: INC 2-100 CEIL | HS12: HPS 50 PEND | 7 | 1 | 10 | 1 | 5,357 | 8.90 | 2.0 |
| Lights | SHOPS-04 | SHOPS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 8 | 1 | 11 | 1 | 6,528 | 14.00 | 1.3 |
| Lights | SHOPS-04 | SHOPS | MV8: MERC 1000 PEND | HS19: HPS 400 PEND | 169 | 13 | 204 | 13 | 98,855 | 16.00 | 1.1 |
| Lights | SHOPS-04 | SHOPS | MV5: MERC 250 PEND | LS4: LPS 90 PEND | 26 | 2 | 33 | 2 | 13,751 | 4.70 | 3.9 |
| Lights | SHOPS-04 | SHOPS | EX1: EXIT - INC (2x20) | EX7: EXIT ; SELF LUMINOUS | 19 | 1 | 19 | 1 | 8,381 | 3.40 | 5.3 |
| Hot Water | SHOPS-04 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 14 | 0 | 14 | 0 | 214 | 3.00 | 1.6 |
| Roof | SHOPS-04 | SHOPS | Roof Insulation R-Value 5.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 7038 | 0 | 799,303 | 26.80 | 0.8 |
| Wall | SHOPS-04 | SHOPS | Wall Insulation R-Value 0.00 | Blow-in Insulation. Increase Insulation by R-6.5 | 1 | 1 | 810 | 0 | 53,650 | 3.70 | 5.9 |
| Heating | SHOPS-05 | SHOPS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-05 | SHOPS | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-05 | SHOPS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-05 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 212 | 17 | 214 | 17 | 109,811 | 5.90 | 3.1 |
| Lights | SHOPS-05 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 231 | 18 | 233 | 18 | 116,238 | 4.70 | 3.8 |
| Lights | SHOPS-05 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 578 | 46 | 573 | 46 | 268,376 | 6.10 | 3.0 |
| Lights | SHOPS-05 | SHOPS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 28 | 2 | 25 | 2 | 5,497 | 1.40 | 12.6 |
| Lights | SHOPS-05 | SHOPS | IN28: INC 150 PEND | HS11: HPS 35 PEND | 15 | 1 | 13 | 1 | 7,256 | 4.70 | 3.8 |
| Lights | SHOPS-05 | SHOPS | IN29: INC 200 PEND | HS12: HPS 50 PEND | 85 | 7 | 78 | 7 | 44,165 | 6.20 | 2.9 |
| Lights | SHOPS-05 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 6 | 0 | 5 | 0 | 3,418 | 8.20 | 2.2 |
| Lights | SHOPS-05 | SHOPS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 12 | 1 | 10 | 1 | 7,364 | 11.10 | 1.6 |
| Lights | SHOPS-05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 42 | 1 | 34 | 1 | 19,915 | 5.60 | 3.2 |
| Hot Water | SHOPS-05 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 40 | 0 | 40 | 0 | 649 | 3.30 | 1.4 |
| Roof | SHOPS-05 | SHOPS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 474 | 0 | 15,526 | 1.40 | 14.5 |
| Wall | SHOPS-05 | SHOPS | Wall Insulation R Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-06 | SHOPS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-06 | SHOPS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-06 | SHOPS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 166 | 13 | 160 | 13 | 79,275 | 3.90 | 4.7 |
| Lights | SHOPS-06 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 3 | 0 | 2 | 0 | 1,792 | 8.10 | 2.2 |
| Lights | SHOPS-06 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 6 | 0 | 3,919 | 5.50 | 3.2 |
| Hot Water | SHOPS-06 | SHOPS | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | SHOPS-06 | SHOPS | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase Insulation by R 8 | 1 | 1 | 32 | 0 | 1,225 | 1.50 | 13.5 |
| Wall | SHOPS-06 | SHOPS | Wall Insulation R Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | SHOPS-07 | SHOPS | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | SHOPS-07 | SHOPS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS-07 | SHOPS | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 11 | 1 | 14 | 1 | 5,988 | 2.90 | 6.3 |
| Lights | SHOPS-07 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 77 | 6 | 92 | 6 | 45,057 | 3.80 | 4.7 |
| Lights | SHOPS-07 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 5 | 0 | 5 | 0 | 2,358 | 4.60 | 3.9 |
| Lights | SHOPS-07 | SHOPS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 73 | 6 | 88 | 6 | 42,681 | 5.90 | 3.4 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | SHOPS 07 | SHOPS | HS20 HPS 1000 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | SHOPS 07 | SHOPS | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 33 | 1 | 36 | 1 | 17,764 | 6 10 | 2 9 |
| Hot Water | SHOPS 07 | SHOPS | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | SHOPS 07 | SHOPS | Roof Insulation R Value 20 05 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | SHOPS 07 | SHOPS | Wall Insulation R Value 5 32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | STORAGE 01 | STORAGE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 298 | 34 | 305 | 34 | 148,429 | 11 00 | 1 6 |
| Lights | STORAGE 01 | STORAGE | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 96 | 3 | 98 | 3 | 48,364 | 5 80 | 3 1 |
| Roof | STORAGE 01 | STORAGE | Roof Insulation R-Value 8 69 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | STORAGE 01 | STORAGE | Wall Insulation R-Value 8 79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | STORAGE 02 | STORAGE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | STORAGE 02 | STORAGE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | STORAGE 02 | STORAGE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1370 | 158 | 1357 | 158 | 678,056 | 10 90 | 1 6 |
| Roof | STORAGE 02 | STORAGE | Roof Insulation R-Value 0 00 | Attic Ceiling Increase Insulation by R 8 | 1 | 1 | 341 | 0 | 15,355 | 1 30 | 14 7 |
| Wall | STORAGE 02 | STORAGE | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 01 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE 01 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 01 | WAREHOUSE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 284 | 24 | 274 | 24 | 193 870 | 19 40 | 0 9 |
| Lights | WAREHOUSE 01 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 80 | 7 | 79 | 7 | 39,066 | 4 10 | 4 4 |
| Lights | WAREHOUSE 01 | WAREHOUSE | HS15: HPS 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 01 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 163 | 5 | 158 | 5 | 81,746 | 5 70 | 3 1 |
| Roof | WAREHOUSE 01 | WAREHOUSE | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase Insulation by R 8 | 1 | 1 | 69 | 0 | 319 | 1 00 | 19 3 |
| Wall | WAREHOUSE 01 | WAREHOUSE | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 02 | WAREHOUSE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 128 | 11 | 129 | 11 | 87,602 | 19 50 | 0 9 |
| Lights | WAREHOUSE 02 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 36 | 3 | 36 | 3 | 17,906 | 4 10 | 4 4 |
| Lights | WAREHOUSE 02 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 29 | 1 | 29 | 1 | 14,455 | 5 70 | 3 1 |
| Roof | WAREHOUSE 02 | WAREHOUSE | Roof Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | WAREHOUSE 02 | WAREHOUSE | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 03 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 03 | WAREHOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 8 | 1 | 7 | 1 | 3,960 | 3 60 | 4 9 |
| Lights | WAREHOUSE 03 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 13 | 0 | 11 | 0 | 6,118 | 5 70 | 3 1 |
| Roof | WAREHOUSE 03 | WAREHOUSE | Roof Insulation R-Value 8 69 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | WAREHOUSE 03 | WAREHOUSE | Wall Insulation R-Value 8 79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 04 | WAREHOUSE | HS15: HPS 150 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 04 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 8 | 0 | 8 | 0 | 4,137 | 5 70 | 3 1 |
| Roof | WAREHOUSE 04 | WAREHOUSE | Roof Insulation R-Value 8.69 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | WAREHOUSE 04 | WAREHOUSE | Wall Insulation R-Value 8.79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 05 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE 05 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 356 | 31 | 324 | 31 | 113,015 | 2 50 | 7 3 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 25 | 2 | 21 | 2 | 12,535 | 2 70 | 6 6 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 63 | 5 | 51 | 5 | 30,951 | 3 50 | 5 1 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 33 | 3 | 28 | 3 | 14,116 | 4 20 | 4 3 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 8 | 1 | 6 | 1 | 4,045 | 2 60 | 6 8 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL79 FL 2X4 4F40T12ES STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 75 | 6 | 61 | 6 | 32,842 | 2 80 | 6 3 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 20 | 2 | 17 | 2 | 9,417 | 4 00 | 4 5 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 187 | 16 | 166 | 16 | 92,485 | 5 60 | 3 2 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN29: INC 200 PEND | HS12: HPS 50 PEND | 108 | 9 | 94 | 9 | 52,066 | 4 40 | 4 1 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN30: INC 300 PEND | LS2: LPS 35 PEND | 159 | 14 | 142 | 14 | 83,779 | 7 30 | 2 5 |
| Lights | WAREHOUSE 05 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 113 | 4 | 96 | 4 | 54,180 | 5 60 | 3 2 |
| Hot Water | WAREHOUSE 05 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 60 | 0 | 60 | 0 | 931 | 3 10 | 1 5 |
| Roof | WAREHOUSE 05 | WAREHOUSE | Roof Insulation R-Value 0 00 | Suspended Ceiling. Increase Insulation by R 8 | 1 | 1 | 1154 | 0 | 98,407 | 4 00 | 5 2 |
| Wall | WAREHOUSE 05 | WAREHOUSE | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 06 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE 06 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 06 | WAREHOUSE | FL5: FL 1X4 1F40T12 STD1 | FL29 FL 1X4 1F40T12 ELC1 | 13 | 1 | 11 | 1 | 5,495 | 2 10 | 8 5 |
| Lights | WAREHOUSE 06 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 8 | 0 | 7 | 0 | 3,995 | 5 60 | 3 2 |
| Hot Water | WAREHOUSE 06 | WAREHOUSE | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 5 | 0 | 5 | 0 | 546 | 7 40 | 0 7 |
| Roof | WAREHOUSE 06 | WAREHOUSE | Roof Insulation R-Value 0 00 | Attic Ceiling Increase insulation by R 19 | 1 | 1 | 746 | 0 | 87,926 | 19 00 | 1 1 |
| Wall | WAREHOUSE 06 | WAREHOUSE | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R 6 5 | 1 | 1 | 397 | 0 | 28,550 | 3 30 | 6 4 |
| Heating | WAREHOUSE 07 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE 07 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 1 | 0 | 0 | 0 | 116 | 1 20 | 14 4 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL80: FL 2X4 3F40T12ES STD1,2 | FL57. FL 2X4 2F32T8 ELC2 REF | 22 | 2 | 16 | 2 | 10,959 | 3.20 | 5 6 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 3 | 0 | 3 | 0 | 1,722 | 4 30 | 4 1 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL158. FL 1X8 4F96T12HO STD2 REF | LS6. LPS 180 PEND | 231 | 20 | 211 | 20 | 117,613 | 7 30 | 2 5 |
| Lights | WAREHOUSE 07 | WAREHOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 697 | 60 | 627 | 60 | 351,785 | 5 60 | 3 2 |
| Lights | WAREHOUSE 07 | WAREHOUSE | IN29. INC 200 PEND | HS12 HPS 50 PEND | 42 | 4 | 41 | 4 | 23,368 | 4 90 | 3 7 |
| Lights | WAREHOUSE 07 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 1 | 0 | 3,286 | 4 80 | 3 6 |
| Hot Water | WAREHOUSE 07 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 10 | 0 | 10 | 0 | 160 | 3 20 | 1 4 |
| Roof | WAREHOUSE 07 | WAREHOUSE | Roof Insulation R-Value 0 00 | Suspended Ceiling Increase Insulation by R 8 | 1 | 1 | 1232 | 0 | 128,155 | 5 30 | 3 8 |
| Wall | WAREHOUSE 07 | WAREHOUSE | Wall Insulation R-Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 08 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE 08 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL63. FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 0 | 0 | 0 | 0 | 17 | 1 20 | 14 7 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL80: FL 2X4 3F40T12ES STD1,2 | FL57 FL 2X4 2F32T8 ELC2 REF | 4 | 0 | 3 | 0 | 1,622 | 3 00 | 6 0 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL2: FL 2X4 3F40T12 STD1,2 | FL236 FL 2X4 3F32T8 ELC3 | 1 | 0 | 0 | 0 | 275 | 4 30 | 4 2 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL158 FL 1X8 4F96T12HO STD2 REF | LS6: LPS 180 PEND | 37 | 3 | 29 | 3 | 17,914 | 7 00 | 2 6 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 113 | 10 | 91 | 10 | 55,452 | 5 50 | 3 3 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN29 INC 200 PEND | HS12. HPS 50 PEND | 7 | 1 | 6 | 1 | 3,298 | 4 30 | 4 2 |
| Lights | WAREHOUSE 08 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 8 | 0 | 7 | 0 | 4,000 | 5 60 | 3 2 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | WAREHOUSE-08 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 6 | 0 | 6 | 0 | 90 | 3 10 | 1 5 |
| Hot Water | WAREHOUSE-08 | WAREHOUSE | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 7 | 0 | 7 | 0 | 442 | 40 50 | 0 3 |
| Roof | WAREHOUSE-08 | WAREHOUSE | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 188 | 0 | 17,230 | 4 50 | 4 5 |
| Wall | WAREHOUSE-08 | WAREHOUSE | Wall Insulation R Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE-09 | WAREHOUSE | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE-09 | WAREHOUSE | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE-09 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 30 | 3 | 28 | 3 | 9,719 | 2 50 | 7 2 |
| Lights | WAREHOUSE-09 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 12 | 0 | 6,198 | 5 70 | 1 1 |
| Hot Water | WAREHOUSE-09 | WAREHOUSE | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Hot Water | WAREHOUSE-09 | WAREHOUSE | Electric SHW Heater | 0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 0 | 0 | 0 | 0 | 42 | 2 30 | 1 6 |
| Roof | WAREHOUSE-09 | WAREHOUSE | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 161 | 0 | 14,177 | 3 70 | 5 5 |
| Wall | WAREHOUSE-09 | WAREHOUSE | Wall Insulation R-Value 8.79 | Blow-in Insulation. Increase Insulation by R-2 4 | 1 | 1 | 193 | 0 | 919 | 1 00 | 20 1 |
| Lights | WAREHOUSE-10 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 36 | 3 | 36 | 3 | 11,749 | 2 90 | 7 2 |
| Lights | WAREHOUSE-10 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,207 | 5 70 | 1 1 |
| Roof | WAREHOUSE-10 | WAREHOUSE | Roof Insulation R-Value 8 69 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | WAREHOUSE-10 | WAREHOUSE | Wall Insulation R-Value 8 79 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE-11 | WAREHOUSE | Electric Conv Chiller | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE-11 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 13 | 1 | 18 | 1 | 6,949 | 3 50 | 5 2 |
| Lights | WAREHOUSE-11 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 5 | 0 | 2,590 | 6 90 | 2 6 |
| Hot Water | WAREHOUSE-11 | WAREHOUSE | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | WAREHOUSE-11 | WAREHOUSE | Roof Insulation R-Value 30 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | WAREHOUSE-11 | WAREHOUSE | Wall Insulation R-Value 25 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | WAREHOUSE 12 | WAREHOUSE | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | WAREHOUSE-12 | WAREHOUSE | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | WAREHOUSE-12 | WAREHOUSE | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 125 | 11 | 154 | 18 | 111,684 | 25 00 | 0 7 |
| Lights | WAREHOUSE-12 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 35 | 3 | 42 | 5 | 24,250 | 5 40 | 3 3 |
| Lights | WAREHOUSE-12 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 5 | 0 | 2,581 | 6 90 | 2 6 |
| Hot Water | WAREHOUSE-12 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp. | 6 | 0 | 6 | 0 | 91 | 3 10 | 1 5 |
| Roof | WAREHOUSE-12 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling. Increase insulation by R 30 | 1 | 1 | 433 | 28 | 154,241 | 13 50 | 1 4 |
| Wall | WAREHOUSE-12 | WAREHOUSE | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 13 | 1 | 1 | 84 | 19 | 30,547 | 7 30 | 5 6 |
| Heating | DINING HALLS-01 | DINING HALLS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | DINING HALLS-01 | DINING HALLS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | DINING HALLS-01 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 18 | 1 | 18 | 1 | 3,196 | 1 40 | 12 4 |
| Lights | DINING HALLS-01 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 17 | 1 | 16 | 1 | 8,400 | 5 80 | 3 1 |
| Hot Water | DINING HALLS-01 | DINING HALLS | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp. | 44 | 2 | 44 | 2 | 4,361 | 7 50 | 0 7 |
| Roof | DINING HALLS-01 | DINING HALLS | Roof Insulation R-Value 11.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Wall | DINING HALLS-01 | DINING HALLS | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | DINING HALLS-03 | DINING HALLS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | DINING HALLS-03 | DINING HALLS | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | DINING HALLS-03 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 52 | 3 | 59 | 3 | 10,250 | 1 50 | 12 1 |
| Lights | DINING HALLS-03 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 59 | 2 | 54 | 2 | 28,911 | 5 70 | 3 1 |
| Hot Water | DINING HALLS-03 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 202 | 0 | 202 | 0 | 3,206 | 3 20 | 1 4 |
| Roof | DINING HALLS-03 | DINING HALLS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 117 | 0 | 5,739 | 1 80 | 11 4 |
| Wall | DINING HALLS-03 | DINING HALLS | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | DINING HALLS-04 | DINING HALLS | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | DINING HALLS-04 | DINING HALLS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | DINING HALLS-04 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 4 | 0 | 1,984 | 5 40 | 3 4 |
| Lights | DINING HALLS-04 | DINING HALLS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 24 | 1 | 26 | 2 | 14,170 | 9 90 | 1 8 |
| Lights | DINING HALLS-04 | DINING HALLS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 16 | 1 | 18 | 1 | 10,673 | 10 90 | 1 6 |
| Lights | DINING HALLS-04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 8 | 0 | 5,138 | 6 90 | 2 6 |
| Hot Water | DINING HALLS-04 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 186 | 0 | 186 | 0 | 2,954 | 3 20 | 1 4 |
| Roof | DINING HALLS-04 | DINING HALLS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 234 | 25 | 84,736 | 7 50 | 2 5 |
| Wall | DINING HALLS-04 | DINING HALLS | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R-10 9 | 1 | 1 | 205 | 23 | 67,005 | 6 00 | 3 1 |
| Heating | DINING HALLS-05 | DINING HALLS | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | DINING HALLS-05 | DINING HALLS | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | DINING HALLS-05 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 8 | 0 | 9 | 1 | 3,833 | 5 30 | 3 4 |
| Lights | DINING HALLS-05 | DINING HALLS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 8 | 0 | 9 | 1 | 4,040 | 3 90 | 4 6 |
| Lights | DINING HALLS-05 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 4 | 0 | 1,324 | 3 60 | 5 0 |
| Lights | DINING HALLS-05 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2 | 0 | 2 | 0 | 1,020 | 6 30 | 2 8 |
| Hot Water | DINING HALLS-05 | DINING HALLS | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | DINING HALLS-05 | DINING HALLS | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 1017 | 85 | 368,956 | 101 90 | 0 2 |
| Wall | DINING HALLS-05 | DINING HALLS | Wall Insulation R-Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | DINING HALLS-06 | DINING HALLS | Hot Water (Generated) Forced Air Furnace | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | DINING HALLS-06 | DINING HALLS | Chilled Water Chill Water Coil | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | DINING HALLS-06 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 23 | 1 | 38 | 1 | 11,085 | 5 00 | 3 6 |
| Lights | DINING HALLS-06 | DINING HALLS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 23 | 1 | 38 | 1 | 11,704 | 3 70 | 4 8 |
| Lights | DINING HALLS-06 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131. FL 1X8 2F96T12ES ELC2 REF | 10 | 0 | 14 | 1 | 3,559 | 3 50 | 5 5 |
| Lights | DINING HALLS-06 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 6 | 0 | 8 | 0 | 3,021 | 6 10 | 2 9 |
| Hot Water | DINING HALLS-06 | DINING HALLS | Hot Water (Generated) Steam Central Heat | LPG Pulse Condon Boiler, Wrap Tank w Insulation, LFSHs, Aerators | 186 | 0 | 186 | 0 | 51,093 | 23 20 | 0 9 |
| Roof | DINING HALLS-06 | DINING HALLS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R 38 | 1 | 1 | 550 | 6 | 82,321 | 7 10 | 2 7 |
| Wall | DINING HALLS-06 | DINING HALLS | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-02 | MORALE-WELFARE-RECREATION | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | MWR-02 | MORALE-WELFARE-RECREATION | Electric Air Cool Heat Pump | Air to Air Heat Pump with Supplementary Electric Heat Coil | 123 | 26 | 123 | 26 | 934 | 1 00 | 4 4 |
| Lights | MWR-02 | MORALE-WELFARE-RECREATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 41 | 3 | 48 | 3 | 22,664 | 3 50 | 5 1 |
| Lights | MWR-02 | MORALE-WELFARE-RECREATION | IN6. INC 2 60 CEIL | FL182. CFL 2 13 + BLST UNIT | 5 | 0 | 6 | 0 | 3,545 | 10 20 | 1 8 |
| Lights | MWR-02 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 67 | 2 | 69 | 2 | 36,653 | 6 20 | 2 9 |
| Hot Water | MWR-02 | MORALE-WELFARE-RECREATION | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 8 | 1 | 8 | 1 | 839 | 5 60 | 0 8 |
| Roof | MWR-02 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R 11 | 1 | 1 | 15 | 0 | 116 | 1 00 | 17 8 |
| Wall | MWR-02 | MORALE WELFARE RECREATION | Wall Insulation R Value 19 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-03 | MORALE WELFARE-RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling | MWR-03 | MORALE WELFARE RECREATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-03 | MORALE WELFARE RECREATION | FL3: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 1 | 0 | 1 | 0 | 521 | 2.70 | 6.5 |
| Lights | MWR-03 | MORALE WELFARE RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 30 | 2 | 34 | 4 | 21,402 | 4.80 | 3.8 |
| Lights | MWR-03 | MORALE WELFARE RECREATION | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 1 | 0 | 1 | 0 | 798 | 6.00 | 3.0 |
| Lights | MWR-03 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21 | 1 | 21 | 1 | 12,768 | 6.80 | 2.6 |
| Lights | MWR-03 | MORALE WELFARE RECREATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 0 | 1 | 0 | 755 | 27.50 | 0.7 |
| Hot Water | MWR-03 | MORALE WELFARE RECREATION | IN37: INC 75 FLD | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Roof | MWR-03 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 7 | 0 | 7 | 0 | 16 | 1.20 | 3.2 |
| Wall | MWR-03 | MORALE WELFARE RECREATION | Roof Insulation R-Value 29.05 | Suspended Ceiling: Increase insulation by R-30 | 1 | 1 | 71 | 7 | 16,272 | 2.30 | 8.0 |
| Heating | MWR-04 | MORALE WELFARE RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-04 | MORALE WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 7 | 0 | 7 | 0 | 298 | 2.00 | 8.7 |
| Cooling | MWR-04 | MORALE WELFARE RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-04 | MORALE WELFARE RECREATION | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-04 | MORALE WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 3 | 0 | 1,634 | 3.60 | 4.9 |
| Lights | MWR-04 | MORALE WELFARE RECREATION | IN29: INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-04 | MORALE WELFARE RECREATION | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-04 | MORALE WELFARE RECREATION | IN10: INC 3-75 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-04 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 42 | 1 | 19 | 1 | 18,152 | 5.20 | 3.4 |
| Hot Water | MWR-04 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 98 | 0 | 98 | 0 | 7,624 | 10.70 | 1.6 |
| Hot Water | MWR-04 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 16 | 0 | 16 | 0 | 262 | 9.70 | 1.3 |
| Roof | MWR-04 | MORALE WELFARE RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-8 | 1 | 1 | 555 | 0 | 55,483 | 10.50 | 2.0 |
| Wall | MWR-04 | MORALE WELFARE RECREATION | Wall Insulation R-Value 0.00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-05 | MORALE WELFARE RECREATION | Other Fuels Conv Boiler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | MWR-05 | MORALE WELFARE RECREATION | Electric Conv Chiller | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05 | MORALE WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 2 | 0 | 7 | 0 | 2,048 | 6.70 | 2.8 |
| Lights | MWR-05 | MORALE WELFARE RECREATION | IN29: INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05 | MORALE WELFARE RECREATION | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05 | MORALE WELFARE RECREATION | IN10: INC 3-75 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 10 | 0 | 5,218 | 7.00 | 2.6 |
| Hot Water | MWR-05 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 121 | 0 | 121 | 0 | 5,997 | 12.90 | 0.8 |
| Roof | MWR-05 | MORALE WELFARE RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-30 | 1 | 1 | 129 | 13 | 38,701 | 5.30 | 3.5 |
| Wall | MWR-05 | MORALE WELFARE RECREATION | Wall Insulation R-Value 5.32 | Interior Masonry Surface: Increase Insulation by R-10.9 | 1 | 1 | 194 | 16 | 56,177 | 5.80 | 3.2 |
| Heating | MWR-05a | MORALE WELFARE RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | MWR-05a | MORALE WELFARE RECREATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05a | MORALE WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 1 | 0 | 0 | 0 | 328 | 4.40 | 4.1 |
| Lights | MWR-05a | MORALE WELFARE RECREATION | IN29: INC 200 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05a | MORALE WELFARE RECREATION | IN30: INC 300 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05a | MORALE WELFARE RECREATION | IN10: INC 3-75 CEIL | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-05a | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 6 | 0 | 4,697 | 6.40 | 2.8 |
| Hot Water | MWR-05a | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 6 | 0 | 6 | 0 | 104 | 3.40 | 1.3 |
| Roof | MWR-05a | MORALE WELFARE RECREATION | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 27 | 2 | 7,438 | 3.90 | 4.8 |
| Wall | MWR-05a | MORALE WELFARE RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-06 | MORALE WELFARE RECREATION | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Heating | MWR-06 | MORALE WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 3 | 0 | 3 | 0 | 204 | 2.90 | 7.1 |
| Cooling | MWR-06 | MORALE WELFARE RECREATION | Electric Package Unit | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-06 | MORALE WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 2 | 0 | 2 | 0 | 1,167 | 4.80 | 3.7 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 163 | 12 | 186 | 18 | 103,973 | 5.50 | 3.3 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 1 | 0 | 1 | 0 | 468 | 1.50 | 12.0 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 7 | 0 | 5 | 0 | 3,732 | 6.50 | 2.7 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 7 | 1 | 8 | 1 | 5,839 | 11.30 | 1.6 |
| Hot Water | MWR-06 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Hot Water | MWR-06 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 59 | 0 | 59 | 0 | 5,332 | 7.50 | 2.8 |
| Roof | MWR-06 | MORALE WELFARE RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 15 | 2 | 519 | 1.10 | 17.3 |
| Wall | MWR-06 | MORALE WELFARE RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | MWR-07 | MORALE WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | 0 | 6 | 0 | 529 | 5.10 | 4.1 |
| Cooling | MWR-07 | MORALE WELFARE RECREATION | Electric Conv Chiller | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | MWR-07 | MORALE WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 3 | 0 | 4 | 0 | 1,914 | 5.20 | 3.5 |
| Lights | MWR-07 | MORALE WELFARE RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 248 | 19 | 295 | 29 | 157,010 | 5.50 | 3.3 |
| Lights | MWR-07 | MORALE WELFARE RECREATION | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 4 | 0 | 7 | 1 | 949 | 1.40 | 13.3 |
| Lights | MWR-07 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 10 | 0 | 10 | 1 | 6,083 | 6.90 | 2.6 |
| Lights | MWR-07 | MORALE WELFARE RECREATION | IN6: INC 2-60 CEIL | FL182: CFL 2 13 + BLST UNIT | 11 | 1 | 10 | 1 | 8,537 | 10.90 | 1.6 |
| Hot Water | MWR-07 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSIIs, Aerators | 8 | 0 | 8 | 0 | 44 | 2.40 | 0.8 |
| Roof | MWR-07 | MORALE WELFARE RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 42 | 4 | 2,454 | 1.20 | 15.7 |
| Wall | MWR-07 | MORALE WELFARE RECREATION | Wall Insulation R-Value 5.32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL3: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 7 | 0 | 9 | 1 | 4,065 | 3.70 | 4.8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 10 | 1 | 14 | 1 | 6,978 | 7.50 | 2.4 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL6: FL 2X2 2F40T12U STD2 | FL54: FL 2X2 2F32T8U ELC2 | 0 | 0 | 0 | 0 | 180 | 6.40 | 2.8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | HS13: HPS 70 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 3 | 0 | 4 | 0 | 1,999 | 9.30 | 1.9 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 4 | 0 | 5 | 0 | 3,415 | 42.30 | 0.4 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | MH36: MH 250 HE PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 8 | 0 | 10 | 0 | 5,197 | 7.00 | 2.6 |
| Hot Water | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 1 | 0 | 1 | 0 | 158 | 9.90 | 0.6 |
| Roof | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 65 | 6 | 32,564 | 8.90 | 2.0 |
| Wall | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Wall Insulation R-Value 8.79 | Blow-in Insulation: Increase Insulation by R-6.5 | 1 | 1 | 16 | 3 | 4,362 | 1.90 | 9.7 |
| Heating | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Other Fuels Conv Furn | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL3: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 6 | 1 | 4 | 1 | 2,126 | 2.20 | 8.1 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg. 253 | 250 ton chiller | Reset chilled and condenser water temps. - RI | 334 | 450 | 334 | 450 | 201,183 | 6,707.11 | 0.0 |
| AC | 2 | Bldg. 263 | 554 ton chiller | Reset chilled and condenser water temps. - RI | 298 | 499 | 298 | 499 | 197,519 | 6,584.96 | 0.0 |
| AC | 3 | Bldg. 273 | 200 ton chiller | Reset chilled and condenser water temps. - RI | 303 | 180 | 303 | 180 | 139,087 | 4,637.24 | 0.0 |
| Central Chillers | 1 | | Existing Chillers | Connect B/253 & B/263, Add 100 ton chiller - RI | 1,108 | 401 | 1,108 | 401 | 219,207 | 2.43 | 7.1 |
| Central Chillers | 2 | | Existing Chillers | Connect B/253 & B/263, Add TES - RI | 1,099 | 2,110 | 1,099 | 2,110 | 893,186 | 3.52 | 4.9 |
| Controls | MT-1 | | Thermostat | Night Setback - RI | 1,508 | 2,186 | 1,508 | 2,186 | 314,125 | 3.09 | 5.6 |
| DHW & A/C | 1 | 00013 | CHILLER-air cooled | Install Desuperheater - RI | 6 | 63 | 6 | 63 | 7,635 | 3.30 | 5.2 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 75 | 27 | 75 | 27 | 11,980 | 7.47 | 2.3 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 75 | 27 | 75 | 27 | 11,980 | 7.47 | 2.3 |
| DHW & A/C | 4 | 00034 | PKG UNIT | Install Desuperheater - RI | 3 | 9 | 3 | 0 | -174 | 0.84 | 20.4 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 60 | 27 | 60 | 27 | 9,877 | 6.33 | 2.7 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 20 | 9 | 20 | 0 | 1,990 | 2.78 | 6.2 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 40 | 18 | 40 | 18 | 5,933 | 4.99 | 3.4 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater - RI | 99 | 45 | 99 | 45 | 17,765 | 7.87 | 2.2 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 159 | 72 | 159 | 72 | 29,597 | 9.03 | 1.9 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - RI | 60 | 27 | 60 | 27 | 9,877 | 6.33 | 2.7 |
| DHW & A/C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater - RI | 40 | 36 | 40 | 36 | 8,823 | 4.98 | 3.5 |
| DHW & A/C | 12 | 00152 | PKG UNIT | Install Desuperheater - RI | 2 | 9 | 2 | 0 | -530 | 0.52 | 33.2 |
| DHW & A/C | 13 | 00166 | CHILLER-air cooled | Install Desuperheater - RI | 2,178 | 630 | 2,178 | 630 | 365,486 | 14.84 | 1.2 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 218 | 76 | 218 | 76 | 36,469 | 10.52 | 1.6 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 47 | 18 | 47 | 18 | 6,950 | 5.68 | 3.0 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 85 | 32 | 85 | 32 | 14,074 | 7.79 | 2.2 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater - RI | 76 | 86 | 76 | 86 | 19,850 | 5.65 | 3.0 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 158 | 180 | 158 | 180 | 43,471 | 6.38 | 2.7 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater - RI | 22 | 27 | 22 | 27 | 5,013 | 3.71 | 4.6 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater - RI | 28 | 43 | 28 | 43 | 7,902 | 4.15 | 4.2 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater - RI | 190 | 58 | 190 | 58 | 32,023 | 11.33 | 1.5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 5 | 22 | 5 | 22 | 1,666 | 2.02 | 8.5 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater - RI | 6 | 23 | 6 | 23 | 1,907 | 2.13 | 8.1 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 5 | 22 | 5 | 22 | 1,666 | 2.02 | 8.5 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 6 | 23 | 6 | 23 | 1,907 | 2.13 | 8.1 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater - RI | 34 | 41 | 34 | 41 | 9,912 | 5.13 | 3.4 |
| DHW & A/C | 27 | 00323 | PKG UNIT | Install Desuperheater - RI | 8 | 9 | 8 | 9 | 683 | 1.61 | 10.7 |
| DHW & A/C | 28 | 00488 | PKG A/C | Install Desuperheater - RI | 10 | 72 | 10 | 72 | 8,986 | 3.44 | 5.0 |
| DHW & A/C | 29 | 00826 | PKG UNIT | Install Desuperheater - RI | 12 | 15 | 12 | 15 | 1,883 | 2.37 | 7.3 |
| DHW & A/C | 30 | 00857 | Chiller-air cooled | Install Desuperheater - RI | 12 | 72 | 12 | 72 | 9,712 | 3.64 | 4.7 |
| DHW & A/C | 31 | 00905 | CHILLER-air cooled | Install Desuperheater - RI | 155 | 72 | 155 | 72 | 23,881 | 7.48 | 2.3 |
| DHW & A/C | 32 | 00905 | PKG UNIT | Install Desuperheater - RI | 29 | 14 | 29 | 14 | 2,890 | 3.22 | 5.3 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 243 | 92 | 243 | 92 | 42,194 | 10.39 | 1.7 |
| DHW & A/C | 34 | 00983 | PKG A/C | Install Desuperheater - RI | 7 | 27 | 7 | 27 | 2,604 | 2.41 | 7.2 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - RI | 40 | 72 | 40 | 72 | 13,496 | 4.66 | 3.7 |
| DHW & A/C | 36 | 01313 | PKG UNIT | Install Desuperheater - RI | 9 | 22 | 9 | 22 | 2,570 | 2.57 | 6.7 |
| DHW & A/C | 37 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 5 | 14 | 5 | 14 | 801 | 1.60 | 10.8 |
| DHW & A/C | 38 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 3 | 9 | 3 | 9 | -233 | 0.79 | 21.7 |
| DHW & A/C | 39 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 3 | 9 | 3 | 9 | -233 | 0.79 | 21.7 |
| DHW & A/C | 40 | 01322 | PKG UNIT | Install Desuperheater - RI | 3 | 9 | 3 | 9 | -233 | 0.79 | 21.7 |
| DHW & A/C | 41 | 01322 | PKG UNIT | Install Desuperheater - RI | 3 | 9 | 3 | 9 | -233 | 0.79 | 21.7 |
| DHW & A/C | 42 | 01322 | PKG UNIT | Install Desuperheater - RI | 3 | 9 | 3 | 9 | -233 | 0.79 | 21.7 |
| DHW & A/C | 43 | 01322 | PKG UNIT | Install Desuperheater - RI | 5 | 14 | 5 | 14 | 801 | 1.60 | 10.8 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 11 | 54 | 11 | 54 | 7,338 | 3.49 | 4.9 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater - RI | 110 | 18 | 110 | 18 | 15,732 | 11.59 | 1.5 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side - RI | 26 | 46 | 26 | 46 | 17,362 | 3.83 | 4.5 |
| Envelope | MT-11a | | None | Crawl Space Insulation: R-19 - RI | 1,002 | 1,039 | 1,002 | 1,039 | 542,721 | 5.35 | 3.2 |
| Envelope | MT-11b | | None | Crawl Space Insulation: R-30 - RI | 1,048 | 1,087 | 1,048 | 1,087 | 519,672 | 3.90 | 4.4 |
| Envelope | MT-12 | | Leaky | Weatherization - RI | 1,241 | 904 | 1,241 | 904 | 648,218 | 73.29 | 0.2 |
| Envelope | MT-5 | | Black EDPM | Reflective roof - RI | 566 | 684 | 566 | 684 | 277,647 | 2.24 | 7.7 |
| Envelope | MT-6 | | Single pane window | Double pane windows - RI | 176 | 68 | 176 | 68 | -46,458 | 0.44 | 38.8 |
| Envelope | MT-7 | | Single pane window | Shade Screens - NE side - RI | 26 | 15 | 26 | 15 | -168 | 0.97 | 17.7 |
| Envelope | MT-8 | | Single pane window | Shade Screens - SE side - RI | 37 | 22 | 37 | 22 | 5,021 | 1.97 | 8.7 |
| Envelope | MT-9 | | Single pane window | Shade Screens - SW side - RI | 37 | 69 | 37 | 69 | 32,627 | 7.33 | 2.4 |
| Envelope | Family Housing | 1961 Vintage | | Double-paned windows - RI | 229 | 30 | 229 | 30 | -246,610 | 0.21 | 83.0 |
| Envelope | Family Housing | 1963 Vintage | | Double-paned windows - RI | 250 | 33 | 250 | 33 | -269,606 | 0.21 | 83.0 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization - RI | 1,203 | 790 | 1,203 | 790 | 508,458 | 17.14 | 1.0 |
| Envelope | Family Housing | 1964, 1965, 1966 Vintage | | Double-paned windows - RI | 153 | 20 | 153 | 20 | -164,535 | 0.21 | 83.0 |
| Envelope | Family Housing | 1983 Vintage | | Double-paned windows - RI | 236 | 31 | 236 | 31 | -255,041 | 0.21 | 83.0 |
| Envelope | Family Housing | 1984 Vintage | | Double-paned windows - RI | 176 | 23 | 176 | 23 | -189,460 | 0.21 | 83.0 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Weatherization - RI | 68 | 44 | 68 | 44 | 27,627 | 11.11 | 1.5 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Window Screen- NE side - RI | 20 | 12 | 20 | 12 | -134 | 0.97 | 17.7 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Window Screen - SE side - RI | 7 | 4 | 7 | 4 | 996 | 1.97 | 8.7 |

# Table 3.5a. All Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12FS ELC2 | 4 | 0 | 3 | 0 | 1,917 | 3 60 | 6 0 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 35 | 3 | 25 | 3 | 15,695 | 4 10 | 4 4 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL79 FL 2X4 4F40T12ES STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 14 | 1 | 14 | 1 | 6,387 | 3 50 | 5 1 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 11 | 1 | 7 | 1 | 5,407 | 7 10 | 2 5 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 7 | 1 | 5 | 1 | 3,761 | 7 60 | 2 4 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 9 | 1 | 6 | 1 | 5,518 | 23 60 | 0 8 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN6 INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 4 | 0 | 3 | 0 | 2,491 | 10 10 | 1 8 |
| Hot Water | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 4 | 0 | 4 | 0 | 469 | 9 20 | 0 6 |
| Roof | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Roof Insulation R Value 20.05 | Suspended Ceiling Increase Insulation by R 8 | 1 | 1 | 60 | 0 | 2,154 | 1 50 | 14 0 |
| Wall | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Wall Insulation R Value 0 00 | none | 1 | 1 | 0 | 0 | NA | NA | NA |
| Heating | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels Conv Boiler | Add Automatic Electric Damper | 4 | 0 | 4 | 0 | 289 | 2 70 | 7 8 |
| Cooling | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Electric Evap Cooler | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 4 | 0 | 7 | 0 | 2,328 | 6 30 | 2 9 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 4 | 0 | 7 | 0 | 2,013 | 2 80 | 6 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 20 | 2 | 26 | 2 | 10,708 | 3 30 | 5 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL2: FL 2X4 3F40T12 STD1,2 | FL236 FL 2X4 3F32T8 ELC3 | 2 | 0 | 6 | 0 | 1,598 | 7 80 | 2 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 1 | 0 | 5 | 0 | 1,077 | 5 50 | 3 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 1 | 0 | 4 | 0 | 949 | 7 50 | 2 5 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 38 | 3 | 51 | 3 | 19,169 | 3 80 | 4 7 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | FL189 CFL 2-15 CEIL FIXT | 2 | 0 | 3 | 0 | 1,592 | 11 40 | 1 6 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 10 | 1 | 15 | 1 | 7,277 | 11 80 | 1 5 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 10 | 0 | 15 | 0 | 4,557 | 3 60 | 5 0 |
| Hot Water | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 5 | 0 | 5 | 0 | 123 | 5 50 | 1 0 |
| Hot Water | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LFSHs, Aerators | 45 | 0 | 45 | 0 | 1,969 | 38 80 | 0 2 |
| Roof | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 202 | 0 | 16,864 | 3 50 | 5 9 |
| Wall | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Wall Insulation R-Value 0 00 | Interior Masonary Surface: Increase Insulation by R-4 3 | 1 | 1 | 123 | 0 | 1,812 | 1 20 | 18 0 |
| Heating | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Electric Air Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Cooling | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Electric Air Cool Heat Pump | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 50 | 3 | 62 | 3 | 24,663 | 3 20 | 5 6 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 76 | 5 | 81 | 5 | 38,082 | 5 70 | 3 2 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL6. FL 2X2 2F40T12U STD2 | FL54 FL 2X2 2F32T8U ELC2 | 2 | 0 | 3 | 0 | 953 | 4 80 | 3 8 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | HS13: HPS 70 PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178 CFL 9 + BLST UNIT | 21 | 1 | 25 | 1 | 11,626 | 7 40 | 2 4 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 30 | 2 | 37 | 2 | 20,910 | 34 30 | 0 5 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | MH36: MH 250 HE PEND | none | 0 | 0 | 0 | 0 | NA | NA | NA |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 11 | 0 | 4,902 | 6 60 | 2 7 |
| Hot Water | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Electric Central Boiler | Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators | 14 | 1 | 14 | 1 | 6,150 | 52 70 | 0 3 |
| Roof | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 81 | 0 | 11,764 | 2 10 | 8 8 |
| Wall | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Wall Insulation R-Value 5 32 | none | 1 | 1 | 0 | 0 | NA | NA | NA |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | Admin | ADMIN: MISC post 1964 | | Window Screen - SW side - RI | 30 | 55 | 30 | 55 | 25,898 | 7.33 | 2.4 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Window Screen - NW Side - RI | 5 | 9 | 5 | 9 | 3,445 | 3.83 | 4.5 |
| Envelope | Family Housing | ADMIN: MISC post 1964 | | Double Paned Window - RI | 62 | 18 | 62 | 18 | -28,399 | 0.31 | 54.8 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Weatherization - RI | 557 | 366 | 557 | 366 | 241,072 | 27.99 | 0.6 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Window Screen- NE side - RI | 12 | 7 | 12 | 7 | -76 | 0.97 | 17.7 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Window Screen - SE side - RI | 4 | 3 | 4 | 3 | 565 | 1.97 | 8.7 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Window Screen - SW side - RI | 17 | 31 | 17 | 31 | 14,676 | 7.33 | 2.4 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Window Screen - NW Side - RI | 3 | 5 | 3 | 5 | 1,952 | 3.83 | 4.5 |
| Envelope | Family Housing | ADMIN: MISC pre 1964 | | Double Paned Window - RI | 35 | 10 | 35 | 10 | -16,094 | 0.31 | 54.8 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Weatherization - RI | 47 | 31 | 47 | 31 | 18,563 | 9.01 | 1.9 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen- NE side - RI | 11 | 6 | 11 | 6 | -73 | 0.97 | 17.7 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen - SE side - RI | 4 | 2 | 4 | 2 | 542 | 1.97 | 8.7 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen - SW side - RI | 16 | 30 | 16 | 30 | 14,078 | 7.33 | 2.4 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen - NW Side - RI | 3 | 5 | 3 | 5 | 1,873 | 3.83 | 4.5 |
| Envelope | Family Housing | BRK/ADM MISC | | Double Paned Window - RI | 34 | 10 | 34 | 10 | -15,437 | 0.31 | 54.8 |
| Envelope | Barracks | Concrete Block: Barracks | | Weatherization - RI | 409 | 269 | 409 | 269 | 173,276 | 17.70 | 1.0 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen- NE side - RI | 27 | 16 | 27 | 16 | -176 | 0.97 | 17.7 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen - SE side - RI | 29 | 17 | 29 | 17 | 3,905 | 1.97 | 8.7 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen - SW side - RI | 39 | 72 | 39 | 72 | 34,111 | 7.33 | 2.4 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen - NW Side - RI | 20 | 36 | 20 | 36 | 13,513 | 3.83 | 4.5 |
| Envelope | Family Housing | Concrete Block: Barracks | | Double Paned Window - RI | 114 | 33 | 114 | 33 | -52,202 | 0.31 | 54.8 |
| Envelope | Family Housing | Concrete Block: Misc -post 1980 | | Double Paned Window - RI | 35 | 10 | 35 | 10 | -16,165 | 0.31 | 54.8 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Weatherization - RI | 299 | 197 | 299 | 197 | 124,741 | 13.97 | 1.2 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen- NE side - RI | 7 | 4 | 7 | 4 | -48 | 0.97 | 17.7 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - SE side - RI | 10 | 6 | 10 | 6 | 1,418 | 1.97 | 8.7 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - SW side - RI | 10 | 19 | 10 | 19 | 9,214 | 7.33 | 2.4 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - NW Side - RI | 7 | 13 | 7 | 13 | 4,903 | 3.83 | 4.5 |
| Envelope | Family Housing | Concrete Block: Misc -pre 1980 | | Double Paned Window - RI | 40 | 12 | 40 | 12 | -18,535 | 0.31 | 54.8 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Weatherization - RI | 217 | 142 | 217 | 142 | 92,117 | 19.11 | 0.9 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen- NE side - RI | 8 | 5 | 8 | 5 | -54 | 0.97 | 17.7 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - SE side - RI | 12 | 7 | 12 | 7 | 1,626 | 1.97 | 8.7 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - SW side - RI | 12 | 22 | 12 | 22 | 10,564 | 7.33 | 2.4 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - NW Side - RI | 8 | 15 | 8 | 15 | 5,622 | 3.83 | 4.5 |
| Envelope | | Concrete Block: w/ SE win only | | Weatherization - RI | 24 | 16 | 24 | 16 | 6,474 | 2.54 | 6.8 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen- NE side - RI | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - SE side - RI | 18 | 11 | 18 | 11 | 2,487 | 1.97 | 8.7 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - SW side - RI | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - NW Side - RI | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | Family Housing | Concrete Block: w/ SE win only | | Double Paned Window - RI | 15 | 4 | 15 | 4 | -7,088 | 0.31 | 54.8 |
| Envelope | Dining | DINING: MSIC | | Weatherization - RI | 203 | 133 | 203 | 133 | 85,324 | 15.77 | 1.1 |
| Envelope | Dining | DINING: MSIC | | Window Screen- NE side - RI | 12 | 7 | 12 | 7 | -81 | 0.97 | 17.7 |
| Envelope | Dining | DINING: MSIC | | Window Screen - SE side - RI | 4 | 3 | 4 | 3 | 605 | 1.97 | 8.7 |
| Envelope | Dining | DINING: MSIC | | Window Screen - SW side - RI | 18 | 33 | 18 | 33 | 15,734 | 7.33 | 2.4 |
| Envelope | Dining | DINING: MSIC | | Window Screen - NW Side - RI | 3 | 6 | 3 | 6 | 2,093 | 3.83 | 4.5 |
| Envelope | Family Housing | DINING: MSIC | | Double Paned Window - RI | 42 | 11 | 42 | 11 | -17,342 | 0.31 | 55.4 |
| Envelope | | Masonite Siding: post 1950 | | Weatherization - RI | 755 | 496 | 755 | 496 | 331,363 | 46.17 | 0.4 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen- NE side - RI | 30 | 17 | 30 | 17 | -196 | 0.97 | 17.7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SE side - RI | 11 | 7 | 11 | 7 | 1,531 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SW side - RI | 44 | 81 | 44 | 81 | 38,348 | 7.33 | 2.4 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - NW Side - RI | 8 | 14 | 8 | 14 | 5,102 | 3.83 | 4.5 |
| Envelope | Family Housing | Masonite Siding: post 1950 | | Double Paned Window - RI | 91 | 27 | 91 | 27 | -42,052 | 0.31 | 54.8 |
| Envelope | | Masonite Siding: pre 1950 | | Weatherization - RI | 1,827 | 1,200 | 1,827 | 1,200 | 794,401 | 32.01 | 0.5 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen- NE side - RI | 72 | 42 | 72 | 42 | -469 | 0.97 | 17.7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SE side - RI | 34 | 21 | 34 | 21 | 4,629 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SW side - RI | 109 | 202 | 109 | 202 | 95,684 | 7.33 | 2.4 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - NW Side - RI | 20 | 36 | 20 | 36 | 13,495 | 3.83 | 4.5 |
| Envelope | Family Housing | Masonite Siding: pre 1950 | | Double Paned Window - RI | 231 | 67 | 231 | 67 | -106,187 | 0.31 | 54.8 |
| Envelope | | Metal Siding | | Weatherization - RI | 1,024 | 672 | 1,024 | 672 | 445,841 | 33.69 | 0.5 |
| Envelope | | Metal Siding | | Window Screen- NE side - RI | 55 | 32 | 55 | 32 | -360 | 0.97 | 17.7 |
| Envelope | | Metal Siding | | Window Screen - SE side - RI | 76 | 46 | 76 | 46 | 10,339 | 1.97 | 8.7 |
| Envelope | | Metal Siding | | Window Screen - SW side - RI | 77 | 142 | 77 | 142 | 67,187 | 7.33 | 2.4 |
| Envelope | | Metal Siding | | Window Screen - NW Side - RI | 55 | 99 | 55 | 99 | 37,110 | 3.83 | 4.5 |
| Envelope | Family Housing | Metal Siding | | Double Paned Window - RI | 261 | 76 | 261 | 76 | -120,120 | 0.31 | 54.8 |
| Envelope | Family Housing | MOTORPOOL | | Double Paned Window - RI | 63 | 18 | 63 | 18 | -28,952 | 0.31 | 54.8 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization - RI | 62 | 41 | 62 | 41 | 26,113 | 15.46 | 1.1 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen- NE side - RI | 21 | 12 | 21 | 12 | -136 | 0.97 | 17.7 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - SE side - RI | 7 | 5 | 7 | 5 | 1,016 | 1.97 | 8.7 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - SW side - RI | 30 | 56 | 30 | 56 | 26,403 | 7.33 | 2.4 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - NW Side - RI | 5 | 9 | 5 | 9 | 3,512 | 3.83 | 4.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | Family Housing | MWR | | Double Paned Window - RI | 15 | 4 | 15 | 4 | -6,711 | 0.31 | 54.8 |
| Envelope | MWR | MWR | | Weatherization - RI | 10 | 6 | 10 | 6 | 2,960 | 3.17 | 5.4 |
| Envelope | MWR | MWR | | Window Screen- NE side - RI | 5 | 3 | 5 | 3 | -32 | 0.97 | 17.7 |
| Envelope | MWR | MWR | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 235 | 1.97 | 8.7 |
| Envelope | MWR | MWR | | Window Screen - SW side - RI | 7 | 13 | 7 | 13 | 6,120 | 7.33 | 2.4 |
| Envelope | MWR | MWR | | Window Screen - NW Side - RI | 1 | 2 | 1 | 2 | 814 | 3.83 | 4.5 |
| Envelope | Family Housing | Northeast, 1961 Vintage | | Window Screen - RI | 258 | 150 | 258 | 150 | -1,690 | 0.97 | 17.7 |
| Envelope | Family Housing | Northeast, 1963 Vintage | | Window Screen - RI | 282 | 164 | 282 | 164 | -1,850 | 0.97 | 17.7 |
| Envelope | Family Housing | Northeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 172 | 100 | 172 | 100 | -1,129 | 0.97 | 17.7 |
| Envelope | Family Housing | Northeast, 1983 Vintage | | Window Screen - RI | 264 | 153 | 264 | 153 | -1,729 | 0.97 | 17.7 |
| Envelope | Family Housing | Northeast, 1984 Vintage | | Window Screen - RI | 198 | 115 | 198 | 115 | -1,300 | 0.97 | 17.7 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screen - RI | 103 | 186 | 103 | 186 | 69,803 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screen - RI | 113 | 204 | 113 | 204 | 76,372 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screen - RI | 69 | 124 | 69 | 124 | 46,608 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screen - RI | 105 | 190 | 105 | 190 | 71,365 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screen - RI | 79 | 143 | 79 | 143 | 53,668 | 3.83 | 4.5 |
| Envelope | Family Housing | SECURTY | | Double Paned Window - RI | 3 | 1 | 3 | 1 | -1,375 | 0.31 | 54.8 |
| Envelope | Security | SECURTY | | Window Screen- NE side - RI | 1 | 1 | 1 | 1 | -6 | 0.97 | 17.7 |
| Envelope | Security | SECURTY | | Window Screen - SE side - RI | 0 | 0 | 0 | 0 | 48 | 1.97 | 8.7 |
| Envelope | Security | SECURTY | | Window Screen - SW side - RI | 1 | 3 | 1 | 3 | 1,254 | 7.33 | 2.4 |
| Envelope | Security | SECURTY | | Window Screen - NW Side - RI | 0 | 0 | 0 | 0 | 167 | 3.83 | 4.5 |
| Envelope | Family Housing | SHOP | | Double Paned Window - RI | 62 | 18 | 62 | 18 | -28,359 | 0.31 | 54.8 |
| Envelope | Shop | SHOP | | Weatherization - RI | 199 | 131 | 199 | 131 | 84,456 | 18.67 | 0.9 |
| Envelope | Shop | SHOP | | Window Screen- NE side - RI | 20 | 12 | 20 | 12 | -133 | 0.97 | 17.7 |
| Envelope | Shop | SHOP | | Window Screen - SE side - RI | 7 | 4 | 7 | 4 | 995 | 1.97 | 8.7 |
| Envelope | Shop | SHOP | | Window Screen - SW side - RI | 29 | 55 | 29 | 55 | 25,862 | 7.33 | 2.4 |
| Envelope | Shop | SHOP | | Window Screen - NW Side - RI | 5 | 9 | 5 | 9 | 3,440 | 3.83 | 4.5 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screen - RI | 370 | 225 | 370 | 225 | 50,445 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screen - RI | 405 | 246 | 405 | 246 | 55,215 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 247 | 150 | 247 | 150 | 33,697 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screen - RI | 378 | 230 | 378 | 230 | 51,595 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screen - RI | 284 | 173 | 284 | 173 | 38,801 | 1.97 | 8.7 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen - RI | 151 | 279 | 151 | 279 | 132,108 | 7.33 | 2.4 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screen - RI | 164 | 303 | 164 | 303 | 143,521 | 7.33 | 2.4 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen - RI | 100 | 185 | 100 | 185 | 87,588 | 7.33 | 2.4 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screen - RI | 153 | 284 | 153 | 284 | 134,112 | 7.33 | 2.4 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screen - RI | 115 | 213 | 115 | 213 | 100,856 | 7.33 | 2.4 |
| Envelope | Family Housing | TRAINING | | Double Paned Window - RI | 20 | 6 | 20 | 6 | -9,395 | 0.31 | 54.8 |
| Envelope | Training | TRAINING | | Weatherization - RI | 82 | 54 | 82 | 54 | 32,873 | 9.06 | 1.9 |
| Envelope | Training | TRAINING | | Window Screen- NE side - RI | 7 | 4 | 7 | 4 | -44 | 0.97 | 17.7 |
| Envelope | Training | TRAINING | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 330 | 1.97 | 8.7 |
| Envelope | Training | TRAINING | | Window Screen - SW side - RI | 10 | 18 | 10 | 18 | 8,568 | 7.33 | 2.4 |
| Envelope | Training | TRAINING | | Window Screen - NW Side - RI | 2 | 3 | 2 | 3 | 1,140 | 3.83 | 4.5 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Weatherization - RI | 1,432 | 940 | 1,432 | 940 | 614,151 | 22.55 | 0.8 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen- NE side - RI | 59 | -15 | 59 | -15 | -389 | 0.97 | 17.7 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - SE side - RI | 197 | 120 | 197 | 120 | 26,894 | 1.97 | 8.7 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - SW side - RI | 199 | 369 | 199 | 369 | 174,765 | 7.33 | 2.4 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - NW Side - RI | 59 | 107 | 59 | 107 | 40,117 | 3.83 | 4.5 |
| Envelope | Family Housing | U Shaped Bldgs: Barracks | | Double Paned Window - RI | 477 | 139 | 477 | 139 | -219,450 | 0.31 | 54.8 |
| Envelope | Family Housing | U Shaped Bldgs: Other | | Double Paned Window - RI | 68 | 20 | 68 | 20 | -31,335 | 0.31 | 54.8 |
| Envelope | Other | U Shaped Bldgs: Other | | Weatherization - RI | 382 | 251 | 382 | 251 | 166,045 | 32.15 | 0.5 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen- NE side - RI | 8 | -2 | 8 | -2 | -56 | 0.97 | 17.7 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - SE side - RI | 28 | 17 | 28 | 17 | 3,840 | 1.97 | 8.7 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - SW side - RI | 28 | 53 | 28 | 53 | 24,955 | 7.33 | 2.4 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - NW Side - RI | 8 | 15 | 8 | 15 | 5,728 | 3.83 | 4.5 |
| Envelope | Family Housing | WHS | | Double Paned Window - RI | 14 | 4 | 14 | 4 | -5,741 | 0.34 | 51.3 |
| Envelope | WHS | WHS | | Weatherization - RI | 104 | 68 | 104 | 68 | 44,122 | 18.79 | 0.9 |
| Envelope | WHS | WHS | | Window Screen- NE side - RI | 4 | 2 | 4 | 2 | -28 | 0.97 | 17.7 |
| Envelope | WHS | WHS | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 208 | 1.97 | 8.7 |
| Envelope | WHS | WHS | | Window Screen - SW side - RI | 6 | 11 | 6 | 11 | 5,402 | 7.33 | 2.4 |
| Envelope | WHS | WHS | | Window Screen - NW Side - RI | 1 | 2 | 1 | 2 | 719 | 3.83 | 4.5 |
| Envelope | | Wood Siding | | Weatherization - RI | 87 | 57 | 87 | 57 | 37,033 | 21.45 | 0.8 |
| Envelope | | Wood Siding | | Window Screen- NE side - RI | 9 | 5 | 9 | 5 | -60 | 0.97 | 17.7 |
| Envelope | | Wood Siding | | Window Screen - SE side - RI | 3 | 2 | 3 | 2 | 450 | 1.97 | 8.7 |
| Envelope | | Wood Siding | | Window Screen - SW side - RI | 13 | 25 | 13 | 25 | 11,708 | 7.33 | 2.4 |
| Envelope | | Wood Siding | | Window Screen - NW Side - RI | 2 | 4 | 2 | 4 | 1,558 | 3.83 | 4.5 |
| Envelope | Family Housing | Wood Siding | | Double Paned Window - RI | 28 | 8 | 28 | 8 | -12,838 | 0.31 | 54.8 |
| Envelope | Family Housing | 1961 | | Weatherization - RI | 1,803 | 1,184 | 1,803 | 1,184 | 749,345 | 13.50 | 1.3 |
| Envelope | Family Housing | 1963 | | Weatherization - RI | 1,971 | 1,295 | 1,971 | 1,295 | 830,164 | 16.20 | 1.1 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | Family Housing | 1983 | | Weatherization - RI | 746 | 490 | 746 | 490 | 289,710 | 7.43 | 2.3 |
| Envelope | Family Housing | 1984 | | Weatherization - RI | 554 | 364 | 554 | 364 | 214,222 | 7.21 | 2.4 |
| Fam. Hsg. HVAC | 1a | Family Housing | Residential HVAC | Std. Eff. Air Source HP - RI | 56,846 | 6,680 | 56,846 | 6,680 | 946,598 | 1.21 | 14.2 |
| Fam. Hsg. HVAC | 1a | Family Housing | Residential HVAC | Std. Eff. Air Source HP - ROF | 0 | 0 | 56,846 | 6,680 | 1,905,966 | 1.53 | 11.3 |
| Fam. Hsg. HVAC | 1b | Family Housing | Residential HVAC | High Eff. Air Source HP - RI | 69,239 | 15,882 | 69,239 | 15,882 | -5,785 | 1.00 | 17.2 |
| Fam. Hsg. HVAC | 1b | Family Housing | Residential HVAC | High Eff. Air Source HP - ROF | 0 | 0 | 69,239 | 15,882 | 1,315,629 | 1.17 | 14.7 |
| Fam. Hsg. HVAC | 2a | Family Housing | Residential HVAC | Std. Eff. Grnd Source HP - RI | 69,794 | 12,076 | 69,794 | 12,076 | 4,233,677 | 1.73 | 10.0 |
| Fam. Hsg. HVAC | 2a | Family Housing | Residential HVAC | Std. Eff. Grnd Source HP - ROF | 0 | 0 | 69,794 | 12,076 | 4,024,218 | 1.86 | 9.3 |
| Fam. Hsg. HVAC | 2b | Family Housing | Residential HVAC | High Eff. Grnd Source HP - RI | 76,678 | 15,226 | 76,678 | 15,226 | 5,244,863 | 1.74 | 9.9 |
| Fam. Hsg. HVAC | 2b | Family Housing | Residential HVAC | High Eff. Grnd Source HP - ROF | 0 | 0 | 76,678 | 15,226 | 4,679,589 | 1.82 | 9.5 |
| Fam. Hsg. HVAC | 3a | Family Housing | Residential HVAC | Std. Eff. NG Furnace & DX - RI | 13,324 | 6,287 | 13,324 | 6,287 | 4,351,339 | 2.36 | 7.3 |
| Fam. Hsg. HVAC | 3a | Family Housing | Residential HVAC | Std. Eff. NG Furnace & DX - ROF | 0 | 0 | 13,324 | 6,287 | 3,821,213 | 2.48 | 6.9 |
| Fam. Hsg. HVAC | 3b | Family Housing | Residential HVAC | High Eff. NG Furnace & DX - RI | 32,897 | 15,110 | 32,897 | 15,110 | 2,531,283 | 1.30 | 13.3 |
| Fam. Hsg. HVAC | 3b | Family Housing | Residential HVAC | High Eff. NG Furnace & DX - ROF | 0 | 0 | 32,897 | 15,110 | 2,717,312 | 1.40 | 12.3 |
| Fam. Hsg. HVAC | 4a | Family Housing | Residential HVAC | Std. Eff. LPG Furnace & DX - RI | 13,324 | 6,287 | 13,324 | 6,287 | 3,009,411 | 1.94 | 8.9 |
| Fam. Hsg. HVAC | 4a | Family Housing | Residential HVAC | Std. Eff. LPG Furnace & DX - ROF | 0 | 0 | 13,324 | 6,287 | 3,029,752 | 2.17 | 7.0 |
| Fam. Hsg. HVAC | 4b | Family Housing | Residential HVAC | High Eff. LPG Furnace & DX - RI | 32,897 | 15,110 | 32,897 | 15,110 | 1,400,933 | 1.16 | 14.8 |
| Fam. Hsg. HVAC | 4b | Family Housing | Residential HVAC | High Eff. LPG Furnace & DX - ROF | 0 | 0 | 32,897 | 15,110 | 2,050,639 | 1.30 | 13.3 |
| Fam. Hsg. HVAC | 5 | Family Housing | Residential HVAC | Gas Heat Pump - RI | 2,468 | 34,378 | 2,468 | 34,378 | 6,944,238 | 1.74 | 9.9 |
| Fam. Hsg. HVAC | 5 | Family Housing | Residential HVAC | Gas Heat Pump - ROF | 0 | 0 | 2,468 | 34,378 | 6,194,256 | 1.81 | 9.5 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - RI | 105 | 16 | 105 | 16 | 13,882 | 4.63 | 3.7 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 105 | 16 | 13,461 | 4.63 | 3.7 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - RI | 333 | 52 | 333 | 52 | 32,996 | 3.70 | 4.7 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 333 | 52 | 23,165 | 3.42 | 5.0 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - RI | 256 | 39 | 256 | 39 | 25,525 | 3.78 | 4.6 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 256 | 39 | 17,853 | 3.48 | 4.9 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - RI | 333 | 52 | 333 | 52 | 32,996 | 3.70 | 4.7 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 333 | 52 | 23,165 | 3.42 | 5.0 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - RI | 43 | 6 | 43 | 6 | 4,055 | 2.33 | 7.4 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 43 | 6 | 3,993 | 2.35 | 7.3 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - RI | 29 | 5 | 29 | 5 | 4,018 | 2.57 | 6.7 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 29 | 5 | 4,010 | 2.62 | 6.6 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - RI | 76 | 13 | 76 | 13 | 10,631 | 7.25 | 2.4 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 76 | 13 | 10,207 | 7.19 | 2.4 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 277 | 51 | 277 | 51 | 36,498 | 8.93 | 1.9 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 277 | 51 | 34,802 | 8.80 | 2.0 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,402 | 2.11 | 8.2 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 42 | 6 | 3,348 | 2.13 | 8.1 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,923 | 2.28 | 7.5 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 42 | 6 | 3,869 | 2.30 | 7.5 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 2,955 | 2.74 | 6.3 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 32 | 6 | 2,854 | 2.73 | 6.3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 2,955 | 2.74 | 6.3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 32 | 6 | 2,854 | 2.73 | 6.3 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - RI | 42 | 8 | 42 | 8 | 4,999 | 4.25 | 4.1 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 42 | 8 | 4,811 | 4.22 | 4.1 |
| Heating | 9 | MTRPOOL - 00642 | Unit Heaters | Radiant Heat - RI | 34 | 0 | 34 | 0 | -2,259 | 0.71 | 24.4 |
| Heating | 9 | MTRPOOL - 00642 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 34 | 0 | -1,865 | 0.75 | 23.0 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 4,245 | 5.16 | 3.3 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 32 | 6 | 4,090 | 5.13 | 3.4 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - RI | 42 | 8 | 42 | 8 | 5,849 | 3.76 | 4.6 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 42 | 8 | 5,711 | 3.78 | 4.6 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - RI | 222 | 40 | 222 | 40 | 19,582 | 2.81 | 6.1 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 222 | 40 | 14,531 | 2.66 | 6.5 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - RI | 250 | 40 | 250 | 40 | 23,281 | 3.15 | 5.5 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 250 | 40 | 16,971 | 2.94 | 5.9 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 126 | 17 | 126 | 17 | 9,037 | 1.98 | 8.7 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 126 | 17 | 7,681 | 2.07 | 8.3 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 67 | 8 | 67 | 8 | 4,630 | 2.01 | 8.6 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 67 | 8 | 3,548 | 2.05 | 8.4 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - RI | 86 | 17 | 86 | 17 | 10,811 | 5.70 | 3.0 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 86 | 17 | 10,355 | 5.64 | 3.1 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - RI | 51 | 8 | 51 | 8 | 6,239 | 5.05 | 3.4 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 51 | 8 | 5,986 | 5.01 | 3.4 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - RI | 77 | 10 | 77 | 10 | 4,797 | 1.89 | 9.1 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 77 | 10 | 3,170 | 1.88 | 9.2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - RI | 38 | 6 | 38 | 6 | 2,654 | 1.87 | 9.2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 38 | 6 | 2,429 | 1.98 | 8.7 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - RI | 297 | 57 | 297 | 57 | 37,429 | 7.12 | 2.4 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 297 | 57 | 35,705 | 7.01 | 2.5 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - RI | 117 | 23 | 117 | 23 | 14,722 | 5.81 | 3.0 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 117 | 23 | 14,098 | 5.75 | 3.0 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,402 | 2.11 | 8.2 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 42 | 6 | 3,348 | 2.13 | 8.1 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 462 | 68 | 462 | 68 | 30,142 | 2.10 | 8.2 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 462 | 68 | 22,494 | 2.01 | 8.6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - RI | 470 | 80 | 470 | 80 | 25,646 | 1.79 | 9.6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 470 | 80 | 20,004 | 1.76 | 9.8 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 82 | 11 | 82 | 11 | 5,827 | 1.95 | 8.8 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 82 | 11 | 5,000 | 2.04 | 8.4 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - RI | 45 | 6 | 45 | 6 | 3,407 | 2.11 | 8.1 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 45 | 6 | 2,803 | 2.17 | 7.9 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 34 | 5 | 34 | 5 | 3,984 | 2.56 | 6.7 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 34 | 5 | 3,947 | 2.59 | 6.6 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 3,572 | 3.32 | 5.2 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 32 | 6 | 3,459 | 3.32 | 5.2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 5 | 0 | 5 | 0 | 924 | 2.78 | 6.2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 5 | 0 | 907 | 2.80 | 6.2 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - RI | 33 | 0 | 33 | 0 | 7,624 | 5.48 | 3.1 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 33 | 0 | 7,340 | 5.45 | 3.2 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - RI | 8 | 0 | 8 | 0 | 1,828 | 5.35 | 3.2 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 8 | 0 | 1,762 | 5.32 | 3.2 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - RI | 15 | 20 | 15 | 20 | 3,926 | 6.17 | 2.8 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 15 | 20 | 2,011 | 4.70 | 3.7 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - RI | 16 | 21 | 16 | 21 | 3,847 | 4.21 | 4.1 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 16 | 21 | 3,672 | 4.16 | 4.1 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - RI | 161 | 0 | 161 | 0 | 30,899 | 3.69 | 4.7 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 161 | 0 | 29,749 | 3.67 | 4.7 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 232 | 0 | 232 | 0 | 37,921 | 2.98 | 5.8 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 232 | 0 | 36,477 | 2.97 | 5.8 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - RI | 12 | 6 | 12 | 6 | 1,040 | 1.68 | 10.3 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 12 | 6 | 1,108 | 1.92 | 9.0 |
| Heating | 39 | SHOP-HVY - BD005 | Unit Heaters | Radiant Heat - RI | 19 | 10 | 19 | 10 | 1,621 | 1.63 | 10.5 |
| Heating | 39 | SHOP-HVY - BD005 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 19 | 10 | 1,778 | 1.89 | 9.1 |
| HVAC | MT-3 | | Heat pump | 2-speed compressor - RI | 1,132 | 1,418 | 1,132 | 1,418 | 328,228 | 2.36 | 7.3 |
| HVAC | MT-4 | | Heat pump | Economizer cooling - RI | 1,469 | 2,730 | 1,469 | 2,730 | -132,193 | 0.76 | 22.6 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback - RI | 7,583 | 101 | 7,583 | 101 | 909,248 | 46.28 | 0.4 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback - RI | 275 | 5 | 275 | 5 | 35,968 | 35.63 | 0.5 |
| HVAC | 3 | Clinic | Programmable T-Stat | Night Setback - RI | 645 | 28 | 645 | 28 | 112,544 | 55.18 | 0.3 |
| HVAC | 4 | Comcatn | Programmable T-Stat | Night Setback - RI | 964 | 24 | 964 | 24 | 136,424 | 66.68 | 0.3 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 555 | 20 | 555 | 20 | 91,366 | 24.99 | 0.7 |
| HVAC | 6 | MtrPool | Programmable T-Stat | Night Setback - RI | 3,439 | 46 | 3,439 | 46 | 419,076 | 152.64 | 0.1 |
| HVAC | 7 | Shop-Elc | Programmable T-Stat | Night Setback - RI | 52 | 4 | 52 | 4 | 10,946 | 8.90 | 1.9 |
| HVAC | 8 | Traing | Programmable T-Stat | Night Setback - RI | 413 | 44 | 413 | 44 | 114,454 | 20.45 | 0.8 |
| Lighting | DLC-3a | Conference | Existing Lighting | Existing + Daylighting Controls - RI | 95 | NA | 95 | NA | 45,443 | 35.62 | 0.5 |
| Lighting | DLC-3b | Conference | T8 Lighting | T8 + Daylighting Controls - RI | 64 | NA | 64 | NA | 32,210 | 25.04 | 0.7 |
| Lighting | OS-3a | Conference | Existing Lighting | Existing + Occupancy Controls - RI | 370 | NA | 370 | NA | 178,297 | 44.14 | 0.4 |
| Lighting | OS-3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 248 | NA | 248 | NA | 126,608 | 31.63 | 0.5 |
| Lighting | DLC-5a | Copy Room | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-5b | Copy Room | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-5a | Copy Room | Existing Lighting | Existing + Occupancy Controls - RI | 74 | NA | 74 | NA | 32,748 | 9.44 | 1.8 |
| Lighting | OS-5b | Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 50 | NA | 50 | NA | 22,140 | 6.40 | 2.7 |
| Lighting | DLC-7a | Hallway | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-7b | Hallway | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-7a | Hallway | Existing Lighting | Existing + Occupancy Controls - RI | 1,366 | NA | 1,366 | NA | 660,755 | 58.50 | 0.3 |
| Lighting | OS-7b | Hallway | T8 Lighting | T8 + Occupancy Controls - RI | 915 | NA | 915 | NA | 469,897 | 41.89 | 0.4 |
| Lighting | DLC-8a | Highbay | Existing Lighting | Existing + Daylighting Controls - RI | 1,693 | NA | 1,693 | NA | 833,563 | 153.28 | 0.1 |
| Lighting | DLC-8b | Highbay | T8 Lighting | T8 + Daylighting Controls - RI | 1,134 | NA | 1,134 | NA | 599,101 | 110.44 | 0.2 |
| Lighting | OS-8a | Highbay | Existing Lighting | Existing + Occupancy Controls - RI | 3,077 | NA | 3,077 | NA | 1,510,876 | 131.34 | 0.1 |
| Lighting | OS-8b | Highbay | T8 Lighting | T8 + Occupancy Controls - RI | 2,062 | NA | 2,062 | NA | 1,082,188 | 94.36 | 0.2 |
| Lighting | DLC-2a | Large Office/Room | Existing Lighting | Existing + Daylighting Controls - RI | 1,444 | NA | 1,444 | NA | 709,929 | 40.77 | 0.4 |
| Lighting | DLC-2b | Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 968 | NA | 968 | NA | 514,454 | 29.82 | 0.6 |
| Lighting | OS-2a | Large Office/Room | Existing Lighting | Existing + Occupancy Controls - RI | 1,642 | NA | 1,642 | NA | 784,568 | 25.91 | 0.7 |
| Lighting | OS-2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 1,100 | NA | 1,100 | NA | 554,005 | 16.68 | 1.0 |
| Lighting | DLC-4a | Lunchroom | Existing Lighting | Existing + Daylighting Controls - RI | 98 | NA | 98 | NA | 47,274 | 42.45 | 0.4 |
| Lighting | DLC-4b | Lunchroom | T8 Lighting | T8 + Daylighting Controls - RI | 66 | NA | 66 | NA | 33,641 | 28.74 | 0.6 |
| Lighting | OS-4a | Lunchroom | Existing Lighting | Existing + Occupancy Controls - RI | 918 | NA | 918 | NA | 442,991 | 44.95 | 0.4 |
| Lighting | OS-4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 615 | NA | 615 | NA | 315,071 | 32.26 | 0.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lighting | DLC-MT-3a | MT Conference | Existing Lighting | Existing + Daylighting Controls - RI | 57 | NA | 57 | NA | 26,892 | 21.48 | 0.8 |
| Lighting | DLC-MT-3b | MT Conference | T8 Lighting | T8 + Daylighting Controls - RI | 38 | NA | 38 | NA | 18,925 | 15.13 | 1.1 |
| Lighting | OS-MT-3a | MT Conference | Existing Lighting | Existing + Occupancy Controls - RI | 220 | NA | 220 | NA | 104,090 | 26.19 | 0.7 |
| Lighting | OS-MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 147 | NA | 147 | NA | 72,901 | 16.83 | 1.0 |
| Lighting | DLC-MT-5a | MT Copy Room | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-MT-5b | MT Copy Room | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-MT-5a | MT Copy Room | Existing Lighting | Existing + Occupancy Controls - RI | 45 | NA | 45 | NA | 18,021 | 5.35 | 3.2 |
| Lighting | OS-MT-5b | MT Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 30 | NA | 30 | NA | 11,615 | 3.72 | 4.6 |
| Lighting | DLC-MT-7a | MT Hallway | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-MT-7b | MT Hallway | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-MT-7a | MT Hallway | Existing Lighting | Existing + Occupancy Controls - RI | -405 | NA | -405 | NA | -219,157 | -9.97 | NA |
| Lighting | OS-MT-7b | MT Hallway | T8 Lighting | T8 + Occupancy Controls - RI | -271 | NA | -271 | NA | 161,433 | 7.59 | NA |
| Lighting | DLC-MT-8a | MT Highbay | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-MT-8b | MT Highbay | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-MT-8a | MT Highbay | Existing Lighting | Existing + Occupancy Controls - RI | -749 | NA | -749 | NA | 384,410 | -15.61 | NA |
| Lighting | OS-MT-8b | MT Highbay | T8 Lighting | T8 + Occupancy Controls - RI | -502 | NA | -502 | NA | -276,114 | -12.16 | NA |
| Lighting | DLC-MT-2a | MT Large Office/Room | Existing Lighting | Existing + Daylighting Controls - RI | 296 | NA | 296 | NA | 145,082 | 13.19 | 1.3 |
| Lighting | DLC-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 198 | NA | 198 | NA | 107,946 | 10.07 | 1.7 |
| Lighting | OS-MT-2a | MT Large Office/Room | Existing Lighting | Existing + Occupancy Controls - RI | -25 | NA | -25 | NA | -19,660 | -0.10 | NA |
| Lighting | OS-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | -17 | NA | -17 | NA | -13,371 | 0.04 | 438.2 |
| Lighting | DLC-MT-4a | MT Lunchroom | Existing Lighting | Existing + Daylighting Controls - RI | 14 | NA | 14 | NA | 5,838 | 6.12 | 2.8 |
| Lighting | DLC-MT-4b | MT Lunchroom | T8 Lighting | T8 + Daylighting Controls - RI | 9 | NA | 9 | NA | 3,968 | 4.27 | 4.0 |
| Lighting | OS-MT-4a | MT Lunchroom | Existing Lighting | Existing + Occupancy Controls - RI | 76 | NA | 76 | NA | 24,976 | 2.82 | 6.1 |
| Lighting | OS-MT-4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 51 | NA | 51 | NA | 14,477 | 2.04 | 8.5 |
| Lighting | DLC-MT-6a | MT Restroom | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-MT-6b | MT Restroom | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-MT-6a | MT Restroom | Existing Lighting | Existing + Occupancy Controls - RI | 9 | NA | 9 | NA | -21,279 | 0.21 | 81.4 |
| Lighting | OS-MT-6b | MT Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 6 | NA | 6 | NA | -22,138 | 0.18 | 95.3 |
| Lighting | DLC-MT-1a | MT Small Office | Existing Lighting | Existing + Daylighting Controls - RI | -10 | NA | -10 | NA | -13,790 | 0.51 | 33.9 |
| Lighting | DLC-MT-1b | MT Small Office | T8 Lighting | T8 + Daylighting Controls - RI | -7 | NA | -7 | NA | -7,138 | 0.76 | 22.6 |
| Lighting | OS-MT-1a | MT Small Office | Existing Lighting | Existing + Occupancy Controls - RI | -1,125 | NA | -1,125 | NA | -652,022 | -4.62 | NA |
| Lighting | OS-MT-1b | MT Small Office | T8 Lighting | T8 + Occupancy Controls - RI | -754 | NA | -754 | NA | -485,464 | -3.31 | NA |
| Lighting | DLC-6a | Restroom | Existing Lighting | Existing + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | DLC-6b | Restroom | T8 Lighting | T8 + Daylighting Controls - RI | 0 | NA | 0 | NA | 0 | NA | NA |
| Lighting | OS-6a | Restroom | Existing Lighting | Existing + Occupancy Controls - RI | 457 | NA | 457 | NA | 203,416 | 9.82 | 1.8 |
| Lighting | OS-6b | Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 307 | NA | 307 | NA | 138,582 | 6.68 | 2.6 |
| Lighting | DLC-1a | Small Office | Existing Lighting | Existing + Daylighting Controls - RI | 400 | NA | 400 | NA | 183,610 | 5.36 | 3.2 |
| Lighting | DLC-1b | Small Office | T8 Lighting | T8 + Daylighting Controls - RI | 268 | NA | 268 | NA | 135,586 | 4.01 | 4.3 |
| Lighting | OS-1a | Small Office | Existing Lighting | Existing + Occupancy Controls - RI | -433 | NA | -433 | NA | -305,450 | -1.78 | NA |
| Lighting | OS-1b | Small Office | T8 Lighting | T8 + Occupancy Controls - RI | -290 | NA | -290 | NA | -237,568 | -1.19 | NA |
| Motors | MT-2 | | Fan motor | 2-speed fan motor - RI | 248 | 0 | 248 | 0 | -28,902 | 0.60 | 28.9 |
| Motors | MTR-97 | 01315 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-97 | 01315 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - ROF | 0 | 0 | 6 | 8 | 1,707 | 2.68 | 6.4 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,462 | 3.79 | 4.5 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 60 | 1.14 | 15.2 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 232 | 1.45 | 11.9 |
| Motors | MTR-100 | ADMIN - 00157 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| Motors | MTR-100 | ADMIN - 00157 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-102 | ADMIN - 00236 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -878 | 0.20 | 84.7 |
| Motors | MTR-102 | ADMIN - 00236 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -1,307 | 0.01 | 1,387.3 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM - ROF | 0 | 0 | 8 | 11 | 3,252 | 3.12 | 5.5 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM - RI | 9 | 13 | 9 | 13 | 4,669 | 3.82 | 4.5 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,220 | 3.12 | 5.5 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,751 | 3.82 | 4.5 |
| Motors | MTR-51a | ADMIN - 00243 | COOL | EEM - ROF | 0 | 0 | 0 | 0 | -321 | 0.13 | 136.9 |
| Motors | MTR-51a | ADMIN - 00243 | COOL | EEM - RI | 0 | 0 | 0 | 0 | -488 | -0.11 | NA |
| Motors | MTR-51b | ADMIN - 00243 | COOL | VSD to Std - ROF | 0 | 0 | 1 | 0 | -3,110 | -0.03 | NA |
| Motors | MTR-51b | ADMIN - 00243 | COOL | VSD to Std - RI | 1 | 0 | 1 | 0 | -4,784 | -0.28 | NA |
| Motors | MTR-51c | ADMIN - 00243 | COOL | VSD & EEM - ROF | 0 | 0 | 1 | 0 | -3,175 | -0.00 | NA |
| Motors | MTR-51c | ADMIN - 00243 | COOL | VSD & EEM - RI | 1 | 0 | 1 | 0 | -4,829 | -0.24 | NA |
| Motors | MTR-106 | ADMIN - 00248 | EVAP | EEM - ROF | 0 | 0 | 1 | 2 | -734 | 0.41 | 41.7 |
| Motors | MTR-106 | ADMIN - 00248 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -988 | 0.34 | 51.3 |
| Motors | MTR-107 | ADMIN - 00256 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,523 | 0.20 | 87.8 |
| Motors | MTR-107 | ADMIN - 00256 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -2,135 | 0.03 | 541.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-108 | ADMIN - 00257 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,523 | 0.20 | 87.8 |
| Motors | MTR-108 | ADMIN - 00257 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -2,135 | 0.03 | 541.9 |
| Motors | MTR-109 | ADMIN - 00279 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 1,259 | 0.41 | 41.6 |
| Motors | MTR-109 | ADMIN - 00279 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | 1,615 | 0.35 | 40.4 |
| Motors | MTR-110 | ADMIN - 00281 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -259 | 0.42 | 41.5 |
| Motors | MTR-110 | ADMIN - 00281 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 316 | 0.36 | 47.5 |
| Motors | MTR-111 | ADMIN - 00281 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 55 | 0.88 | 19.6 |
| Motors | MTR-111 | ADMIN - 00281 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 50 | 1.10 | 15.7 |
| Motors | MTR-418a | ADMIN - 00281 | Fan Motor | EEM - ROF | 0 | 0 | 0 | 1 | -219 | 0.39 | 44.0 |
| Motors | MTR-418a | ADMIN - 00281 | Fan Motor | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-418b | ADMIN - 00281 | Fan Motor | VSD to Std - ROF | 0 | 0 | 4 | -0 | -3,457 | 0.15 | 114.3 |
| Motors | MTR-418b | ADMIN - 00281 | Fan Motor | VSD to Std - RI | 4 | -0 | 4 | -0 | 5,289 | -0.05 | NA |
| Motors | MTR-418c | ADMIN - 00281 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 4 | 1 | 3,415 | 0.18 | 94.6 |
| Motors | MTR-418c | ADMIN - 00281 | Fan Motor | VSD & EEM - RI | 4 | 1 | 4 | 1 | -5,174 | -0.01 | NA |
| Motors | PMTR-8a | ADMIN - 00281 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -284 | 0.23 | 75.7 |
| Motors | PMTR-8a | ADMIN - 00281 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -419 | 0.05 | 346.4 |
| Motors | PMTR-8b | ADMIN - 00281 | PMPMTR | VSD to Std - ROF | 0 | 0 | 3 | -0 | -545 | 0.53 | 32.3 |
| Motors | PMTR-8b | ADMIN - 00281 | PMPMTR | VSD to Std - RI | 3 | 0 | 3 | 0 | -760 | 0.47 | 36.6 |
| Motors | PMTR-8c | ADMIN - 00281 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 3 | 1 | -584 | 0.55 | 31.2 |
| Motors | PMTR-8c | ADMIN - 00281 | PMPMTR | VSD & EEM - RI | 3 | 1 | 3 | 1 | -764 | 0.52 | 33.1 |
| Motors | PMTR-9a | ADMIN - 00281 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -284 | 0.23 | 75.7 |
| Motors | PMTR-9a | ADMIN - 00281 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -419 | 0.05 | 346.4 |
| Motors | PMTR-9b | ADMIN - 00281 | PMPMTR | VSD to Std - ROF | 0 | 0 | 3 | -0 | -545 | 0.53 | 32.3 |
| Motors | PMTR-9b | ADMIN - 00281 | PMPMTR | VSD to Std - RI | 3 | 0 | 3 | 0 | -760 | 0.47 | 36.6 |
| Motors | PMTR-9c | ADMIN - 00281 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 3 | 1 | -584 | 0.55 | 31.2 |
| Motors | PMTR-9c | ADMIN - 00281 | PMPMTR | VSD & EEM - RI | 3 | 1 | 3 | 1 | 764 | 0.52 | 33.1 |
| Motors | MTR-112 | ADMIN - 00320 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-112 | ADMIN - 00320 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-116 | ADMIN - 00408 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-116 | ADMIN - 00408 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-117 | ADMIN - 00411 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -464 | 0.35 | 48.6 |
| Motors | MTR-117 | ADMIN - 00411 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -650 | 0.24 | 72.0 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-122 | ADMIN - 00429 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-122 | ADMIN - 00429 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 317 | 3.10 | 5.6 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - RI | 1 | 2 | 1 | 2 | 514 | 3.75 | 4.6 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,317 | 3.23 | 5.3 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,756 | 3.83 | 4.5 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-126 | ADMIN - 00437 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-126 | ADMIN - 00437 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 317 | 3.10 | 5.6 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - RI | 1 | 2 | 1 | 2 | 514 | 3.75 | 4.6 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-129 | ADMIN - 00442 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -503 | 0.36 | 47.7 |
| Motors | MTR-129 | ADMIN - 00442 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -600 | 0.30 | 58.0 |
| Motors | MTR-130 | ADMIN - 00443 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-130 | ADMIN - 00443 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-131 | ADMIN - 00443 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-131 | ADMIN - 00443 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-132 | ADMIN - 00444 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-132 | ADMIN - 00444 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-134 | ADMIN - 00451 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-134 | ADMIN - 00451 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - ROF | 0 | 0 | 6 | 8 | 2,066 | 2.91 | 5.9 |
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,481 | 3.80 | 4.5 |
| Motors | MTR-136 | ADMIN - 00452 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| Motors | MTR-136 | ADMIN - 00452 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-143 | ADMIN - 00466 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -586 | 0.20 | 84.7 |
| Motors | MTR-143 | ADMIN - 00466 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -871 | 0.01 | 1,387.3 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - ROF | 0 | 0 | 6 | 8 | 2,635 | 3.23 | 5.3 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,513 | 3.83 | 4.5 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-167 | ADMIN - 00549 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-167 | ADMIN - 00549 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-168 | ADMIN - 00551 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-168 | ADMIN - 00551 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-173 | ADMIN - 00579 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-173 | ADMIN - 00579 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-174 | ADMIN - 00580 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-174 | ADMIN - 00580 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-175 | ADMIN - 00583 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-175 | ADMIN - 00583 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-177 | ADMIN - 00604 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-177 | ADMIN - 00604 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-178 | ADMIN - 00813 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -586 | 0.20 | 84.7 |
| Motors | MTR-178 | ADMIN - 00813 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -871 | 0.01 | 1,387.3 |
| Motors | MTR-52a | ADMIN - 00828 | COOL | EEM - ROF | 0 | 0 | 0 | 0 | -321 | 0.13 | 136.9 |
| Motors | MTR-52a | ADMIN - 00828 | COOL | EEM - RI | 0 | 0 | 0 | 0 | -488 | -0.11 | NA |
| Motors | MTR-52b | ADMIN - 00828 | COOL | VSD to Std - ROF | 0 | 0 | 1 | 0 | -3,110 | -0.03 | NA |
| Motors | MTR-52b | ADMIN - 00828 | COOL | VSD to Std - RI | 1 | 0 | 1 | 0 | -4,784 | -0.28 | NA |
| Motors | MTR-52c | ADMIN - 00828 | COOL | VSD & EEM - ROF | 0 | 0 | 1 | 0 | -3,175 | -0.00 | NA |
| Motors | MTR-52c | ADMIN - 00828 | COOL | VSD & EEM - RI | 1 | 0 | 1 | 0 | -4,829 | -0.24 | NA |
| Motors | MTR-179 | ADMIN - 00930 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -747 | 0.38 | 45.3 |
| Motors | MTR-179 | ADMIN - 00930 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -847 | 0.34 | 50.8 |
| Motors | MTR-180 | ADMIN - 00930 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-180 | ADMIN - 00930 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM - ROF | 0 | 0 | 2 | 3 | 360 | 3.00 | 5.7 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM - RI | 2 | 3 | 2 | 3 | 605 | 3.92 | 4.4 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM - ROF | 0 | 0 | 3 | 6 | 720 | 3.00 | 5.7 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM - RI | 4 | 6 | 4 | 6 | 1,211 | 3.92 | 4.4 |
| Motors | PMTR-7a | ADMIN - 00985 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 3 | 120 | 1.14 | 15.2 |
| Motors | PMTR-7a | ADMIN - 00985 | PMPMTR | EEM - RI | 3 | 4 | 3 | 4 | 464 | 1.45 | 11.9 |
| Motors | PMTR-7b | ADMIN - 00985 | PMPMTR | VSD to Std - ROF | 0 | 0 | 25 | 1 | 4,595 | 2.48 | 6.9 |
| Motors | PMTR-7b | ADMIN - 00985 | PMPMTR | VSD to Std - RI | 26 | 0 | 26 | 0 | 7,676 | 3.06 | 5.6 |
| Motors | PMTR-7c | ADMIN - 00985 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 26 | 3 | 5,302 | 2.63 | 6.6 |
| Motors | PMTR-7c | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 27 | 4 | 27 | 4 | 8,900 | 3.31 | 5.2 |
| Motors | MTR-1 | ADMIN - 00988 | AIRCOMP | EEM - ROF | 0 | 0 | 0 | 1 | -238 | 0.34 | 51.1 |
| Motors | MTR-1 | ADMIN - 00988 | AIRCOMP | EEM - RI | 0 | 1 | 0 | 1 | -336 | 0.21 | 81.0 |
| Motors | MTR-181 | ADMIN - 00988 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 282 | 2.69 | 6.4 |
| Motors | MTR-181 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3.47 | 5.0 |
| Motors | MTR-182 | ADMIN - 00988 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-182 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-183 | ADMIN - 00988 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 453 | 3.36 | 5.1 |
| Motors | MTR-183 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 499 | 3.60 | 4.8 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | 565 | 2.69 | 6.4 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 950 | 3.47 | 5.0 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-421b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | 1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-421b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-421c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-421c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-422b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | 1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-422b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-422c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-422c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 7 | 258 | 1.22 | 14.1 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - RI | 4 | 11 | 4 | 11 | 842 | 1.63 | 10.6 |
| Motors | MTR-423b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 37 | -1 | -25,592 | 0.22 | 79.6 |
| Motors | MTR-423b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 39 | 0 | 39 | 0 | -39,283 | 0.02 | 697.0 |
| Motors | MTR-423c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 38 | 7 | -24,415 | 0.26 | 67.2 |
| Motors | MTR-423c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 40 | 11 | 40 | 11 | -37,287 | 0.08 | 224.6 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 325 | 2.94 | 5.9 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 544 | 3.83 | 4.5 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-425b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | -1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-425b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-425c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-425c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-426b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | -1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-426b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-426c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-426c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-427a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 0 | 1 | -219 | 0.39 | 44.0 |
| Motors | MTR-427a | ADMIN - 00988 | Fan Motor | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-427b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 4 | -0 | -3,457 | 0.15 | 114.3 |
| Motors | MTR-427b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 4 | -0 | 4 | -0 | -5,289 | -0.05 | NA |
| Motors | MTR-427c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 4 | 1 | -3,415 | 0.18 | 94.6 |
| Motors | MTR-427c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 4 | 1 | 4 | 1 | -5,174 | -0.01 | NA |
| Motors | MTR-428 | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 24 | 10 | 3,623 | 2.83 | 6.1 |
| Motors | MTR-428 | ADMIN - 00988 | Fan Motor | EEM - RI | 34 | 14 | 34 | 14 | 6,930 | 4.05 | 4.2 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-429b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | -1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-429b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-429c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-429c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | -3 | 0.99 | 17.4 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1.20 | 14.3 |
| Motors | MTR-430b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | -1 | -5,838 | 0.19 | 90.8 |
| Motors | MTR-430b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8 | -0 | 8 | -0 | -8,954 | -0.01 | NA |
| Motors | MTR-430c | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -5,598 | 0.23 | 73.4 |
| Motors | MTR-430c | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 8 | 3 | 8 | 3 | -8,514 | 0.05 | 324.5 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - ROF | 0 | 0 | 5 | 14 | 1,949 | 2.94 | 5.9 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - RI | 6 | 16 | 6 | 16 | 3,265 | 3.83 | 4.5 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 22 | 1.05 | 16.4 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1.45 | 11.9 |
| Motors | MTR-53b | ADMIN - 00988 | COOL | VSD to Std - ROF | 0 | 0 | 13 | -1 | -7,599 | 0.28 | 62.4 |
| Motors | MTR-53b | ADMIN - 00988 | COOL | VSD to Std - RI | 13 | 0 | 13 | 0 | -13,456 | 0.02 | 773.6 |
| Motors | MTR-53c | ADMIN - 00988 | COOL | VSD & EEM - ROF | 0 | 0 | 13 | 1 | -7,302 | 0.31 | 55.6 |
| Motors | MTR-53c | ADMIN - 00988 | COOL | VSD & EEM - RI | 14 | 2 | 14 | 2 | -12,843 | 0.07 | 241.8 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 22 | 1.05 | 16.4 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1.45 | 11.9 |
| Motors | MTR-54b | ADMIN - 00988 | COOL | VSD to Std - ROF | 0 | 0 | 13 | -1 | -7,599 | 0.28 | 62.4 |
| Motors | MTR-54b | ADMIN - 00988 | COOL | VSD to Std - RI | 13 | 0 | 13 | 0 | -13,456 | 0.02 | 773.6 |
| Motors | MTR-54c | ADMIN - 00988 | COOL | VSD & EEM - ROF | 0 | 0 | 13 | 1 | -7,302 | 0.31 | 55.6 |
| Motors | MTR-54c | ADMIN - 00988 | COOL | VSD & EEM - RI | 14 | 2 | 14 | 2 | -12,843 | 0.07 | 241.8 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 22 | 1.05 | 16.4 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1.45 | 11.9 |
| Motors | MTR-55b | ADMIN - 00988 | COOL | VSD to Std - ROF | 0 | 0 | 13 | -1 | -7,599 | 0.28 | 62.4 |
| Motors | MTR-55b | ADMIN - 00988 | COOL | VSD to Std - RI | 13 | 0 | 13 | 0 | -13,456 | 0.02 | 773.6 |
| Motors | MTR-55c | ADMIN - 00988 | COOL | VSD & EEM - ROF | 0 | 0 | 13 | 1 | -7,302 | 0.31 | 55.6 |
| Motors | MTR-55c | ADMIN - 00988 | COOL | VSD & EEM - RI | 14 | 2 | 14 | 2 | -12,843 | 0.07 | 241.8 |
| Motors | PMTR-1a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| Motors | PMTR-1a | ADMIN - 00988 | PMPMTR | EEM - RI | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |
| Motors | PMTR-1b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 3 | -0 | -1,004 | 0.36 | 47.7 |
| Motors | PMTR-1b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 3 | 0 | 3 | 0 | -1,481 | 0.23 | 73.5 |
| Motors | PMTR-1c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 3 | 0 | -1,057 | 0.38 | 45.2 |
| Motors | PMTR-1c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 3 | 0 | 3 | 0 | -1,507 | 0.28 | 61.6 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 523 | 2.32 | 7.4 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 920 | 3.03 | 5.7 |
| Motors | PMTR-2b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 8 | -0 | -585 | 0.79 | 21.7 |
| Motors | PMTR-2b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 9 | -0 | 9 | -0 | -730 | 0.79 | 21.8 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-2c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 9 | 2 | -54 | 0.98 | 17.5 |
| Motors | PMTR-2c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 0 | 3 | 9 | 3 | 160 | 1.04 | 16.5 |
| Motors | PMTR-3a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 3 | 613 | 2.38 | 7.3 |
| Motors | PMTR-3a | ADMIN - 00988 | PMPMTR | EEM - RI | 2 | 4 | 2 | 4 | 1,107 | 3.16 | 5.4 |
| Motors | PMTR-3b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 13 | -1 | -179 | 0.95 | 18.1 |
| Motors | PMTR-3b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 14 | 0 | 14 | 0 | -17 | 1.00 | 17.3 |
| Motors | PMTR-3c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 14 | 3 | 509 | 1.13 | 15.3 |
| Motors | PMTR-3c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 15 | 4 | 15 | 4 | 1,112 | 1.23 | 14.0 |
| Motors | PMTR-4a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 523 | 2.32 | 7.4 |
| Motors | PMTR-4a | ADMIN - 00988 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 920 | 3.03 | 5.7 |
| Motors | PMTR-4b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 8 | -0 | 904 | 1.68 | 10.3 |
| Motors | PMTR-4b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 9 | -0 | 9 | -0 | 1,740 | 1.97 | 8.7 |
| Motors | PMTR-4c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 9 | 2 | 1,526 | 1.97 | 8.8 |
| Motors | PMTR-4c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 0 | 3 | 9 | 3 | 2,630 | 2.39 | 7.2 |
| Motors | PMTR-5a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 161 | 1.23 | 14.0 |
| Motors | PMTR-5a | ADMIN - 00988 | PMPMTR | EEM - RI | 2 | 4 | 2 | 4 | 526 | 1.66 | 10.4 |
| Motors | PMTR-5b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 25 | -1 | 5,352 | 3.31 | 5.2 |
| Motors | PMTR-5b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 26 | -0 | 26 | -0 | 8,787 | 4.19 | 4.1 |
| Motors | PMTR-5c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 26 | 2 | 5,913 | 3.34 | 5.2 |
| Motors | PMTR-5c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 26 | 4 | 26 | 4 | 9,792 | 4.31 | 4.0 |
| Motors | PMTR-6a | ADMIN - 00988 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 6 | 1,310 | 2.16 | 8.0 |
| Motors | PMTR-6a | ADMIN - 00988 | PMPMTR | EEM - RI | 6 | 0 | 6 | 0 | 2,571 | 3.01 | 5.7 |
| Motors | PMTR-6b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 0 | 0 | 50 | -2 | 11,666 | 3.99 | 4.3 |
| Motors | PMTR-6b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 51 | -0 | 51 | -0 | 19,090 | 5.14 | 3.4 |
| Motors | PMTR-6c | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 52 | 6 | 13,487 | 4.35 | 4.0 |
| Motors | PMTR-6c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 53 | 9 | 53 | 9 | 22,062 | 5.74 | 3.0 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 569 | 2.68 | 6.4 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,154 | 3.79 | 4.5 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 410 | 3.35 | 5.1 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 748 | 4.61 | 3.7 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 448 | 3.49 | 4.9 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | PMTR-11a | BRK/ADM - 00099 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -294 | 0.32 | 54.5 |
| Motors | PMTR-11a | BRK/ADM - 00099 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -394 | 0.21 | 83.9 |
| Motors | PMTR-11b | BRK/ADM - 00099 | PMPMTR | VSD to Std - ROF | 0 | 0 | 4 | -0 | -1,530 | 0.32 | 53.4 |
| Motors | PMTR-11b | BRK/ADM - 00099 | PMPMTR | VSD to Std - RI | 4 | 0 | 4 | 0 | -2,136 | 0.21 | 83.0 |
| Motors | PMTR-11c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 4 | 1 | -1,525 | 0.37 | 46.6 |
| Motors | PMTR-11c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - RI | 4 | 1 | 4 | 1 | -2,069 | 0.28 | 61.8 |
| Motors | PMTR-14a | BRK/ADM - 00099 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -284 | 0.32 | 54.1 |
| Motors | PMTR-14a | BRK/ADM - 00099 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -402 | 0.19 | 91.0 |
| Motors | PMTR-14b | BRK/ADM - 00099 | PMPMTR | VSD to Std - ROF | 0 | 0 | 4 | -0 | -1,446 | 0.34 | 50.7 |
| Motors | PMTR-14b | BRK/ADM - 00099 | PMPMTR | VSD to Std - RI | 4 | 0 | 4 | 0 | -2,144 | 0.20 | 84.2 |
| Motors | PMTR-14c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 4 | 1 | -1,447 | 0.38 | 45.0 |
| Motors | PMTR-14c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - RI | 4 | 1 | 4 | 1 | -2,077 | 0.28 | 62.4 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 267 | 2.77 | 6.2 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 432 | 3.31 | 5.2 |
| Motors | MTR-190 | BRK/ADM - 00102 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-190 | BRK/ADM - 00102 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-191 | BRK/ADM - 00103 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-191 | BRK/ADM - 00103 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-192 | BRK/ADM - 00104 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-192 | BRK/ADM - 00104 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 609 | 1.25 | 13.8 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1.33 | 13.0 |
| Motors | MTR-56 | BRK/ADM - 00105 | COOL | EEM - ROF | 0 | 0 | 7 | 13 | 1,398 | 1.58 | 10.9 |
| Motors | MTR-56 | BRK/ADM - 00105 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 609 | 1.25 | 13.8 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1.33 | 13.0 |
| Motors | MTR-57 | BRK/ADM - 00106 | COOL | EEM - ROF | 0 | 0 | 7 | 13 | 1,398 | 1.58 | 10.9 |
| Motors | MTR-57 | BRK/ADM - 00106 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 609 | 1.25 | 13.8 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1.33 | 13.0 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM - ROF | 0 | 0 | 7 | 13 | 1,398 | 1.58 | 10.9 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-490 | BRK/ADM - 00108 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 609 | 1.25 | 13.8 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-490 | BRK/ADM - 00108 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1.33 | 13.0 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM - ROF | 0 | 0 | 7 | 13 | 1,398 | 1.58 | 10.9 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM - ROF | 0 | 0 | 19 | 16 | 761 | 1.25 | 13.8 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM - RI | 21 | 18 | 21 | 18 | 1,217 | 1.33 | 13.0 |
| Motors | MTR-60 | BRK/ADM - 00110 | COOL | EEM - ROF | 0 | 0 | 8 | 16 | 1,747 | 1.58 | 10.9 |
| Motors | MTR-60 | BRK/ADM - 00110 | COOL | EEM - RI | 9 | 18 | 9 | 18 | 2,816 | 1.75 | 9.8 |
| Motors | PMTR-10a | BRK/ADM - 00110 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 0 | -312 | 0.15 | 114.1 |
| Motors | PMTR-10a | BRK/ADM - 00110 | PMPMTR | EEM - RI | 0 | 0 | 0 | 0 | -471 | -0.07 | NA |
| Motors | PMTR-10b | BRK/ADM - 00110 | PMPMTR | VSD to Std - ROF | 0 | 0 | 2 | 0 | -1,296 | 0.18 | 98.4 |
| Motors | PMTR-10b | BRK/ADM - 00110 | PMPMTR | VSD to Std - RI | 2 | 0 | 2 | 0 | -1,944 | -0.00 | NA |
| Motors | PMTR-10c | BRK/ADM - 00110 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 2 | 0 | -1,358 | 0.21 | 83.8 |
| Motors | PMTR-10c | BRK/ADM - 00110 | PMPMTR | VSD & EEM - RI | 2 | 0 | 2 | 0 | -1,983 | 0.05 | 324.7 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 263 | 2.74 | 6.3 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 425 | 3.27 | 5.3 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 609 | 1.25 | 13.8 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1.33 | 13.0 |
| Motors | MTR-61 | BRK/ADM - 00111 | COOL | EEM - ROF | 0 | 0 | 7 | 13 | 1,398 | 1.58 | 10.9 |
| Motors | MTR-61 | BRK/ADM - 00111 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - ROF | 0 | 0 | 31 | 60 | 6,552 | 1.58 | 10.9 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,559 | 1.75 | 9.8 |
| Motors | MTR-63 | BRK/ADM - 00226 | COOL | EEM - ROF | 0 | 0 | 3 | 6 | 533 | 1.52 | 11.3 |
| Motors | MTR-63 | BRK/ADM - 00226 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 958 | 1.73 | 9.9 |
| Motors | MTR-64 | BRK/ADM - 00226 | COOL | EEM - ROF | 0 | 0 | 1 | 2 | 152 | 1.52 | 11.3 |
| Motors | MTR-64 | BRK/ADM - 00226 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-194 | BRK/ADM - 00249 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 448 | 3.49 | 4.9 |
| Motors | MTR-194 | BRK/ADM - 00249 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 28 | 23 | 1,103 | 1.25 | 13.8 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,765 | 1.33 | 13.0 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-497 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-497 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 4 | 3 | 183 | 1.29 | 13.3 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12.8 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 730 | 1.29 | 13.3 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1.35 | 12.8 |
| Motors | MTR-195 | BRK/ADM - 00250 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-195 | BRK/ADM - 00250 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-196 | BRK/ADM - 00250 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-196 | BRK/ADM - 00250 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-500 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-500 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-501 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-501 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-502 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 730 | 1.29 | 13.3 |
| Motors | MTR-502 | BRK/ADM - 00250 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1.35 | 12.8 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 28 | 23 | 1,324 | 1.29 | 13.3 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1.35 | 12.8 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 4 | 3 | 183 | 1.29 | 13.3 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12.8 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-197 | BRK/ADM - 00251 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-197 | BRK/ADM - 00251 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 730 | 1.29 | 13.3 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1.35 | 12.8 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 28 | 23 | 1,324 | 1.29 | 13.3 |
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1.35 | 12.8 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-512 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-512 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - ROF | 0 | 0 | 4 | 3 | 183 | 1.29 | 13.3 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12.8 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 15 | 13 | 730 | 1.29 | 13.3 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1.35 | 12.8 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-517 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-517 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 28 | 23 | 1,324 | 1.29 | 13.3 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1.35 | 12.8 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 46 | 1.29 | 13.3 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - ROF | 0 | 0 | 4 | 3 | 183 | 1.29 | 13.3 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12.8 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-202 | BRK/ADM - 00261 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 486 | 3.62 | 4.8 |
| Motors | MTR-202 | BRK/ADM - 00261 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - ROF | 0 | 0 | 29 | 57 | 3,903 | 1.40 | 12.3 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1.69 | 10.2 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 76 | 1.52 | 11.3 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 137 | 1.73 | 9.9 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-67 | BRK/ADM - 00262 | COOL | EEM - ROF | 0 | 0 | 29 | 57 | 3,903 | 1.40 | 12.3 |
| Motors | MTR-67 | BRK/ADM - 00262 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1.69 | 10.2 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 55 | 1.40 | 12.3 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-206 | BRK/ADM - 00264 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-206 | BRK/ADM - 00264 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 55 | 1.40 | 12.3 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - ROF | 0 | 0 | 29 | 57 | 3,903 | 1.40 | 12.3 |
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1.69 | 10.2 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - ROF | 0 | 0 | 29 | 57 | 3,903 | 1.40 | 12.3 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1.69 | 10.2 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 55 | 1.40 | 12.3 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-210 | BRK/ADM - 00267 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 338 | 3.05 | 5.6 |
| Motors | MTR-210 | BRK/ADM - 00267 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4.61 | 3.7 |
| Motors | MTR-73 | BRK/ADM - 00267 | COOL | EEM - ROF | 0 | 0 | 29 | 57 | 3,903 | 1.40 | 12.3 |
| Motors | MTR-73 | BRK/ADM - 00267 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1.69 | 10.2 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 55 | 1.40 | 12.3 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-432a | BRK/ADM - 00273 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 69 | 1.18 | 14.7 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-432a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 222 | 1.49 | 11.6 |
| Motors | MTR-432b | BRK/ADM - 00273 | Fan Motor | VSD to Std - ROF | 0 | 0 | 11 | -1 | -5,009 | 0.30 | 56.5 |
| Motors | MTR-432b | BRK/ADM - 00273 | Fan Motor | VSD to Std - RI | 12 | -0 | 12 | -0 | -7,631 | 0.14 | 123.2 |
| Motors | MTR-432c | BRK/ADM - 00273 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -4,740 | 0.35 | 48.9 |
| Motors | MTR-432c | BRK/ADM - 00273 | Fan Motor | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,147 | 0.20 | 84.5 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 69 | 1.18 | 14.7 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 222 | 1.49 | 11.6 |
| Motors | MTR-433b | BRK/ADM - 00273 | Fan Motor | VSD to Std - ROF | 0 | 0 | 11 | -1 | -5,009 | 0.30 | 56.5 |
| Motors | MTR-433b | BRK/ADM - 00273 | Fan Motor | VSD to Std - RI | 12 | -0 | 12 | -0 | -7,631 | 0.14 | 123.2 |
| Motors | MTR-433c | BRK/ADM - 00273 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -4,740 | 0.35 | 48.9 |
| Motors | MTR-433c | BRK/ADM - 00273 | Fan Motor | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,147 | 0.20 | 84.5 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - ROF | 0 | 0 | 3 | 6 | 385 | 1.40 | 12.3 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 906 | 1.69 | 10.2 |
| Motors | MTR-76 | BRK/ADM - 00273 | COOL | EEM - ROF | 0 | 0 | 1 | 2 | 152 | 1.52 | 11.3 |
| Motors | MTR-76 | BRK/ADM - 00273 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - ROF | 0 | 0 | 31 | 60 | 5,713 | 1.52 | 11.3 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,267 | 1.73 | 9.9 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | -68 | 0.89 | 19.5 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 59 | 1.09 | 15.8 |
| Motors | PMTR-12b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 0 | 0 | 14 | -1 | -2,285 | 0.58 | 29.7 |
| Motors | PMTR-12b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 14 | -0 | 14 | -0 | -3,260 | 0.51 | 33.8 |
| Motors | PMTR-12c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 14 | 2 | -1,849 | 0.66 | 25.9 |
| Motors | PMTR-12c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 15 | 3 | 15 | 3 | -2,508 | 0.63 | 27.5 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | -1 | 1.00 | 17.2 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 165 | 1.25 | 13.8 |
| Motors | PMTR-13b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 0 | 0 | 14 | -1 | -2,264 | 0.58 | 29.5 |
| Motors | PMTR-13b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 14 | -0 | 14 | -0 | -3,234 | 0.51 | 33.5 |
| Motors | PMTR-13c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 14 | 2 | -1,782 | 0.68 | 25.4 |
| Motors | PMTR-13c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 15 | 3 | 15 | 3 | -2,402 | 0.64 | 26.8 |
| Motors | PMTR-15a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 4 | 169 | 1.18 | 14.6 |
| Motors | PMTR-15a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 3 | 5 | 3 | 5 | 574 | 1.54 | 11.2 |
| Motors | PMTR-15b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 0 | 0 | 27 | -2 | 4,298 | 2.38 | 7.2 |
| Motors | PMTR-15b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 28 | 0 | 28 | 0 | 7,271 | 2.94 | 5.9 |
| Motors | PMTR-15c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 28 | 4 | 5,240 | 2.62 | 6.6 |
| Motors | PMTR-15c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 29 | 5 | 29 | 5 | 8,859 | 3.32 | 5.2 |
| Motors | PMTR-16a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 7 | 338 | 1.18 | 14.6 |
| Motors | PMTR-16a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 6 | 11 | 6 | 11 | 1,148 | 1.54 | 11.2 |
| Motors | PMTR-16b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 0 | 0 | 54 | -4 | 8,596 | 2.38 | 7.2 |
| Motors | PMTR-16b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 56 | 0 | 56 | 0 | 14,542 | 2.94 | 5.9 |
| Motors | PMTR-16c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 56 | 7 | 10,481 | 2.62 | 6.6 |
| Motors | PMTR-16c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 58 | 11 | 58 | 11 | 17,717 | 3.32 | 5.2 |
| Motors | PMTR-17a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 7 | 338 | 1.18 | 14.6 |
| Motors | PMTR-17a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 6 | 11 | 6 | 11 | 1,148 | 1.54 | 11.2 |
| Motors | PMTR-17b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 0 | 0 | 54 | -4 | 8,596 | 2.38 | 7.2 |
| Motors | PMTR-17b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 56 | 0 | 56 | 0 | 14,542 | 2.94 | 5.9 |
| Motors | PMTR-17c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 56 | 7 | 10,481 | 2.62 | 6.6 |
| Motors | PMTR-17c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 58 | 11 | 58 | 11 | 17,717 | 3.32 | 5.2 |
| Motors | PMTR-20 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -226 | 0.37 | 46.6 |
| Motors | PMTR-20 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -314 | 0.26 | 65.2 |
| Motors | PMTR-21 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -289 | 0.21 | 80.6 |
| Motors | PMTR-21 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -428 | 0.03 | 605.2 |
| Motors | PMTR-23 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -226 | 0.37 | 46.6 |
| Motors | PMTR-23 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -314 | 0.26 | 65.2 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 2 | 200 | 2.20 | 7.8 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 251 | 2.31 | 7.5 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | 56 | 1.34 | 12.9 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 107 | 1.56 | 11.0 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 20 | 1.05 | 16.3 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 218 | 1.48 | 11.6 |
| Motors | MTR-434b | BRK/ADM - 00275 | Fan Motor | VSD to Std - ROF | 0 | 0 | 11 | -1 | -4,048 | 0.38 | 44.8 |
| Motors | MTR-434b | BRK/ADM - 00275 | Fan Motor | VSD to Std - RI | 12 | -0 | 12 | -0 | -7,634 | 0.14 | 123.5 |
| Motors | MTR-434c | BRK/ADM - 00275 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -3,849 | 0.42 | 40.7 |
| Motors | MTR-434c | BRK/ADM - 00275 | Fan Motor | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,150 | 0.20 | 84.6 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 2 | 20 | 1.05 | 16.3 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 218 | 1.48 | 11.6 |
| Motors | MTR-435b | BRK/ADM - 00275 | Fan Motor | VSD to Std - ROF | 0 | 0 | 11 | -1 | -4,048 | 0.38 | 44.8 |
| Motors | MTR-435b | BRK/ADM - 00275 | Fan Motor | VSD to Std - RI | 12 | -0 | 12 | -0 | -7,634 | 0.14 | 123.5 |
| Motors | MTR-435c | BRK/ADM - 00275 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -3,849 | 0.42 | 40.7 |
| Motors | MTR-435c | BRK/ADM - 00275 | Fan Motor | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,150 | 0.20 | 84.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-78 | BRK/ADM - 00275 | COOL | EEM - ROF | 0 | 0 | 31 | 60 | 5,713 | 1.52 | 11.3 |
| Motors | MTR-78 | BRK/ADM - 00275 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,267 | 1.73 | 9.9 |
| Motors | MTR-79 | BRK/ADM - 00275 | COOL | EEM - ROF | 0 | 0 | 3 | 6 | 533 | 1.52 | 11.3 |
| Motors | MTR-79 | BRK/ADM - 00275 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 958 | 1.73 | 9.9 |
| Motors | MTR-80 | BRK/ADM - 00275 | COOL | EEM - ROF | 0 | 0 | 1 | 2 | 152 | 1.52 | 11.3 |
| Motors | MTR-80 | BRK/ADM - 00275 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | MTR-211 | BRK/ADM - 00412 | EVAP | EEM - ROF | 0 | 0 | 31 | 31 | 7,427 | 3.05 | 5.6 |
| Motors | MTR-211 | BRK/ADM - 00412 | EVAP | EEM - RI | 36 | 35 | 36 | 35 | 16,435 | 4.61 | 3.7 |
| Motors | MTR-212 | BRK/ADM - 00413 | EVAP | EEM - ROF | 0 | 0 | 6 | 6 | 1,791 | 3.49 | 4.9 |
| Motors | MTR-212 | BRK/ADM - 00413 | EVAP | EEM - RI | 6 | 6 | 6 | 6 | 2,995 | 4.62 | 3.7 |
| Motors | MTR-213 | BRK/ADM - 00414 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-213 | BRK/ADM - 00414 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-214 | BRK/ADM - 00416 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-214 | BRK/ADM - 00416 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-215 | BRK/ADM - 00417 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-215 | BRK/ADM - 00417 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-216 | BRK/ADM - 00418 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-216 | BRK/ADM - 00418 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-217 | BRK/ADM - 00419 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-217 | BRK/ADM - 00419 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-218 | BRK/ADM - 00420 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-218 | BRK/ADM - 00420 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-219 | BRK/ADM - 00421 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-219 | BRK/ADM - 00421 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-220 | BRK/ADM - 00422 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-220 | BRK/ADM - 00422 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-221 | BRK/ADM - 00423 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -818 | 0.43 | 39.9 |
| Motors | MTR-221 | BRK/ADM - 00423 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,094 | 0.36 | 47.9 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-225 | BRK/ADM - 00487 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -204 | 0.43 | 39.9 |
| Motors | MTR-225 | BRK/ADM - 00487 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -273 | 0.36 | 47.9 |
| Motors | MTR-226 | BRK/ADM - 00489 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -197 | 0.42 | 41.1 |
| Motors | MTR-226 | BRK/ADM - 00489 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -286 | 0.33 | 52.3 |
| Motors | MTR-227 | BRK/ADM - 00491 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -197 | 0.42 | 41.1 |
| Motors | MTR-227 | BRK/ADM - 00491 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -286 | 0.33 | 52.3 |
| Motors | MTR-228 | BRK/ADM - 00493 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -197 | 0.42 | 41.1 |
| Motors | MTR-228 | BRK/ADM - 00493 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -286 | 0.33 | 52.3 |
| Motors | MTR-229 | BRK/ADM - 00494 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -197 | 0.42 | 41.1 |
| Motors | MTR-229 | BRK/ADM - 00494 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -286 | 0.33 | 52.3 |
| Motors | PMTR-22 | BRK/ADM - 00494 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -226 | 0.37 | 46.6 |
| Motors | PMTR-22 | BRK/ADM - 00494 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -314 | 0.26 | 65.2 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - ROF | 0 | 0 | 7 | 7 | 1,866 | 3.20 | 5.4 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - RI | 8 | 8 | 8 | 8 | 3,738 | 4.61 | 3.7 |
| Motors | MTR-231 | BRK/ADM - 00512 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-231 | BRK/ADM - 00512 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-235 | BRK/ADM - 00519 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-235 | BRK/ADM - 00519 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -204 | 0.43 | 39.9 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -273 | 0.36 | 47.9 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,239 | 3.20 | 5.4 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,485 | 4.61 | 3.7 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - ROF | 0 | 0 | 9 | 8 | 2,686 | 3.49 | 4.9 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-241 | CHAPEL - 00212 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| | | | | | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| | | | | | 0 | 0 | 1 | 1 | -464 | 0.35 | 48.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-241 | CHAPEL - 00212 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -650 | 0.24 | 72.0 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-243 | CHAPEL - 00315 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -245 | 0.41 | 41.7 |
| Motors | MTR-243 | CHAPEL - 00315 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -329 | 0.34 | 51.3 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EEM - ROF | 0 | 0 | 3 | 12 | 675 | 1.48 | 11.6 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EEM - RI | 5 | 17 | 5 | 17 | 1,593 | 2.00 | 8.6 |
| Motors | MTR-3 | CLINIC - 00171 | AIRCOMP | EEM - ROF | 0 | 0 | 1 | 3 | -312 | 0.58 | 29.9 |
| Motors | MTR-3 | CLINIC - 00171 | AIRCOMP | EEM - RI | 1 | 3 | 1 | 3 | -439 | 0.50 | 34.3 |
| Motors | MTR-40a | CLINIC - 00171 | CONDMTR | EEM - ROF | 0 | 0 | 3 | 5 | -1,368 | 0.37 | 47.1 |
| Motors | MTR-40a | CLINIC - 00171 | CONDMTR | EEM - RI | 4 | 7 | 4 | 7 | -1,903 | 0.26 | 66.9 |
| Motors | MTR-40b | CLINIC - 00171 | CONDMTR | VSD to Std - ROF | 0 | 0 | 27 | -2 | -4,190 | 0.44 | 39.3 |
| Motors | MTR-40b | CLINIC - 00171 | CONDMTR | VSD to Std - RI | 29 | -0 | 29 | -0 | -5,743 | 0.36 | 47.3 |
| Motors | MTR-40c | CLINIC - 00171 | CONDMTR | VSD & EEM - ROF | 0 | 0 | 30 | 5 | -3,814 | 0.53 | 32.6 |
| Motors | MTR-40c | CLINIC - 00171 | CONDMTR | VSD & EEM - RI | 31 | 7 | 31 | 7 | -4,864 | 0.50 | 34.5 |
| Motors | MTR-436a | CLINIC - 00171 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 4 | 435 | 1.74 | 9.9 |
| Motors | MTR-436a | CLINIC - 00171 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 985 | 2.47 | 7.0 |
| Motors | MTR-436b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 0 | 0 | 37 | -2 | -8,092 | 0.50 | 34.1 |
| Motors | MTR-436b | CLINIC - 00171 | Fan Motor | VSD to Std - RI | 39 | 0 | 39 | 0 | -12,153 | 0.39 | 43.7 |
| Motors | MTR-436c | CLINIC - 00171 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 38 | 4 | -7,369 | 0.55 | 31.2 |
| Motors | MTR-436c | CLINIC - 00171 | Fan Motor | VSD & EEM - RI | 40 | 5 | 40 | 5 | -10,951 | 0.46 | 37.8 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM - ROF | 0 | 0 | 9 | 12 | 2,736 | 3.95 | 4.4 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM - RI | 11 | 16 | 11 | 16 | 4,888 | 5.62 | 3.1 |
| Motors | MTR-437b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 0 | 0 | 76 | -4 | -15,042 | 0.53 | 32.4 |
| Motors | MTR-437b | CLINIC - 00171 | Fan Motor | VSD to Std - RI | 79 | -0 | 79 | 0 | -22,537 | 0.43 | 40.2 |
| Motors | MTR-437c | CLINIC - 00171 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 80 | 12 | -12,692 | 0.61 | 28.4 |
| Motors | MTR-437c | CLINIC - 00171 | Fan Motor | VSD & EEM - RI | 82 | 16 | 82 | 16 | -18,784 | 0.52 | 32.8 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM - ROF | 0 | 0 | 6 | 8 | 902 | 1.62 | 10.6 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM - RI | 9 | 14 | 9 | 14 | 2,333 | 2.41 | 7.2 |
| Motors | MTR-438b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 0 | 0 | 120 | -6 | -26,797 | 0.50 | 34.7 |
| Motors | MTR-438b | CLINIC - 00171 | Fan Motor | VSD to Std - RI | 123 | -0 | 123 | -0 | -40,433 | 0.38 | 45.1 |
| Motors | MTR-438c | CLINIC - 00171 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 122 | 8 | -24,971 | 0.53 | 32.3 |
| Motors | MTR-438c | CLINIC - 00171 | Fan Motor | VSD & EEM - RI | 126 | 14 | 126 | 14 | -37,405 | 0.43 | 40.1 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 58 | 1.38 | 12.5 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 93 | 1.50 | 11.5 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM - ROF | 0 | 0 | 5 | 15 | 1,160 | 1.63 | 10.6 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM - RI | 8 | 22 | 8 | 22 | 2,645 | 2.25 | 7.6 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM - ROF | 0 | 0 | 5 | 15 | 1,160 | 1.63 | 10.6 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM - RI | 8 | 22 | 8 | 22 | 2,645 | 2.25 | 7.6 |
| Motors | MTR-244 | CLINIC - 00235 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -780 | 0.22 | 76.6 |
| Motors | MTR-244 | CLINIC - 00235 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -1,378 | -0.04 | NA |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 878 | 3.23 | 5.3 |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - ROF | 0 | 0 | 3 | 3 | 819 | 3.35 | 5.1 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - RI | 3 | 3 | 3 | 3 | 1,496 | 4.61 | 3.7 |
| Motors | MTR-249 | CLUB - 00037 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -204 | 0.43 | 39.9 |
| Motors | MTR-249 | CLUB - 00037 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -273 | 0.36 | 47.9 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 291 | 2.92 | 5.9 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - RI | 2 | 2 | 2 | 2 | 470 | 3.51 | 4.9 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM - ROF | 0 | 0 | 6 | 6 | 1,162 | 2.92 | 5.9 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM - RI | 6 | 7 | 6 | 7 | 1,881 | 3.51 | 4.9 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - ROF | 0 | 0 | 3 | 3 | 581 | 2.92 | 5.9 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - RI | 3 | 4 | 3 | 4 | 940 | 3.51 | 4.9 |
| Motors | MTR-17 | CLUB - 00202 | COMPMTR | EEM - ROF | 0 | 0 | 6 | 6 | 1,162 | 2.92 | 5.9 |
| Motors | MTR-17 | CLUB - 00202 | COMPMTR | EEM - RI | 6 | 7 | 6 | 7 | 1,881 | 3.51 | 4.9 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 448 | 3.49 | 4.9 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4.62 | 3.7 |
| Motors | MTR-251 | CLUB - 00202 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | -1,646 | 0.25 | 67.9 |
| Motors | MTR-251 | CLUB - 00202 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -2,407 | 0.09 | 190.7 |
| Motors | MTR-252 | CLUB - 00202 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -274 | 0.25 | 67.9 |
| Motors | MTR-252 | CLUB - 00202 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -401 | 0.09 | 190.7 |
| Motors | MTR-41 | CLUB - 00202 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 2 | -335 | 0.53 | 32.2 |
| Motors | MTR-41 | CLUB - 00202 | CONDMTR | EEM - RI | 2 | 2 | 2 | 2 | -409 | 0.52 | 33.1 |
| Motors | MTR-42 | CLUB - 00202 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 2 | 287 | 2.90 | 5.9 |
| Motors | MTR-42 | CLUB - 00202 | CONDMTR | EEM - RI | 2 | 2 | 2 | 2 | 465 | 3.49 | 4.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 87 | 1.58 | 10.9 |
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 141 | 1.75 | 9.8 |
| Motors | MTR-253 | DGR - 00308 | EVAP | EEM - ROF | 0 | 0 | 1 | 2 | -929 | 0.35 | 48.6 |
| Motors | MTR-253 | DGR - 00308 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,300 | 0.24 | 72.0 |
| Motors | MTR-254 | DGR - 00308 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 813 | 3 12 | 5.5 |
| Motors | MTR-254 | DGR - 00308 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-4 | DGR - 00308 | AIRCOMP | EEM - ROF | 0 | 0 | 0 | 1 | -297 | 0.19 | 89.6 |
| Motors | MTR-4 | DGR - 00308 | AIRCOMP | EEM - RI | 0 | 1 | 0 | 1 | -443 | -0.00 | NA |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM - ROF | 0 | 0 | 6 | 8 | 1,913 | 4.54 | 3.8 |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM - RI | 7 | 10 | 7 | 10 | 3,177 | 6.12 | 2.8 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - ROF | 0 | 0 | 4 | 6 | 1,953 | 5.72 | 3.0 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - RI | 4 | 6 | 4 | 6 | 2,120 | 6.12 | 2.8 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 534 | 4.19 | 4.1 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5.61 | 3.1 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - ROF | 0 | 0 | 1 | 2 | 217 | 1.52 | 11.4 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - RI | 2 | 3 | 2 | 3 | 394 | 1.87 | 9.2 |
| Motors | MTR-522b | DGR - 00308 | VENTLTR | VSD to Std - ROF | 0 | 0 | 11 | -1 | -5,996 | 0.22 | 79.3 |
| Motors | MTR-522b | DGR - 00308 | VENTLTR | VSD to Std - RI | 11 | -0 | 11 | -0 | -7,969 | 0.10 | 175.0 |
| Motors | MTR-522c | DGR - 00308 | VENTLTR | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -5,400 | 0.29 | 58.8 |
| Motors | MTR-522c | DGR - 00308 | VENTLTR | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,245 | 0.19 | 90.6 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM - ROF | 0 | 0 | 1 | 2 | 243 | 1.56 | 11.0 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM - RI | 2 | 3 | 2 | 3 | 392 | 1.86 | 9.2 |
| Motors | MTR-523b | DGR - 00308 | VENTLTR | VSD to Std - ROF | 0 | 0 | 11 | -1 | -6,382 | 0.19 | 89.8 |
| Motors | MTR-523b | DGR - 00308 | VENTLTR | VSD to Std - RI | 11 | -0 | 11 | -0 | -7,971 | 0.10 | 175.3 |
| Motors | MTR-523c | DGR - 00308 | VENTLTR | VSD & EEM - ROF | 0 | 0 | 12 | 2 | -5,847 | 0.27 | 63.6 |
| Motors | MTR-523c | DGR - 00308 | VENTLTR | VSD & EEM - RI | 12 | 3 | 12 | 3 | -7,247 | 0.19 | 90.7 |
| Motors | MTR-524a | DGR - 00308 | VENTLTR | EEM - ROF | 0 | 0 | 2 | 3 | 428 | 1.90 | 9.0 |
| Motors | MTR-524a | DGR - 00308 | VENTLTR | EEM - RI | 3 | 4 | 3 | 4 | 735 | 2.44 | 7.1 |
| Motors | MTR-524b | DGR - 00308 | VENTLTR | VSD to Std - ROF | 0 | 0 | 18 | -1 | -8,942 | 0.25 | 70.0 |
| Motors | MTR-524b | DGR - 00308 | VENTLTR | VSD to Std - RI | 19 | 0 | 19 | 0 | -11,871 | 0.13 | 130.1 |
| Motors | MTR-524c | DGR - 00308 | VENTLTR | VSD & EEM - ROF | 0 | 0 | 19 | 3 | -8,140 | 0.32 | 54.0 |
| Motors | MTR-524c | DGR - 00308 | VENTLTR | VSD & EEM - RI | 20 | 4 | 20 | 4 | -10,738 | 0.22 | 78.5 |
| Motors | MTR-525a | DGR - 00308 | VENTLTR | EEM - ROF | 0 | 0 | 1 | 1 | 154 | 0.60 | 28.9 |
| Motors | MTR-525a | DGR - 00308 | VENTLTR | EEM - RI | 1 | 1 | 1 | 1 | -169 | 0.61 | 28.5 |
| Motors | MTR-525b | DGR - 00308 | VENTLTR | VSD to Std - ROF | 0 | 0 | 5 | -0 | -3,592 | 0.17 | 101.4 |
| Motors | MTR-525b | DGR - 00308 | VENTLTR | VSD to Std - RI | 6 | -0 | 6 | -0 | -4,777 | 0.04 | 389.9 |
| Motors | MTR-525c | DGR - 00308 | VENTLTR | VSD & EEM - ROF | 0 | 0 | 6 | 1 | -3,445 | 0.22 | 76.9 |
| Motors | MTR-525c | DGR - 00308 | VENTLTR | VSD & EEM - RI | 6 | 1 | 6 | 1 | -4,542 | 0.11 | 154.2 |
| Motors | PMTR-29 | DGR - 00308 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 45 | 1.10 | 15.6 |
| Motors | PMTR-29 | DGR - 00308 | PMPMTR | EEM - RI | 1 | 4 | 1 | 4 | 219 | 1.43 | 12.1 |
| Motors | MTR-255 | DGR - 00404 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-255 | DGR - 00404 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-256 | DGR - 00404 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 407 | 3.12 | 5.5 |
| Motors | MTR-256 | DGR - 00404 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-257 | DGR - 00430 | EVAP | EEM - ROF | 0 | 0 | 6 | 8 | 2,066 | 2.91 | 5.9 |
| Motors | MTR-257 | DGR - 00430 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,481 | 3.80 | 4.5 |
| Motors | PMTR-28 | DGR - 00430 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | PMTR-28 | DGR - 00430 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 325 | 2.94 | 5.9 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 544 | 3.83 | 4.5 |
| Motors | MTR-258 | DGR - 00909 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 557 | 3.77 | 4.6 |
| Motors | MTR-258 | DGR - 00909 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 591 | 3.86 | 4.5 |
| Motors | MTR-259 | DGR - 00909 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 974 | 3.58 | 4.8 |
| Motors | MTR-259 | DGR - 00909 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,175 | 3.84 | 4.5 |
| Motors | MTR-83 | DINING - 00222 | COOL | EEM - ROF | 0 | 0 | 1 | 2 | 63 | 1.23 | 14.0 |
| Motors | MTR-83 | DINING - 00222 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 161 | 1.43 | 12.0 |
| Motors | MTR-84 | DINING - 00222 | COOL | EEM - ROF | 0 | 0 | 1 | 2 | 63 | 1.23 | 14.0 |
| Motors | MTR-84 | DINING - 00222 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 161 | 1.43 | 12.0 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 375 | 3.02 | 5.7 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 375 | 3.02 | 5.7 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - ROF | 0 | 0 | 10 | 14 | 3,204 | 4.19 | 4.1 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - RI | 11 | 16 | 11 | 16 | 5,308 | 5 61 | 3.1 |
| Motors | MTR-443a | DINING - 00254 | Fan Motor | EEM - ROF | 0 | 0 | 4 | 6 | -823 | 0.67 | 25.7 |
| Motors | MTR-443a | DINING - 00254 | Fan Motor | EEM - RI | 7 | 9 | 7 | 9 | -782 | 0.74 | 23.4 |
| Motors | MTR-443b | DINING - 00254 | Fan Motor | VSD to Std - ROF | 0 | 0 | 63 | -3 | -17,324 | 0.43 | 39.7 |
| Motors | MTR-443b | DINING - 00254 | Fan Motor | VSD to Std - RI | 66 | 0 | 66 | 0 | -26,035 | 0.31 | 56.0 |
| Motors | MTR-443c | DINING - 00254 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 65 | 6 | -16,822 | 0.47 | 36.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-443c | DINING - 00254 | Fan Motor | VSD & EEM - RI | 67 | 9 | 67 | 9 | -24,857 | 0.36 | 48.3 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - ROF | 0 | 0 | 5 | 8 | 672 | 1.43 | 12.1 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - RI | 8 | 11 | 8 | 11 | 1,588 | 1.87 | 9.2 |
| Motors | MTR-444b | DINING - 00254 | Fan Motor | VSD to Std - ROF | 0 | 0 | 62 | -3 | -15,517 | 0.46 | 37.3 |
| Motors | MTR-444b | DINING - 00254 | Fan Motor | VSD to Std - RI | 64 | 0 | 64 | 0 | -23,333 | 0.34 | 50.5 |
| Motors | MTR-444c | DINING - 00254 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 64 | 8 | -14,279 | 0.51 | 33.6 |
| Motors | MTR-444c | DINING - 00254 | Fan Motor | VSD & EEM - RI | 67 | 11 | 67 | 11 | -21,151 | 0.41 | 42.0 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 534 | 4.19 | 4.1 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5.61 | 3.1 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 3 | 638 | 4.54 | 3.8 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 1,050 | 6.12 | 2.8 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 67 | 1.43 | 12.1 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 97 | 1.52 | 11.3 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 7 | -141 | 0.88 | 19.6 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - RI | 2 | 11 | 2 | 11 | 109 | 1.08 | 15.9 |
| Motors | PMTR-31b | DINING - 00254 | PMPMTR | VSD to Std - ROF | 0 | 0 | 19 | -1 | -6,625 | 0.39 | 44.2 |
| Motors | PMTR-31b | DINING - 00254 | PMPMTR | VSD to Std - RI | 19 | 0 | 19 | 0 | -9,776 | 0.27 | 64.2 |
| Motors | PMTR-31c | DINING - 00254 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 19 | 7 | -5,622 | 0.49 | 35.1 |
| Motors | PMTR-31c | DINING - 00254 | PMPMTR | VSD & EEM - RI | 20 | 11 | 20 | 11 | -8,047 | 0.40 | 42.8 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 2 | 189 | 2.13 | 8.1 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - RI | 0 | 3 | 0 | 3 | 323 | 2.68 | 6.4 |
| Motors | PMTR-33 | DINING - 00254 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -262 | 0.27 | 63.3 |
| Motors | PMTR-33 | DINING - 00254 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -379 | 0.11 | 154.6 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-263 | DINING - 00431 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-263 | DINING - 00431 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-264 | DINING - 00447 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-264 | DINING - 00447 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-266 | DINING - 00449 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-266 | DINING - 00449 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-267 | DINING - 00449 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-267 | DINING - 00449 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - ROF | 0 | 0 | 6 | 8 | 2,066 | 2.91 | 5.9 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,481 | 3.80 | 4.5 |
| Motors | MTR-269 | DINING - 00535 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-269 | DINING - 00535 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-270 | DINING - 00560 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-270 | DINING - 00560 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-526 | Farm Housing | Heat System Fan | EEM - ROF | 0 | 0 | 1,558 | 3,755 | 630,116 | 3.47 | 5.0 |
| Motors | MTR-526 | Farm Housing | Heat System Fan | EEM - RI | 1,739 | 1,467 | 1,739 | 1,467 | 662,338 | 3.16 | 5.4 |
| Motors | MTR-527 | Farm Housing | Cool System Fan | EEM - ROF | 0 | 0 | 671 | 1,314 | 142,913 | 1.58 | 10.9 |
| Motors | MTR-527 | Farm Housing | Cool System Fan | EEM - RI | 748 | 1,467 | 748 | 1,467 | 230,320 | 1.75 | 9.8 |
| Motors | MTR-271 | FUELDSP - 00836 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-271 | FUELDSP - 00836 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-18 | GROCERY - 00920 | COMPMTR | EEM - ROF | 0 | 0 | 3 | 4 | 377 | 1.64 | 10.5 |
| Motors | MTR-18 | GROCERY - 00920 | COMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 877 | 2.31 | 7.4 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM - ROF | 0 | 0 | 6 | 7 | 754 | 1.64 | 10.5 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM - RI | 9 | 11 | 9 | 11 | 1,755 | 2.31 | 7.4 |
| Motors | MTR-20 | GROCERY - 00920 | COMPMTR | EEM - ROF | 0 | 0 | 3 | 4 | 377 | 1.64 | 10.5 |
| Motors | MTR-20 | GROCERY - 00920 | COMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 877 | 2.31 | 7.4 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EEM - ROF | 0 | 0 | 41 | 46 | 5,114 | 1.67 | 10.3 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EEM - RI | 60 | 68 | 60 | 68 | 11,354 | 2.30 | 7.5 |
| Motors | MTR-273 | GROCERY - 00920 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | -169 | 0.85 | 20.3 |
| Motors | MTR-273 | GROCERY - 00920 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | 69 | 1.05 | 16.4 |
| Motors | MTR-274 | GROCERY - 00920 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | -114 | 0.90 | 19.1 |
| Motors | MTR-274 | GROCERY - 00920 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | 93 | 1.07 | 16.1 |
| Motors | MTR-43 | GROCERY - 00920 | CONDMTR | EEM - ROF | 0 | 0 | 6 | 6 | 712 | 1.61 | 10.7 |
| Motors | MTR-43 | GROCERY - 00920 | CONDMTR | EEM - RI | 9 | 9 | 9 | 9 | 1,678 | 2.26 | 7.6 |
| Motors | MTR-447 | GROCERY - 00920 | Fan Motor | EEM - ROF | 0 | 0 | 5 | 7 | 871 | 1.74 | 9.9 |
| Motors | MTR-447 | GROCERY - 00920 | Fan Motor | EEM - RI | 7 | 11 | 7 | 11 | 1,970 | 2.47 | 7.0 |
| Motors | MTR-448 | GROCERY - 00920 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -153 | 0.57 | 30.0 |
| Motors | MTR-448 | GROCERY - 00920 | Fan Motor | EEM - RI | 1 | 1 | 1 | 1 | -179 | 0.58 | 29.6 |
| Motors | MTR-449 | GROCERY - 00920 | Fan Motor | EEM - ROF | 0 | 0 | 5 | 7 | 859 | 1.76 | 9.8 |
| Motors | MTR-449 | GROCERY - 00920 | Fan Motor | EEM - RI | 8 | 11 | 8 | 11 | 2,101 | 2.65 | 6.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 4 | 435 | 1.74 | 9.9 |
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 985 | 2.47 | 7.0 |
| Motors | PMTR-34 | GROCERY - 00920 | power vents | EEM - ROF | 0 | 0 | 2 | 5 | 217 | 1.24 | 13.9 |
| Motors | PMTR-34 | GROCERY - 00920 | power vents | EEM - RI | 3 | 8 | 3 | 8 | 639 | 1.62 | 10.6 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | 282 | 2.69 | 6.4 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3.47 | 5.0 |
| Motors | PMTR-36a | GROCERY - 00920 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -586 | 0.20 | 84.7 |
| Motors | PMTR-36a | GROCERY - 00920 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -871 | 0.01 | 1,387.3 |
| Motors | PMTR-36b | GROCERY - 00920 | PMPMTR | VSD to Std - ROF | 0 | 0 | 5 | -0 | -1,080 | 0.54 | 32.0 |
| Motors | PMTR-36b | GROCERY - 00920 | PMPMTR | VSD to Std - RI | 5 | 0 | 5 | 0 | -1,510 | 0.47 | 36.3 |
| Motors | PMTR-36c | GROCERY - 00920 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 5 | 1 | -1,185 | 0.55 | 31.5 |
| Motors | PMTR-36c | GROCERY - 00920 | PMPMTR | VSD & EEM - RI | 6 | 1 | 6 | 1 | -1,560 | 0.51 | 33.8 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | 282 | 2.69 | 6.4 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3.47 | 5.0 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - ROF | 0 | 0 | 3 | 3 | 353 | 1.89 | 9.1 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 4 | 3 | 4 | 3 | 693 | 2.53 | 6.8 |
| Motors | MTR-275 | HOSPITL - 00166 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -247 | 0.33 | 52.4 |
| Motors | MTR-275 | HOSPITL - 00166 | EVAP | EEM - RI | 1 | 0 | 1 | 0 | -350 | 0.21 | 83.4 |
| Motors | MTR-451a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 0 | 0 | 18 | 7 | 3,299 | 4.56 | 3.8 |
| Motors | MTR-451a | HOSPITL - 00166 | Fan Motor | EEM - RI | 27 | 11 | 27 | 11 | 6,277 | 6.94 | 2.5 |
| Motors | MTR-451b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 0 | 0 | 266 | -4 | 14,480 | 1.45 | 11.9 |
| Motors | MTR-451b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 275 | 0 | 275 | 0 | 24,762 | 1.64 | 10.5 |
| Motors | MTR-451c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 274 | 7 | 16,909 | 1.52 | 11.3 |
| Motors | MTR-451c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 282 | 11 | 282 | 11 | 28,576 | 1.74 | 9.9 |
| Motors | MTR-452a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 0 | 0 | 12 | 5 | 1,979 | 3.84 | 4.5 |
| Motors | MTR-452a | HOSPITL - 00166 | Fan Motor | EEM - RI | 18 | 7 | 18 | 7 | 3,873 | 5.88 | 2.9 |
| Motors | MTR-452b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 0 | 0 | 179 | -2 | 9,750 | 1.45 | 11.9 |
| Motors | MTR-452b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 185 | -0 | 185 | -0 | 16,662 | 1.64 | 10.5 |
| Motors | MTR-452c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 184 | 5 | 11,198 | 1.51 | 11.4 |
| Motors | MTR-452c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 190 | 7 | 190 | 7 | 18,999 | 1.72 | 10.0 |
| Motors | MTR-453a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 0 | 0 | 17 | 7 | 3,279 | 6.58 | 2.6 |
| Motors | MTR-453a | HOSPITL - 00166 | Fan Motor | EEM - RI | 22 | 9 | 22 | 9 | 5,743 | 9.60 | 1.8 |
| Motors | MTR-453b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 0 | 0 | 140 | -2 | 8,254 | 1.51 | 11.4 |
| Motors | MTR-453b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 145 | -0 | 145 | -0 | 14,069 | 1.72 | 10.0 |
| Motors | MTR-453c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 146 | 7 | 10,199 | 1.62 | 10.6 |
| Motors | MTR-453c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 151 | 9 | 151 | 9 | 17,118 | 1.87 | 9.2 |
| Motors | MTR-454a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 0 | 0 | 17 | 7 | 2,786 | 3.47 | 5.0 |
| Motors | MTR-454a | HOSPITL - 00166 | Fan Motor | EEM - RI | 28 | 11 | 28 | 11 | 5,808 | 5.55 | 3.1 |
| Motors | MTR-454b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 0 | 0 | 348 | -5 | 18,333 | 1.43 | 12.0 |
| Motors | MTR-454b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 359 | -0 | 359 | -0 | 31,383 | 1.61 | 10.7 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 356 | 7 | 20,866 | 1.49 | 11.6 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 367 | 11 | 367 | 11 | 35,397 | 1.69 | 10.2 |
| Motors | MTR-455a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 0 | 0 | 5 | 2 | 308 | 1.37 | 12.6 |
| Motors | MTR-455a | HOSPITL - 00166 | Fan Motor | EEM - RI | 8 | 3 | 8 | 3 | 815 | 1.82 | 9.5 |
| Motors | MTR-455b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 0 | 0 | 76 | -1 | 2,866 | 1.28 | 13.4 |
| Motors | MTR-455b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 79 | 0 | 79 | 0 | 5,179 | 1.42 | 12.1 |
| Motors | MTR-455c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 78 | 2 | 3,291 | 1.31 | 13.1 |
| Motors | MTR-455c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 81 | 3 | 81 | 3 | 5,955 | 1.47 | 11.7 |
| Motors | MTR-5 | HOSPITL - 00166 | AIRCOMP | EEM - ROF | 0 | 0 | 2 | 2 | -244 | 0.66 | 26.1 |
| Motors | MTR-5 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 3 | 2 | 3 | 2 | -242 | 0.72 | 24.0 |
| Motors | MTR-6 | HOSPITL - 00166 | AIRCOMP | EEM - ROF | 0 | 0 | 17 | 13 | 3,311 | 3.82 | 4.5 |
| Motors | MTR-6 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 22 | 17 | 22 | 17 | 5,907 | 5.42 | 3.2 |
| Motors | MTR-7 | HOSPITL - 00166 | AIRCOMP | EEM - ROF | 0 | 0 | 1 | 1 | -122 | 0.66 | 26.1 |
| Motors | MTR-7 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 1 | 1 | 1 | 1 | -121 | 0.72 | 24.0 |
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-87 | HOSPITL - 00166 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-87 | HOSPITL - 00166 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | PMTR-38 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 2 | 120 | 1.17 | 14.8 |
| Motors | PMTR-38 | HOSPITL - 00166 | PMPMTR | EEM - RI | 6 | 2 | 6 | 2 | 434 | 1.51 | 11.4 |
| Motors | PMTR-39 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 10 | 4 | 1,449 | 2.83 | 6.1 |
| Motors | PMTR-39 | HOSPITL - 00166 | PMPMTR | EEM - RI | 14 | 5 | 14 | 5 | 2,772 | 4.05 | 4.2 |
| Motors | PMTR-40 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 10 | 4 | 1,449 | 2.83 | 6.1 |
| Motors | PMTR-40 | HOSPITL - 00166 | PMPMTR | EEM - RI | 14 | 5 | 14 | 5 | 2,772 | 4.05 | 4.2 |
| Motors | PMTR-41 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 5 | 2 | 725 | 2.83 | 6.1 |
| Motors | PMTR-41 | HOSPITL - 00166 | PMPMTR | EEM - RI | 7 | 3 | 7 | 3 | 1,386 | 4.05 | 4.2 |
| Motors | PMTR-42 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 26 | 10 | 5,131 | 6.75 | 2.5 |
| Motors | PMTR-42 | HOSPITL - 00166 | PMPMTR | EEM - RI | 33 | 13 | 33 | 13 | 8,882 | 9.67 | 1.8 |
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 23 | 9 | 4,697 | 8.99 | 1.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - RI | 28 | 11 | 28 | 11 | 7,988 | 12.96 | 1.3 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 0 | 0 | 46 | 18 | 9,394 | 8.99 | 1.9 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - RI | 56 | 22 | 56 | 22 | 15,977 | 12.96 | 1.3 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EEM - ROF | 0 | 0 | 7 | 6 | 1,304 | 3.16 | 5.5 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - ROF | 0 | 0 | 7 | 6 | 1,304 | 3.16 | 5.5 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-89 | HOTEL - 00901 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-89 | HOTEL - 00901 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - ROF | 0 | 0 | 7 | 6 | 1,304 | 3.16 | 5.5 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - ROF | 0 | 0 | 7 | 6 | 1,304 | 3.16 | 5.5 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - ROF | 0 | 0 | 5 | 5 | 978 | 3.16 | 5.5 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - RI | 6 | 5 | 6 | 5 | 1,583 | 3.82 | 4.5 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EEM - ROF | 0 | 0 | 7 | 6 | 1,304 | 3.16 | 5.5 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - ROF | 0 | 0 | 1 | 1 | 103 | 1.73 | 10.0 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-276 | KITCHEN - 00819 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-276 | KITCHEN - 00819 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-277 | LAB-MED - 00144 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -503 | 0.36 | 47.7 |
| Motors | MTR-277 | LAB-MED - 00144 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -600 | 0.30 | 58.0 |
| Motors | MTR-278 | LAB-MED - 00144 | EVAP | EEM - ROF | 0 | 0 | 1 | 2 | -1,007 | 0.36 | 47.7 |
| Motors | MTR-278 | LAB-MED - 00144 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | -1,201 | 0.30 | 58.0 |
| Motors | MTR-279 | LAB-MED - 00228 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -696 | 0.35 | 48.6 |
| Motors | MTR-279 | LAB-MED - 00228 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -975 | 0.24 | 72.0 |
| Motors | MTR-280 | MTRPOOL - 00600 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-280 | MTRPOOL - 00600 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-281 | MTRPOOL - 00600 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-281 | MTRPOOL - 00600 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-282 | MTRPOOL - 00600 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 73 | 1.18 | 14.5 |
| Motors | MTR-282 | MTRPOOL - 00600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 206 | 1.45 | 11.8 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-284 | MTRPOOL - 00605 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-284 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-285 | MTRPOOL - 00605 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-285 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-286 | MTRPOOL - 00605 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-286 | MTRPOOL - 00605 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-288 | MTRPOOL - 00608 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-288 | MTRPOOL - 00608 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-289 | MTRPOOL - 00608 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-289 | MTRPOOL - 00608 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-291 | MTRPOOL - 00612 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-291 | MTRPOOL - 00612 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-292 | MTRPOOL - 00614 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-292 | MTRPOOL - 00614 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-293 | MTRPOOL - 00620 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-293 | MTRPOOL - 00620 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-294 | MTRPOOL - 00621 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-294 | MTRPOOL - 00621 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-295 | MTRPOOL - 00621 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-295 | MTRPOOL - 00621 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-296 | MTRPOOL - 00623 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-296 | MTRPOOL - 00623 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-297 | MTRPOOL - 00626 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-297 | MTRPOOL - 00626 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-298 | MTRPOOL - 00639 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-298 | MTRPOOL - 00639 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-299 | MTRPOOL - 00642 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-299 | MTRPOOL - 00642 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-300 | MTRPOOL - 00646 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-300 | MTRPOOL - 00646 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-301 | MTRPOOL - 00646 | EVAP | EEM - ROF | 0 | 0 | 2 | 2 | 565 | 2.69 | 6.4 |
| Motors | MTR-301 | MTRPOOL - 00646 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 950 | 3.47 | 5.0 |
| Motors | MTR-8 | MTRPOOL - 00646 | AIRCOMP | EEM - ROF | 0 | 0 | 1 | 3 | 113 | 1.27 | 13.6 |
| Motors | MTR-8 | MTRPOOL - 00646 | AIRCOMP | EEM - RI | 1 | 4 | 1 | 4 | 235 | 1.47 | 11.7 |
| Motors | MTR-302 | MTRPOOL - 00650 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-302 | MTRPOOL - 00650 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-303 | MTRPOOL - 00680 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,583 | 0.19 | 91.0 |
| Motors | MTR-303 | MTRPOOL - 00680 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -2,091 | 0.05 | 332.4 |
| Motors | MTR-304 | MTRPOOL - 00680 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 813 | 3.12 | 5.5 |
| Motors | MTR-304 | MTRPOOL - 00680 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-94 | MTRPOOL - 00680 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 76 | 1.47 | 11.7 |
| Motors | MTR-94 | MTRPOOL - 00680 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 101 | 1.54 | 11.2 |
| Motors | MTR-305 | MTRPOOL - 00681 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,267 | 0.19 | 91.0 |
| Motors | MTR-305 | MTRPOOL - 00681 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -1,673 | 0.05 | 332.4 |
| Motors | MTR-306 | MTRPOOL - 00681 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 813 | 3.12 | 5.5 |
| Motors | MTR-306 | MTRPOOL - 00681 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-521 | MTRPOOL - 00681 | HEAT | EEM - ROF | 0 | 0 | 1 | 1 | 50 | 1.31 | 13.2 |
| Motors | MTR-521 | MTRPOOL - 00681 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-307 | MTRPOOL - 00830 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-307 | MTRPOOL - 00830 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-308 | MTRPOOL - 00832 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-308 | MTRPOOL - 00832 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-309 | MTRPOOL - 00832 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-309 | MTRPOOL - 00832 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-310 | MTRPOOL - 00837 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-310 | MTRPOOL - 00837 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-311 | MTRPOOL - 00840 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-311 | MTRPOOL - 00840 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-312 | MTRPOOL - 00840 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,033 | 2.91 | 5.9 |
| Motors | MTR-312 | MTRPOOL - 00840 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-313 | MTRPOOL - 00840 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-313 | MTRPOOL - 00840 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-314 | MTRPOOL - 00847 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-314 | MTRPOOL - 00847 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-315 | MTRPOOL - 00847 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-315 | MTRPOOL - 00847 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-316 | MTRPOOL - 00850 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-316 | MTRPOOL - 00850 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-317 | MTRPOOL - 00850 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-317 | MTRPOOL - 00850 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-29 | MTRPOOL - 00857 | COMPMTR | EEM - ROF | 0 | 0 | 9 | 7 | 486 | 1.22 | 14.2 |
| Motors | MTR-29 | MTRPOOL - 00857 | COMPMTR | EEM - RI | 15 | 11 | 15 | 11 | 1,831 | 1.72 | 10.0 |
| Motors | MTR-44 | MTRPOOL - 00857 | CONDMTR | EEM - ROF | 0 | 0 | 9 | 12 | 633 | 1.27 | 13.6 |
| Motors | MTR-44 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 14 | 18 | 14 | 18 | 1,900 | 1.71 | 10.1 |
| Motors | MTR-456 | MTRPOOL - 00857 | Fan Motor | EEM - ROF | 0 | 0 | 7 | 7 | 1,380 | 2.22 | 7.7 |
| Motors | MTR-456 | MTRPOOL - 00857 | Fan Motor | EEM - RI | 11 | 11 | 11 | 11 | 3,103 | 3.43 | 5.0 |
| Motors | MTR-95 | MTRPOOL - 00857 | COOL | EEM - ROF | 0 | 0 | 0 | 1 | 58 | 1.38 | 12.5 |
| Motors | MTR-95 | MTRPOOL - 00857 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 93 | 1.50 | 11.5 |
| Motors | PMTR-47a | MTRPOOL - 00857 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 0 | -355 | 0.15 | 115.8 |
| Motors | PMTR-47a | MTRPOOL - 00857 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -519 | -0.05 | NA |
| Motors | PMTR-47b | MTRPOOL - 00857 | PMPMTR | VSD to Std - ROF | 0 | 0 | 3 | -0 | -1,741 | 0.20 | 84.0 |
| Motors | PMTR-47b | MTRPOOL - 00857 | PMPMTR | VSD to Std - RI | 3 | 0 | 3 | 0 | -2,616 | 0.03 | 547.4 |
| Motors | PMTR-47c | MTRPOOL - 00857 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 3 | 0 | -1,788 | 0.24 | 72.5 |
| Motors | PMTR-47c | MTRPOOL - 00857 | PMPMTR | VSD & EEM - RI | 3 | 1 | 3 | 1 | -2,620 | 0.09 | 195.7 |
| Motors | MTR-318 | MTRPOOL - 00873 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | -2,450 | 0.36 | 48.0 |
| Motors | MTR-318 | MTRPOOL - 00873 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | -3,087 | 0.28 | 62.2 |
| Motors | MTR-9 | MTRPOOL - 00873 | AIRCOMP | EEM - ROF | 0 | 0 | 3 | 10 | 866 | 1.94 | 8.9 |
| Motors | MTR-9 | MTRPOOL - 00873 | AIRCOMP | EEM - RI | 4 | 14 | 4 | 14 | 1,730 | 2.64 | 6.5 |
| Motors | PMTR-45a | MTRPOOL - 00873 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -825 | 0.24 | 73.2 |
| Motors | PMTR-45a | MTRPOOL - 00873 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -1,212 | 0.05 | 321.3 |
| Motors | PMTR-45b | MTRPOOL - 00873 | PMPMTR | VSD to Std - ROF | 0 | 0 | 6 | -1 | -4,770 | 0.16 | 108.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-45b | MTRPOOL - 00873 | PMPMTR | VSD to Std - RI | 6 | -0 | 6 | -0 | -7,172 | -0.03 | NA |
| Motors | PMTR-45c | MTRPOOL - 00873 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 6 | 1 | -4,762 | 0.20 | 84.3 |
| Motors | PMTR-45c | MTRPOOL - 00873 | PMPMTR | VSD & EEM - RI | 6 | 2 | 6 | 2 | -7,007 | 0.04 | 389.2 |
| Motors | PMTR-46a | MTRPOOL - 00873 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | -1,099 | 0.24 | 73.2 |
| Motors | PMTR-46a | MTRPOOL - 00873 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -1,616 | 0.05 | 321.3 |
| Motors | PMTR-46b | MTRPOOL - 00873 | PMPMTR | VSD to Std - ROF | 0 | 0 | 8 | 1 | -6,360 | 0.16 | 108.5 |
| Motors | PMTR-46b | MTRPOOL - 00873 | PMPMTR | VSD to Std - RI | 8 | -0 | 8 | -0 | -9,563 | -0.03 | NA |
| Motors | PMTR-46c | MTRPOOL - 00873 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 8 | 2 | -6,349 | 0.20 | 84.3 |
| Motors | PMTR-46c | MTRPOOL - 00873 | PMPMTR | VSD & EEM - RI | 8 | 2 | 8 | 2 | -9,343 | 0.04 | 389.2 |
| Motors | MTR-319 | MTRPOOL - 00879 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | -2,450 | 0.36 | 48.0 |
| Motors | MTR-319 | MTRPOOL - 00879 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | -3,087 | 0.28 | 62.2 |
| Motors | MTR-320 | MTRPOOL - 00941 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-320 | MTRPOOL - 00941 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-321 | MWR - 00312 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -586 | 0.20 | 84.7 |
| Motors | MTR-321 | MWR - 00312 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -871 | 0.01 | 1,387.3 |
| Motors | MTR-322 | MWR - 00312 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| Motors | MTR-322 | MWR - 00312 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-327 | MWR - 00910 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-327 | MWR - 00910 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM - ROF | 0 | 0 | 0 | 1 | -259 | 0.42 | 41.5 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM - RI | 1 | 1 | 1 | 1 | -316 | 0.36 | 47.5 |
| Motors | MTR-458a | MWR - 01313 | Fan Motor | EEM - ROF | 0 | 0 | 3 | 3 | 881 | 3.92 | 4.4 |
| Motors | MTR-458a | MWR - 01313 | Fan Motor | EEM - RI | 4 | 4 | 4 | 4 | 1,426 | 4.81 | 3.6 |
| Motors | MTR-458b | MWR - 01313 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -96 | 0.73 | 23.5 |
| Motors | MTR-458b | MWR - 01313 | Fan Motor | EEM - RI | 1 | 1 | 1 | 1 | -72 | 0.83 | 20.7 |
| Motors | MTR-458c | MWR - 01313 | Fan Motor | VSD to Std - ROF | 0 | 0 | 12 | -0 | -1,585 | 0.61 | 28.2 |
| Motors | MTR-458c | MWR - 01313 | Fan Motor | VSD to Std - RI | 12 | -0 | 12 | -0 | -2,305 | 0.54 | 32.0 |
| Motors | MTR-459a | MWR - 01313 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 12 | 1 | -1,488 | 0.64 | 26.8 |
| Motors | MTR-459a | MWR - 01313 | Fan Motor | VSD & EEM - RI | 12 | 1 | 12 | 1 | -2,106 | 0.59 | 29.3 |
| Motors | MTR-459b | MWR - 01313 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -202 | 0.45 | 38.2 |
| Motors | MTR-459b | MWR - 01313 | Fan Motor | EEM - RI | 1 | 1 | 1 | 1 | -267 | 0.40 | 43.6 |
| Motors | MTR-459c | MWR - 01313 | Fan Motor | VSD to Std - ROF | 0 | 0 | 8 | -0 | -1,434 | 0.53 | 32.7 |
| Motors | MTR-459c | MWR - 01313 | Fan Motor | VSD to Std - RI | 8 | 0 | 8 | 0 | -2,112 | 0.43 | 40.0 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 8 | 1 | -1,436 | 0.55 | 31.5 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | VSD & EEM - RI | 8 | 1 | 8 | 1 | -2,061 | 0.47 | 36.8 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 440 | 3.92 | 4.4 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4.81 | 3.6 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-328 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-328 | MWR - 01322 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 0 | 1 | -586 | 0.20 | 84.7 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -871 | 0.01 | 1,387.3 |
| Motors | MTR-33 | MWR - 01322 | COMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | 149 | 1.99 | 8.7 |
| Motors | MTR-33 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 240 | 2.29 | 7.5 |
| Motors | MTR-330 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-330 | MWR - 01322 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-45a | MWR - 01322 | CONDMTR | EEM - ROF | 0 | 0 | 0 | 0 | -241 | 0.33 | 52.4 |
| Motors | MTR-45a | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | -342 | 0.20 | 86.3 |
| Motors | MTR-45b | MWR - 01322 | CONDMTR | VSD to Std - ROF | 0 | 0 | 5 | -0 | -691 | 0.44 | 38.8 |
| Motors | MTR-45b | MWR - 01322 | CONDMTR | VSD to Std - RI | 5 | -0 | 5 | -0 | -950 | 0.37 | 46.7 |
| Motors | MTR-45c | MWR - 01322 | CONDMTR | VSD & EEM - ROF | 0 | 0 | 5 | 0 | -649 | 0.52 | 33.2 |
| Motors | MTR-45c | MWR - 01322 | CONDMTR | VSD & EEM - RI | 5 | 1 | 5 | 1 | -835 | 0.48 | 35.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 440 | 3.92 | 4.4 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4.81 | 3.6 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 440 | 3.92 | 4.4 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4.81 | 3.6 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-463c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-463c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 440 | 3.92 | 4.4 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4.81 | 3.6 |
| Motors | MTR-465a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-465a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-465b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-465b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-465c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-465c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 440 | 3.92 | 4.4 |
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4.81 | 3.6 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 318 | 1.81 | 9.5 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM - RI | 3 | 3 | 3 | 3 | 664 | 2.46 | 7.0 |
| Motors | MTR-467b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 23 | -1 | -2,160 | 0.70 | 24.6 |
| Motors | MTR-467b | MWR - 01322 | Fan Motor | VSD to Std - RI | 24 | -0 | 24 | -0 | -3,092 | 0.65 | 26.5 |
| Motors | MTR-467c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 24 | 2 | -1,780 | 0.76 | 22.8 |
| Motors | MTR-467c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 24 | 3 | 24 | 3 | -2,455 | 0.73 | 23.7 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-468b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-468b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-468c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-468c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 718 | 5.29 | 3.3 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | EEM - RI | 3 | 3 | 3 | 3 | 1,183 | 7.16 | 2.4 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-470b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-470b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-470c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-470c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-471b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-471b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-471c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-471c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-472b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-472b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-472c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-472c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | -58 | 0.86 | 20.0 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-473b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 0 | 0 | 15 | -1 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-473b | MWR - 01322 | Fan Motor | VSD to Std - RI | 16 | 0 | 16 | 0 | -2,479 | 0.60 | 28.6 |
| Motors | MTR-473c | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -1,602 | 0.70 | 24.8 |
| Motors | MTR-473c | MWR - 01322 | Fan Motor | VSD & EEM - RI | 16 | 2 | 16 | 2 | -2,230 | 0.65 | 26.4 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - ROF | 0 | 0 | 7 | 7 | 2,153 | 5.29 | 3.3 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - RI | 8 | 8 | 8 | 8 | 3,550 | 7.16 | 2.4 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 1 | 35 | 1.23 | 14.0 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1.30 | 13.3 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 285 | 2.68 | 6.4 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 577 | 3.79 | 4.5 |
| Motors | PMTR-51a | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -149 | 0.62 | 27.7 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-51a | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -167 | 0.63 | 27.2 |
| Motors | PMTR-51b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - ROF | 0 | 0 | 4 | -0 | -2,082 | 0.27 | 64.2 |
| Motors | PMTR-51b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - RI | 4 | -0 | 4 | -0 | -3,120 | 0.11 | 156.8 |
| Motors | PMTR-51c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 4 | 1 | -1,935 | 0.34 | 50.0 |
| Motors | PMTR-51c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - RI | 4 | 1 | 4 | 1 | -2,824 | 0.22 | 79.4 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | 146 | 1.88 | 9.2 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 254 | 2.32 | 7.4 |
| Motors | PMTR-61a | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 3 | -189 | 0.79 | 21.9 |
| Motors | PMTR-61a | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 1 | 4 | 1 | 4 | -97 | 0.91 | 19.0 |
| Motors | PMTR-61b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - ROF | 0 | 0 | 13 | -1 | 419 | 1.14 | 15.2 |
| Motors | PMTR-61b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - RI | 13 | 0 | 13 | 0 | 1,042 | 1.28 | 13.5 |
| Motors | PMTR-61c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 13 | 3 | 995 | 1.30 | 13.2 |
| Motors | PMTR-61c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - RI | 14 | 4 | 14 | 4 | 2,066 | 1.53 | 11.3 |
| Motors | PMTR-68 | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -245 | 0.41 | 41.7 |
| Motors | PMTR-68 | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 0 | 2 | 0 | 2 | -340 | 0.31 | 54.7 |
| Motors | MTR-335 | PLT-BLDG - 00253 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 375 | 3.02 | 5.7 |
| Motors | MTR-335 | PLT-BLDG - 00253 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-336 | PLT-BLDG - 00253 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 375 | 3.02 | 5.7 |
| Motors | MTR-336 | PLT-BLDG - 00253 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-337 | PLT-BLDG - 00253 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -305 | 0.20 | 87.8 |
| Motors | MTR-337 | PLT-BLDG - 00253 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -427 | 0.03 | 541.9 |
| Motors | MTR-475 | PLT-BLDG - 00253 | Fan Motor | EEM - ROF | 0 | 0 | 4 | 6 | 1,275 | 4.54 | 3.8 |
| Motors | MTR-475 | PLT-BLDG - 00253 | Fan Motor | EEM - RI | 4 | 6 | 4 | 6 | 2,118 | 6.12 | 2.8 |
| Motors | PMTR-54a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 4 | -265 | 0.77 | 22.2 |
| Motors | PMTR-54a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 2 | 5 | 2 | 5 | -120 | 0.91 | 18.9 |
| Motors | PMTR-54b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 0 | 0 | 19 | -2 | -6,561 | 0.40 | 43.5 |
| Motors | PMTR-54b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - RI | 19 | 0 | 19 | 0 | -9,713 | 0.27 | 63.1 |
| Motors | PMTR-54c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 19 | 4 | -5,746 | 0.48 | 36.0 |
| Motors | PMTR-54c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 20 | 5 | 20 | 5 | -8,275 | 0.39 | 44.7 |
| Motors | PMTR-55a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 11 | 538 | 1.24 | 13.9 |
| Motors | PMTR-55a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 5 | 15 | 5 | 15 | 1,582 | 1.62 | 10.6 |
| Motors | PMTR-55b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 0 | 0 | 49 | -5 | -15,278 | 0.43 | 39.6 |
| Motors | PMTR-55b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - RI | 51 | -0 | 51 | -0 | -22,607 | 0.32 | 53.8 |
| Motors | PMTR-55c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 51 | 11 | -12,671 | 0.54 | 32.2 |
| Motors | PMTR-55c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 52 | 15 | 52 | 15 | -18,250 | 0.45 | 38.1 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 11 | 538 | 1.24 | 13.9 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 5 | 15 | 5 | 15 | 1,582 | 1.62 | 10.6 |
| Motors | PMTR-56b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 0 | 0 | 49 | -5 | -15,278 | 0.43 | 39.6 |
| Motors | PMTR-56b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - RI | 51 | -0 | 51 | -0 | -22,607 | 0.32 | 53.8 |
| Motors | PMTR-56c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 51 | 11 | -12,671 | 0.54 | 32.2 |
| Motors | PMTR-56c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 52 | 15 | 52 | 15 | -18,250 | 0.45 | 38.1 |
| Motors | PMTR-57a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 4 | -265 | 0.77 | 22.2 |
| Motors | PMTR-57a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 2 | 5 | 2 | 5 | -120 | 0.91 | 18.9 |
| Motors | PMTR-57b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 0 | 0 | 19 | -2 | -6,561 | 0.40 | 43.5 |
| Motors | PMTR-57b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - RI | 19 | 0 | 19 | 0 | -9,713 | 0.27 | 63.1 |
| Motors | PMTR-57c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 19 | 4 | -5,746 | 0.48 | 36.0 |
| Motors | PMTR-57c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 20 | 5 | 20 | 5 | -8,275 | 0.39 | 44.7 |
| Motors | PMTR-59a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 3 | 7 | 67 | 1.04 | 16.6 |
| Motors | PMTR-59a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 4 | 11 | 4 | 11 | 655 | 1.31 | 13.1 |
| Motors | PMTR-59b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 0 | 0 | 37 | -4 | 4,658 | 1.75 | 9.9 |
| Motors | PMTR-59b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - RI | 38 | 0 | 38 | 0 | 8,266 | 2.09 | 8.2 |
| Motors | PMTR-59c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 38 | 7 | 6,427 | 1.99 | 8.7 |
| Motors | PMTR-59c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 39 | 11 | 39 | 11 | 11,266 | 2.46 | 7.0 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 6 | 5 | 1,110 | 2.24 | 7.7 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 8 | 8 | 8 | 8 | 2,257 | 3.20 | 5.4 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 9 | 9 | 2,594 | 4.72 | 3.7 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 12 | 12 | 12 | 12 | 4,597 | 6.79 | 2.5 |
| Motors | PMTR-67 | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 0 | 0 | 5 | 5 | 1,011 | 2.45 | 7.0 |
| Motors | PMTR-67 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 7 | 7 | 7 | 7 | 2,090 | 3.63 | 4.7 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 256 | 2.56 | 6.7 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 575 | 3.78 | 4.6 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 512 | 2.56 | 6.7 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,151 | 3.78 | 4.6 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | 18 | 1.04 | 16.5 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 130 | 1.29 | 13.4 |
| Motors | PMTR-48a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 4 | -265 | 0.77 | 22.2 |
| Motors | PMTR-48a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 2 | 5 | 2 | 5 | -120 | 0.91 | 18.9 |
| Motors | PMTR-48b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 19 | -2 | -6,561 | 0.40 | 43.5 |
| Motors | PMTR-48b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 19 | 0 | 19 | 0 | -9,713 | 0.27 | 63.1 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-48c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 19 | 4 | -5,746 | 0.48 | 36.0 |
| Motors | PMTR-48c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 20 | 5 | 20 | 5 | -8,275 | 0.39 | 44.7 |
| Motors | PMTR-49a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -149 | 0.62 | 27.7 |
| Motors | PMTR-49a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -167 | 0.63 | 27.2 |
| Motors | PMTR-49b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 4 | -0 | -2,082 | 0.27 | 64.2 |
| Motors | PMTR-49b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 4 | -0 | 4 | -0 | -3,120 | 0.11 | 156.8 |
| Motors | PMTR-49c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 4 | 1 | -1,935 | 0.34 | 50.0 |
| Motors | PMTR-49c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 4 | 1 | 4 | 1 | -2,824 | 0.22 | 79.4 |
| Motors | PMTR-50a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | -132 | 0.77 | 22.2 |
| Motors | PMTR-50a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | -60 | 0.91 | 18.9 |
| Motors | PMTR-50b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 9 | -1 | -3,281 | 0.40 | 43.5 |
| Motors | PMTR-50b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 10 | -0 | 10 | -0 | -4,856 | 0.27 | 63.1 |
| Motors | PMTR-50c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 10 | 2 | -2,873 | 0.48 | 36.0 |
| Motors | PMTR-50c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 10 | 3 | 10 | 3 | -4,138 | 0.39 | 44.7 |
| Motors | PMTR-52a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 3 | 294 | 1.50 | 11.5 |
| Motors | PMTR-52a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1 | 4 | 1 | 4 | 615 | 1.92 | 9.0 |
| Motors | PMTR-52b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 10 | -1 | -3,166 | 0.42 | 41.3 |
| Motors | PMTR-52b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 10 | -0 | 10 | -0 | -4,665 | 0.30 | 57.1 |
| Motors | PMTR-52c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 10 | 3 | -2,447 | 0.56 | 31.0 |
| Motors | PMTR-52c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 10 | 4 | 10 | 4 | -3,463 | 0.49 | 35.5 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 3 | 9 | 905 | 1.62 | 10.6 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 4 | 12 | 4 | 12 | 1,874 | 2.13 | 8.1 |
| Motors | PMTR-53b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 31 | -3 | -9,426 | 0.44 | 39.0 |
| Motors | PMTR-53b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 32 | 0 | 32 | 0 | -13,943 | 0.33 | 52.4 |
| Motors | PMTR-53c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 32 | 9 | -7,453 | 0.56 | 30.5 |
| Motors | PMTR-53c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 33 | 12 | 33 | 12 | -10,669 | 0.49 | 35.1 |
| Motors | PMTR-60a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 3 | 9 | 905 | 1.62 | 10.6 |
| Motors | PMTR-60a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 4 | 12 | 4 | 12 | 1,874 | 2.13 | 8.1 |
| Motors | PMTR-60b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 31 | -3 | 4,420 | 1.91 | 9.0 |
| Motors | PMTR-60b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 32 | 0 | 32 | 0 | 7,707 | 2.31 | 7.4 |
| Motors | PMTR-60c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 32 | 9 | 6,393 | 2.25 | 7.6 |
| Motors | PMTR-60c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 33 | 12 | 33 | 12 | 10,980 | 2.81 | 6.1 |
| Motors | PMTR-62a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -303 | 0.27 | 63.2 |
| Motors | PMTR-62a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | -437 | 0.12 | 145.2 |
| Motors | PMTR-62b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 3 | -0 | -1,727 | 0.21 | 81.5 |
| Motors | PMTR-62b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 3 | 0 | 3 | 0 | -2,593 | 0.04 | 431.0 |
| Motors | PMTR-62c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 3 | 1 | -1,737 | 0.26 | 66.4 |
| Motors | PMTR-62c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 3 | 1 | 3 | 1 | -2,539 | 0.12 | 147.8 |
| Motors | PMTR-63a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -95 | 0.79 | 21.9 |
| Motors | PMTR-63a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -48 | 0.91 | 19.0 |
| Motors | PMTR-63b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 6 | -1 | -2,486 | 0.36 | 47.7 |
| Motors | PMTR-63b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 7 | 0 | 7 | 0 | -3,693 | 0.23 | 75.2 |
| Motors | PMTR-63c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 7 | 1 | -2,198 | 0.45 | 38.5 |
| Motors | PMTR-63c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 7 | 2 | 7 | 2 | -3,180 | 0.34 | 49.9 |
| Motors | PMTR-64a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 0 | 1 | -95 | 0.79 | 21.9 |
| Motors | PMTR-64a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -48 | 0.91 | 19.0 |
| Motors | PMTR-64b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 0 | 0 | 6 | -1 | -2,486 | 0.36 | 47.7 |
| Motors | PMTR-64b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 7 | 0 | 7 | 0 | -3,693 | 0.23 | 75.2 |
| Motors | PMTR-64c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 0 | 0 | 7 | 1 | -2,198 | 0.45 | 38.5 |
| Motors | PMTR-64c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 7 | 2 | 7 | 2 | -3,180 | 0.34 | 49.9 |
| Motors | PMTR-69 | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 0 | 0 | 6 | 5 | 1,110 | 2.24 | 7.7 |
| Motors | PMTR-69 | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 8 | 8 | 8 | 8 | 2,257 | 3.20 | 5.4 |
| Motors | PMTR-70 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 2 | 772 | 6.12 | 2.8 |
| Motors | PMTR-70 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7.69 | 2.2 |
| Motors | PMTR-71 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 0 | 0 | 6 | 2 | 1,214 | 8.26 | 2.1 |
| Motors | PMTR-71 | POOL-OT - 00328 | PMPMTR | EEM - RI | 7 | 3 | 7 | 3 | 1,991 | 11.37 | 1.5 |
| Motors | PMTR-72 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 2 | 772 | 6.12 | 2.8 |
| Motors | PMTR-72 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7.69 | 2.2 |
| Motors | PMTR-73 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 2 | 772 | 6.12 | 2.8 |
| Motors | PMTR-73 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7.69 | 2.2 |
| Motors | PMTR-74 | PUMP - 00042 | PMPMTR | EEM - ROF | 0 | 0 | 3 | 4 | 199 | 1.25 | 13.8 |
| Motors | PMTR-74 | PUMP - 00042 | PMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 551 | 1.61 | 10.7 |
| Motors | PMTR-91 | PUMP - 00042 | PMPMTR | EEM - ROF | 0 | 0 | 8 | 7 | 1,370 | 2.48 | 6.9 |
| Motors | PMTR-91 | PUMP - 00042 | PMPMTR | EEM - RI | 12 | 11 | 12 | 11 | 2,762 | 3.61 | 4.8 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - ROF | 0 | 0 | 20 | 23 | 2,983 | 2.03 | 8.5 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - RI | 34 | 30 | 34 | 30 | 7,036 | 3.12 | 5.5 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - ROF | 0 | 0 | 7 | 23 | 607 | 1.21 | 14.2 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - RI | 13 | 30 | 13 | 30 | 2,410 | 1.73 | 10.0 |
| Motors | MTR-10 | PUMP - 00044 | AIRCOMP | EEM - ROF | 0 | 0 | 0 | 1 | -253 | 0.39 | 43.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-10 | PUMP - 00044 | AIRCOMP | EEM - RI | 0 | 2 | 0 | 2 | -345 | 0.30 | 56.5 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 100 | 1.25 | 13.8 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 276 | 1.61 | 10.7 |
| Motors | PMTR-81 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 11 | 12 | 2,291 | 3.47 | 5.0 |
| Motors | PMTR-81 | PUMP - 00044 | PMPMTR | EEM - RI | 14 | 16 | 14 | 16 | 4,141 | 4.92 | 3.5 |
| Motors | PMTR-88 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 22 | 9 | 3,888 | 4.31 | 4.0 |
| Motors | PMTR-88 | PUMP - 00044 | PMPMTR | EEM - RI | 31 | 12 | 31 | 12 | 7,257 | 6.43 | 2.7 |
| Motors | PMTR-89 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 18 | 7 | 2,862 | 3.43 | 5.0 |
| Motors | PMTR-89 | PUMP - 00044 | PMPMTR | EEM - RI | 26 | 11 | 26 | 11 | 5,634 | 5.22 | 3.3 |
| Motors | PMTR-90 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 8 | 7 | 1,370 | 2.48 | 6.9 |
| Motors | PMTR-90 | PUMP - 00044 | PMPMTR | EEM - RI | 12 | 11 | 12 | 11 | 2,762 | 3.61 | 4.8 |
| Motors | PMTR-92 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 19 | 23 | 2,949 | 2.02 | 8.5 |
| Motors | PMTR-92 | PUMP - 00044 | PMPMTR | EEM - RI | 33 | 39 | 33 | 39 | 6,970 | 3.10 | 5.6 |
| Motors | PMTR-93 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 57 | 23 | 10,217 | 4.53 | 3.8 |
| Motors | PMTR-93 | PUMP - 00044 | PMPMTR | EEM - RI | 97 | 39 | 97 | 39 | 21,124 | 7.37 | 2.3 |
| Motors | PMTR-94 | PUMP - 00044 | PMPMTR | EEM - ROF | 0 | 0 | 57 | 23 | 10,217 | 4.53 | 3.8 |
| Motors | PMTR-94 | PUMP - 00044 | PMPMTR | EEM - RI | 97 | 39 | 97 | 39 | 21,124 | 7.37 | 2.3 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - ROF | 0 | 0 | 31 | 34 | 5,687 | 2.64 | 6.5 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - RI | 51 | 56 | 51 | 56 | 12,170 | 4.05 | 4.2 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - ROF | 0 | 0 | 32 | 34 | 5,802 | 2.67 | 6.5 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - RI | 52 | 56 | 52 | 56 | 12,387 | 4.11 | 4.2 |
| Motors | MTR-477 | PUMP - 00324 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 3 | 346 | 1.78 | 9.7 |
| Motors | MTR-477 | PUMP - 00324 | Fan Motor | EEM - RI | 3 | 4 | 3 | 4 | 750 | 2.47 | 7.0 |
| Motors | PMTR-76 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -117 | 0.67 | 25.5 |
| Motors | PMTR-76 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -126 | 0.71 | 24.4 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 5 | 4 | 658 | 1.71 | 10.1 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - RI | 8 | 5 | 8 | 5 | 1,464 | 2.39 | 7.2 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 1 | 350 | 3.10 | 5.6 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - RI | 2 | 1 | 2 | 1 | 586 | 4.05 | 4.3 |
| Motors | PMTR-86 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 15 | 16 | 3,326 | 3.95 | 4.4 |
| Motors | PMTR-86 | PUMP - 00324 | PMPMTR | EEM - RI | 20 | 21 | 20 | 21 | 5,949 | 5.66 | 3.0 |
| Motors | PMTR-87 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -162 | 0.61 | 28.1 |
| Motors | PMTR-87 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -176 | 0.65 | 26.7 |
| Motors | PMTR-95 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -171 | 0.52 | 32.9 |
| Motors | PMTR-95 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | -212 | 0.50 | 34.2 |
| Motors | PMTR-96 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -162 | 0.61 | 28.1 |
| Motors | PMTR-96 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -176 | 0.65 | 26.7 |
| Motors | PMTR-97 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -162 | 0.61 | 28.1 |
| Motors | PMTR-97 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -176 | 0.65 | 26.7 |
| Motors | PMTR-98 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 1 | 1 | -162 | 0.61 | 28.1 |
| Motors | PMTR-98 | PUMP - 00324 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | -176 | 0.65 | 26.7 |
| Motors | PMTR-99 | PUMP - 00324 | PMPMTR | EEM - ROF | 0 | 0 | 7 | 7 | 1,045 | 2.13 | 8.1 |
| Motors | PMTR-99 | PUMP - 00324 | PMPMTR | EEM - RI | 10 | 11 | 10 | 11 | 2,171 | 3.05 | 5.6 |
| Motors | PMTR-106 | PUMP - 00636 | PMPMTR | EEM - ROF | 0 | 0 | 37 | 42 | 8,031 | 3.77 | 4.6 |
| Motors | PMTR-106 | PUMP - 00636 | PMPMTR | EEM - RI | 49 | 56 | 49 | 56 | 14,628 | 5.41 | 3.2 |
| Motors | PMTR-107 | PUMP - 00636 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 42 | 1,718 | 1.59 | 10.8 |
| Motors | PMTR-107 | PUMP - 00636 | PMPMTR | EEM - RI | 6 | 56 | 6 | 56 | 3,619 | 2.09 | 8.2 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM - ROF | 0 | 0 | 40 | 42 | 8,758 | 4.02 | 4.3 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM - RI | 54 | 56 | 54 | 56 | 15,897 | 5.79 | 3.0 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - ROF | 0 | 0 | 3 | 10 | 866 | 1.94 | 8.9 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - RI | 4 | 14 | 4 | 14 | 1,730 | 2.64 | 6.5 |
| Motors | PMTR-105 | PUMP - 00652 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 3 | 318 | 1.80 | 9.5 |
| Motors | PMTR-105 | PUMP - 00652 | PMPMTR | EEM - RI | 3 | 4 | 3 | 4 | 623 | 2.37 | 7.3 |
| Motors | PMTR-108 | PUMP - 00652 | PMPMTR | EEM - ROF | 0 | 0 | 21 | 42 | 5,086 | 2.76 | 6.3 |
| Motors | PMTR-108 | PUMP - 00652 | PMPMTR | EEM - RI | 29 | 56 | 29 | 56 | 9,492 | 3.86 | 4.5 |
| Motors | PMTR-114 | PUMP - 00663 | PMPMTR | EEM - ROF | 0 | 0 | 66 | 77 | 12,412 | 2.68 | 6.4 |
| Motors | PMTR-114 | PUMP - 00663 | PMPMTR | EEM - RI | 103 | 119 | 103 | 119 | 25,521 | 3.96 | 4.3 |
| Motors | MTR-341 | PUMP - 00700 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-341 | PUMP - 00700 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM - ROF | 0 | 0 | 29 | 12 | 4,396 | 2.98 | 5.8 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4.81 | 3.6 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - ROF | 0 | 0 | 29 | 12 | 4,396 | 2.98 | 5.8 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4.81 | 3.6 |
| Motors | PMTR-102 | PUMP - 00700 | PMPMTR | EEM - ROF | 0 | 0 | 29 | 12 | 4,396 | 2.98 | 5.8 |
| Motors | PMTR-102 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4.81 | 3.6 |
| Motors | PMTR-103 | PUMP - 00700 | PMPMTR | EEM - ROF | 0 | 0 | 29 | 12 | 4,396 | 2.98 | 5.8 |
| Motors | PMTR-103 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4.81 | 3.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - ROF | 0 | 0 | 18 | 16 | 2,136 | 1.74 | 9.9 |
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - RI | 31 | 27 | 31 | 27 | 5,308 | 2.60 | 6.6 |
| Motors | MTR-342 | PUMP - 00838 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-342 | PUMP - 00838 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM - ROF | 0 | 0 | 24 | 77 | 8,106 | 1.94 | 8.9 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM - RI | 38 | 119 | 38 | 119 | 9,759 | 2.13 | 8.1 |
| Motors | PMTR-79 | PUMP - 05590 | PMPMTR | EEM - ROF | 0 | 0 | 19 | 77 | 3,307 | 1.45 | 11.9 |
| Motors | PMTR-79 | PUMP - 05590 | PMPMTR | EEM - RI | 30 | 119 | 30 | 119 | 8,516 | 1.99 | 8.7 |
| Motors | PMTR-80 | PUMP - 05590 | PMPMTR | EEM - ROF | 0 | 0 | 34 | 77 | 6,150 | 1.83 | 9.4 |
| Motors | PMTR-80 | PUMP - 05590 | PMPMTR | EEM - RI | 52 | 119 | 52 | 119 | 13,826 | 2.60 | 6.6 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM - ROF | 0 | 0 | 46 | 45 | 8,195 | 2.75 | 6.3 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM - RI | 72 | 72 | 72 | 72 | 17,228 | 4.22 | 4.1 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - ROF | 0 | 0 | 32 | 45 | 5,461 | 2.17 | 7.9 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - RI | 50 | 72 | 50 | 72 | 12,077 | 3.26 | 5.3 |
| Motors | PMTR-83 | PUMP - 18005 | PMPMTR | EEM - ROF | 0 | 0 | 42 | 57 | 7,389 | 2.26 | 7.6 |
| Motors | PMTR-83 | PUMP - 18005 | PMPMTR | EEM - RI | 66 | 90 | 66 | 90 | 15,910 | 3.35 | 5.1 |
| Motors | PMTR-84 | PUMP - 18005 | PMPMTR | EEM - ROF | 0 | 0 | 50 | 57 | 8,849 | 2.51 | 6.9 |
| Motors | PMTR-84 | PUMP - 18005 | PMPMTR | EEM - RI | 78 | 90 | 78 | 90 | 18,636 | 3.75 | 4.6 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - ROF | 0 | 0 | 25 | 57 | 3,943 | 1.67 | 10.3 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - RI | 38 | 90 | 38 | 90 | 9,474 | 2.40 | 7.2 |
| Motors | MTR-343 | REC - 00322 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | -2,928 | 0.20 | 84.7 |
| Motors | MTR-343 | REC - 00322 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | -4,355 | 0.01 | 1,387.3 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 534 | 4.19 | 4.1 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5.61 | 3.1 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | 534 | 4.19 | 4.1 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5.61 | 3.1 |
| Motors | MTR-345 | REC - 00905 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-345 | REC - 00905 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-34a | REC - 00905 | COMPMTR | EEM - ROF | 0 | 0 | 8 | 10 | 821 | 1.48 | 11.6 |
| Motors | MTR-34a | REC - 00905 | COMPMTR | EEM - RI | 14 | 16 | 14 | 16 | 2,308 | 2.19 | 7.9 |
| Motors | MTR-34b | REC - 00905 | COMPMTR | VSD to Std - ROF | 0 | 0 | 119 | -7 | 18,452 | 4.58 | 3.8 |
| Motors | MTR-34b | REC - 00905 | COMPMTR | VSD to Std - RI | 125 | -0 | 125 | -0 | 30,884 | 6.65 | 2.6 |
| Motors | MTR-34c | REC - 00905 | COMPMTR | VSD & EEM - ROF | 0 | 0 | 126 | 10 | 21,011 | 4.80 | 3.6 |
| Motors | MTR-34c | REC - 00905 | COMPMTR | VSD & EEM - RI | 132 | 16 | 132 | 16 | 35,113 | 7.04 | 2.4 |
| Motors | MTR-35a | REC - 00905 | COMPMTR | EEM - ROF | 0 | 0 | 9 | 11 | 1,252 | 1.73 | 9.9 |
| Motors | MTR-35a | REC - 00905 | COMPMTR | EEM - RI | 16 | 19 | 16 | 19 | 3,141 | 2.62 | 6.6 |
| Motors | MTR-35b | REC - 00905 | COMPMTR | VSD to Std - ROF | 0 | 0 | 139 | -8 | 22,468 | 5.36 | 3.2 |
| Motors | MTR-35b | REC - 00905 | COMPMTR | VSD to Std - RI | 146 | 0 | 146 | 0 | 37,448 | 8.05 | 2.1 |
| Motors | MTR-35c | REC - 00905 | COMPMTR | VSD & EEM - ROF | 0 | 0 | 147 | 11 | 25,517 | 5.61 | 3.1 |
| Motors | MTR-35c | REC - 00905 | COMPMTR | VSD & EEM - RI | 153 | 19 | 153 | 19 | 42,432 | 8.48 | 2.0 |
| Motors | MTR-36 | REC - 00905 | COMPMTR | EEM - ROF | 0 | 0 | 2 | 2 | -1,019 | 0.31 | 56.2 |
| Motors | MTR-36 | REC - 00905 | COMPMTR | EEM - RI | 3 | 3 | 3 | 3 | -1,461 | 0.17 | 100.2 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | 133 | 1.34 | 12.9 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-478b | REC - 00905 | Fan Motor | VSD to Std - ROF | 0 | 0 | 16 | -0 | -3,865 | 0.46 | 37.2 |
| Motors | MTR-478b | REC - 00905 | Fan Motor | VSD to Std - RI | 16 | -0 | 16 | -0 | -5,819 | 0.34 | 50.2 |
| Motors | MTR-478c | REC - 00905 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -3,605 | 0.51 | 34.0 |
| Motors | MTR-478c | REC - 00905 | Fan Motor | VSD & EEM - RI | 17 | 1 | 17 | 1 | -5,350 | 0.40 | 42.7 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | 133 | 1.34 | 12.9 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-479b | REC - 00905 | Fan Motor | VSD to Std - ROF | 0 | 0 | 16 | -0 | -3,865 | 0.46 | 37.2 |
| Motors | MTR-479b | REC - 00905 | Fan Motor | VSD to Std - RI | 16 | -0 | 16 | -0 | -5,819 | 0.34 | 50.2 |
| Motors | MTR-479c | REC - 00905 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -3,605 | 0.51 | 34.0 |
| Motors | MTR-479c | REC - 00905 | Fan Motor | VSD & EEM - RI | 17 | 1 | 17 | 1 | -5,350 | 0.40 | 42.7 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - ROF | 0 | 0 | 1 | 1 | 133 | 1.34 | 12.9 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-480b | REC - 00905 | Fan Motor | VSD to Std - ROF | 0 | 0 | 16 | -0 | -3,865 | 0.46 | 37.2 |
| Motors | MTR-480b | REC - 00905 | Fan Motor | VSD to Std - RI | 16 | -0 | 16 | -0 | -5,819 | 0.34 | 50.2 |
| Motors | MTR-480c | REC - 00905 | Fan Motor | VSD & EEM - ROF | 0 | 0 | 16 | 1 | -3,605 | 0.51 | 34.0 |
| Motors | MTR-480c | REC - 00905 | Fan Motor | VSD & EEM - RI | 17 | 1 | 17 | 1 | -5,350 | 0.40 | 42.7 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 3 | 346 | 1.78 | 9.7 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM - RI | 3 | 4 | 3 | 4 | 750 | 2.47 | 7.0 |
| Motors | PMTR-117 | REC - 00905 | PMPMTR | EEM - ROF | 0 | 0 | 2 | 3 | 638 | 4.54 | 3.8 |
| Motors | PMTR-117 | REC - 00905 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 1,059 | 6.12 | 2.8 |
| Motors | MTR-346 | SECURTY - 00326 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-346 | SECURTY - 00326 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-347 | SECURTY - 00326 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 439 | 3.23 | 5.3 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-347 | SECURTY - 00326 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-348 | SECURTY - 00326 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-348 | SECURTY - 00326 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-349 | SECURTY - 00427 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-349 | SECURTY - 00427 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-350 | SHOP - 00356 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-350 | SHOP - 00356 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-352 | SHOP - 00357 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-352 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-353 | SHOP - 00357 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-353 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-354 | SHOP - 00367 | EVAP | EEM - ROF | 0 | 0 | 2 | 7 | 91 | 1.08 | 15.9 |
| Motors | MTR-354 | SHOP - 00367 | EVAP | EEM - RI | 3 | 11 | 3 | 11 | 623 | 1.49 | 11.6 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - ROF | 0 | 0 | 5 | 7 | 1,722 | 2.91 | 5.9 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - RI | 6 | 8 | 6 | 8 | 2,900 | 3.80 | 4.5 |
| Motors | MTR-356 | SHOP - 00384 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-356 | SHOP - 00384 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-357 | SHOP - 00384 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-357 | SHOP - 00384 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-360 | SHOP-ELC - 00581 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-360 | SHOP-ELC - 00581 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-361 | SHOP-ELC - 00581 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-361 | SHOP-ELC - 00581 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-362 | SHOP-ELC - 00616 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-362 | SHOP-ELC - 00616 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-363 | SHOP-WPN - 07602 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-363 | SHOP-WPN - 07602 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-364 | STOR-UH - 00148 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-364 | STOR-UH - 00148 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-365 | TRAING - 00490 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -317 | 0.19 | 91.0 |
| Motors | MTR-365 | TRAING - 00490 | EVAP | EEM - RI | 0 | 0 | 0 | 0 | -418 | 0.05 | 332.4 |
| Motors | MTR-366 | TRAING - 00492 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,171 | 0.20 | 84.7 |
| Motors | MTR-366 | TRAING - 00492 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -1,742 | 0.01 | 1,387.3 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | -1,171 | 0.20 | 84.7 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | -1,742 | 0.01 | 1,387.3 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-369 | TRAING - 00547 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-369 | TRAING - 00547 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - ROF | 0 | 0 | 2 | 2 | 534 | 4.19 | 4.1 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5.61 | 3.1 |
| Motors | MTR-370 | WHS - 00024 | EVAP | EEM - ROF | 0 | 0 | 1 | 2 | 475 | 4.14 | 4.2 |
| Motors | MTR-370 | WHS - 00024 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 768 | 5.11 | 3.4 |
| Motors | MTR-371 | WHS - 00234 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-371 | WHS - 00234 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-372 | WHS - 00277 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-372 | WHS - 00277 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-373 | WHS - 00306 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-373 | WHS - 00306 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-374 | WHS - 00318 | EVAP | EEM - ROF | 0 | 1 | 1 | 1 | -464 | 0.35 | 48.6 |
| Motors | MTR-374 | WHS - 00318 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | -650 | 0.24 | 72.0 |
| Motors | MTR-375 | WHS - 00318 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-375 | WHS - 00318 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-376 | WHS - 00318 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-376 | WHS - 00318 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-378 | WHS - 00333 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-378 | WHS - 00333 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| | | | | | 0 | 0 | 0 | 0 | -293 | 0.20 | 84.7 |
| | | | | | 0 | 0 | 0 | 0 | -436 | 0.01 | 1,387.3 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-380 | WHS - 00333 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-380 | WHS - 00333 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-381 | WHS - 00342 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-381 | WHS - 00342 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-382 | WHS - 00342 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-382 | WHS - 00342 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-383 | WHS - 00344 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-383 | WHS - 00344 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-384 | WHS - 00352 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-384 | WHS - 00352 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-386 | WHS - 00364 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-386 | WHS - 00364 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-389 | WHS - 00435 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-389 | WHS - 00435 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-390 | WHS - 00456 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-390 | WHS - 00456 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-391 | WHS - 00460 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-391 | WHS - 00460 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-395 | WHS - 00470 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-395 | WHS - 00470 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-397 | WHS - 00472 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-397 | WHS - 00472 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-398 | WHS - 00474 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -252 | 0.36 | 47.7 |
| Motors | MTR-398 | WHS - 00474 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -300 | 0.30 | 58.0 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - ROF | 0 | 0 | 3 | 5 | 1,068 | 4.19 | 4.1 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 1,769 | 5.61 | 3.1 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - ROF | 0 | 0 | 4 | 6 | 1,378 | 2.91 | 5.9 |
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-404 | WHS - 00537 | EVAP | EEM - ROF | 0 | 0 | 0 | 0 | -232 | 0.35 | 48.6 |
| Motors | MTR-404 | WHS - 00537 | EVAP | EEM - RI | 0 | 1 | 0 | 1 | -325 | 0.24 | 72.0 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - ROF | 0 | 0 | 1 | 5 | 526 | 2.57 | 6.7 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - RI | 2 | 5 | 2 | 5 | 887 | 3.31 | 5.2 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 146 | 1.13 | 15.2 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 729 | 1.57 | 11.0 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 407 | 3.12 | 5.5 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,220 | 3.12 | 5.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,751 | 3.82 | 4.5 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 407 | 3.12 | 5.5 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - ROF | 0 | 0 | 2 | 3 | 689 | 2.91 | 5.9 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - ROF | 0 | 0 | 1 | 1 | 344 | 2.91 | 5.9 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - ROF | 0 | 0 | 3 | 4 | 1,564 | 3.68 | 4.7 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,768 | 3.85 | 4.5 |
| Motors | MTR-96 | WHS - 20001 | COOL | EEM - ROF | 0 | 0 | 1 | 3 | 195 | 1.33 | 12.9 |
| Motors | MTR-96 | WHS - 20001 | COOL | EEM - RI | 1 | 4 | 1 | 4 | 354 | 1.47 | 11.7 |
| Motors | MTR-37 | WHS-CLD - 00862 | COMPMTR | EEM - ROF | 0 | 0 | 1 | 2 | 270 | 2.79 | 6.2 |
| Motors | MTR-37 | WHS-CLD - 00862 | COMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 437 | 3.34 | 5.2 |
| Motors | MTR-485 | WHS-CLD - 00862 | Fan Motor | EEM - ROF | 0 | 0 | 12 | 5 | 2,428 | 8.26 | 2.1 |
| Motors | MTR-485 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 13 | 5 | 13 | 5 | 3,981 | 11.37 | 1.5 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - ROF | 0 | 0 | 3 | 4 | 336 | 1.43 | 12.1 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 704 | 1.87 | 9.2 |
| Motors | MTR-49 | WHS-CLD - 00862 | CONDMTR | EEM - ROF | 0 | 0 | 1 | 1 | 148 | 1.98 | 8.7 |
| Motors | MTR-49 | WHS-CLD - 00862 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 240 | 2.28 | 7.5 |
| Motors | MTR-50a | WHS-CLD - 00862 | CONDMTR | EEM - ROF | 0 | 0 | 3 | 3 | 54 | 1.06 | 16.2 |
| Motors | MTR-50a | WHS-CLD - 00862 | CONDMTR | EEM - RI | 5 | 4 | 5 | 4 | 344 | 1.34 | 12.9 |
| Motors | MTR-50b | WHS-CLD - 00862 | CONDMTR | VSD to Std - ROF | 0 | 0 | 30 | -1 | -20,696 | 0.07 | 236.9 |
| Motors | MTR-50b | WHS-CLD - 00862 | CONDMTR | VSD to Std - RI | 31 | 0 | 31 | 0 | -31,747 | -0.16 | NA |
| Motors | MTR-50c | WHS-CLD - 00862 | CONDMTR | VSD & EEM - ROF | 0 | 0 | 32 | 3 | -19,848 | 0.12 | 146.9 |
| Mofors | MTR-50c | WHS-CLD - 00862 | CONDMTR | VSD & EEM - RI | 33 | 4 | 33 | 4 | -30,311 | -0.10 | NA |
| Motors | PMTR-120 | WHS-CLD - 00862 | refrigeration unit | EEM - ROF | 0 | 0 | 70 | 28 | 11,876 | 3.84 | 4.5 |
| Motors | PMTR-120 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 106 | 42 | 106 | 42 | 23,238 | 5.88 | 2.9 |
| Motors | PMTR-121 | WHS-CLD - 00862 | refrigeration unit | EEM - ROF | 0 | 0 | 35 | 14 | 5,938 | 3.84 | 4.5 |
| Motors | PMTR-121 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 53 | 21 | 53 | 21 | 11,619 | 5.88 | 2.9 |
| Motors | PMTR-122 | WHS-CLD - 00862 | PMPMTR | EEM - ROF | 0 | 0 | 4 | 5 | 908 | 3.71 | 4.6 |
| Motors | PMTR-122 | WHS-CLD - 00862 | PMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 1,508 | 4.93 | 3.5 |
| Refrigeration | | Commercial | Refrigerators | Efficient Refrigerators - RI | 872 | 479 | 872 | 479 | -35,461 | 0.88 | 19.6 |
| Refrigeration | | HSG-FAM | Refrigerators | Efficient Refrigerators - RI | 3,822 | 2,099 | 3,822 | 2,099 | -155,403 | 0.88 | 19.6 |
| T&D | 10a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 9 | 5 | 9 | 5 | -19,223 | 0.34 | 50.1 |
| T&D | 10b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 9 | 5 | 134 | 1.01 | 17.1 |
| T&D | 10c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 26 | 14 | 26 | 14 | -15,522 | 0.52 | 33.3 |
| T&D | 10d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 26 | 14 | 666 | 1.04 | 16.6 |
| T&D | 10e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 12 | 13 | 12 | 13 | -18,629 | 0.39 | 43.8 |
| T&D | 10f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 12 | 13 | 219 | 1.01 | 17.0 |
| T&D | 10g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 29 | 22 | 29 | 22 | -14,927 | 0.55 | 31.0 |
| T&D | 10h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 29 | 22 | 751 | 1.04 | 16.5 |
| T&D | 11a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -5,690 | 0.64 | 27.1 |
| T&D | 11b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 255 | 1.02 | 16.8 |
| T&D | 11c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 14 | 8 | 14 | 8 | -3,716 | 0.78 | 22.0 |
| T&D | 11d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 14 | 8 | 1,259 | 1.10 | 15.7 |
| T&D | 11e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 7 | 6 | 7 | -5,373 | 0.67 | 25.6 |
| T&D | 11f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 7 | 417 | 1.03 | 16.6 |
| T&D | 11g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 15 | 12 | 15 | 12 | -3,399 | 0.81 | 21.3 |
| T&D | 11h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 15 | 12 | 1,421 | 1.11 | 15.5 |
| T&D | 12a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | -336 | 0.99 | 17.5 |
| T&D | 12b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 770 | 1.03 | 16.7 |
| T&D | 12c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23 | 12 | 23 | 12 | 2,872 | 1.10 | 15.6 |
| T&D | 12d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 23 | 12 | 3,801 | 1.14 | 15.1 |
| T&D | 12e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 11 | 10 | 11 | 179 | 1.01 | 17.1 |
| T&D | 12f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 11 | 1,257 | 1.05 | 16.4 |
| T&D | 12g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 25 | 19 | 25 | 19 | 3,387 | 1.12 | 15.4 |
| T&D | 12h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 25 | 19 | 4,289 | 1.15 | 14.9 |
| T&D | 13a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -9,765 | 0.67 | 25.8 |
| T&D | 13b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 938 | 1.04 | 16.5 |
| T&D | 13c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33 | 18 | 33 | 18 | -4,435 | 0.86 | 20.0 |
| T&D | 13d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 33 | 18 | 3,648 | 1.15 | 14.9 |
| T&D | 13e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 15 | 17 | 15 | 17 | -8,403 | 0.73 | 23.7 |
| T&D | 13f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 17 | 1,631 | 1.07 | 16.1 |
| T&D | 13g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 37 | 29 | 37 | 29 | -3,073 | 0.91 | 19.0 |
| T&D | 13h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 37 | 29 | 4,341 | 1.18 | 14.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 14a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | 207 | 1.02 | 16.9 |
| T&D | 14b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 697 | 1.06 | 16.2 |
| T&D | 14c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 13 | 7 | 13 | 7 | 2,338 | 1.18 | 14.6 |
| T&D | 14d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 13 | 7 | 2,711 | 1.22 | 14.1 |
| T&D | 14e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 7 | 6 | 7 | 751 | 1.06 | 16.2 |
| T&D | 14f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 7 | 1,212 | 1.10 | 15.6 |
| T&D | 14g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 15 | 12 | 15 | 12 | 2,883 | 1.21 | 14.2 |
| T&D | 14h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 15 | 12 | 3,226 | 1.25 | 13.8 |
| T&D | 15a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -7,327 | 0.37 | 46.0 |
| T&D | 15b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 106 | 1.02 | 16.9 |
| T&D | 15c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 13 | 7 | 13 | 7 | -5,195 | 0.60 | 28.9 |
| T&D | 15d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 13 | 7 | 412 | 1.06 | 16.3 |
| T&D | 15e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 7 | 6 | 7 | -6,783 | 0.45 | 38.5 |
| T&D | 15f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 7 | 184 | 1.03 | 16.8 |
| T&D | 15g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 15 | 12 | 15 | 12 | -4,651 | 0.65 | 26.4 |
| T&D | 15h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 15 | 12 | 490 | 1.07 | 16.1 |
| T&D | 16a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -285 | 0.99 | 17.5 |
| T&D | 16b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 651 | 1.03 | 16.7 |
| T&D | 16c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 19 | 10 | 19 | 10 | 2,430 | 1.10 | 15.6 |
| T&D | 16d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 19 | 10 | 3,216 | 1.14 | 15.1 |
| T&D | 16e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 9 | 9 | 9 | 151 | 1.01 | 17.1 |
| T&D | 16f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 9 | 1,064 | 1.05 | 16.4 |
| T&D | 16g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 21 | 16 | 21 | 16 | 2,866 | 1.12 | 15.4 |
| T&D | 16h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 21 | 16 | 3,629 | 1.15 | 14.9 |
| T&D | 17a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -12,655 | 0.64 | 26.9 |
| T&D | 17b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 650 | 1.03 | 16.8 |
| T&D | 17c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33 | 18 | 33 | 18 | -7,947 | 0.79 | 21.7 |
| T&D | 17d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 33 | 18 | 3,044 | 1.11 | 15.6 |
| T&D | 17e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14 | 16 | 14 | 16 | -11,942 | 0.68 | 25.5 |
| T&D | 17f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 16 | 1,014 | 1.04 | 16.6 |
| T&D | 17g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 36 | 27 | 36 | 27 | -7,233 | 0.82 | 21.0 |
| T&D | 17h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 36 | 27 | 3,408 | 1.11 | 15.4 |
| T&D | 18a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -87 | 0.99 | 17.4 |
| T&D | 18b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 358 | 1.04 | 16.6 |
| T&D | 18c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10 | 5 | 10 | 5 | 1,327 | 1.12 | 15.4 |
| T&D | 18d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 5 | 1,694 | 1.15 | 14.9 |
| T&D | 18e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4 | 5 | 4 | 5 | 214 | 1.02 | 16.9 |
| T&D | 18f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 4 | 5 | 643 | 1.06 | 16.2 |
| T&D | 18g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11 | 8 | 11 | 8 | 1,627 | 1.14 | 15.1 |
| T&D | 18h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 11 | 8 | 1,979 | 1.17 | 14.7 |
| T&D | 19a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -5,547 | 0.64 | 26.8 |
| T&D | 19b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 290 | 1.03 | 16.8 |
| T&D | 19c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | -3,426 | 0.80 | 21.6 |
| T&D | 19d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 1,368 | 1.11 | 15.5 |
| T&D | 19e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 8 | 7 | 8 | -5,096 | 0.69 | 25.1 |
| T&D | 19f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 8 | 520 | 1.04 | 16.5 |
| T&D | 19g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16 | 13 | 16 | 13 | -2,975 | 0.83 | 20.7 |
| T&D | 19h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 16 | 13 | 1,598 | 1.12 | 15.4 |
| T&D | 1a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 1 | 0 | 1 | 0 | -808 | 0.63 | 27.5 |
| T&D | 1b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 1 | 0 | 27 | 1.02 | 16.9 |
| T&D | 1c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 2 | 1 | 2 | 1 | -575 | 0.76 | 22.8 |
| T&D | 1d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 2 | 1 | 145 | 1.08 | 15.9 |
| T&D | 1e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 1 | 1 | 1 | 1 | -765 | 0.66 | 26.1 |
| T&D | 1f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 1 | 1 | 49 | 1.03 | 16.7 |
| T&D | 1g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 2 | 1 | 2 | 1 | -532 | 0.78 | 22.0 |
| T&D | 1h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 2 | 1 | 167 | 1.09 | 15.8 |
| T&D | 20a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -6,702 | 0.35 | 49.1 |
| T&D | 20b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 54 | 1.01 | 17.1 |
| T&D | 20c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10 | 5 | 10 | 5 | -5,288 | 0.53 | 32.2 |
| T&D | 20d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 5 | 257 | 1.04 | 16.5 |
| T&D | 20e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4 | 5 | 4 | 5 | -6,401 | 0.41 | 42.1 |
| T&D | 20f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 4 | 5 | 97 | 1.02 | 16.9 |
| T&D | 20g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11 | 8 | 11 | 8 | -4,988 | 0.58 | 29.7 |
| T&D | 20h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 11 | 8 | 300 | 1.05 | 16.5 |
| T&D | 21a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 35 | 18 | 35 | 18 | 1,950 | 1.02 | 16.8 |
| T&D | 21b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 35 | 18 | 5,266 | 1.07 | 16.1 |
| T&D | 21c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 97 | 52 | 97 | 52 | 17,657 | 1.20 | 14.3 |
| T&D | 21d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 97 | 52 | 20,097 | 1.24 | 13.9 |
| T&D | 21e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 45 | 54 | 45 | 54 | 6,726 | 1.08 | 15.9 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 21f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 45 | 54 | 9,770 | 1.12 | 15.4 |
| T&D | 21g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 107 | 87 | 107 | 87 | 22,424 | 1.24 | 13.8 |
| T&D | 21h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 107 | 87 | 24,602 | 1.28 | 13.5 |
| T&D | 22a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 20 | 11 | 20 | 11 | -15,111 | 0.67 | 25.5 |
| T&D | 22b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 20 | 11 | 1,646 | 1.05 | 16.4 |
| T&D | 22c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 56 | 30 | 56 | 30 | -5,996 | 0.88 | 19.5 |
| T&D | 22d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 56 | 30 | 6,281 | 1.17 | 14.8 |
| T&D | 22e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 26 | 31 | 26 | 31 | -12,343 | 0.75 | 23.1 |
| T&D | 22f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 26 | 31 | 3,054 | 1.08 | 15.9 |
| T&D | 22g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 62 | 50 | 62 | 50 | -3,228 | 0.94 | 18.3 |
| T&D | 22h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 62 | 50 | 7,688 | 1.20 | 14.4 |
| T&D | 23a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -9,543 | 0.38 | 44.9 |
| T&D | 23b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 155 | 1.02 | 16.9 |
| T&D | 23c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 19 | 10 | 19 | 10 | -6,505 | 0.62 | 27.9 |
| T&D | 23d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 19 | 10 | 501 | 1.06 | 16.2 |
| T&D | 23e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 10 | 9 | 10 | -8,621 | 0.47 | 36.7 |
| T&D | 23f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 10 | 287 | 1.03 | 16.7 |
| T&D | 23g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 21 | 17 | 21 | 17 | -5,582 | 0.69 | 25.1 |
| T&D | 23h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 21 | 17 | 724 | 1.07 | 16.0 |
| T&D | 24a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 3 | 1 | 3 | 1 | -65 | 0.99 | 17.4 |
| T&D | 24b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 3 | 1 | 269 | 1.04 | 16.6 |
| T&D | 24c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | 995 | 1.12 | 15.4 |
| T&D | 24d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 1,271 | 1.15 | 14.9 |
| T&D | 24e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 3 | 4 | 3 | 4 | 160 | 1.02 | 16.9 |
| T&D | 24f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 3 | 4 | 482 | 1.06 | 16.2 |
| T&D | 24g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8 | 6 | 8 | 6 | 1,221 | 1.14 | 15.1 |
| T&D | 24h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 8 | 6 | 1,484 | 1.17 | 14.7 |
| T&D | 25a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 3 | 1 | 3 | 1 | -2,773 | 0.64 | 26.8 |
| T&D | 25b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 3 | 1 | 145 | 1.03 | 16.8 |
| T&D | 25c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | 1,713 | 0.80 | 21.6 |
| T&D | 25d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 684 | 1.11 | 15.5 |
| T&D | 25e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 3 | 4 | 3 | 4 | -2,548 | 0.69 | 25.1 |
| T&D | 25f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 3 | 4 | 260 | 1.04 | 16.5 |
| T&D | 25g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8 | 6 | 8 | 6 | -1,488 | 0.83 | 20.7 |
| T&D | 25h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 8 | 6 | 799 | 1.12 | 15.4 |
| T&D | 26a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -10,053 | 0.35 | 49.1 |
| T&D | 26b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 81 | 1.01 | 17.1 |
| T&D | 26c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | -7,932 | 0.53 | 32.2 |
| T&D | 26d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 386 | 1.04 | 16.5 |
| T&D | 26e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 8 | 7 | 8 | -9,602 | 0.41 | 42.1 |
| T&D | 26f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 8 | 146 | 1.02 | 16.9 |
| T&D | 26g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16 | 13 | 16 | 13 | -7,481 | 0.58 | 29.7 |
| T&D | 26h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 16 | 13 | 451 | 1.05 | 16.5 |
| T&D | 27a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16 | 8 | 16 | 8 | -16,641 | 0.64 | 26.8 |
| T&D | 27b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 16 | 8 | 869 | 1.03 | 16.8 |
| T&D | 27c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 44 | 24 | 44 | 24 | -10,279 | 0.80 | 21.6 |
| T&D | 27d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 44 | 24 | 4,105 | 1.11 | 15.5 |
| T&D | 27e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 20 | 23 | 20 | 23 | -15,287 | 0.69 | 25.1 |
| T&D | 27f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 20 | 23 | 1,559 | 1.04 | 16.5 |
| T&D | 27g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 49 | 38 | 49 | 38 | -8,925 | 0.83 | 20.7 |
| T&D | 27h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 49 | 38 | 4,794 | 1.12 | 15.4 |
| T&D | 28a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -10,053 | 0.35 | 49.1 |
| T&D | 28b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 81 | 1.01 | 17.1 |
| T&D | 28c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | -7,932 | 0.53 | 32.2 |
| T&D | 28d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 386 | 1.04 | 16.5 |
| T&D | 28e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 8 | 7 | 8 | -9,602 | 0.41 | 42.1 |
| T&D | 28f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 8 | 146 | 1.02 | 16.9 |
| T&D | 28g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16 | 13 | 16 | 13 | -7,481 | 0.58 | 29.7 |
| T&D | 28h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 16 | 13 | 451 | 1.05 | 16.5 |
| T&D | 29a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | 207 | 1.01 | 17.1 |
| T&D | 29b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 1,842 | 1.05 | 16.4 |
| T&D | 29c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 42 | 22 | 42 | 22 | 6,523 | 1.15 | 14.9 |
| T&D | 29d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 42 | 22 | 7,810 | 1.19 | 14.5 |
| T&D | 29e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 19 | 21 | 19 | 21 | 1,474 | 1.04 | 16.6 |
| T&D | 29f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 19 | 21 | 3,040 | 1.08 | 16.0 |
| T&D | 29g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 45 | 35 | 45 | 35 | 7,789 | 1.17 | 14.7 |
| T&D | 29h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 45 | 35 | 9,008 | 1.21 | 14.3 |
| T&D | 2a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -205 | 0.99 | 17.4 |
| T&D | 2b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 681 | 1.03 | 16.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 2c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 19 | 10 | 19 | 10 | 2,453 | 1.11 | 15.5 |
| T&D | 2d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 19 | 10 | 3,192 | 1.15 | 15.0 |
| T&D | 2e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8 | 8 | 8 | 8 | 45 | 1.00 | 17.2 |
| T&D | 2f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 8 | 918 | 1.04 | 16.5 |
| T&D | 2g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 20 | 15 | 20 | 15 | 2,703 | 1.12 | 15.4 |
| T&D | 2h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 20 | 15 | 3,430 | 1.15 | 14.9 |
| T&D | 30a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 22 | 12 | 22 | 12 | -19,929 | 0.66 | 26.2 |
| T&D | 30b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 22 | 12 | 1,489 | 1.03 | 16.6 |
| T&D | 30c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 63 | 33 | 63 | 33 | -10,455 | 0.84 | 20.6 |
| T&D | 30d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 63 | 33 | 6,306 | 1.13 | 15.2 |
| T&D | 30e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 28 | 31 | 28 | 31 | -18,029 | 0.70 | 24.4 |
| T&D | 30f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 28 | 31 | 2,456 | 1.05 | 16.3 |
| T&D | 30g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 68 | 53 | 68 | 53 | -8,555 | 0.87 | 19.7 |
| T&D | 30h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 68 | 53 | 7,274 | 1.15 | 15.0 |
| T&D | 31a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 6 | 3 | 6 | 3 | -10,213 | 0.37 | 47.0 |
| T&D | 31b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 0 | 0 | 6 | 3 | 116 | 1.01 | 17.0 |
| T&D | 31c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 17 | 9 | 17 | 9 | -7,582 | 0.57 | 30.0 |
| T&D | 31d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 17 | 9 | 494 | 1.05 | 16.4 |
| T&D | 31e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8 | 9 | 8 | 9 | -9,686 | 0.43 | 40.2 |
| T&D | 31f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 9 | 192 | 1.02 | 16.9 |
| T&D | 31g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 19 | 15 | 19 | 15 | -7,054 | 0.62 | 27.8 |
| T&D | 31h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 19 | 15 | 570 | 1.06 | 16.3 |
| T&D | 32a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 9 | 5 | 9 | 5 | 630 | 1.03 | 16.7 |
| T&D | 32b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 9 | 5 | 1,418 | 1.08 | 16.0 |
| T&D | 32c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 25 | 13 | 25 | 13 | 4,735 | 1.22 | 14.1 |
| T&D | 32d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 25 | 13 | 5,207 | 1.26 | 13.7 |
| T&D | 32e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 12 | 14 | 12 | 14 | 1,940 | 1.10 | 15.7 |
| T&D | 32f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 12 | 14 | 2,657 | 1.13 | 15.2 |
| T&D | 32g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 28 | 23 | 28 | 23 | 6,046 | 1.27 | 13.5 |
| T&D | 32h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 28 | 23 | 6,535 | 1.30 | 13.2 |
| T&D | 33a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -3,058 | 0.68 | 25.2 |
| T&D | 33b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 382 | 1.05 | 16.3 |
| T&D | 33c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12 | 7 | 12 | 7 | -1,006 | 0.91 | 19.0 |
| T&D | 33d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 7 | 1,425 | 1.18 | 14.6 |
| T&D | 33e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 7 | 6 | 7 | -2,403 | 0.76 | 22.6 |
| T&D | 33f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 7 | 715 | 1.10 | 15.7 |
| T&D | 33g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 14 | 11 | 14 | 11 | -350 | 0.97 | 17.8 |
| T&D | 33h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 14 | 11 | 1,759 | 1.21 | 14.2 |
| T&D | 34a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -5,865 | 0.39 | 43.8 |
| T&D | 34b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 108 | 1.02 | 16.9 |
| T&D | 34c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12 | 7 | 12 | 7 | -3,812 | 0.64 | 26.8 |
| T&D | 34d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 7 | 402 | 1.07 | 16.1 |
| T&D | 34e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 7 | 6 | 7 | -5,210 | 0.49 | 35.3 |
| T&D | 34f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 7 | 202 | 1.04 | 16.6 |
| T&D | 34g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 14 | 11 | 14 | 11 | -3,157 | 0.72 | 24.0 |
| T&D | 34h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 14 | 11 | 497 | 1.08 | 15.9 |
| T&D | 35a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 2 | 1 | 2 | 1 | 34 | 1.01 | 17.1 |
| T&D | 35b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 2 | 1 | 307 | 1.05 | 16.4 |
| T&D | 35c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | 1,087 | 1.15 | 14.9 |
| T&D | 35d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 1,302 | 1.19 | 14.5 |
| T&D | 35e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 3 | 3 | 3 | 3 | 246 | 1.04 | 16.6 |
| T&D | 35f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 3 | 3 | 507 | 1.08 | 16.0 |
| T&D | 35g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8 | 6 | 8 | 6 | 1,298 | 1.17 | 14.7 |
| T&D | 35h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 8 | 6 | 1,501 | 1.21 | 14.3 |
| T&D | 36a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -6,128 | 0.37 | 47.0 |
| T&D | 36b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 70 | 1.01 | 17.0 |
| T&D | 36c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10 | 6 | 10 | 6 | -4,549 | 0.57 | 30.0 |
| T&D | 36d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 6 | 297 | 1.05 | 16.4 |
| T&D | 36e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 5 | 5 | 5 | -5,811 | 0.43 | 40.2 |
| T&D | 36f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 5 | 115 | 1.02 | 16.9 |
| T&D | 36g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11 | 9 | 11 | 9 | -4,232 | 0.62 | 27.8 |
| T&D | 36h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 11 | 9 | 342 | 1.06 | 16.3 |
| T&D | 37a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | 103 | 1.01 | 17.1 |
| T&D | 37b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 921 | 1.05 | 16.4 |
| T&D | 37c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 21 | 11 | 21 | 11 | 3,261 | 1.15 | 14.9 |
| T&D | 37d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 21 | 11 | 3,905 | 1.19 | 14.5 |
| T&D | 37e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 10 | 9 | 10 | 737 | 1.04 | 16.6 |
| T&D | 37f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 10 | 1,520 | 1.08 | 16.0 |
| T&D | 37g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 23 | 18 | 23 | 18 | 3,895 | 1.17 | 14.7 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 37h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 23 | 18 | 4,504 | 1.21 | 14.3 |
| T&D | 38a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -12,256 | 0.37 | 47.0 |
| T&D | 38b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 140 | 1.01 | 17.0 |
| T&D | 38c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 21 | 11 | 21 | 11 | -9,098 | 0.57 | 30.0 |
| T&D | 38d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 21 | 11 | 593 | 1.05 | 16.4 |
| T&D | 38e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 10 | 9 | 10 | -11,623 | 0.43 | 40.2 |
| T&D | 38f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 10 | 230 | 1.02 | 16.9 |
| T&D | 38g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 23 | 18 | 23 | 18 | -8,465 | 0.62 | 27.8 |
| T&D | 38h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 23 | 18 | 684 | 1.06 | 16.3 |
| T&D | 39a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | 868 | 1.03 | 16.6 |
| T&D | 39b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 1,881 | 1.08 | 16.0 |
| T&D | 39c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33 | 17 | 33 | 17 | 6,281 | 1.23 | 14.0 |
| T&D | 39d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 33 | 17 | 6,995 | 1.26 | 13.6 |
| T&D | 39e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 15 | 19 | 15 | 19 | 2,705 | 1.10 | 15.6 |
| T&D | 39f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 19 | 3,617 | 1.14 | 15.1 |
| T&D | 39g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 36 | 30 | 36 | 30 | 8,118 | 1.28 | 13.4 |
| T&D | 39h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 36 | 30 | 8,730 | 1.31 | 13.1 |
| T&D | 3a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 2 | 5 | 2 | -5,105 | 0.64 | 27.0 |
| T&D | 3b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 2 | 254 | 1.02 | 16.8 |
| T&D | 3c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 13 | 7 | 13 | 7 | -3,265 | 0.79 | 21.8 |
| T&D | 3d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 13 | 7 | 1,190 | 1.10 | 15.6 |
| T&D | 3e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 6 | 6 | 6 | 6 | -4,931 | 0.67 | 25.9 |
| T&D | 3f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 6 | 6 | 343 | 1.03 | 16.7 |
| T&D | 3g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 14 | 10 | 14 | 10 | -3,091 | 0.81 | 21.3 |
| T&D | 3h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 14 | 10 | 1,279 | 1.11 | 15.5 |
| T&D | 40a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 3 | 2 | 3 | 2 | -2,235 | 0.69 | 25.1 |
| T&D | 40b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 3 | 2 | 289 | 1.06 | 16.3 |
| T&D | 40c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 9 | 5 | 9 | 5 | -688 | 0.91 | 18.9 |
| T&D | 40d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 9 | 5 | 1,076 | 1.19 | 14.5 |
| T&D | 40e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4 | 5 | 4 | 5 | -1,710 | 0.77 | 22.3 |
| T&D | 40f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 4 | 5 | 556 | 1.10 | 15.6 |
| T&D | 40g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 10 | 9 | 10 | 9 | -164 | 0.98 | 17.6 |
| T&D | 40h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 10 | 9 | 1,342 | 1.22 | 14.1 |
| T&D | 41a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -8,601 | 0.40 | 43.4 |
| T&D | 41b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 163 | 1.02 | 16.9 |
| T&D | 41c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 19 | 10 | 19 | 10 | -5,508 | 0.65 | 26.5 |
| T&D | 41d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 19 | 10 | 607 | 1.07 | 16.1 |
| T&D | 41e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 11 | 9 | 11 | -7,552 | 0.50 | 34.7 |
| T&D | 41f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 11 | 314 | 1.04 | 16.6 |
| T&D | 41g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 21 | 17 | 21 | 17 | -4,459 | 0.73 | 23.6 |
| T&D | 41h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 21 | 17 | 758 | 1.08 | 15.9 |
| T&D | 42a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 51 | 27 | 51 | 27 | -415 | 1.00 | 17.3 |
| T&D | 42b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 51 | 27 | 5,546 | 1.04 | 16.5 |
| T&D | 42c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 143 | 77 | 143 | 77 | 20,458 | 1.13 | 15.2 |
| T&D | 42d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 143 | 77 | 25,269 | 1.17 | 14.7 |
| T&D | 42e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 67 | 79 | 67 | 79 | 5,479 | 1.04 | 16.6 |
| T&D | 42f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 67 | 79 | 11,118 | 1.08 | 16.0 |
| T&D | 42g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 159 | 129 | 159 | 129 | 26,352 | 1.16 | 14.8 |
| T&D | 42h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 159 | 129 | 30,841 | 1.20 | 14.4 |
| T&D | 43a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | -10,608 | 0.65 | 26.5 |
| T&D | 43b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 646 | 1.03 | 16.7 |
| T&D | 43c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 31 | 17 | 31 | 17 | -6,095 | 0.82 | 21.1 |
| T&D | 43d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 31 | 17 | 2,941 | 1.12 | 15.4 |
| T&D | 43e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14 | 17 | 14 | 17 | -9,333 | 0.71 | 24.4 |
| T&D | 43f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 17 | 1,295 | 1.06 | 16.3 |
| T&D | 43g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 34 | 28 | 34 | 28 | -4,820 | 0.86 | 20.0 |
| T&D | 43h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 34 | 28 | 3,590 | 1.14 | 15.1 |
| T&D | 44a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 24 | 13 | 24 | 13 | -41,137 | 0.36 | 47.9 |
| T&D | 44b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 24 | 13 | 386 | 1.01 | 17.0 |
| T&D | 44c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 66 | 35 | 66 | 35 | -31,546 | 0.55 | 31.0 |
| T&D | 44d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 66 | 35 | 1,763 | 1.05 | 16.5 |
| T&D | 44e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 31 | 36 | 31 | 36 | -38,429 | 0.43 | 40.0 |
| T&D | 44f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 31 | 36 | 774 | 1.02 | 16.9 |
| T&D | 44g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 73 | 59 | 73 | 59 | -28,839 | 0.61 | 28.2 |
| T&D | 44h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 73 | 59 | 2,151 | 1.05 | 16.3 |
| T&D | 45a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | 936 | 1.04 | 16.5 |
| T&D | 45b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 1,847 | 1.08 | 15.9 |
| T&D | 45c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 31 | 17 | 31 | 17 | 6,127 | 1.24 | 13.8 |
| T&D | 45d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 31 | 17 | 6,751 | 1.28 | 13.5 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 45c | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14 | 17 | 14 | 17 | 2,636 | 1.11 | 15.5 |
| T&D | 45f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 17 | 3,454 | 1.15 | 15.0 |
| T&D | 45g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 34 | 28 | 34 | 28 | 7,827 | 1.30 | 13.3 |
| T&D | 45h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 34 | 28 | 8,357 | 1.33 | 13.0 |
| T&D | 46a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 6 | 3 | 6 | 3 | -3,476 | 0.69 | 24.8 |
| T&D | 46b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 6 | 3 | 497 | 1.06 | 16.3 |
| T&D | 46c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | -881 | 0.93 | 18.5 |
| T&D | 46d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 1,817 | 1.20 | 14.4 |
| T&D | 46e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 9 | 7 | 9 | -2,626 | 0.78 | 22.1 |
| T&D | 46f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 9 | 930 | 1.11 | 15.6 |
| T&D | 46g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 17 | 14 | 17 | 14 | -31 | 1.00 | 17.3 |
| T&D | 46h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 17 | 14 | 2,249 | 1.23 | 14.0 |
| T&D | 47a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | -13,516 | 0.40 | 42.7 |
| T&D | 47b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 280 | 1.02 | 16.8 |
| T&D | 47c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 31 | 17 | 31 | 17 | -8,325 | 0.67 | 25.8 |
| T&D | 47d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 31 | 17 | 1,026 | 1.08 | 16.0 |
| T&D | 47e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14 | 17 | 14 | 17 | 11,815 | 0.50 | 34.2 |
| T&D | 47f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 17 | 525 | 1.04 | 16.5 |
| T&D | 47g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 34 | 28 | 34 | 28 | -6,625 | 0.75 | 23.1 |
| T&D | 47h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 34 | 28 | 1,270 | 1.09 | 15.8 |
| T&D | 48a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 3 | 1 | 3 | 1 | -22 | 1.00 | 17.3 |
| T&D | 48b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 3 | 1 | 300 | 1.04 | 16.5 |
| T&D | 48c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | 1,106 | 1.13 | 15.2 |
| T&D | 48d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 1,366 | 1.17 | 14.7 |
| T&D | 48e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4 | 4 | 4 | 4 | 296 | 1.04 | 16.6 |
| T&D | 48f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 4 | 4 | 601 | 1.08 | 16.0 |
| T&D | 48g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 9 | 7 | 9 | 7 | 1,424 | 1.16 | 14.8 |
| T&D | 48h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 9 | 7 | 1,667 | 1.20 | 14.4 |
| T&D | 49a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -3,978 | 0.65 | 26.5 |
| T&D | 49b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 242 | 1.03 | 16.7 |
| T&D | 49c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -2,285 | 0.82 | 21.1 |
| T&D | 49d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 1,103 | 1.12 | 15.4 |
| T&D | 49e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 6 | 5 | 6 | -3,500 | 0.71 | 24.4 |
| T&D | 49f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 6 | 486 | 1.06 | 16.3 |
| T&D | 49g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13 | 10 | 13 | 10 | -1,808 | 0.86 | 20.0 |
| T&D | 49h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 13 | 10 | 1,346 | 1.14 | 15.1 |
| T&D | 4a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 2 | 1 | 2 | 1 | -3,078 | 0.35 | 49.9 |
| T&D | 4b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 2 | 1 | 24 | 1.01 | 17.1 |
| T&D | 4c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -2,465 | 0.52 | 33.1 |
| T&D | 4d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 112 | 1.04 | 16.6 |
| T&D | 4e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 2 | 2 | 2 | 2 | -3,020 | 0.39 | 44.6 |
| T&D | 4f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 2 | 2 | 32 | 1.01 | 17.0 |
| T&D | 4g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -2,407 | 0.55 | 31.2 |
| T&D | 4h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 5 | 3 | 120 | 1.04 | 16.5 |
| T&D | 50a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 7 | 12 | 7 | 862 | 1.03 | 16.7 |
| T&D | 50b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 7 | 1,937 | 1.08 | 16.0 |
| T&D | 50c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 34 | 18 | 34 | 18 | 6,503 | 1.22 | 14.1 |
| T&D | 50d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 34 | 18 | 7,267 | 1.26 | 13.7 |
| T&D | 50e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16 | 20 | 16 | 20 | 2,907 | 1.10 | 15.6 |
| T&D | 50f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 20 | 3,869 | 1.14 | 15.1 |
| T&D | 50g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 38 | 32 | 38 | 32 | 8,548 | 1.28 | 13.5 |
| T&D | 50h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 38 | 32 | 9,199 | 1.31 | 13.1 |
| T&D | 51a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | -3,575 | 0.68 | 25.2 |
| T&D | 51b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 447 | 1.05 | 16.3 |
| T&D | 51c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | -1,157 | 0.91 | 19.0 |
| T&D | 51d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 1,676 | 1.18 | 14.6 |
| T&D | 51e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 9 | 7 | 9 | -2,699 | 0.77 | 22.3 |
| T&D | 51f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 9 | 893 | 1.10 | 15.6 |
| T&D | 51g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16 | 14 | 16 | 14 | -281 | 0.98 | 17.6 |
| T&D | 51h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 16 | 14 | 2,122 | 1.22 | 14.1 |
| T&D | 52a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 10 | 6 | 10 | 6 | -13,713 | 0.39 | 43.6 |
| T&D | 52b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 6 | 252 | 1.02 | 16.9 |
| T&D | 52c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 29 | 16 | 29 | 16 | -8,878 | 0.64 | 26.7 |
| T&D | 52d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 29 | 16 | 947 | 1.07 | 16.1 |
| T&D | 52e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14 | 17 | 14 | 17 | -11,960 | 0.50 | 34.6 |
| T&D | 52f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 17 | 504 | 1.04 | 16.6 |
| T&D | 52g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 33 | 28 | 33 | 28 | -7,125 | 0.73 | 23.7 |
| T&D | 52h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 33 | 28 | 1,198 | 1.08 | 15.9 |
| T&D | 53a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 28 | 15 | 28 | 15 | 1,605 | 1.03 | 16.8 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 53b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 28 | 15 | 4,118 | 1.07 | 16.1 |
| T&D | 53c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 78 | 41 | 78 | 41 | 14,085 | 1.21 | 14.3 |
| T&D | 53d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 78 | 41 | 15,910 | 1.24 | 13.9 |
| T&D | 53e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 35 | 39 | 35 | 39 | 4,379 | 1.07 | 16.1 |
| T&D | 53f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 35 | 39 | 6,741 | 1.11 | 15.5 |
| T&D | 53g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 85 | 65 | 85 | 65 | 16,860 | 1.24 | 13.9 |
| T&D | 53h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 85 | 65 | 18,533 | 1.27 | 13.6 |
| T&D | 54a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 34 | 18 | 34 | 18 | -24,269 | 0.68 | 25.4 |
| T&D | 54b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 34 | 18 | 2,730 | 1.05 | 16.4 |
| T&D | 54c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 95 | 51 | 95 | 51 | -8,908 | 0.89 | 19.3 |
| T&D | 54d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 95 | 51 | 10,539 | 1.17 | 14.7 |
| T&D | 54e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 43 | 48 | 43 | 48 | -20,853 | 0.74 | 23.3 |
| T&D | 54f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 43 | 48 | 4,468 | 1.08 | 16.0 |
| T&D | 54g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 104 | 81 | 104 | 81 | -5,493 | 0.94 | 18.4 |
| T&D | 54h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 104 | 81 | 12,277 | 1.19 | 14.5 |
| T&D | 55a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 49 | 26 | 49 | 26 | -66,273 | 0.39 | 44.2 |
| T&D | 55b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 49 | 26 | 1,105 | 1.02 | 16.9 |
| T&D | 55c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 137 | 73 | 137 | 73 | -44,192 | 0.63 | 27.2 |
| T&D | 55d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 137 | 73 | 4,277 | 1.07 | 16.2 |
| T&D | 55e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 61 | 69 | 61 | 69 | -61,364 | 0.46 | 37.1 |
| T&D | 55f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 61 | 69 | 1,810 | 1.03 | 16.7 |
| T&D | 55g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 150 | 116 | 150 | 116 | -39,283 | 0.69 | 25.0 |
| T&D | 55h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 150 | 116 | 4,982 | 1.07 | 16.1 |
| T&D | 56a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 27 | 14 | 27 | 14 | -13,112 | 0.72 | 23.8 |
| T&D | 56b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 27 | 14 | 2,750 | 1.08 | 16.0 |
| T&D | 56c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 75 | 40 | 75 | 40 | 180 | 1.00 | 17.2 |
| T&D | 56d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 75 | 40 | 9,511 | 1.25 | 13.8 |
| T&D | 56e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 35 | 40 | 35 | 40 | -9,169 | 0.82 | 21.1 |
| T&D | 56f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 35 | 40 | 4,755 | 1.13 | 15.2 |
| T&D | 56g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 83 | 66 | 83 | 66 | 4,132 | 1.08 | 16.0 |
| T&D | 56h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 83 | 66 | 11,516 | 1.29 | 13.4 |
| T&D | 57a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | -8,028 | 0.43 | 39.7 |
| T&D | 57b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 233 | 1.03 | 16.7 |
| T&D | 57c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23 | 12 | 23 | 12 | -4,037 | 0.74 | 23.2 |
| T&D | 57d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 23 | 12 | 806 | 1.09 | 15.7 |
| T&D | 57e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 12 | 10 | 12 | -6,845 | 0.54 | 31.8 |
| T&D | 57f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 12 | 403 | 1.05 | 16.4 |
| T&D | 57g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 25 | 20 | 25 | 20 | -2,854 | 0.83 | 20.8 |
| T&D | 57h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 25 | 20 | 976 | 1.11 | 15.5 |
| T&D | 58a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | -3,934 | 0.72 | 23.8 |
| T&D | 58b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 825 | 1.08 | 16.0 |
| T&D | 58c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23 | 12 | 23 | 12 | 57 | 1.00 | 17.2 |
| T&D | 58d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 23 | 12 | 2,853 | 1.25 | 13.8 |
| T&D | 58e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 12 | 10 | 12 | -2,751 | 0.82 | 21.1 |
| T&D | 58f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 12 | 1,427 | 1.13 | 15.2 |
| T&D | 58g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 25 | 20 | 25 | 20 | 1,240 | 1.08 | 16.0 |
| T&D | 58h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 25 | 20 | 3,455 | 1.29 | 13.4 |
| T&D | 59a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 32 | 17 | 32 | 17 | 2,327 | 1.04 | 16.6 |
| T&D | 59b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 32 | 17 | 5,011 | 1.08 | 16.0 |
| T&D | 59c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 89 | 48 | 89 | 48 | 16,969 | 1.23 | 14.0 |
| T&D | 59d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 89 | 48 | 18,844 | 1.26 | 13.6 |
| T&D | 59e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 40 | 46 | 40 | 46 | 6,023 | 1.09 | 15.9 |
| T&D | 59f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 40 | 46 | 8,504 | 1.13 | 15.3 |
| T&D | 59g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 98 | 77 | 98 | 77 | 20,665 | 1.27 | 13.6 |
| T&D | 59h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 98 | 77 | 22,337 | 1.30 | 13.3 |
| T&D | 5a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 1 | 1 | 1 | 1 | -1,134 | 0.64 | 27.0 |
| T&D | 5b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 1 | 1 | 56 | 1.02 | 16.8 |
| T&D | 5c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 3 | 2 | 3 | 2 | -726 | 0.79 | 21.8 |
| T&D | 5d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 3 | 2 | 264 | 1.10 | 15.6 |
| T&D | 5e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 1 | 1 | 1 | 1 | -1,096 | 0.67 | 25.9 |
| T&D | 5f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 1 | 1 | 76 | 1.03 | 16.7 |
| T&D | 5g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 3 | 2 | 3 | 2 | -687 | 0.81 | 21.3 |
| T&D | 5h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 3 | 2 | 284 | 1.11 | 15.5 |
| T&D | 60a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16 | 9 | 16 | 9 | -10,356 | 0.69 | 25.0 |
| T&D | 60b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 16 | 9 | 1,349 | 1.06 | 16.3 |
| T&D | 60c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 45 | 24 | 45 | 24 | -3,035 | 0.92 | 18.8 |
| T&D | 60d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 45 | 24 | 5,071 | 1.19 | 14.5 |
| T&D | 60e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 20 | 23 | 20 | 23 | -8,508 | 0.76 | 22.7 |
| T&D | 60f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 20 | 23 | 2,289 | 1.09 | 15.8 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 60g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 49 | 38 | 49 | 38 | -1,187 | 0.97 | 17.8 |
| T&D | 60h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 49 | 38 | 6,011 | 1.21 | 14.2 |
| T&D | 61a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 29 | 16 | 29 | 16 | -36,558 | 0.40 | 43.0 |
| T&D | 61b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 29 | 16 | 697 | 1.02 | 16.9 |
| T&D | 61c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 82 | 44 | 82 | 44 | -23,136 | 0.66 | 26.2 |
| T&D | 61d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 82 | 44 | 2,625 | 1.07 | 16.1 |
| T&D | 61e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 37 | 42 | 37 | 42 | -33,170 | 0.48 | 35.6 |
| T&D | 61f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 37 | 42 | 1,183 | 1.03 | 16.7 |
| T&D | 61g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 90 | 70 | 90 | 70 | -19,748 | 0.72 | 23.9 |
| T&D | 61h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 90 | 70 | 3,111 | 1.08 | 15.9 |
| T&D | 62a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 10 | 5 | 10 | 5 | 1,322 | 1.08 | 16.0 |
| T&D | 62b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 5 | 1,952 | 1.12 | 15.4 |
| T&D | 62c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 28 | 15 | 28 | 15 | 6,315 | 1.34 | 12.8 |
| T&D | 62d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 28 | 15 | 6,668 | 1.37 | 12.5 |
| T&D | 62e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 13 | 14 | 13 | 14 | 2,639 | 1.15 | 15.0 |
| T&D | 62f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 13 | 14 | 3,196 | 1.19 | 14.5 |
| T&D | 62g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 31 | 24 | 31 | 24 | 7,631 | 1.40 | 12.3 |
| T&D | 62h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 31 | 24 | 7,912 | 1.42 | 12.1 |
| T&D | 63a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 10 | 5 | 10 | 5 | -4,438 | 0.73 | 23.5 |
| T&D | 63b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 5 | 1,050 | 1.09 | 15.9 |
| T&D | 63c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 28 | 15 | 28 | 15 | 555 | 1.03 | 16.7 |
| T&D | 63d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 28 | 15 | 3,588 | 1.26 | 13.6 |
| T&D | 63e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 13 | 14 | 13 | 14 | -3,121 | 0.82 | 21.0 |
| T&D | 63f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 13 | 14 | 1,720 | 1.13 | 15.2 |
| T&D | 63g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 31 | 24 | 31 | 24 | 1,871 | 1.10 | 15.7 |
| T&D | 63h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 31 | 24 | 4,258 | 1.30 | 13.3 |
| T&D | 64a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 10 | 5 | 10 | 5 | -9,230 | 0.44 | 38.7 |
| T&D | 64b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 5 | 296 | 1.03 | 16.7 |
| T&D | 64c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 28 | 15 | 28 | 15 | -4,238 | 0.77 | 22.4 |
| T&D | 64d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 28 | 15 | 1,014 | 1.10 | 15.6 |
| T&D | 64e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 13 | 14 | 13 | 14 | -7,913 | 0.55 | 31.4 |
| T&D | 64f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 13 | 14 | 486 | 1.05 | 16.4 |
| T&D | 64g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 31 | 24 | 31 | 24 | -2,921 | 0.85 | 20.3 |
| T&D | 64h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 31 | 24 | 1,203 | 1.11 | 15.4 |
| T&D | 65a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | 388 | 1.04 | 16.6 |
| T&D | 65b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 835 | 1.08 | 16.0 |
| T&D | 65c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15 | 8 | 15 | 8 | 2,828 | 1.23 | 14.0 |
| T&D | 65d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 15 | 8 | 3,141 | 1.26 | 13.6 |
| T&D | 65e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7 | 8 | 7 | 8 | 1,004 | 1.09 | 15.9 |
| T&D | 65f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 7 | 8 | 1,417 | 1.13 | 15.3 |
| T&D | 65g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16 | 13 | 16 | 13 | 3,444 | 1.27 | 13.6 |
| T&D | 65h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 16 | 13 | 3,723 | 1.30 | 13.3 |
| T&D | 66a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | -9,000 | 0.46 | 37.6 |
| T&D | 66b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 330 | 1.04 | 16.6 |
| T&D | 66c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 30 | 16 | 30 | 16 | -3,593 | 0.80 | 21.4 |
| T&D | 66d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 30 | 16 | 1,106 | 1.11 | 15.5 |
| T&D | 66e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 36 | 93 | 36 | 93 | 11,025 | 1.63 | 10.6 |
| T&D | 66f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 36 | 93 | 3,208 | 1.34 | 12.9 |
| T&D | 66g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 56 | 104 | 56 | 104 | 16,432 | 1.85 | 9.3 |
| T&D | 66h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 56 | 104 | 3,985 | 1.38 | 12.5 |
| T&D | 67a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 9 | 5 | 9 | 5 | 1,083 | 1.07 | 16.2 |
| T&D | 67b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 9 | 5 | 1,726 | 1.11 | 15.6 |
| T&D | 67c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 26 | 14 | 26 | 14 | 5,647 | 1.31 | 13.2 |
| T&D | 67d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 26 | 14 | 6,037 | 1.34 | 12.9 |
| T&D | 67e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11 | 11 | 11 | 11 | 1,779 | 1.10 | 15.6 |
| T&D | 67f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 11 | 11 | 2,384 | 1.14 | 15.1 |
| T&D | 67g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 28 | 20 | 28 | 20 | 6,343 | 1.33 | 13.0 |
| T&D | 67h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 28 | 20 | 6,695 | 1.36 | 12.7 |
| T&D | 68a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | -12,097 | 0.37 | 46.3 |
| T&D | 68b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 94 | 1.01 | 17.1 |
| T&D | 68c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 22 | 12 | 22 | 12 | -9,113 | 0.58 | 29.6 |
| T&D | 68d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 22 | 12 | 523 | 1.04 | 16.5 |
| T&D | 68e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 11 | 10 | 11 | -11,636 | 0.43 | 39.7 |
| T&D | 68f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 11 | 160 | 1.01 | 17.0 |
| T&D | 68g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 24 | 19 | 24 | 19 | -8,652 | 0.62 | 27.6 |
| T&D | 68h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 24 | 19 | 589 | 1.05 | 16.4 |
| T&D | 69a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -90 | 0.99 | 17.4 |
| T&D | 69b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 313 | 1.03 | 16.7 |
| T&D | 69c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | 1,403 | 1.13 | 15.3 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 69d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 1,723 | 1.16 | 14.8 |
| T&D | 69e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 5 | 5 | 5 | 141 | 1.01 | 17.0 |
| T&D | 69f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 5 | 531 | 1.05 | 16.3 |
| T&D | 69g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 12 | 9 | 12 | 9 | 1,633 | 1.14 | 15.1 |
| T&D | 69h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 12 | 9 | 1,941 | 1.17 | 14.7 |
| T&D | 6a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -9,223 | 0.67 | 25.6 |
| T&D | 6b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 1,009 | 1.05 | 16.4 |
| T&D | 6c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33 | 18 | 33 | 18 | -3,767 | 0.88 | 19.6 |
| T&D | 6d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 33 | 18 | 3,783 | 1.17 | 14.8 |
| T&D | 6e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 15 | 18 | 15 | 18 | -7,630 | 0.74 | 23.2 |
| T&D | 6f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 18 | 1,820 | 1.08 | 15.9 |
| T&D | 6g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 37 | 29 | 37 | 29 | -2,174 | 0.93 | 18.5 |
| T&D | 6h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 37 | 29 | 4,504 | 1.19 | 14.4 |
| T&D | 70a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -6,049 | 0.37 | 46.3 |
| T&D | 70b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 47 | 1.01 | 17.1 |
| T&D | 70c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 11 | 6 | 11 | 6 | -4,556 | 0.58 | 29.6 |
| T&D | 70d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 11 | 6 | 261 | 1.04 | 16.5 |
| T&D | 70e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 5 | 5 | 5 | -5,818 | 0.43 | 39.7 |
| T&D | 70f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 5 | 80 | 1.01 | 17.0 |
| T&D | 70g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 12 | 9 | 12 | 9 | -4,326 | 0.62 | 27.6 |
| T&D | 70h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 12 | 9 | 294 | 1.05 | 16.4 |
| T&D | 71a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | -467 | 0.98 | 17.6 |
| T&D | 71b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 469 | 1.02 | 16.9 |
| T&D | 71c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23 | 13 | 23 | 13 | 2,483 | 1.10 | 15.7 |
| T&D | 71d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 23 | 13 | 3,257 | 1.13 | 15.2 |
| T&D | 71e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11 | 13 | 11 | 13 | 352 | 1.01 | 17.0 |
| T&D | 71f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 11 | 13 | 1,244 | 1.05 | 16.3 |
| T&D | 71g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 26 | 21 | 26 | 21 | 3,303 | 1.13 | 15.3 |
| T&D | 71h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 26 | 21 | 4,032 | 1.16 | 14.9 |
| T&D | 72a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -7,059 | 0.36 | 47.8 |
| T&D | 72b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 35 | 1.01 | 17.1 |
| T&D | 72c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -5,584 | 0.55 | 31.2 |
| T&D | 72d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 247 | 1.04 | 16.6 |
| T&D | 72e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 7 | 5 | 7 | -6,649 | 0.43 | 39.6 |
| T&D | 72f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 7 | 94 | 1.01 | 17.0 |
| T&D | 72g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13 | 11 | 13 | 11 | -5,174 | 0.61 | 28.3 |
| T&D | 72h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 13 | 11 | 306 | 1.04 | 16.5 |
| T&D | 73a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 30 | 16 | 30 | 16 | -61,371 | 0.34 | 50.7 |
| T&D | 73b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 30 | 16 | 15 | 1.00 | 17.2 |
| T&D | 73c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 84 | 45 | 84 | 45 | -52,480 | 0.50 | 34.4 |
| T&D | 73d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 84 | 45 | 1,290 | 1.02 | 16.8 |
| T&D | 73e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 40 | 50 | 40 | 50 | -58,812 | 0.41 | 42.4 |
| T&D | 73f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 40 | 50 | 381 | 1.01 | 17.1 |
| T&D | 73g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 94 | 78 | 94 | 78 | -49,921 | 0.55 | 31.3 |
| T&D | 73h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 94 | 78 | 1,657 | 1.03 | 16.8 |
| T&D | 74a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | -491 | 0.96 | 18.0 |
| T&D | 74b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 15 | 1.00 | 17.2 |
| T&D | 74c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10 | 6 | 10 | 6 | 621 | 1.05 | 16.4 |
| T&D | 74d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 10 | 6 | 1,066 | 1.08 | 15.9 |
| T&D | 74e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 5 | 6 | 5 | 6 | -171 | 0.99 | 17.5 |
| T&D | 74f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 6 | 318 | 1.03 | 16.8 |
| T&D | 74g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 12 | 10 | 12 | 10 | 941 | 1.07 | 16.1 |
| T&D | 74h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 12 | 10 | 1,369 | 1.10 | 15.6 |
| T&D | 75a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 14 | 8 | 14 | 8 | -21,921 | 0.37 | 46.4 |
| T&D | 75b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 14 | 8 | 163 | 1.01 | 17.1 |
| T&D | 75c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 40 | 21 | 40 | 21 | -16,618 | 0.58 | 29.8 |
| T&D | 75d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 40 | 21 | 924 | 1.04 | 16.5 |
| T&D | 75e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 22 | 33 | 22 | 33 | -17,945 | 0.52 | 33.3 |
| T&D | 75f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 22 | 33 | 734 | 1.04 | 16.6 |
| T&D | 75g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 47 | 47 | 47 | 47 | -12,642 | 0.70 | 24.7 |
| T&D | 75h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 47 | 47 | 1,495 | 1.07 | 16.2 |
| T&D | 76a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 20 | 11 | 20 | 11 | -23,996 | 0.40 | 42.9 |
| T&D | 76b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 20 | 11 | 365 | 1.02 | 16.9 |
| T&D | 76c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 55 | 30 | 55 | 30 | -15,658 | 0.65 | 26.3 |
| T&D | 76d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 55 | 30 | 1,563 | 1.06 | 16.2 |
| T&D | 76e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 25 | 30 | 25 | 30 | -21,812 | 0.49 | 35.2 |
| T&D | 76f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 25 | 30 | 678 | 1.03 | 16.7 |
| T&D | 76g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 61 | 49 | 61 | 49 | -13,475 | 0.72 | 23.9 |
| T&D | 76h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 61 | 49 | 1,876 | 1.07 | 16.1 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 77a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -4,245 | 0.68 | 25.2 |
| T&D | 77b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 433 | 1.04 | 16.5 |
| T&D | 77c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18 | 10 | 18 | 10 | -1,465 | 0.90 | 19.1 |
| T&D | 77d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 18 | 10 | 1,846 | 1.17 | 14.8 |
| T&D | 77e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8 | 10 | 8 | 10 | -3,517 | 0.75 | 22.9 |
| T&D | 77f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 10 | 803 | 1.08 | 16.0 |
| T&D | 77g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 20 | 16 | 20 | 16 | -738 | 0.95 | 18.1 |
| T&D | 77h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 20 | 16 | 2,216 | 1.19 | 14.5 |
| T&D | 78a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 31 | 17 | 31 | 17 | -36,198 | 0.41 | 42.1 |
| T&D | 78b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 31 | 17 | 622 | 1.02 | 16.9 |
| T&D | 78c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 88 | 47 | 88 | 47 | -22,646 | 0.67 | 25.6 |
| T&D | 78d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 88 | 47 | 2,569 | 1.07 | 16.1 |
| T&D | 78e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 41 | 51 | 41 | 51 | -31,677 | 0.51 | 33.4 |
| T&D | 78f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 41 | 51 | 1,272 | 1.04 | 16.6 |
| T&D | 78g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 98 | 81 | 98 | 81 | -18,124 | 0.75 | 22.9 |
| T&D | 78h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 98 | 81 | 3,218 | 1.08 | 15.9 |
| T&D | 79a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 6 | 3 | 6 | 3 | -9,875 | 0.36 | 48.5 |
| T&D | 79b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 6 | 3 | 37 | 1.00 | 17.1 |
| T&D | 79c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 16 | 8 | 16 | 8 | -7,972 | 0.54 | 31.9 |
| T&D | 79d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 16 | 8 | 310 | 1.03 | 16.7 |
| T&D | 79e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8 | 11 | 8 | 11 | -8,774 | 0.46 | 37.2 |
| T&D | 79f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 11 | 195 | 1.02 | 16.9 |
| T&D | 79g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 18 | 17 | 18 | 17 | -6,871 | 0.63 | 27.5 |
| T&D | 79h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 18 | 17 | 468 | 1.05 | 16.4 |
| T&D | 7a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | 468 | 1.02 | 16.8 |
| T&D | 7b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 1,250 | 1.07 | 16.1 |
| T&D | 7c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 22 | 12 | 22 | 12 | 4,106 | 1.20 | 14.4 |
| T&D | 7d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 22 | 12 | 4,687 | 1.23 | 13.9 |
| T&D | 7e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 12 | 10 | 12 | 1,530 | 1.08 | 16.0 |
| T&D | 7f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 12 | 2,253 | 1.12 | 15.4 |
| T&D | 7g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 24 | 20 | 24 | 20 | 5,168 | 1.24 | 13.9 |
| T&D | 7h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 24 | 20 | 5,690 | 1.27 | 13.5 |
| T&D | 80a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16 | 8 | 16 | 8 | -18,099 | 0.41 | 42.1 |
| T&D | 80b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 16 | 8 | 311 | 1.02 | 16.9 |
| T&D | 80c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 44 | 24 | 44 | 24 | -11,323 | 0.67 | 25.6 |
| T&D | 80d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 44 | 24 | 1,284 | 1.07 | 16.1 |
| T&D | 80e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 21 | 25 | 21 | 25 | -15,838 | 0.51 | 33.4 |
| T&D | 80f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 21 | 25 | 636 | 1.04 | 16.6 |
| T&D | 80g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 49 | 41 | 49 | 41 | -9,062 | 0.75 | 22.9 |
| T&D | 80h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 49 | 41 | 1,609 | 1.08 | 15.9 |
| T&D | 81a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 8 | 4 | 8 | 4 | 419 | 1.03 | 16.8 |
| T&D | 81b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 8 | 4 | 1,027 | 1.07 | 16.1 |
| T&D | 81c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 22 | 12 | 22 | 12 | 3,807 | 1.22 | 14.1 |
| T&D | 81d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 22 | 12 | 4,228 | 1.25 | 13.8 |
| T&D | 81e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10 | 13 | 10 | 13 | 1,549 | 1.09 | 15.7 |
| T&D | 81f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 13 | 2,095 | 1.13 | 15.2 |
| T&D | 81g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 24 | 20 | 24 | 20 | 4,937 | 1.27 | 13.6 |
| T&D | 81h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 24 | 20 | 5,296 | 1.30 | 13.3 |
| T&D | 82a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 12 | 6 | 12 | 6 | -10,801 | 0.45 | 38.6 |
| T&D | 82b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 12 | 6 | 301 | 1.03 | 16.7 |
| T&D | 82c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33 | 18 | 33 | 18 | -5,194 | 0.76 | 22.5 |
| T&D | 82d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 33 | 18 | 1,107 | 1.09 | 15.8 |
| T&D | 82e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16 | 20 | 16 | 20 | -8,702 | 0.58 | 29.6 |
| T&D | 82f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 20 | 603 | 1.05 | 16.3 |
| T&D | 82g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 38 | 32 | 38 | 32 | -3,095 | 0.87 | 19.9 |
| T&D | 82h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 38 | 32 | 1,408 | 1.11 | 15.5 |
| T&D | 83a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 48 | 26 | 48 | 26 | 4,999 | 1.06 | 16.2 |
| T&D | 83b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 48 | 26 | 7,935 | 1.10 | 15.6 |
| T&D | 83c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 134 | 72 | 134 | 72 | 27,428 | 1.31 | 13.1 |
| T&D | 83d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 134 | 72 | 29,125 | 1.34 | 12.9 |
| T&D | 83e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 64 | 80 | 64 | 80 | 13,396 | 1.16 | 14.8 |
| T&D | 83f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 64 | 80 | 15,868 | 1.20 | 14.4 |
| T&D | 83g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 150 | 126 | 150 | 126 | 35,824 | 1.38 | 12.4 |
| T&D | 83h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 150 | 126 | 37,058 | 1.41 | 12.2 |
| T&D | 84a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 60 | 32 | 60 | 32 | -54,005 | 0.45 | 38.6 |
| T&D | 84b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 60 | 32 | 1,506 | 1.03 | 16.7 |
| T&D | 84c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 167 | 90 | 167 | 90 | -25,969 | 0.76 | 22.5 |
| T&D | 84d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 167 | 90 | 5,533 | 1.09 | 15.8 |
| T&D | 84e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 80 | 100 | 80 | 100 | -43,510 | 0.58 | 29.6 |

# Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 84f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 80 | 100 | 3,013 | 1.05 | 16.3 |
| T&D | 84g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 188 | 158 | 188 | 158 | -15,474 | 0.87 | 19.9 |
| T&D | 84h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 188 | 158 | 7,041 | 1.11 | 15.5 |
| T&D | 85a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 13 | 7 | 13 | 7 | -7,612 | 0.70 | 24.7 |
| T&D | 85b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 13 | 7 | 985 | 1.05 | 16.4 |
| T&D | 85c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 38 | 20 | 38 | 20 | -1,731 | 0.94 | 18.3 |
| T&D | 85d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 38 | 20 | 3,976 | 1.19 | 14.5 |
| T&D | 85e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 19 | 27 | 19 | 27 | -4,373 | 0.84 | 20.6 |
| T&D | 85f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 19 | 27 | 2,632 | 1.13 | 15.2 |
| T&D | 85g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 44 | 40 | 44 | 40 | 1,509 | 1.05 | 16.4 |
| T&D | 85h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 44 | 40 | 5,623 | 1.25 | 13.7 |
| T&D | 86a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 13 | 7 | 13 | 7 | -14,647 | 0.42 | 41.3 |
| T&D | 86b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 13 | 7 | 277 | 1.02 | 16.9 |
| T&D | 86c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 38 | 20 | 38 | 20 | -8,766 | 0.69 | 24.9 |
| T&D | 86d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 38 | 20 | 1,122 | 1.07 | 16.1 |
| T&D | 86e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 19 | 27 | 19 | 27 | -11,408 | 0.57 | 30.0 |
| T&D | 86f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 19 | 27 | 743 | 1.05 | 16.4 |
| T&D | 86g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 44 | 40 | 44 | 40 | -5,526 | 0.82 | 21.1 |
| T&D | 86h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 44 | 40 | 1,587 | 1.10 | 15.7 |
| T&D | 87a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 434 | 232 | 434 | 232 | -117,172 | 0.79 | 21.9 |
| T&D | 87b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 434 | 232 | 44,855 | 1.11 | 15.5 |
| T&D | 87e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 630 | 897 | 630 | 897 | 5,195 | 1.01 | 17.1 |
| T&D | 87f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 630 | 897 | 107,049 | 1.25 | 13.8 |
| T&D | 8a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7 | 4 | 7 | 4 | -221 | 0.99 | 17.4 |
| T&D | 8b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 7 | 4 | 733 | 1.03 | 16.6 |
| T&D | 8c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 20 | 11 | 20 | 11 | 2,641 | 1.11 | 15.5 |
| T&D | 8d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 20 | 11 | 3,438 | 1.15 | 15.0 |
| T&D | 8e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 9 | 9 | 9 | 9 | 49 | 1.00 | 17.2 |
| T&D | 8f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 9 | 989 | 1.04 | 16.5 |
| T&D | 8g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 21 | 16 | 21 | 16 | 2,911 | 1.12 | 15.4 |
| T&D | 8h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 21 | 16 | 3,694 | 1.15 | 14.9 |
| T&D | 9a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 2 | 1 | 2 | 1 | -47 | 0.99 | 17.4 |
| T&D | 9b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 0 | 0 | 2 | 1 | 157 | 1.03 | 16.6 |
| T&D | 9c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 4 | 2 | 4 | 2 | 566 | 1.11 | 15.5 |
| T&D | 9d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 0 | 0 | 4 | 2 | 737 | 1.15 | 15.0 |
| T&D | 9e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 2 | 2 | 2 | 2 | 10 | 1.00 | 17.2 |
| T&D | 9f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 2 | 2 | 212 | 1.04 | 16.5 |
| T&D | 9g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 5 | 3 | 5 | 3 | 624 | 1.12 | 15.4 |
| T&D | 9h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - R | 0 | 0 | 5 | 3 | 792 | 1.15 | 14.9 |
| T&D | | Substation | Sub. Transformers | Conservation Voltage Reduction - RI | 2,094 | 2,128 | 2,094 | 2,128 | 966,624 | 967.62 | 0.0 |
| T&D | A | Substation | Capacitor Bank | Power Factor Correction to Unity - RI | 53 | 1,476 | 53 | 1,476 | 375,744 | 12.89 | 1.3 |
| Vehicles | C-CNG-1 | | Sedan compact/Midsize | CNG Conversion - RI | 323 | NA | 323 | NA | 263,511 | 9.23 | 1.9 |
| Vehicles | C-CNG-1 | | Sedan compact/Midsize | CNG Conversion - ROF | 0 | NA | 323 | NA | 206,160 | 8.28 | 2.1 |
| Vehicles | C-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - RI | 4,779 | NA | 4,779 | NA | 3,152,193 | 15.59 | 1.1 |
| Vehicles | C-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - ROF | 0 | NA | 4,779 | NA | 2,334,658 | 13.59 | 1.3 |
| Vehicles | C-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - RI | 349 | NA | 349 | NA | 225,307 | 13 52 | 1.3 |
| Vehicles | C-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - ROF | 0 | NA | 349 | NA | 166,622 | 11.78 | 1.5 |
| Vehicles | C-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 214 | NA | 214 | NA | 216,209 | 5.00 | 3.4 |
| Vehicles | C-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 0 | NA | 214 | NA | 154,212 | 4.33 | 4.0 |
| Vehicles | C-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 63 | NA | 63 | NA | 37,188 | 7.20 | 2.4 |
| Vehicles | C-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 0 | NA | 63 | NA | 25,281 | 6.06 | 2.8 |
| Vehicles | C-CNG-6 | | Van multipurpose | CNG Conversion - RI | 1,406 | NA | 1,406 | NA | 1,290,550 | 14.44 | 1.2 |
| Vehicles | C-CNG-6 | | Van multipurpose | CNG Conversion - ROF | 0 | NA | 1,406 | NA | 949,708 | 12.52 | 1.4 |
| Vehicles | C-CNG-7 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 12 | NA | 12 | NA | 7,493 | 3.50 | 4.9 |
| Vehicles | C-CNG-7 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 0 | NA | 12 | NA | 5,654 | 3.13 | 5.5 |
| Vehicles | C-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 229 | NA | 229 | NA | 70,381 | 5.69 | 3.0 |
| Vehicles | C-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 0 | NA | 229 | NA | 48,036 | 4.85 | 3.6 |
| Vehicles | G-CNG-1 | | Sedan Compact/Midsize | CNG Conversion - RI | 1,171 | NA | 1,171 | NA | 955,229 | 9.23 | 1.9 |
| Vehicles | G-CNG-1 | | Sedan Compact/Midsize | CNG Conversion - ROF | 0 | NA | 1,171 | NA | 900,924 | 9.01 | 1.9 |
| Vehicles | G-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - RI | 664 | NA | 664 | NA | 437,805 | 15.59 | 1.1 |
| Vehicles | G-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - ROF | 0 | NA | 664 | NA | 368,016 | 14.44 | 1.2 |
| Vehicles | G-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - RI | 1,220 | NA | 1,220 | NA | 788,575 | 13.52 | 1.3 |
| Vehicles | G-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - ROF | 0 | NA | 1,220 | NA | 662,345 | 12.52 | 1.4 |
| Vehicles | G-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 570 | NA | 570 | NA | 576,875 | 5.01 | 3.4 |
| Vehicles | G-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 0 | NA | 570 | NA | 442,792 | 4.47 | 3.8 |
| Vehicles | G-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 344 | NA | 344 | NA | 161,416 | 5.89 | 2.9 |
| Vehicles | G-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 0 | NA | 344 | NA | 126,123 | 5.32 | 3.2 |
| Vehicles | G-CNG-6 | | Van multipurpose | CNG Conversion - RI | 2,592 | NA | 2,592 | NA | 2,379,452 | 14.44 | 1.2 |
| Vehicles | G-CNG-6 | | Van multipurpose | CNG Conversion - ROF | 0 | NA | 2,592 | NA | 2,246,415 | 14.09 | 1.2 |

## Table 3.5b. All Non-Building EROs: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles | G-CNG-7 | | Bus multipurpose | CNG Conversion - RI | 1,061 | NA | 1,061 | NA | 480,166 | 17.01 | 1.0 |
| Vehicles | G-CNG-7 | | Bus multipurpose | CNG Conversion - ROF | 0 | NA | 1,061 | NA | 359,130 | 14.95 | 1.2 |
| Vehicles | G-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 512 | NA | 512 | NA | 337,922 | 9.05 | 1.9 |
| Vehicles | G-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 0 | NA | 512 | NA | 264,209 | 8.11 | 2.1 |
| Vehicles | G-CNG-9 | | Ambulance patient Transport | CNG Conversion - RI | 70 | NA | 70 | NA | 20,213 | 3.25 | 5.3 |
| Vehicles | G-CNG-9 | | Ambulance patient Transport | CNG Conversion - ROF | 0 | NA | 70 | NA | 13,149 | 2.75 | 6.3 |
| Vehicles | Option 1 | | | Refueling Station - Option 1 | -939 | -180 | -939 | -180 | -1,468,303 | -0.36 | NA |
| Vehicles | Option 2 | | | Refueling Station - Option 2 | -939 | -180 | -939 | -180 | -1,308,835 | -0.36 | NA |
| Wells | 1 | | Well Pumps | Add New 500 kgal. Tank - RI | 0 | 1,097 | 0 | 1,097 | 554,481 | 3.63 | 4.7 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non-Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | ADMINISTRATION 01 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 01 | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 2,240 | NA | 2,240 | 7,249 | 339 | 7,588 | 5,348 | 3 40 | 5.3 | 2,240 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL62: FL 1X8 1P96T12 STD2 | FL131: FL 1X8 2P96T12 8 ELC2 RFP | 5,264 | NA | 5,264 | 12,916 | -27 | 12,889 | 7,625 | 2 40 | 7 4 | 5,264 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 5,119 | NA | 5,119 | 16,732 | 775 | 17,507 | 12,388 | 3 40 | 5.3 | 5,119 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 6,040 | NA | 6,040 | 24,267 | 1,460 | 25,727 | 19,687 | 4 30 | 4.2 | 6,040 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 135 | NA | 135 | 690 | 115 | 805 | 670 | 6 00 | 3 0 | 135 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | IN28. INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1,238 | NA | 1,238 | 6,866 | 1,877 | 8,743 | 7,506 | 7 10 | 2.5 | 1,238 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,746 | NA | 1,746 | 5,938 | 3,630 | 9,568 | 7,822 | 5.50 | 3.2 | 1,746 |
| Hot Water | ADMINISTRATION 01 | ADMINISTRATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 99 | NA | 99 | 268 | 0 | 268 | 169 | 2 70 | 1.0 | 99 |
| Hot Water | ADMINISTRATION 01 | ADMINISTRATION | Electric 81W Heater | 0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp. | 222 | NA | 222 | 808 | 0 | 808 | 586 | 3 60 | 1.5 | 349 |
| Roof | ADMINISTRATION 01 | ADMINISTRATION | Roof Insulation R Value 20.05 | Suspended Ceiling Increase Insulation by R 8 | 4,031 | NA | 4,031 | 7,043 | 0 | 7,043 | 3,012 | 1 70 | 11 9 | 4,031 |
| Wall | ADMINISTRATION 01 | ADMINISTRATION | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 02 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 02 | ADMINISTRATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 77,591 | NA | 77,591 | 430,821 | 18 078 | 448,899 | 371,308 | 5.80 | 3 1 | 77,591 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 2,621 | NA | 2,621 | 11,042 | 349 | 11,391 | 8,770 | 4 30 | 4.2 | 2,621 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 23,269 | 10,891 | 34,160 | 28 923 | 6.50 | 2.7 | 5,237 |
| Hot Water | ADMINISTRATION 02 | ADMINISTRATION | Other Fuels 81W Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | ADMINISTRATION 02 | ADMINISTRATION | Roof Insulation R Value 30.00 | Attic Ceiling: Increase insulation by R 19 | 14,427 | NA | 14,427 | 17,438 | 0 | 17,438 | 3,011 | 1.20 | 15 3 | 14,427 |
| Wall | ADMINISTRATION 02 | ADMINISTRATION | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase insulation by R 6.5 | 18,375 | NA | 18,375 | 26,784 | 0 | 26,784 | 8,409 | 1.50 | 12.9 | 18,375 |
| Heating | ADMINISTRATION 03 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 03 | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 10,009 | NA | 10,009 | 39,405 | 5,941 | 45,346 | 35,336 | 4 60 | 4 0 | 10,009 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL82: FL 1X4 4P40T12E8 8TD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 33,272 | NA | 33,272 | 81,220 | 26,547 | 107,767 | 74,494 | 3 20 | 5 6 | 33,272 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL63: FL 1X8 1P96T12 8TD1 | FL126: FL 1X8 1P96T12E8 EEP1 REP | 54,419 | NA | 54,419 | 57,561 | 17,091 | 74,652 | 20,233 | 1 40 | 13 1 | 54,419 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 32,112 | NA | 32,112 | 133,918 | 19,060 | 152,978 | 100,866 | 4.10 | 4 4 | 32,112 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 100,504 | NA | 100,504 | 437,189 | 52,184 | 489,373 | 388,869 | 4 90 | 3 7 | 100,504 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL13: FL 2X4 4P40T12 EEP2 | FL237: FL 2X4 3P32T8 ELC3 REP | 30,151 | NA | 30,151 | 104,555 | 16,955 | 121,510 | 91 159 | 4 00 | 4.5 | 30,151 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN37: INC 75 PLD | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 1,945 | NA | 1,945 | 22,622 | 5,019 | 27,641 | 25,715 | 14 20 | 1.3 | 1,945 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2,547 | NA | 2,547 | 22,622 | 4,510 | 27,132 | 24,584 | 10 70 | 1.7 | 2,547 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1,735 | NA | 1,735 | 36,131 | 10,631 | 46,762 | 45,027 | 26 90 | 0.7 | 1,735 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 54,987 | NA | 54,987 | 184,475 | 114,359 | 298,834 | 243,847 | 5 40 | 3.3 | 54,987 |
| Hot Water | ADMINISTRATION 03 | ADMINISTRATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 675 | NA | 675 | 2,893 | 0 | 2,893 | 2,217 | 4 30 | 1.1 | 675 |
| Roof | ADMINISTRATION 03 | ADMINISTRATION | Roof Insulation R Value 0 00 | Suspended Ceiling Increase Insulation by R 11 | 19,934 | NA | 19,934 | 73,396 | 0 | 73,396 | 53 462 | 3.70 | 5.5 | 19,934 |
| Wall | ADMINISTRATION 03 | ADMINISTRATION | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 03a | ADMINISTRATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 76 | NA | 76 | 229 | 0 | 229 | 153 | 3.00 | 7.0 | 76 |
| Cooling | ADMINISTRATION 03a | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 234 | NA | 234 | 812 | 139 | 951 | 717 | 4 10 | 4.4 | 234 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 8TD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 776 | NA | 776 | 1,731 | 619 | 2,350 | 1,574 | 3 00 | 5.9 | 776 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL63: FL 1X8 1P96T12 8TD1 | FL126: FL 1X8 1P96T12E8 EEP1 REP | 1,270 | NA | 1,270 | 1,321 | 399 | 1,720 | 451 | 1 40 | 13.2 | 1,270 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 749 | NA | 749 | 2,600 | 445 | 3,045 | 2,296 | 4 10 | 4 4 | 749 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 2,345 | NA | 2,345 | 10,067 | 1,218 | 11,285 | 8,940 | 4.80 | 3 7 | 2,345 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL13: FL 2X4 4P40T12 EEP2 | FL237: FL 2X4 3P32T8 ELC3 REP | 703 | NA | 703 | 2,371 | 396 | 2,767 | 2,063 | 3.90 | 4.8 | 703 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN37: INC 75 PLD | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 45 | NA | 45 | 383 | 118 | 501 | 455 | 11.00 | 1.6 | 45 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 59 | NA | 59 | 383 | 105 | 488 | 429 | 8 20 | 2.2 | 59 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 40 | NA | 40 | 734 | 248 | 982 | 941 | 24 30 | 0.7 | 40 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,515 | 908 | 2,423 | 1,987 | 5 60 | 3.2 | 436 |
| Hot Water | ADMINISTRATION 03a | ADMINISTRATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp. | 16 | NA | 16 | 52 | 0 | 52 | 36 | 3 20 | 1 4 | 16 |
| Roof | ADMINISTRATION 03a | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 735 | NA | 735 | 2,428 | 0 | 2,428 | 1,693 | 3 30 | 6.2 | 735 |
| Wall | ADMINISTRATION 03a | ADMINISTRATION | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 04 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 04 | ADMINISTRATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 1,589 | NA | 1,589 | 7,253 | 211 | 7,464 | 5,875 | 4.70 | 3 9 | 1,589 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 8TD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 5,283 | NA | 5,283 | 15,201 | 1,220 | 16,421 | 11,138 | 3 10 | 5.8 | 5,283 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL63: FL 1X8 1P96T12 8TD1 | FL126: FL 1X8 1P96T12E8 EEP1 REP | 8,641 | NA | 8,641 | 11,216 | 491 | 11,707 | 3,066 | 1 40 | 13.3 | 8,641 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 5,099 | NA | 5,099 | 22,856 | 678 | 23,534 | 18,435 | 4 60 | 3 9 | 5,099 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 15,959 | NA | 15,959 | 89,837 | 3,718 | 93,555 | 77,596 | 5 90 | 3 1 | 15,959 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL13: FL 2X4 4P40T12 EEP2 | FL237: FL 2X4 3P32T8 ELC3 REP | 4,788 | NA | 4,788 | 20,739 | 1,243 | 21,982 | 17 195 | 4 60 | 3.9 | 4,788 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN37: INC 75 PLD | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 309 | NA | 309 | 3,360 | 745 | 4,105 | 3,796 | 13 30 | 1.4 | 309 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 404 | NA | 404 | 3,360 | 661 | 4,021 | 3,616 | 9 90 | 1.8 | 404 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 276 | NA | 276 | 4,728 | 1,564 | 6,292 | 6,016 | 30 10 | 0.6 | 276 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,618 | NA | 2,618 | 12,248 | 5,446 | 17,694 | 15,075 | 6.80 | 2.6 | 2,618 |
| Hot Water | ADMINISTRATION 04 | ADMINISTRATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 39 | NA | 39 | 141 | 0 | 141 | 103 | 3.70 | 1.3 | 39 |
| Roof | ADMINISTRATION 04 | ADMINISTRATION | Roof Insulation R Value 0.00 | Suspended Ceiling: Increase Insulation by R 38 | 8,466 | NA | 8,466 | 23,482 | 0 | 23,482 | 15,017 | 2.80 | 6 7 | 8,466 |
| Wall | ADMINISTRATION 04 | ADMINISTRATION | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase Insulation by R 6.5 | 9,235 | NA | 9,235 | 25,952 | 0 | 25,952 | 16,717 | 2.80 | 6.6 | 9,235 |
| Heating | ADMINISTRATION 05 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 05 | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 25,601 | NA | 25,601 | 89,146 | 3,874 | 93,020 | 67,420 | 3 60 | 5.0 | 25,601 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 6,381 | NA | 6,381 | 42,458 | 5,435 | 48,093 | 41,711 | 7.50 | 2.4 | 6,381 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN28: INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN29: INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN7: INC 3 60 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,983 | NA | 6,983 | 28,990 | 14,522 | 43,512 | 36,529 | 6.20 | 2 9 | 6,983 |
| Hot Water | ADMINISTRATION 05 | ADMINISTRATION | Other Fuels 81W Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | ADMINISTRATION 05 | ADMINISTRATION | Roof Insulation R Value 0.00 | Suspended Ceiling: Increase insulation by R 19 | 40,100 | NA | 40,100 | 133,166 | 0 | 133,166 | 93,066 | 3.30 | 6.2 | 40,100 |
| Wall | ADMINISTRATION 05 | ADMINISTRATION | Wall Insulation R-Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 06 | ADMINISTRATION | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 06 | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 7,819 | NA | 7,819 | 26,693 | 5,485 | 32,178 | 24,359 | 4 10 | 4.4 | 7,819 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN11: INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 1,949 | NA | 1,949 | 11,708 | 1,987 | 13,695 | 11,746 | 7.00 | 2.6 | 1,949 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN28: INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN29. INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN7: INC 3 60 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 18,214 | 10,891 | 29 105 | 23,868 | 5.60 | 3.2 | 5,237 |
| Hot Water | ADMINISTRATION 06 | ADMINISTRATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 65 | NA | 65 | 241 | 0 | 241 | 176 | 3 70 | 1 3 | 65 |
| Roof | ADMINISTRATION 06 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 3,358 | NA | 3,358 | 5,062 | 0 | 5,062 | 1,704 | 1 50 | 13 9 | 3,358 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | Post Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wall | ADMINISTRATION 06 | ADMINISTRATION | Wall Insulation R Value 0 00 | Interior Masonry Surface Increase Insulation by R 4 1 | 16,023 | NA | 16 023 | 16,148 | 0 | 16,148 | 125 | 1 00 | 20 9 | 16 023 |
| Heating | ADMINISTRATION 06a | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 06a | ADMINISTRATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | FL3. FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 2,206 | NA | 2,206 | 8,587 | 1,547 | 10,134 | 7,928 | 4 60 | 3 9 | 2,206 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN11 INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 550 | NA | 550 | 4 054 | 560 | 4,614 | 4,065 | 8 40 | 2 2 | 550 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN28 INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN29 INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN30 INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN7: INC 3 60 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | EX1: EXIT INC (2x20) | EX6: EXIT LED | 873 | NA | 873 | 3,872 | 1,815 | 5 687 | 4,815 | 6 50 | 2 8 | 873 |
| Hot Water | ADMINISTRATION 06a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp | 41 | NA | 41 | 141 | 0 | 141 | 100 | 3 40 | 1 3 | 41 |
| Roof | ADMINISTRATION 06a | ADMINISTRATION | Roof Insulation R Value 20 05 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | ADMINISTRATION 06a | ADMINISTRATION | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 07 | ADMINISTRATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 07 | ADMINISTRATION | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 71,588 | NA | 71,588 | 95,029 | 0 | 95,029 | 23,441 | 1 33 | 7 7 | 106,648 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | FL82 FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 14,419 | NA | 14 419 | 37 547 | 3,330 | 40,877 | 26,459 | 2.80 | 6 4 | 14,419 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | FL81 FL 2X4 2P40T12E8 STD2 | PL105: FL 2X4 2P40T12E8 ELC2 | 11,456 | NA | 11,456 | 29 726 | 2,653 | 32,379 | 20,893 | 2 80 | 6 4 | 11,456 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 2,693 | NA | 2,693 | 12 043 | 5 600 | 17,643 | 14,950 | 6 60 | 2 7 | 2,693 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + DLST UNIT | 1,120 | NA | 1,120 | 10,991 | 2,702 | 13,693 | 12,573 | 12 20 | 1 5 | 1,120 |
| Hot Water | ADMINISTRATION 07 | ADMINISTRATION | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | ADMINISTRATION 07 | ADMINISTRATION | Roof Insulation R Value 8.90 | Suspended Ceiling: Increase insulation by R 30 | 30,033 | NA | 30 033 | *5,364 | 0 | 75,364 | 45,331 | 2.50 | 7 4 | 30 033 |
| Wall | ADMINISTRATION 07 | ADMINISTRATION | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 07a | ADMINISTRATION | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 07a | ADMINISTRATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,506 | NA | 3,506 | 9,809 | 810 | 10,619 | 7,113 | 3 03 | 6 0 | 3,506 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | FL81: FL 2X4 2P40T12E8 STD2 | PL105: FL 2X4 2P40T12E8 ELC2 | 2,793 | NA | 2,793 | 7,561 | 645 | 8,206 | 5,413 | 2 94 | 6 1 | 2 793 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 655 | NA | 655 | 2,661 | 1,362 | 4,023 | 3 368 | 6 10 | 2 9 | 655 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | IN6. INC 2 60 CEIL | FL182: CFL 2 13 + DLST UNIT | 272 | NA | 272 | 2,353 | 65* | 3 210 | 2,938 | 11 80 | 1 5 | 272 |
| Hot Water | ADMINISTRATION 07a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer . Lower Tank Temp | 109 | NA | 109 | 196 | 0 | 196 | 87 | 1 80 | 2 6 | 109 |
| Roof | ADMINISTRATION 07a | ADMINISTRATION | Roof Insulation R Value 8.90 | Suspended Ceiling Increase insulation by R 38 | 9,330 | NA | 9,330 | 39.9*8 | 0 | 39.9*8 | 30,648 | 4 30 | 4 3 | 9,330 |
| Heating | ADMINISTRATION 08 | ADMINISTRATION | Hot Water (Generated) Forced Air Furnace | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 08 | ADMINISTRATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 08 | ADMINISTRATION | Chilled Water Chill Water Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 STD2 | PL106 FL 1X4 2P40T12E8 ELC2 | 3,998 | NA | 3,998 | 10,052 | 924 | 10,976 | 6,977 | 2 70 | 6 6 | 3,998 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | FL81: FL 2X4 2P40T12E8 STD2 | PL105: FL 2X4 2P40T12E8 ELC2 | 9,330 | NA | 9,330 | 24,889 | 2,155 | 27,044 | 17,714 | 2 90 | 6 2 | 9,330 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | FL79: FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 178,528 | NA | 178,528 | 578,556 | 50,725 | 629,279 | 450 751 | 3.50 | 5 1 | 178,528 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 918 | NA | 918 | 3,174 | 1,909 | 5 083 | 4,165 | 5.50 | 3 2 | 918 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182: CFL 2 13 + DLST UNIT | 1,145 | NA | 1,145 | 10,917 | 2,763 | 13,680 | 12,535 | 11 90 | 1 5 | 1,145 |
| Hot Water | ADMINISTRATION 08 | ADMINISTRATION | Hot Water (Generated) Steam Central Htsr | LPG Pulse Combn Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 1,375 | NA | 1,375 | 48,893 | 0 | 48,893 | 47,518 | 35 60 | 0 6 | 1,375 |
| Hot Water | ADMINISTRATION 08 | ADMINISTRATION | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | ADMINISTRATION 08 | ADMINISTRATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 19 | 28,208 | NA | 28,208 | 43,336 | 0 | 43,336 | 15,128 | 1.50 | 12 1 | 28,208 |
| Wall | ADMINISTRATION 08 | ADMINISTRATION | Wall Insulation R Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ADMINISTRATION 09 | ADMINISTRATION | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ADMINISTRATION 09 | ADMINISTRATION | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ADMINISTRATION 09 | ADMINISTRATION | FL79: FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 647,663 | NA | 647,663 | 2,267,804 | 184,020 | 2,451,824 | 1,804,162 | 3.80 | 4 8 | 647,663 |
| Lights | ADMINISTRATION 09 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 15,968 | NA | 15,968 | 73,195 | 33,208 | 106,403 | 90,435 | 6 70 | 2 7 | 15,968 |
| Hot Water | ADMINISTRATION 09 | ADMINISTRATION | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Aer . Lower Tank Temp | 418 | NA | 418 | 7,564 | 0 | 7,564 | 7,146 | 18 10 | 0 3 | 418 |
| Roof | ADMINISTRATION 09 | ADMINISTRATION | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R 19 | 88,158 | NA | 88,158 | 120,120 | 0 | 120,120 | 31,962 | 1 40 | 13 4 | 88,158 |
| Wall | ADMINISTRATION 09 | ADMINISTRATION | Wall Insulation R Value 19 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | BARRACKS 01 | BARRACKS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | BARRACKS 01 | BARRACKS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 01 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52. FL 1X4 2P32T8 ELC2 | 1,280 | NA | 1,280 | 2,910 | 188 | 3,098 | 1,818 | 2 40 | 7 4 | 1,280 |
| Lights | BARRACKS 01 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 918 | NA | 918 | 1,282 | 225 | 1,507 | 589 | 1 60 | 10.8 | 918 |
| Lights | BARRACKS 01 | BARRACKS | FL94. FL 1X4 2P40T12E8 EEP2 | PL106: FL 1X4 2P40T12E8 ELC2 | 471 | NA | 471 | 426 | 134 | 560 | 88 | 1 20 | 15 0 | 471 |
| Lights | BARRACKS 01 | BARRACKS | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 1,280 | NA | 1,280 | 2,910 | 188 | 3,098 | 1,818 | 2 40 | 7 4 | 1,280 |
| Lights | BARRACKS 01 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 283 | NA | 283 | 1,066 | 219 | 1,285 | 1,002 | 4.50 | 3 9 | 283 |
| Lights | BARRACKS 01 | BARRACKS | IN28: INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 01 | BARRACKS | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 01 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 1,135 | NA | 1,135 | 4,537 | 1,605 | 6,142 | 5,006 | 5 40 | 3 3 | 1,135 |
| Lights | BARRACKS 01 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,719 | 1,815 | 4,534 | 3,662 | 5 20 | 3.4 | 873 |
| Hot Water | BARRACKS 01 | BARRACKS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins Pipe, LPSHs, Aerators | 102 | NA | 102 | 426 | 0 | 426 | 324 | 4.20 | 1 1 | 102 |
| Roof | BARRACKS 01 | BARRACKS | Roof Insulation R Value 11.00 | Attic Ceiling: Increase insulation by R 11 | 2,439 | NA | 2,439 | 3,366 | 0 | 3,366 | 926 | 1.40 | 14 9 | 2 439 |
| Wall | BARRACKS 01 | BARRACKS | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | BARRACKS 02 | BARRACKS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | BARRACKS 02 | BARRACKS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 02 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 40,652 | NA | 40,652 | 100,080 | 5,947 | 106,047 | 65,396 | 2 60 | 6 9 | 40,652 |
| Lights | BARRACKS 02 | BARRACKS | FL82 FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 29,155 | NA | 29,155 | 42,389 | 7,152 | 49,541 | 20,386 | 1 70 | 10.5 | 29,155 |
| Lights | BARRACKS 02 | BARRACKS | FL94: FL 1X4 2P40T12E8 EEP2 | PL106: FL 1X4 2P40T12E8 ELC2 | 14,971 | NA | 14,971 | 14,224 | 4,247 | 18,471 | 3,500 | 1 20 | 14.5 | 14,971 |
| Lights | BARRACKS 02 | BARRACKS | FL3. FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 40,652 | NA | 40,652 | 100 080 | 5,967 | 106,047 | 65,395 | 2 60 | 6 9 | 40,652 |
| Lights | BARRACKS 02 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 8,982 | NA | 8,982 | 35,286 | 6,949 | 42,235 | 33,252 | 4 70 | 3.8 | 8 982 |
| Lights | BARRACKS 02 | BARRACKS | IN28: INC 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 02 | BARRACKS | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 02 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 36,057 | NA | 36,057 | 154,232 | 50,95* | 205,189 | 169,131 | 5 70 | 3 1 | 36,057 |
| Lights | BARRACKS 02 | BARRACKS | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 27,930 | NA | 27,930 | 98,704 | 58,08* | 156,791 | 128,861 | 5 60 | 3 2 | 27,930 |
| Hot Water | BARRACKS 02 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Combn Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 9,749 | NA | 9,749 | 172,550 | 0 | 172,550 | 162,771 | 17 70 | 1 0 | 11,389 |
| Roof | BARRACKS 02 | BARRACKS | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase insulation by R 8 | 73,163 | NA | 73,163 | 109,732 | 0 | 109,732 | 36,568 | 1.50 | 13 4 | 73,163 |
| Wall | BARRACKS 02 | BARRACKS | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase insulation by R 6.5 | 108,268 | NA | 108,268 | 115,934 | *0 | 115,934 | 7,666 | 1 10 | 19 3 | 108,268 |
| Heating | BARRACKS 03 | BARRACKS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 192 | NA | 192 | 916 | 0 | 916 | *24 | 4.80 | 2 3 | 192 |
| Cooling | BARRACKS 03 | BARRACKS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 03 | BARRACKS | FL194: CFL 2 15 WALL FIXT | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 03 | BARRACKS | IN11 - INC 100 CEIL | FL189 CFL 2 15 CEIL FIXT | 214 | NA | 214 | 935 | 166 | 1,101 | 886 | 5 10 | 3 5 | 214 |
| Lights | BARRACKS 03 | BARRACKS | IN15 INC 60 TABLE LAMP | FL181: CFL 13 + DLST UNIT | 3,568 | NA | 3,568 | 14,319 | 3,042 | 19,361 | 15,793 | 5 40 | 3 3 | 3,568 |
| Lights | BARRACKS 03 | BARRACKS | EX1: EXIT INC (2x20) | EX6 EXIT - LED | 5,237 | NA | 5,237 | 17,713 | 10,891 | 28 604 | 23 368 | 5.50 | 3 2 | 5,237 |
| Hot Water | BARRACKS 03 | BARRACKS | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LPSHs, Aerators | 1,563 | NA | 1,563 | 10,991 | 0 | 10,991 | 9,42* | 7 00 | 1.5 | 1,563 |
| Roof | BARRACKS 03 | BARRACKS | Roof Insulation R Value 20 05 | Suspended Ceiling Increase insulation by R 8 | 9,600 | NA | 9,600 | 80,133 | 0 | 80,133 | *0,533 | 8 30 | 2.5 | 9 600 |
| Wall | BARRACKS 03 | BARRACKS | Wall Insulation R Value * 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | BARRACKS 04 | BARRACKS | Hot Water (Generated) Fan Coil | New Conventional Individual Building LPG Boiler | 11 149 | NA | 11,149 | 40,539 | 0 | 40,539 | 29,390 | 3.60 | 3 4 | 1* 112 |
| Cooling | BARRACKS 04 | BARRACKS | Chilled Water Chill Water Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | BARRACKS 04 | BARRACKS | FL82 FL 1X4 2P40T12E8 STD2 | PL106 FL 1X4 2P40T12E8 ELC2 | 10,114 | NA | 10 114 | 17,083 | 2 481 | 19,569 | 9,456 | 1 90 | 9 3 | 10 114 |
| Lights | BARRACKS 04 | BARRACKS | FL4 FL 1X4 2P40T12 STD2 | FL52 FL 1X4 2P32T8 ELC2 | 621 | NA | 621 | 1,609 | 91 | 1,700 | 1,079 | 2 70 | 6 6 | 621 |
| Lights | BARRACKS 04 | BARRACKS | EX1 EXIT INC (2x20) | EX6 EXIT LED | 5,572 | NA | 5,572 | 21,60* | 11,588 | 33 195 | 27,623 | 6 00 | 3 0 | 5,572 |
| Hot Water | BARRACKS 04 | BARRACKS | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation LPSHs Aerators | 3,940 | NA | 3,940 | 34 423 | 0 | 34 423 | 30 483 | 8 70 | 2 4 | 3 940 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | % wage to Investment Ratio | Discounted Payback Period | First Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | DARRACKS 04 | DARRACKS | Hot Water (Generated) Beam Central Heat | LPG Pulse Combo, Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 2,227 | NA | 2,227 | 35,894 | 0 | 35,894 | 33,667 | 16 10 | 0 8 | 3 418 |
| Roof | DARRACKS 04 | DARRACKS | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 19 | 28,540 | NA | 28,540 | 374,291 | 0 | 374,291 | 345,751 | 13 10 | 1 5 | 28,540 |
| Wall | DARRACKS 04 | DARRACKS | Wall Insulation R Value 7 00 | Blow-in Insulation: Increase insulation by R-2 4 | 31,169 | NA | 31,169 | 62,676 | 0 | 62,676 | 31,507 | 2 00 | 9 6 | 31,169 |
| Heating | DARRACKS 05 | DARRACKS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DARRACKS 05 | DARRACKS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DARRACKS 05 | DARRACKS | FLR2: FL 1X4 2P40T12/8 STD2 | FL106: FL 1X4 2P40T12/8 ELC2 | 319 | NA | 319 | 468 | 78 | 546 | 227 | 1 70 | 10 4 | 319 |
| Lights | DARRACKS 05 | DARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 20 | NA | 20 | 39 | 3 | 42 | 22 | 2 10 | 8 4 | 20 |
| Lights | DARRACKS 05 | DARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 176 | NA | 176 | 552 | 366 | 918 | 742 | 5 20 | 3 4 | 176 |
| Hot Water | DARRACKS 05 | DARRACKS | Other Fuels Central Boiler | LPG Pulse Combo, Boiler, Wrap Tank w/insulation, LPSHs Aerators | 482 | NA | 482 | 4,236 | 0 | 4,236 | 3,754 | 8 80 | 2 4 | 482 |
| Roof | DARRACKS 05 | DARRACKS | Roof Insulation R-Value 30 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | DARRACKS 05 | DARRACKS | Wall Insulation R-Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | DARRACKS 06 | DARRACKS | Hot Water (Generated) Fan Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DARRACKS 06 | DARRACKS | Chilled Water Chill Water Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DARRACKS 06 | DARRACKS | FLR2: FL 1X4 2P40T12/8 STD2 | FL106: FL 1X4 2P40T12/8 ELC2 | 3,450 | NA | 3,450 | 6,104 | 846 | 6,950 | 3,500 | 2 00 | 9 0 | 3,450 |
| Lights | DARRACKS 06 | DARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 173 | NA | 173 | 400 | 42 | 442 | 270 | 2 60 | 7 0 | 173 |
| Lights | DARRACKS 06 | DARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,901 | NA | 1,901 | 7,227 | 3,954 | 11,181 | 9,280 | 5 90 | 3 0 | 1 901 |
| Hot Water | DARRACKS 06 | DARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 4,450 | NA | 4,450 | 32,845 | 0 | 32,845 | 28,395 | 7 40 | 2 8 | 4,450 |
| Roof | DARRACKS 06 | DARRACKS | Roof Insulation R Value 30 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | DARRACKS 06 | DARRACKS | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | DARRACKS 07 | DARRACKS | Hot Water (Generated) Fan Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DARRACKS 07 | DARRACKS | Chilled Water Chill Water Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DARRACKS 07 | DARRACKS | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 8,670 | NA | 8,670 | 11,253 | 963 | 12,216 | 3,545 | 1 40 | 12 7 | 8,670 |
| Lights | DARRACKS 07 | DARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 2,367 | NA | 2,367 | 6,904 | 347 | 7,251 | 4,885 | 3 10 | 5 9 | 2,367 |
| Lights | DARRACKS 07 | DARRACKS | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 RPP | 2,852 | NA | 2,852 | 10,445 | 669 | 11,114 | 8,262 | 3 90 | 4 6 | 2,852 |
| Lights | DARRACKS 07 | DARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21,230 | NA | 21,230 | 81,185 | 44 153 | 125,338 | 104,108 | 5 90 | 3.0 | 21,230 |
| Lights | DARRACKS 07 | DARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 8,672 | NA | 8,672 | 38,817 | 12,256 | 51,073 | 42,401 | 5 90 | 3 0 | 8 672 |
| Lights | DARRACKS 07 | DARRACKS | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 15,453 | NA | 15,453 | 88,954 | 32,552 | 121,506 | 106,053 | 7 90 | 2 3 | 15,453 |
| Hot Water | DARRACKS 07 | DARRACKS | Hot Water (Generated) Beam Central Heat | LPG Pulse Combo, Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 19,960 | NA | 19,960 | 384,533 | 0 | 384,533 | 364,573 | 19 30 | 1 1 | 19,960 |
| Roof | DARRACKS 07 | DARRACKS | Roof Insulation R Value 8 90 | Suspended Ceiling: Increase insulation by R 19 | 54,371 | NA | 54,371 | 154,238 | 0 | 154,238 | 99,867 | 2 80 | 6 9 | 54,371 |
| Wall | DARRACKS 07 | DARRACKS | Wall Insulation R-Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | CHAPEL 01 | CHAPEL | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | CHAPEL 01 | CHAPEL | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CHAPEL 01 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1,185 | NA | 1,185 | 20,384 | 4,843 | 25,227 | 24,042 | 21 30 | 0 8 | 1,185 |
| Lights | CHAPEL 01 | CHAPEL | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 1,156 | NA | 1,156 | 3,688 | 799 | 4,487 | 3,331 | 3 90 | 4 6 | 1,156 |
| Lights | CHAPEL 01 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,824 | 1,815 | 5,639 | 4,766 | 6 50 | 2 7 | 873 |
| Hot Water | CHAPEL 01 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 66 | NA | 66 | 211 | 0 | 211 | 146 | 3 20 | 1 4 | 66 |
| Roof | CHAPEL 01 | CHAPEL | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R 38 | 3,576 | NA | 3,576 | 39,906 | 0 | 39,906 | 36,330 | 11 20 | 1 7 | 3,576 |
| Wall | CHAPEL 01 | CHAPEL | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase insulation by R 4.5 | 5,158 | NA | 5,158 | 23,006 | 0 | 23,006 | 17,848 | 4 50 | 4 2 | 5,158 |
| Heating | CHAPEL 02 | CHAPEL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 144 | NA | 144 | 488 | 0 | 488 | 345 | 3 40 | 3 9 | 144 |
| Cooling | CHAPEL 02 | CHAPEL | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CHAPEL 02 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 5,482 | NA | 5,482 | 62,869 | 22 401 | 85,270 | 79,788 | 15 60 | 1 2 | 5,482 |
| Lights | CHAPEL 02 | CHAPEL | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 5,347 | NA | 5,347 | 11,369 | 3,697 | 15,066 | 9,719 | 2 80 | 6 4 | 5,347 |
| Lights | CHAPEL 02 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,042 | 1,815 | 4,857 | 3,985 | 5 60 | 3 2 | 873 |
| Hot Water | CHAPEL 02 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 106 | NA | 106 | 409 | 0 | 409 | 304 | 3 90 | 1 2 | 106 |
| Roof | CHAPEL 02 | CHAPEL | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R-8 | 5,858 | NA | 5,858 | 6,514 | 0 | 6,514 | 656 | 1 10 | 18 8 | 5,858 |
| Wall | CHAPEL 02 | CHAPEL | Wall Insulation R-Value 5.32 | Interior Masonry Surface: Increase insulation by R-4 3 | 9,153 | NA | 9,153 | 14,664 | 0 | 14,664 | 5,511 | 1 60 | 12 9 | 9,153 |
| Heating | CLINIC 01 | CLINIC | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | CLINIC 01 | CLINIC | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 27,057 | NA | 27,057 | 35,674 | 0 | 35,674 | 8,617 | 1 30 | 8 8 | 35,549 |
| Lights | CLINIC 01 | CLINIC | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 914 | NA | 914 | 2,123 | 559 | 2,682 | 1,768 | 2 90 | 6 1 | 914 |
| Lights | CLINIC 01 | CLINIC | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 1,559 | NA | 1,559 | 7,840 | 942 | 8,782 | 7,223 | 5 60 | 3 2 | 1,559 |
| Lights | CLINIC 01 | CLINIC | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 748 | NA | 748 | 3,814 | 452 | 4,266 | 3,518 | 5 70 | 3 2 | 748 |
| Lights | CLINIC 01 | CLINIC | FL2: FL 2X4 3P40T12 STD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 4,135 | NA | 4,135 | 26,582 | 2,698 | 29,280 | 25,146 | 7 10 | 2 6 | 4,135 |
| Lights | CLINIC 01 | CLINIC | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 RPP | 7,966 | NA | 7,966 | 50,674 | 4,480 | 55,154 | 47,187 | 6 90 | 2 6 | 7,966 |
| Lights | CLINIC 01 | CLINIC | HB13: HPS 70 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLINIC 01 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 979 | NA | 979 | 4,079 | 2,036 | 6,115 | 5,136 | 6 20 | 2 9 | 979 |
| Hot Water | CLINIC 01 | CLINIC | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | CLINIC 01 | CLINIC | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-19 | 2,149 | NA | 2,149 | 2,307 | 0 | 2,307 | 158 | 1 10 | 17.6 | 2,149 |
| Wall | CLINIC 01 | CLINIC | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | CLINIC 02 | CLINIC | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | CLINIC 02 | CLINIC | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLINIC 02 | CLINIC | FL82: FL 1X4 2P40T12/8 STD2 | FL106: FL 1X4 2P40T12/8 ELC2 | 3,651 | NA | 3,651 | 10,395 | 3,132 | 13,527 | 9,876 | 3 70 | 4 8 | 3,651 |
| Lights | CLINIC 02 | CLINIC | FL62: FL 1X8 2P96T12 STD2 | FL131: FL 1X8 2P96T12/8 ELC2 REP | 431 | NA | 431 | 1,263 | 79 | 1,342 | 911 | 3 10 | 5 8 | 431 |
| Lights | CLINIC 02 | CLINIC | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 2,101 | NA | 2,101 | 8,782 | 1,269 | 10,051 | 7,950 | 4 80 | 3 8 | 2,101 |
| Lights | CLINIC 02 | CLINIC | FL79: FL 2X4 4P40T12/8 STD2 | FL237: FL 2X4 3P32T8 ELC3 RPP | 2,045 | NA | 2,045 | 6,907 | 1,288 | 8,195 | 6,151 | 4 00 | 4 5 | 2,045 |
| Lights | CLINIC 02 | CLINIC | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 88 | NA | 88 | 421 | 143 | 564 | 476 | 6 40 | 2 8 | 88 |
| Lights | CLINIC 02 | CLINIC | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 469 | NA | 469 | 3,295 | 1,013 | 4,308 | 3,840 | 9 20 | 1 9 | 469 |
| Lights | CLINIC 02 | CLINIC | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 151 | NA | 151 | 1,315 | 472 | 1,787 | 1,636 | 11 90 | 1 5 | 151 |
| Lights | CLINIC 02 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13,092 | NA | 13,092 | 41,012 | 27,228 | 70,240 | 57,148 | 5 60 | 3 3 | 13,092 |
| Hot Water | CLINIC 02 | CLINIC | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins Pipe, LPSHs, Aerators | 223 | NA | 223 | 644 | 0 | 644 | 421 | 2 90 | 1 6 | 223 |
| Roof | CLINIC 02 | CLINIC | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 19 | 1,114 | NA | 1,114 | 7,477 | 0 | 7,477, | 6,363 | 6 90 | 3.0 | 1,114 |
| Wall | CLINIC 02 | CLINIC | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase insulation by R 4.5 | 25,381 | NA | 25,381 | 30,430 | 0 | 30,430 | 5,049 | 1 20 | 17.4 | 25,381 |
| Heating | COMMISSARIES | COMMISSARIES | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | COMMISSARIES | COMMISSARIES | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 2,462 | NA | 2,462 | 8,004 | 1,489 | 9,493 | 7,031 | 3 90 | 4 7 | 2,462 |
| Lights | COMMISSARIES | COMMISSARIES | FL63: FL 1X8 1P96T12 STD1 | FL126: FL 1X8 1P96T12/8 EEP1 REP | 14,842 | NA | 14,842 | 27,777 | 719 | 27,058 | 12,217 | 1 80 | 10 0 | 14,842 |
| Lights | COMMISSARIES | COMMISSARIES | FL61: FL 1X8 4P96T12 STD2 | FL130: FL 1X8 4P96T12/8 ELC2 REP | 1,044 | NA | 1,044 | 6,568 | 90 | 6,658 | 5,614 | 6 40 | 2 9 | 1,044 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 1,119 | NA | 1,119 | 3,226 | 677 | 3,903 | 2,784 | 3 50 | 5 2 | 1,119 |
| Lights | COMMISSARIES | COMMISSARIES | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 550 | NA | 550 | 1,325 | 370 | 3,695 | 3,145 | 6 70 | 2.7 | 550 |
| Lights | COMMISSARIES | COMMISSARIES | FL81: FL 2X4 2P40T12/8 STD2 | FL105: FL 2X4 2P40T12/8 ELC2 | 224 | NA | 224 | 556 | 194 | 750 | 527 | 3 40 | 5 3 | 224 |
| Lights | COMMISSARIES | COMMISSARIES | FL79: FL 2X4 4P40T12/8 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 9,274 | NA | 9,274 | 47,971 | 7,078 | 55,049 | 45,775 | 5 90 | 3 0 | 9,274 |
| Lights | COMMISSARIES | COMMISSARIES | FL62: FL 1X8 2P96T12 STD2 | FL131: FL 1X8 2P96T12/8 ELC2 REP | 8,800 | NA | 8,800 | 41,949 | 1,367 | 43,316 | 34,516 | 4 90 | 3 7 | 8,800 |
| Lights | COMMISSARIES | COMMISSARIES | EX2: EXIT - INC (2x15) | EX6: EXIT - LED | 1,233 | NA | 1,233 | 3,854 | 9,035 | 12,889 | 11,656 | 10.50 | 1 7 | 1,233 |
| Lights | COMMISSARIES | COMMISSARIES | HB15: HPS 150 PEND | LM: LPS 90 PEND | 6,351 | NA | 6,351 | 12,567 | -1,100 | 11,467 | 5,116 | 1 80 | 10 1 | 6,351 |
| Lights | COMMISSARIES | COMMISSARIES | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL PDT | 232 | NA | 232 | 2,416 | 221 | 2,637 | 2,405 | 11 40 | 1 6 | 232 |
| Lights | COMMISSARIES | COMMISSARIES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 336 | NA | 336 | 3,514 | 743 | 4,257 | 3,921 | 12.70 | 1 4 | 336 |
| Lights | COMMISSARIES | COMMISSARIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 191 | NA | 191 | 6,031 | 1,708 | 7,739 | 7,548 | 40.60 | 0 4 | 191 |
| Hot Water | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 231 | NA | 231 | 20,605 | 0 | 20,605 | 20,374 | 89 30 | 0.2 | 231 |
| Roof | COMMISSARIES | COMMISSARIES | Roof Insulation R Value 8 90 | Suspended Ceiling: Increase insulation by R 38 | 70,277 | NA | 70,277 | 249,226 | 0 | 249,226 | 178,949 | 3.50 | 5 1 | 70,277 |
| Wall | COMMISSARIES | COMMISSARIES | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ELECTRONICS 01 | ELECTRONICS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ELECTRONICS 01 | ELECTRONICS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 149 | NA | 149 | 644 | 202 | 846 | 697 | 5 70 | 3.2 | 149 |
| Roof | ELECTRONICS 01 | ELECTRONICS | Roof Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | ELECTRONICS 01 | ELECTRONICS | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | Fuel Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling | ELECTRONICS 02 | ELECTRONICS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ELECTRONICS 02 | ELECTRONICS | PL1: FL 2X4 4P40T12 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 4,240 | NA | 4,240 | 17,361 | 1,025 | 18,386 | 14,146 | 4.30 | 4.2 | 4,240 |
| Lights | ELECTRONICS 02 | ELECTRONICS | EXI: EXIT INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,819 | 2,723 | 7,542 | 6,232 | 5.80 | 3.1 | 1,309 |
| Roof | ELECTRONICS 02 | ELECTRONICS | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | ELECTRONICS 02 | ELECTRONICS | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | ELECTRONICS 03 | ELECTRONICS | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | ELECTRONICS 03 | ELECTRONICS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | ELECTRONICS 03 | ELECTRONICS | PL1: FL 2X4 4P40T12 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 5,426 | NA | 5,426 | 40,085 | 3,813 | 43,898 | 38,473 | 8.10 | 2.2 | 5,426 |
| Lights | ELECTRONICS 03 | ELECTRONICS | EXI: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,720 | 908 | 2,628 | 2,191 | 6.00 | 3.0 | 436 |
| Hot Water | ELECTRONICS 03 | ELECTRONICS | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 33 | NA | 33 | 186 | 0 | 186 | 153 | 5.70 | 0.8 | 33 |
| Roof | ELECTRONICS 03 | ELECTRONICS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1,755 | NA | 1,755 | 2,706 | 0 | 2,706 | 952 | 1.50 | 12.4 | 1,755 |
| Wall | ELECTRONICS 03 | ELECTRONICS | Wall Insulation R Value 0.00 | Interior Masonary Surface: Increase Insulation by R 4.3 | 4,364 | NA | 4,364 | 7,341 | 0 | 7,341 | 2,977 | 1.70 | 11.5 | 4,364 |
| Heating | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 5,165 | NA | 5,165 | 15,445 | 5,189 | 20,634 | 15,468 | 4.00 | 4.5 | 5,165 |
| Lights | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 39,467 | NA | 39,467 | 96,396 | 51,980 | 148,376 | 108,909 | 3.80 | 4.7 | 39,467 |
| Lights | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 8,177 | NA | 8,177 | 58,004 | 26,215 | 84,219 | 76,042 | 10.30 | 1.7 | 8,177 |
| Hot Water | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 13,034 | NA | 13,034 | 43,113 | 0 | 43,113 | 30,079 | 3.30 | 1.4 | 13,034 |
| Roof | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R Value 11.00 | Attic Ceiling: Increase Insulation by R 19 | 50,557 | NA | 50,557 | 59,468 | 0 | 59,468 | 8,910 | 1.20 | 17.2 | 50,557 |
| Wall | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Wall Insulation R Value 7.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 24,123 | NA | 24,123 | 80,122 | 24,232 | 104,354 | 80,231 | 4.30 | 4.1 | 24,123 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 184,318 | NA | 184,318 | 518,933 | 249,411 | 768,344 | 584,026 | 4.20 | 4.2 | 184,318 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 38,187 | NA | 38,187 | 356,042 | 122,427 | 478,469 | 440,282 | 12.50 | 1.4 | 38,187 |
| Hot Water | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels 81kW Heater | 0.85 LPG WH (RES), Ins Pipe, 1 PS11s, Aerators, Lower Tank Temp | 18,926 | NA | 18,926 | 38,194 | 0 | 38,194 | 19,267 | 2.00 | 0.5 | 165,604 |
| Roof | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Wall Insulation R-Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 14,261 | NA | 14,261 | 37,844 | 14,326 | 52,170 | 37,909 | 3.70 | 4.9 | 14,261 |
| Lights | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 108,968 | NA | 108,968 | 353,613 | 147,451 | 501,064 | 392,096 | 4.60 | 3.9 | 108,968 |
| Lights | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 22,576 | NA | 22,576 | 227,440 | 72,378 | 299,818 | 277,242 | 13.30 | 1.3 | 22,576 |
| Hot Water | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 20,856 | NA | 20,856 | 115,251 | 0 | 115,251 | 94,395 | 5.50 | 1.2 | 20,856 |
| Roof | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase Insulation by R 19 | 139,587 | NA | 139,587 | 160,259 | 0 | 160,259 | 20,672 | 1.10 | 16.3 | 139,587 |
| Wall | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | PL189: CFL 2-15 CEIL FIXT | 5,626 | NA | 5,626 | 11,654 | 5,651 | 17,305 | 11,679 | 3.10 | 5.6 | 5,626 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 42,984 | NA | 42,984 | 118,279 | 56,612 | 174,891 | 131,907 | 4.10 | 4.3 | 42,984 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 8,905 | NA | 8,905 | 75,580 | 28,551 | 104,131 | 95,225 | 11.70 | 1.5 | 8,905 |
| Hot Water | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 15,098 | NA | 15,098 | 39,816 | 0 | 39,816 | 24,718 | 2.60 | 1.8 | 15,098 |
| Roof | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R Value 0.00 | Attic Ceiling: Increase Insulation by R 30 | 158,833 | NA | 158,833 | 1,072,696 | 0 | 1,072,696 | 913,862 | 6.80 | 2.9 | 158,833 |
| Wall | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 209,504 | NA | 209,504 | 276,790 | 0 | 276,790 | 67,286 | 1.30 | 14.8 | 209,504 |
| Heating | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 4,419 | NA | 4,419 | 7,730 | 3,280 | 11,010 | 6,591 | 2.50 | 7.2 | 4,419 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN1: INC 40 CEIL | PL178: CFL 9 + BLST UNIT | 1,874 | NA | 1,874 | 4,257 | 2,063 | 6,320 | 4,446 | 3.40 | 5.3 | 1,874 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 9,446 | NA | 9,446 | 31,252 | 12,781 | 44,033 | 34,587 | 4.70 | 3.8 | 9,446 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN6: INC 2-60 CEIL | PL182: CFL 2 13 + BLST UNIT | 6,412 | NA | 6,412 | 28,498 | 11,364 | 39,862 | 33,450 | 6.20 | 2.9 | 6,412 |
| Hot Water | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Other Fuels 81kW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 4,048 | NA | 4,048 | 6,716 | 3,005 | 9,721 | 5,673 | 2.40 | 7.4 | 4,048 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | PL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,296 | NA | 3,296 | 3,542 | 2,557 | 6,099 | 2,803 | 1.90 | 9.6 | 3,296 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 48,552 | NA | 48,552 | 134,123 | 65,698 | 199,821 | 151,270 | 4.10 | 4.3 | 48,552 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 2,001 | NA | 2,001 | 13,098 | 6,417 | 19,515 | 17,513 | 9.80 | 1.8 | 2,001 |
| Hot Water | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 9,477 | NA | 9,477 | 21,272 | 0 | 21,272 | 11,795 | 2.20 | 2.9 | 9,477 |
| Roof | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH DUPLEX 01 | DUPLEX | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DUPLEX 01 | DUPLEX | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 9,293 | NA | 9,293 | 31,585 | 9,334 | 40,919 | 31,627 | 4.40 | 4.1 | 9,293 |
| Lights | FH DUPLEX 01 | DUPLEX | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 71,003 | NA | 71,003 | 234,747 | 93,514 | 328,261 | 257,258 | 4.60 | 3.8 | 71,003 |
| Lights | FH DUPLEX 01 | DUPLEX | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 14,710 | NA | 14,710 | 171,180 | 47,161 | 218,341 | 203,631 | 14.80 | 1.2 | 14,710 |
| Hot Water | FH DUPLEX 01 | DUPLEX | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 17,038 | NA | 17,038 | 143,436 | 0 | 143,436 | 126,398 | 8.40 | 0.5 | 17,038 |
| Roof | FH DUPLEX 01 | DUPLEX | Roof Insulation R Value 11.00 | Attic Ceiling: Increase Insulation by R 30 | 262,367 | NA | 262,367 | 753,863 | 0 | 753,863 | 491,496 | 2.90 | 6.6 | 262,367 |
| Wall | FH DUPLEX 01 | DUPLEX | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 227,405 | NA | 227,405 | 591,832 | 0 | 591,832 | 364,427 | 2.60 | 7.3 | 227,405 |
| Heating | FH DUPLEX 02 | DUPLEX | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DUPLEX 02 | DUPLEX | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 1,999 | NA | 1,999 | 4,482 | 1,483 | 5,965 | 3,967 | 3.00 | 6.1 | 1,999 |
| Lights | FH DUPLEX 02 | DUPLEX | IN1: INC 40 CEIL | PL178: CFL 9 + BLST UNIT | 847 | NA | 847 | 2,774 | 933 | 3,707 | 2,859 | 4.40 | 4.2 | 847 |
| Lights | FH DUPLEX 02 | DUPLEX | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 4,272 | NA | 4,272 | 14,412 | 5,780 | 20,192 | 15,920 | 4.70 | 3.8 | 4,272 |
| Lights | FH DUPLEX 02 | DUPLEX | IN6: INC 2-60 CEIL | PL182: CFL 2 13 + BLST UNIT | 2,900 | NA | 2,900 | 12,894 | 5,139 | 18,033 | 15,134 | 6.20 | 2.9 | 2,900 |
| Hot Water | FH DUPLEX 02 | DUPLEX | Other Fuels 81kW Heater | 0.85 LPG WH (RES), Ins Pipe, LPS11s, Aerators, Lower Tank Temp | 5,654 | NA | 5,654 | 26,040 | 0 | 26,040 | 20,386 | 4.60 | 1.0 | 10,507 |
| Roof | FH DUPLEX 02 | DUPLEX | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | FH DUPLEX 02 | DUPLEX | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | FH DUPLEX 03 | DUPLEX | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | FH DUPLEX 03 | DUPLEX | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | FH DUPLEX 03 | DUPLEX | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 10,877 | NA | 10,877 | 23,708 | 8,074 | 31,782 | 20,904 | 2.90 | 6.1 | 10,877 |
| Lights | FH DUPLEX 03 | DUPLEX | PL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 8,855 | NA | 8,855 | 13,434 | 6,871 | 20,305 | 11,450 | 2.30 | 7.8 | 8,855 |
| Lights | FH DUPLEX 03 | DUPLEX | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 130,459 | NA | 130,459 | 474,983 | 176,532 | 651,515 | 521,056 | 5.00 | 3.6 | 130,460 |
| Lights | FH DUPLEX 03 | DUPLEX | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 5,378 | NA | 5,378 | 67,011 | 17,242 | 84,253 | 78,875 | 15.70 | 1.2 | 5,378 |
| Hot Water | FH DUPLEX 03 | DUPLEX | Other Fuels 81kW Heater | Wrap Old LPG Tank, Ins. Pipe, LPS11s, Aer., Lower Tank Temp | 18,797 | NA | 18,797 | 328,507 | 0 | 328,507 | 309,710 | 17.50 | 0.4 | 18,797 |
| Roof | FH DUPLEX 03 | DUPLEX | Roof Insulation R Value 30.00 | Attic Ceiling: Increase Insulation by R 19 | 314,380 | NA | 314,380 | 382,884 | 0 | 382,884 | 68,504 | 1.20 | 15.5 | 314,380 |
| Wall | FH DUPLEX 03 | DUPLEX | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | CLUBS 01 | CLUBS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | CLUBS 01 | CLUBS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLUBS 01 | CLUBS | PL11*: FL 1X8 1P96T12E8 STD1 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLUBS 01 | CLUBS | PL42: FL 1X8 2P96T12 STD2 | PL131: FL 1X8 2P96T12E8 ELC2 REP | 736 | NA | 736 | 1,493 | 298 | 1,791 | 1,055 | 2.40 | 0.6 | 736 |
| Lights | CLUBS 01 | CLUBS | PL205: FL 2X4 2P40T12H0 STD2 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLUBS 01 | CLUBS | PL79: FL 2X4 4P40T12E8 STD2 | PL232: FL 2X4 3P40T12 ELC3 | 1,908 | NA | 1,908 | 5,304 | 2,530 | 7,834 | 5,926 | 4.10 | 4.4 | 1,908 |
| Lights | CLUBS 01 | CLUBS | EX1: EXIT INC (2x20) | EX6: EXIT LED | 344 | NA | 344 | 1,268 | 715 | 1,983 | 1,639 | 5.70 | 3.1 | 344 |
| Lights | CLUBS 01 | CLUBS | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 318 | NA | 318 | 1,322 | 462 | 1,784 | 1,466 | 6.20 | 2.9 | 318 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | Fuel Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | CLUBS 01 | CLUBS | Other Fuels 81EW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Arr., Lower Tank Temp | 7 | NA | 7 | 23 | 0 | 23 | 16 | 3 30 | 1 4 | 7 |
| Roof | CLUBS 01 | CLUBS | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase Insulation by R 8 | 2,317* | NA | 2,317* | 5,486 | 0 | 5,486 | 3,170 | 2 40 | 8 6 | 2 317* |
| Wall | CLUBS 01 | CLUBS | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | CLUBS 02 | CLUBS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | CLUBS 02 | CLUBS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLUBS 02 | CLUBS | FL117: FL 1X8 1F96T12ES 8TD1 | FL123: FL 1X8 1F96T12ES EEF1 | 1,582 | NA | 1,582 | 1,958 | 1,102 | 3 060 | 1,477 | 1 90 | 9 2 | 1,582 |
| Lights | CLUBS 02 | CLUBS | FL62: FL 1X8 2F96T12 8TD2 | FL131: FL 1X8 2F96T12ES ELC2 EEF | 1,882 | NA | 1,882 | 6,838 | 466 | 7,304 | 5 422 | 3 90 | 4 7 | 1,882 |
| Lights | CLUBS 02 | CLUBS | FL205: FL 2X4 2P40T12HO 8TD2 | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Lights | CLUBS 02 | CLUBS | FL79: FL 2X4 4P40T12ES 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 9,254 | NA | 9,254 | 39,495 | 5,735 | 45 230 | 35,976 | 4 90 | 3 7 | 9,254 |
| Lights | CLUBS 02 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 879 | NA | 879 | 3,587 | 1,828 | 5,415 | 4,536 | 6 20 | 2 9 | 879 |
| Lights | CLUBS 02 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 814 | NA | 814 | 7,150 | 1,671 | 8,821 | 8,007 | 10 80 | 1 7 | 814 |
| Hot Water | CLUBS 02 | CLUBS | Other Fuels 81EW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | CLUBS 02 | CLUBS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 15,681 | NA | 15,681 | 70,012 | 0 | 70,012 | 54,331 | 4 50 | 4 1 | 15,681 |
| Wall | CLUBS 02 | CLUBS | Wall Insulation R Value 0 00 | Interior Masonary Surface: Increase Insulation by R 10 9 | 26,717 | NA | 26,717 | 52,319 | 0 | 52,319 | 25,602 | 2 00 | 9 4 | 26,717 |
| Heating | CLUBS 03 | CLUBS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 113 | NA | 113 | 143 | 0 | 143 | 30 | 1 30 | 16 5 | 113 |
| Cooling | CLUBS 03 | CLUBS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | CLUBS 03 | CLUBS | FL117: FL 1X8 1F96T12ES 8TD1 | FL123: FL 1X8 1F96T12ES EEF1 | 2,461 | NA | 2,461 | 2,978 | 1,616 | 4,594 | 2,132 | 1 90 | 9 5 | 2,461 |
| Lights | CLUBS 03 | CLUBS | FL62: FL 1X8 2F96T12 8TD2 | FL131: FL 1X8 2F96T12ES ELC2 EEF | 2,927 | NA | 2,927 | 10,297 | 547 | 10,844 | 7,916 | 3 70 | 4 9 | 2 927 |
| Lights | CLUBS 03 | CLUBS | FL205: FL 2X4 2P40T12HO 8TD2 | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Lights | CLUBS 03 | CLUBS | FL79: FL 2X4 4P40T12ES 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 14,398 | NA | 14,398 | 54,181 | 9,802 | 63,983 | 49,586 | 4 40 | 4 0 | 14,398 |
| Lights | CLUBS 03 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 1,367 | NA | 1,367 | 6,651 | 2,843 | 9,494 | 8,127 | 6 90 | 2 6 | 1,367 |
| Lights | CLUBS 03 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 1,266 | NA | 1,266 | 9,871 | 2,362 | 12,233 | 10,967 | 9 70 | 1 8 | 1,266 |
| Hot Water | CLUBS 03 | CLUBS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Arresters | 508 | NA | 508 | 38,578 | 0 | 38,578 | 38,070 | 75 90 | 0 3 | 508 |
| Roof | CLUBS 03 | CLUBS | Roof Insulation R Value 8.90 | Suspended Ceiling: Increase insulation by R 38 | 31,173 | NA | 31,173 | 139,987 | 0 | 139,987 | 108,814 | 4 50 | 4 1 | 31,173 |
| Wall | CLUBS 03 | CLUBS | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | FL41: FL 1X4 2P40T12 8TD2 | FL52: FL 1X4 2P32T8 ELC2 | 215 | NA | 215 | 356 | 160 | 516 | 301 | 2 40 | 7 5 | 215 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2P40T12ES 8TD2 | FL106: FL 1X4 2P40T12ES ELC2 | 175 | NA | 175 | 172 | 136 | 308 | 133 | 1 80 | 10 1 | 175 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 2,578 | NA | 2,578 | 8,111 | 3,395 | 11,506 | 8,928 | 4 50 | 4 0 | 2,578 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 106 | NA | 106 | 848 | 341 | 1,189 | 1,083 | 11 20 | 1 4 | 106 |
| Hot Water | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Electric 81EW Heater | 0 76 LPG WH (REH), Ins. Pipe, LPSHs, Arrestors, Lower Tank Temp | 1,493 | NA | 1,493 | 8,349 | 0 | 8,349 | 6,855 | 5 60 | 1 0 | 2,347 |
| Roof | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R-Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Electric Package Unit | Split System Residential AC Unit (1.5 to 5 4167 tons cooling) | 3,197 | NA | 3,197 | 3,590 | 0 | 3,590 | 394 | 1 10 | 0 9 | 32,613 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | FL41: FL 1X4 2P40T12 8TD2 | FL52: FL 1X4 2P32T8 ELC2 | 234 | NA | 234 | 429 | 173 | 602 | 369 | 2 60 | 6 9 | 234 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | FL82: FL 1X4 2P40T12ES 8TD2 | FL106: FL 1X4 2P40T12ES ELC2 | 190 | NA | 190 | 222 | 148 | 370 | 179 | 1 90 | 9 1 | 190 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 2,801 | NA | 2,801 | 9,331 | 3,790 | 13,121 | 10,320 | 4 70 | 3 8 | 2,801 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 115 | NA | 115 | 1,116 | 370 | 1,486 | 1,371 | 12 90 | 1 4 | 115 |
| Hot Water | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Electric 81EW Heater | 0 76 LPG WH (REH), Ins. Pipe, LPSHs, Arrestors, Lower Tank Temp | 279 | NA | 279 | 1,704 | 0 | 1,704 | 1,425 | 6 10 | 0 2 | 2,445 |
| Roof | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Roof Insulation R Value 8.69 | Attic Ceiling: Increase insulation by R 30 | 9,734 | NA | 9,734 | 41,440 | 0 | 41,440 | 31,705 | 4 30 | 4 5 | 9,734 |
| Wall | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Wall Insulation R-Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | HANGER | HANGAR | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | HANGER | HANGAR | H817: HPS 250 PEND | LS5: LPS 135 PEND | 5,972 | NA | 5,972 | 18,391 | 818 | 17,573 | 11,600 | 2 90 | 6 2 | 5,972 |
| Lights | HANGER | HANGAR | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,340 | 908 | 2,248 | 1,812 | 5 20 | 3 4 | 436 |
| Roof | HANGER | HANGAR | Roof Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 30 | 6,571 | NA | -6,571 | 125,148 | 0 | 125,148 | 118,577 | 19 00 | 1 1 | 6,571 |
| Wall | HANGER | HANGAR | Wall Insulation R-Value 0.00 | Floor in Insulation: Increase Insulation by R 13 | 20,331 | NA | 20,331 | 109,631 | 0 | 109,631 | 89,300 | 5 40 | 3 8 | 20,331 |
| Heating | HOSPITAL | HOSPITAL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 258 | NA | 258 | 346 | 0 | 346 | 89 | 1 30 | 9 3 | 258 |
| Cooling | HOSPITAL | HOSPITAL | Electric Conv Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling) | 41,206 | NA | 41,206 | 116,316 | 0 | 116,316 | 75,110 | 2 80 | 3 1 | 71,572 |
| Lights | HOSPITAL | HOSPITAL | FL1: FL 2X4 4P40T12 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 22,447 | NA | 22,447 | 196,304 | 21,368 | 217,672 | 195,225 | 9 70 | 1 9 | 22,447 |
| Lights | HOSPITAL | HOSPITAL | FL4: FL 1X4 2P40T12 8TD2 | FL52: FL 1X4 2P32T8 ELC2 | 14,592 | NA | 14,592 | 102,014 | 13,144 | 115,158 | 100,566 | 7 90 | 2 3 | 14,592 |
| Lights | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,546 | NA | 6,546 | 25,268 | 13,614 | 38,882 | 32,336 | 5 90 | 3 0 | 6,546 |
| Hot Water | HOSPITAL | HOSPITAL | Other Fuels Central Boiler | LPG Pulse Combin Boiler, Wrap Tank w/insulation, LPSHs, Arrestors | 5,716 | NA | 5,716 | 37,700 | 0 | 37,700 | 31,984 | 6 60 | 2 0 | 8,305 |
| Roof | HOSPITAL | HOSPITAL | Roof Insulation R-Value 8.90 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | HOSPITAL | HOSPITAL | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R 4 3 | 42,931 | NA | 42,931 | 54,160 | 0 | 54,160 | 11,228 | 1 30 | 15 6 | 42,931 |
| Heating | LAB 01 | LAB | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | LAB 01 | LAB | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | LAB 01 | LAB | FL1: FL 2X4 4P40T12 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 7,125 | NA | 7,125 | 28,349 | 1,723 | 30,072 | 22,946 | 4 20 | 4 3 | 7,125 |
| Lights | LAB 01 | LAB | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,447 | 2,723 | 7,170 | 5,860 | 5 50 | 3 2 | 1,309 |
| Hot Water | LAB 01 | LAB | Other Fuels 81EW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LPSHs, Arresters | 20 | NA | 20 | 65 | 0 | 65 | 45 | 3 30 | 1 4 | 20 |
| Roof | LAB 01 | LAB | Roof Insulation R Value 20.05 | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Wall | LAB 01 | LAB | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Heating | LAB 02 | LAB | Other Fuels Conv Furn | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Cooling | LAB 02 | LAB | Electric Evap Cooler | none | NA | NA | NA | NA | 0 | NA | NA | NA | NA | 0 |
| Lights | LAB 02 | LAB | FL1: FL 2X4 4P40T12 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 3,582 | NA | 3,582 | 14,209 | 866 | 15,075 | 11,493 | 4 20 | 4 3 | 3,582 |
| Lights | LAB 02 | LAB | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,425 | 908 | 2,333 | 1,896 | 5 30 | 3 3 | 436 |
| Hot Water | LAB 02 | LAB | Other Fuels 81EW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LPSHs, Arresters | 11 | NA | 11 | 36 | 0 | 36 | 26 | 3 40 | 1 4 | 11 |
| Roof | LAB 02 | LAB | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 19 | 2,112 | NA | 2,112 | 10,122 | 0 | 10,122 | 8,009 | 4 80 | 4 3 | 2,112 |
| Wall | LAB 02 | LAB | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MILITARY OTHER 01 | MILITARY OTHER | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MILITARY OTHER 01 | MILITARY OTHER | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MILITARY OTHER 01 | MILITARY OTHER | FL82: FL 1X4 2P40T12ES 8TD2 | FL106: FL 1X4 2P40T12ES ELC2 | 10,266 | NA | 10,266 | 18,728 | 9,279 | 28,007 | 17,741 | 2 70 | 6 5 | 10,266 |
| Lights | MILITARY OTHER 01 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 16,584 | NA | 16,584 | 59,347 | 34,489 | 93,836 | 77,253 | 5 70 | 3 1 | 16,584 |
| Hot Water | MILITARY OTHER 01 | MILITARY OTHER | Electric 81EW Heater | Replace Existing Water Heater w/ a 0.76 LPG Water Heater (CON) | 102 | NA | 102 | 355 | 0 | 355 | 253 | 3 50 | 1 6 | 161 |
| Roof | MILITARY OTHER 01 | MILITARY OTHER | Roof Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 11 | 4,852 | NA | 4,852 | 9,901 | 0 | 9,901 | 5,048 | 2 00 | 10 1 | 4,852 |
| Wall | MILITARY OTHER 01 | MILITARY OTHER | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MILITARY OTHER 02 | MILITARY OTHER | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MILITARY OTHER 02 | MILITARY OTHER | FL82: FL 1X4 2P40T12ES 8TD2 | FL106: FL 1X4 2P40T12ES ELC2 | 13,098 | NA | 13,098 | 24,010 | 11,839 | 35,849 | 22,751 | 2 70 | 6 5 | 13,098 |
| Lights | MILITARY OTHER 02 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 15,711 | NA | 15,711 | 55,119 | 32,674 | 87,793 | 72,083 | 5 60 | 3 2 | 15,711 |
| Roof | MILITARY OTHER 02 | MILITARY OTHER | Roof Insulation R Value 8 69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | MILITARY OTHER 02 | MILITARY OTHER | Wall Insulation R-Value 8 79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MILITARY OTHER 03 | MILITARY OTHER | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MILITARY OTHER 03 | MILITARY OTHER | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MILITARY OTHER 03 | MILITARY OTHER | FL79: FL 2X4 4P40T12ES 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 1,666 | NA | 1,666 | 6,755 | 487 | 7,242 | 5,576 | 4 30 | 4 2 | 1,666 |
| Lights | MILITARY OTHER 03 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 411 | NA | 411 | 2,171 | 854 | 3,025 | 2,615 | 7 40 | 2 4 | 411 |
| Hot Water | MILITARY OTHER 03 | MILITARY OTHER | Electric 81EW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Arr., Lower Tank Temp | 12 | NA | 12 | 60 | 0 | 60 | 48 | 5 10 | 1 1 | 12 |
| Roof | MILITARY OTHER 03 | MILITARY OTHER | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 3,925 | NA | 3,925 | 5,829 | 0 | 5,829 | 1,904 | 1 50 | 12 3 | 3 925 |
| Wall | MILITARY OTHER 03 | MILITARY OTHER | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MILITARY OTHER 04 | MILITARY OTHER | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MILITARY OTHER 04 | MILITARY OTHER | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1,134 | NA | 1,134 | 16,830 | 5,275 | 22,105 | 20,971 | 19 50 | 0 9 | 1,134 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | FL1: FL 2X4 4P40T12 8TD2 | FL237: FL 2X4 3P32T8 ELC3 EEF | 1,334 | NA | 1,334 | 4,811 | *81 | 5,592 | 4,258 | 4 20 | 4 3 | 1 334 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | MILITARY OTHER 04 | MILITARY OTHER | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp | 46 | NA | 46 | 58 | 0 | 58 | 12 | 1 30 | 3 6 | 46 |
| Roof | MILITARY OTHER 04 | MILITARY OTHER | Roof Insulation R Value 7 15 | Attic Ceiling Increase insulation by R 19 | 1,000 | NA | 1,000 | 1,937 | 0 | 1 937 | 937 | 1 90 | 10 7 | 1 000 |
| Wall | MILITARY OTHER 04 | MILITARY OTHER | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MILITARY OTHER 05 | MILITARY OTHER | FL4 FL 1X4 2P40T12 STD2 | FL52 FL 1X4 2P32T8 ELC2 | 4,649 | NA | 4,649 | 20,382 | 3,457 | 23,839 | 19 190 | 5 10 | 3 5 | 4,649 |
| Lights | MILITARY OTHER 05 | MILITARY OTHER | EX1 EXIT INC (2x20) | EX6 EXIT LED | 1,746 | NA | 1,746 | 6,511 | 3,630 | 10 141 | 8,395 | 5 80 | 3 1 | 1,746 |
| Hot Water | MILITARY OTHER 05 | MILITARY OTHER | Other Fuels Central Boiler | LPO Wrap Tank w/ Insulation, LPSHs Aerators | 320 | NA | 320 | 12,525 | 0 | 12 525 | 12 205 | 39 20 | 0 5 | 320 |
| Roof | MILITARY OTHER 05 | MILITARY OTHER | Roof Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | MILITARY OTHER 05 | MILITARY OTHER | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | FL62 FL 1X8 2P96T12 STD2 | FL74 FL 1X8 2P96T12 ELC2 | 80,945 | NA | 80,945 | 75,445 | 42,478 | 117,923 | 36 978 | 1 50 | 12 2 | 80,945 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | FL82 FL 1X4 2P40T12E8 STD2 | FL106 FL 1X4 2P40T12E8 ELC2 | 3,302 | NA | 3,302 | 2,234 | 2,267 | 4,501 | 1,200 | 1 40 | 13 0 | 3,302 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | IN5 INC 60 CEIL | FL181 CFL 13 + DLST UNIT | 49,179 | NA | 49,179 | 89,846 | 53,574 | 143,420 | 94 241 | 2 90 | 6 1 | 49,179 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | EX1 EXIT - INC (2x20) | EX6 EXIT LED | 21,820 | NA | 21,820 | 80,332 | 45,381 | 125,713 | 103,892 | 5 80 | 3 1 | 21,820 |
| Roof | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | Roof Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | FL62 FL 1X8 2P96T12 STD2 | LB5 LPS 55 PEND | 113,513 | NA | 113,513 | 116,514 | 29,524 | 146,038 | 32,525 | 1 30 | 14 0 | 113,513 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | FL82 FL 1X4 2P40T12E8 STD2 | FL106 FL 1X4 2P40T12E8 ELC2 | 2,115 | NA | 2,115 | 1,597 | 1,498 | 3,095 | 979 | 1 50 | 12 1 | 2,115 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | IN5 INC 60 CEIL | FL181 CFL 13 + DLST UNIT | 31,510 | NA | 31,510 | 61,012 | 34,420 | 95 432 | 63,922 | 3 00 | 5 9 | 31,510 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 1,309 | NA | 1,309 | 5,148 | 2,723 | 7,871 | 6,561 | 6 00 | 3 0 | 1,309 |
| Roof | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | Roof Insulation R Value R 69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | Wall Insulation R-Value R 79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | RECREATION 01 | RECREATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 01 | RECREATION | IN5 INC 60 CEIL | FL181 CFL 13 + DLST UNIT | 5,349 | NA | 5,349 | 19,739 | 6,836 | 26,575 | 21,227 | 5 00 | 3 6 | 5,349 |
| Lights | RECREATION 01 | RECREATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 1,309 | NA | 1,309 | 4,777 | 2,723 | 7,500 | 6,190 | 5 70 | 3 1 | 1,309 |
| Lights | RECREATION 01 | RECREATION | IN5 INC 60 CEIL | FL181 CFL 13 + DLST UNIT | 5,349 | NA | 5,349 | 19,739 | 6,836 | 26,575 | 21 227 | 5 00 | 3 6 | 5,349 |
| Lights | RECREATION 01 | RECREATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 1,309 | NA | 1,309 | 4,777 | 2,723 | 7,500 | 6,190 | 5 70 | 3 1 | 1,309 |
| Roof | RECREATION 01 | RECREATION | Roof Insulation R Value 11 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | RECREATION 01 | RECREATION | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | RECREATION 02 | RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 244 | NA | 244 | 330 | 0 | 330 | 86 | 1 40 | 8 0 | 244 |
| Heating | RECREATION 02 | RECREATION | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | RECREATION 02 | RECREATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 02 | RECREATION | FL82 FL 1X4 2P40T12E8 STD2 | FL106 FL 1X4 2P40T12E8 ELC2 | 945 | NA | 945 | 1,905 | 754 | 2,659 | 1,714 | 2 80 | 6 2 | 945 |
| Lights | RECREATION 02 | RECREATION | FL81 FL 2X4 2P40T12E8 STD2 | FL105 FL 2X4 2P40T12E8 ELC2 | 2,361 | NA | 2,361 | 5,565 | 1,884 | 7,449 | 5,087 | 3 20 | 5 6 | 2 361 |
| Lights | RECREATION 02 | RECREATION | FL79 FL 2X4 4P40T12E8 STD2 | FL232 FL 2X4 3P40T12 ELC3 | 737 | NA | 737 | 2,898 | 882 | 3,780 | 3,043 | 5 10 | 3 4 | 737 |
| Lights | RECREATION 02 | RECREATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 434 | NA | 434 | 1,283 | 902 | 2,185 | 1,751 | 5 00 | 3 4 | 434 |
| Lights | RECREATION 02 | RECREATION | IN30 INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 02 | RECREATION | IN5 INC 60 CEIL | FL181 CFL 13 + DLST UNIT | 3,307 | NA | 3,307 | 21,449 | 5,879 | 27,328 | 24,021 | 8 30 | 2 2 | 3,307 |
| Lights | RECREATION 02 | RECREATION | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 134 | NA | 134 | 2,360 | 824 | 3,184 | 3,050 | 25 70 | 0 7 | 134 |
| Lights | RECREATION 02 | RECREATION | MV3 MERC 100 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Hot Water | RECREATION 02 | RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 114 | NA | 114 | 412 | 0 | 412 | 298 | 3 60 | 1 3 | 114 |
| Roof | RECREATION 02 | RECREATION | Roof Insulation R Value 0 00 | Increased Ceiling Increase insulation by R 30 | 38,692 | NA | 38,692 | 906,694 | 0 | 906,694 | 868,002 | 23 40 | 0 8 | 38,692 |
| Wall | RECREATION 02 | RECREATION | Wall Insulation R-Value 7 00 | Blow in Insulation: Increase insulation by R 2 4 | 21,108 | NA | 21,108 | 48,445 | 0 | 48,445 | 27,337 | 2 30 | 8 2 | 21,108 |
| Heating | RECREATION 03 | RECREATION | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 03 | RECREATION | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 3,584 | NA | 3,584 | 42,026 | 18,691 | 60,717 | 57,132 | 16 90 | 1 1 | 3,584 |
| Lights | RECREATION 03 | RECREATION | MH3 MH 100 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 03 | RECREATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 873 | NA | 873 | 3,186 | 1,815 | 5,001 | 4,129 | 5 70 | 3 1 | 873 |
| Roof | RECREATION 03 | RECREATION | Roof Insulation R-Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | RECREATION 03 | RECREATION | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | RECREATION 04 | RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 130 | NA | 130 | 345 | 0 | 345 | 215 | 2 70 | 7 9 | 130 |
| Cooling | RECREATION 04 | RECREATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | RECREATION 04 | RECREATION | FL5 FL 1X4 1P40T12 STD1 | FL29 FL 1X4 1P40T12 ELC1 | 183 | NA | 183 | 412 | 107 | 519 | 336 | 2 80 | 6 3 | 183 |
| Lights | RECREATION 04 | RECREATION | FL4 FL 1X4 2P40T12 STD2 | FL52 FL 1X4 2P32T8 ELC2 | 3,041 | NA | 3,041 | 13,597 | 2,143 | 15,740 | 12,699 | 5 20 | 3 5 | 3,041 |
| Lights | RECREATION 04 | RECREATION | FL62 FL 1X8 2P96T12 STD2 | FL151 FL 1X8 2P96T12E8 ELC2 REP | 601 | NA | 601 | 2,107 | 112 | 2,219 | 1,618 | 3 70 | 4 9 | 601 |
| Lights | RECREATION 04 | RECREATION | FL3 FL 2X4 2P40T12 STD2 | FL51 FL 2X4 2P32T8 ELC2 | 1,577 | NA | 1,577 | 7,477 | 1,111 | 8,588 | 7,011 | 5 40 | 3 3 | 1,577 |
| Lights | RECREATION 04 | RECREATION | FL79 FL 2X4 4P40T12E8 STD2 | FL237 FL 2X4 3P32T8 ELC3 REP | 2,714 | NA | 2,714 | 9,712 | 1,848 | 11,560 | 8,845 | 4 30 | 4 2 | 2,714 |
| Lights | RECREATION 04 | RECREATION | HI14 HPS 100 PEND | LB3 LPS 55 PEND | 4,980 | NA | 4,980 | 7,302 | 283 | 7,585 | 2,605 | 1 50 | 11 9 | 4,980 |
| Lights | RECREATION 04 | RECREATION | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 873 | NA | 873 | 4,097 | 1,815 | 5,912 | 5,040 | 6 80 | 2 6 | 873 |
| Hot Water | RECREATION 04 | RECREATION | Other Fuels Central Boiler | LPO Wrap Tank w/ Insulation, LPSHs, Aerators | 562 | NA | 562 | 7,941 | 0 | 7,941 | 7,379 | 14 10 | 1 5 | 562 |
| Roof | RECREATION 04 | RECREATION | Roof Insulation R Value 20 05 | Superseded Ceiling Increase insulation by R 30 | 22,535 | NA | 22,535 | 47,558 | 0 | 47,558 | 25,023 | 2 10 | 8 8 | 22,535 |
| Wall | RECREATION 04 | RECREATION | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Electric Baseboard | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 1,533 | NA | 1,533 | 20,166 | 6,056 | 26,222 | 24,690 | 17 10 | 1 0 | 1,533 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | FL1 FL 2X4 4P40T12 STD2 | FL237 FL 2X4 3P32T8 ELC3 REP | 1,823 | NA | 1,823 | 5,575 | 862 | 6,437 | 4,614 | 3 50 | 5 1 | 1,823 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 873 | NA | 873 | 2,322 | 1,815 | 4,137 | 3,264 | 4 70 | 3 7 | 873 |
| Hot Water | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp | 49 | NA | 49 | 701 | 0 | 701 | 651 | 14 20 | 0 4 | 49 |
| Roof | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Roof Insulation R Value 11.00 | Attic Ceilag: Increase insulation by R 19 | 850 | NA | 850 | 2,090 | 0 | 2,090 | 1,240 | 2 50 | 7 4 | 850 |
| Wall | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase insulation by R 6.5 | 3,099 | NA | 3,099 | 5,395 | 0 | 5,395 | 2,295 | 1 70 | 10.5 | 3,099 |
| Heating | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Electric Air Cond Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 26,337 | NA | 26,337 | 435,164 | 104,067 | 539,231 | 512,894 | 20.50 | 0 9 | 26,337 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | FL1 FL 2X4 4P40T12 STD2 | FL237 FL 2X4 3P32T8 ELC3 REP | 31,331 | NA | 31,331 | 119,978 | 14,815 | 134,793 | 103,462 | 4 30 | 4 2 | 31,331 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 6,546 | NA | 6,546 | 27,115 | 13 614 | 40,729 | 34,183 | 6 20 | 2 9 | 6,546 |
| Hot Water | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 197 | NA | 197 | 4,947 | 0 | 4,947 | 4,750 | 25 10 | 0 1 | 197 |
| Roof | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Roof Insulation R Value R 69 | Attic Ceilag: Increase insulation by R 38 | 26,977 | NA | 26,977 | 114,430 | 0 | 114,430 | 87,453 | 4 20 | 4 3 | 26,977 |
| Wall | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL62 FL 1X8 2P96T12 STD2 | FL151 FL 1X8 2P96T12E8 ELC2 REP | 9,599 | NA | 9,599 | 19,857 | 3,078 | 22,935 | 13,336 | 2 40 | 7 5 | 9,599 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL6 FL 2X2 2P40T12U STD2 | FL54 FL 2X2 2P32T8U ELC2 | 11,853 | NA | 11,853 | 31,653 | 6 163 | 37,816 | 25,964 | 3 20 | 5 7 | 11,853 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL3 FL 2X4 2P40T12 STD2 | FL51 FL 2X4 2P32T8 ELC2 | 857 | NA | 857 | 2,101 | 589 | 2,690 | 1,833 | 3 10 | 5 7 | 857 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL1 FL 2X4 4P40T12 STD2 | FL237 FL 2X4 3P32T8 ELC3 REP | 32,209 | NA | 32,209 | 113,594 | 15,674 | 129,268 | 97,060 | 4 00 | 4 5 | 32,209 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 416 | NA | 416 | 5,659 | 1,845 | 7,504 | 7,088 | 18 00 | 1 0 | 416 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | EX1 EXIT - INC (2x20) | EX6 EXIT - LED | 2,182 | NA | 2,182 | 6,631 | 4,538 | 11,169 | 8,987 | 5 10 | 3 4 | 2,182 |
| Hot Water | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 358 | NA | 358 | 1,258 | 0 | 1,258 | 900 | 3 50 | 1 3 | 358 |
| Roof | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Roof Insulation R Value 11.00 | Attic Ceilag: Increase insulation by R 8 | 5,333 | NA | 5,333 | 57,838 | 0 | 57,838 | 52,505 | 10 80 | 1 9 | 5,333 |
| Wall | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0.00 | Blow in Insulation Increase insulation by R 6.5 | 19,441 | NA | 19,441 | 24,882 | 0 | 24,882 | 5 440 | 1 30 | 16.1 | 19,441 |
| Heating | SECURITY 01 | SECURITY | Electric Baseboard | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SECURITY 01 | SECURITY | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SECURITY 01 | SECURITY | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 6* | NA | 6* | 2,265 | 405 | 2,670 | 2,803 | 42 60 | 0 4 | 6* |
| Roof | SECURITY 01 | SECURITY | Roof Insulation R Value R 69 | Attic Ceilag: Increase insulation by R 19 | 228 | NA | 228 | 5,504 | 0 | 5,504 | 5,275 | 24 10 | 0 8 | 228 |
| Wall | SECURITY 01 | SECURITY | Wall Insulation R Value 5 32 | Interior Masonry Surface Increase insulation by R 10 9 | 3,735 | NA | 3,735 | 5,411 | 0 | 5 411 | 1,676 | 1 50 | 12 1 | 3 735 |
| Heating | SECURITY 02 | SECURITY | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SECURITY 02 | SECURITY | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SECURITY 02 | SECURITY | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 6 46* | NA | 6 46* | 222,393 | 88 229 | 310 622 | 304 156 | 48 00 | 0 4 | 6 46* |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | SECURITY 02 | SECURITY | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 7,605 | NA | 7,605 | 61,522 | 7,240 | 68,762 | 61,156 | 9 00 | 2 0 | 7,605 |
| Lights | SECURITY 02 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 18,670 | 10,891 | 29,561 | 24 325 | 5 60 | 3 2 | 5,237 |
| Hot Water | SECURITY 02 | SECURITY | Electric SHW Heater | 0.76 LPG WH (COM), Ins Pipe, LPSHs, Aerators, Lower Tank Temp | 608 | NA | 608 | 1,859 | 0 | 1,859 | 1,250 | 3 10 | 1 8 | 956 |
| Roof | SECURITY 02 | SECURITY | Roof Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | SECURITY 02 | SECURITY | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SECURITY 03 | SECURITY | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SECURITY 03 | SECURITY | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SECURITY 03 | SECURITY | IN5: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 5,607 | NA | 5,607 | 259,449 | 76,493 | 335,942 | 330 336 | 59 90 | 0 3 | 5,607 |
| Lights | SECURITY 03 | SECURITY | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 6,594 | NA | 6,594 | 68,556 | 6,277 | 74,833 | 68,239 | 11 30 | 1 6 | 6,594 |
| Lights | SECURITY 03 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,618 | NA | 2,618 | 12,783 | 5,446 | 18,229 | 15,610 | 7 00 | 2 6 | 2,618 |
| Hot Water | SECURITY 03 | SECURITY | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | SECURITY 03 | SECURITY | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 30 | 3,699 | NA | 3,699 | 6,827 | 0 | 6,827 | 3,128 | 1 80 | 9 9 | 3,699 |
| Wall | SECURITY 03 | SECURITY | Wall Insulation R Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 02 | SHOPS | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 02 | SHOPS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 02 | SHOPS | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 02 | SHOPS | HB13: HPS 70 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 02 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 7,419 | NA | 7,419 | 27,204 | 15,429 | 42,633 | 35,215 | 5 70 | 3 1 | 7,419 |
| Hot Water | SHOPS 02 | SHOPS | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 39 | NA | 39 | 136 | 0 | 136 | 97 | 3 50 | 0 8 | 39 |
| Hot Water | SHOPS 02 | SHOPS | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | SHOPS 02 | SHOPS | Roof Insulation R Value 8.69 | Attic Ceiling: Increase Insulation by R 19 | 33,590 | NA | 33,590 | 71,995 | 0 | 71,995 | 38,405 | 2 10 | 8 9 | 33,590 |
| Wall | SHOPS 02 | SHOPS | Wall Insulation R Value 8 79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 03 | SHOPS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 03 | SHOPS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 03 | SHOPS | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 2,144 | NA | 2,144 | 5,609 | 1,850 | 7,459 | 5,315 | 3 50 | 5 1 | 2,144 |
| Lights | SHOPS 03 | SHOPS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 7,571 | NA | 7,571 | 31,971 | 4,626 | 36,597 | 29,027 | 4 80 | 3 7 | 7,571 |
| Lights | SHOPS 03 | SHOPS | FL62: FL 1X8 2P96T12 STD2 | LB3: LPS 55 PEND | 33,641 | NA | 33,641 | 130,321 | 2,509 | 127,812 | 94,171 | 3 80 | 4 8 | 33,641 |
| Lights | SHOPS 03 | SHOPS | FL61: FL 1X8 4P96T12 STD2 | LB5: LPS 135 PEND | 5,457 | NA | 5,457 | 34,099 | 1,521 | 35,620 | 30,163 | 6 50 | 2 8 | 5,457 |
| Lights | SHOPS 03 | SHOPS | FL81: FL 2X4 2P40T12E8 STD2 | FL105: FL 2X4 2P40T12E8 ELC2 | 1,072 | NA | 1,072 | 2,811 | 925 | 3,736 | 2,664 | 3 50 | 5 1 | 1,072 |
| Lights | SHOPS 03 | SHOPS | FL79: FL 2X4 4P40T12E8 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 1,586 | NA | 1,586 | 5,174 | 994 | 6,168 | 4,581 | 3 90 | 4 6 | 1,586 |
| Lights | SHOPS 03 | SHOPS | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 1,256 | NA | 1,256 | 6,281 | 1,924 | 8,205 | 6,948 | 6 50 | 2 7 | 1,256 |
| Lights | SHOPS 03 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 804 | NA | 804 | 5,579 | 1,648 | 7,227 | 6,423 | 9 00 | 2 0 | 804 |
| Lights | SHOPS 03 | SHOPS | IN5: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 533 | NA | 533 | 11,353 | 3,574 | 14,927 | 14,394 | 28 00 | 0 6 | 533 |
| Lights | SHOPS 03 | SHOPS | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 307 | NA | 307 | 2,795 | 916 | 3,711 | 3,404 | 12 10 | 1 5 | 307 |
| Lights | SHOPS 03 | SHOPS | MH34: MH 250 HB PEND | LB4: LPS 90 PEND | 36,770 | NA | 36,770 | 234,913 | 37,882 | 272,795 | 236,026 | 7 40 | 2 4 | 36,770 |
| Lights | SHOPS 03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 7,419 | NA | 7,419 | 26,894 | 15,429 | 42,323 | 34,905 | 5 70 | 3 1 | 7,419 |
| Hot Water | SHOPS 03 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 3,223 | NA | 3,223 | 8,338 | 0 | 8,338 | 5,116 | 2 60 | 1 8 | 3,223 |
| Roof | SHOPS 03 | SHOPS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 24,881 | NA | 24,881 | 104,601 | 0 | 104,601 | 79,720 | 4 20 | 4 9 | 24,881 |
| Wall | SHOPS 03 | SHOPS | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 04 | SHOPS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 04 | SHOPS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 04 | SHOPS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 805 | NA | 805 | 4,479 | 577 | 5,056 | 4,251 | 6 30 | 2 9 | 805 |
| Lights | SHOPS 04 | SHOPS | FL63: FL 1X8 1P96T12 STD1 | FL126: FL 1X8 1P96T12E8 EEPI REP | 7,248 | NA | 7,248 | 9,624 | 2,121 | 11,745 | 4,497 | 1 60 | 11 1 | 7,248 |
| Lights | SHOPS 04 | SHOPS | FL2: FL 2X4 3P40T12 STD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 349 | NA | 349 | 2,894 | 272 | 3,166 | 2,817 | 9 10 | 2 0 | 349 |
| Lights | SHOPS 04 | SHOPS | FL61: FL 1X8 4P96T12 STD2 | LB5: LPS 135 PEND | 10,682 | NA | 10,682 | 73,415 | 2,018 | 75,433 | 64,750 | 7 10 | 2 6 | 10,682 |
| Lights | SHOPS 04 | SHOPS | IN12: INC 2 100 CEIL | HB12: HPS 50 PEND | 676 | NA | 676 | 4,888 | 1,145 | 6,033 | 5,357 | 8 90 | 2 0 | 676 |
| Lights | SHOPS 04 | SHOPS | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 501 | NA | 501 | 5,709 | 1,320 | 7,029 | 6,528 | 14 00 | 1 3 | 501 |
| Lights | SHOPS 04 | SHOPS | MV8: MERC 1000 PEND | HB19: HPS 400 PEND | 6,612 | NA | 6,612 | 102,961 | 2,506 | 105,467 | 98,855 | 16 00 | 1 1 | 6,612 |
| Lights | SHOPS 04 | SHOPS | MV3: MERC 250 PEND | LB4: LPS 90 PEND | 3,722 | NA | 3,722 | 17,811 | -339 | 17,472 | 13,751 | 4 70 | 3 9 | 3,722 |
| Lights | SHOPS 04 | SHOPS | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 3,513 | NA | 3,513 | 8,263 | 3,630 | 11,893 | 8,381 | 3 40 | 5 3 | 2,418 |
| Hot Water | SHOPS 04 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 109 | NA | 109 | 323 | 0 | 323 | 214 | 3 00 | 1 6 | 109 |
| Roof | SHOPS 04 | SHOPS | Roof Insulation R-Value 5 00 | Attic Ceiling: Increase Insulation by R 19 | 31,037 | NA | 31,037 | 830,340 | 0 | 830,340 | 799,303 | 28 80 | 0 8 | 31,037 |
| Wall | SHOPS 04 | SHOPS | Wall Insulation R-Value 0.00 | Dlow in Insulation: Increase Insulation by R 6.5 | 20,147 | NA | 20,147 | 73,797 | 0 | 73,797 | 53,650 | 3 70 | 5 9 | 20,147 |
| Heating | SHOPS 05 | SHOPS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 05 | SHOPS | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 05 | SHOPS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 05 | SHOPS | FL2: FL 2X4 3P40T12 STD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 22,601 | NA | 22,601 | 114,776 | 17,436 | 132,412 | 109,811 | 5 90 | 3 1 | 22,601 |
| Lights | SHOPS 05 | SHOPS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 31,141 | NA | 31,141 | 125,056 | 22,323 | 147,379 | 116,238 | 4 70 | 3 8 | 31,141 |
| Lights | SHOPS 05 | SHOPS | FL61: FL 1X8 4P96T12 STD2 | LB5: LPS 135 PEND | 52,490 | NA | 52,490 | 310,949 | 9,916 | 320,865 | 268,376 | 6 10 | 3 0 | 52,490 |
| Lights | SHOPS 05 | SHOPS | FL63: FL 1X8 1P96T12 STD1 | FL126: FL 1X8 1P96T12E8 EEPI REP | 12,844 | NA | 12,844 | 14,584 | 3,758 | 18,342 | 5,497 | 1 40 | 12 6 | 12,844 |
| Lights | SHOPS 05 | SHOPS | IN28: INC 150 PEND | HB11: HPS 35 PEND | 1,959 | NA | 1,959 | 7,820 | 1,394 | 9,214 | 7,256 | 4 70 | 3 8 | 1,959 |
| Lights | SHOPS 05 | SHOPS | HB29: HPS 200 PEND | HB12: HPS 50 PEND | 8,489 | NA | 8,489 | 45,308 | 7,346 | 52,654 | 44,165 | 6 20 | 2 9 | 8,489 |
| Lights | SHOPS 05 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 475 | NA | 475 | 3,039 | 855 | 3,894 | 3,418 | 8 20 | 2 2 | 475 |
| Lights | SHOPS 05 | SHOPS | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 726 | NA | 726 | 6,177 | 1,913 | 8,090 | 7,364 | 11 10 | 1 6 | 726 |
| Lights | SHOPS 05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4,354 | NA | 4,354 | 15,203 | 9,076 | 24,279 | 19,915 | 5 60 | 3 2 | 4,354 |
| Hot Water | SHOPS 05 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 281 | NA | 281 | 930 | 0 | 930 | 649 | 3 30 | 1 4 | 281 |
| Roof | SHOPS 05 | SHOPS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 19 | 35,771 | NA | 35,771 | 51,297 | 0 | 51,297 | 15,526 | 1 40 | 14 5 | 35,771 |
| Wall | SHOPS 05 | SHOPS | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 06 | SHOPS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 06 | SHOPS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 06 | SHOPS | FL79: FL 2X4 4P40T12E8 STD2 | FL237: FL 2X4 3P32T8 ELC3 REP | 27,643 | NA | 27,643 | 88,049 | 18,869 | 106,918 | 79,275 | 3 90 | 4 7 | 27,643 |
| Lights | SHOPS 06 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 251 | NA | 251 | 1,592 | 451 | 2,043 | 1,792 | 8 10 | 2 2 | 251 |
| Lights | SHOPS 06 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,976 | 1,815 | 4,791 | 3,919 | 5 50 | 3 2 | 873 |
| Hot Water | SHOPS 06 | SHOPS | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | SHOPS 06 | SHOPS | Roof Insulation R Value 8.69 | Attic Ceiling: Increase Insulation by R 8 | 2,326 | NA | 2,326 | 3,551 | 0 | 3,551 | 1,225 | 1 50 | 13 5 | 2,326 |
| Wall | SHOPS 06 | SHOPS | Wall Insulation R Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | SHOPS 07 | SHOPS | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | SHOPS 07 | SHOPS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 07 | SHOPS | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 3,205 | NA | 3,205 | 7,244 | 1,950 | 9,194 | 5,988 | 2 90 | 6 3 | 3,205 |
| Lights | SHOPS 07 | SHOPS | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 16,027 | NA | 16,027 | 47,598 | 13,486 | 61,084 | 45,057 | 3 80 | 4 7 | 16,027 |
| Lights | SHOPS 07 | SHOPS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 656 | NA | 656 | 2,544 | 470 | 3,014 | 2,358 | 4 60 | 3 9 | 656 |
| Lights | SHOPS 07 | SHOPS | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 9,843 | NA | 9,843 | 45,449 | 7,056 | 52,505 | 42,681 | 5 30 | 3 4 | 9,843 |
| Lights | SHOPS 07 | SHOPS | HB20: HPS 1000 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | SHOPS 07 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 3,491 | NA | 3,491 | 13,994 | 7,261 | 21,255 | 17,764 | 6 10 | 2 9 | 3,491 |
| Hot Water | SHOPS 07 | SHOPS | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | SHOPS 07 | SHOPS | Roof Insulation R Value 20.05 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | SHOPS 07 | SHOPS | Wall Insulation R Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | STORAGE 01 | STORAGE | IN5: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 14,900 | NA | 14,900 | 113,019 | 50 301 | 163,320 | 148,420 | 11 00 | 1 6 | 14,900 |
| Lights | STORAGE 01 | STORAGE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 10,037 | NA | 10,037 | 37,526 | 20,875 | 58,401 | 48,364 | 5 80 | 3 1 | 10,037 |
| Roof | STORAGE 01 | STORAGE | Roof Insulation R Value 8.69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | STORAGE 01 | STORAGE | Wall Insulation R Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | STORAGE 02 | STORAGE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | STORAGE 02 | STORAGE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| Bldg Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | STORAGE 02 | STORAGE | INS: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 68,373 | NA | 68,373 | 515,612 | 290,818 | 746,430 | 678,056 | 10.90 | 1.6 | 68,373 |
| Roof | STORAGE 02 | STORAGE | Roof Insulation R Value 0.00 | Attic Ceiling: Increase Insulation by R 8 | 56,310 | NA | 56,310 | 71,665 | 0 | 71,665 | 15,355 | 1.30 | 14.7 | 56,310 |
| Wall | STORAGE 02 | STORAGE | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | WAREHOUSE 01 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 01 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 01 | WAREHOUSE | INS: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 10,564 | NA | 10,564 | 155,272 | 49,156 | 204,434 | 193,870 | 19.40 | 0.9 | 10,564 |
| Lights | WAREHOUSE 01 | WAREHOUSE | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 RPF | 12,462 | NA | 12,462 | 44,231 | 7,297 | 51,528 | 39,066 | 4.10 | 4.4 | 12,462 |
| Lights | WAREHOUSE 01 | WAREHOUSE | H815: HPS 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | WAREHOUSE 01 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX4: EXIT LED | 17,020 | NA | 17,020 | 62,369 | 35,397 | 97,766 | 80,746 | 5.70 | 3.1 | 17,020 |
| Wall | WAREHOUSE 01 | WAREHOUSE | Roof Insulation R Value 0.00 | Attic Ceiling: Increase Insulation by R 8 | 8,700 | NA | 8,700 | 9,020 | 0 | 9,020 | 319 | 1.00 | 19.1 | 8,700 |
| Lights | WAREHOUSE 02 | WAREHOUSE | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 02 | WAREHOUSE | INS: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 4,748 | NA | 4,748 | 70,259 | 22,092 | 92,351 | 87,602 | 19.50 | 0.9 | 4,748 |
| Lights | WAREHOUSE 02 | WAREHOUSE | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 RPF | 5,601 | NA | 5,601 | 19,827 | 3,280 | 23,107 | 17,506 | 4.10 | 4.4 | 5,601 |
| Roof | WAREHOUSE 02 | WAREHOUSE | EX1: EXIT INC (2x20) | EX4: EXIT LED | 3,055 | NA | 3,055 | 11,136 | 6,353 | 17,489 | 14,435 | 5.70 | 3.1 | 3,055 |
| Wall | WAREHOUSE 02 | WAREHOUSE | Roof Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | WAREHOUSE 03 | WAREHOUSE | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 03 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 03 | WAREHOUSE | PL4: PL 1X4 2P40T12 STD2 | PL32: PL 1X4 2P32T8 ELC2 | 1,500 | NA | 1,500 | 4,246 | 1,214 | 5,460 | 3,960 | 3.60 | 4.9 | 1,500 |
| Roof | WAREHOUSE 03 | WAREHOUSE | EX1: EXIT INC (2x20) | EX4: EXIT LED | 1,309 | NA | 1,309 | 4,705 | 2,723 | 7,428 | 6,118 | 5.70 | 3.1 | 1,309 |
| Wall | WAREHOUSE 03 | WAREHOUSE | Roof Insulation R Value 8.69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 04 | WAREHOUSE | Wall Insulation R Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 04 | WAREHOUSE | H815: HPS 150 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | WAREHOUSE 04 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 873 | NA | 873 | 3,195 | 1,815 | 5,010 | 4,137 | 5.70 | 3.1 | 873 |
| Wall | WAREHOUSE 04 | WAREHOUSE | Roof Insulation R Value 8.69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | WAREHOUSE 05 | WAREHOUSE | Wall Insulation R-Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 05 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 05 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL62: PL 1X8 2P96T12 STD2 | LB3: LPS 55 PEND | 75,680 | NA | 75,680 | 192,744 | 4,049 | 188,695 | 113,015 | 2.50 | 7.3 | 75,680 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL82: PL 1X4 2P40T12S8 STD2 | PL105: PL 1X4 2P40T12S8 ELC2 | 7,471 | NA | 7,471 | 13,253 | 6,753 | 20,006 | 12,535 | 2.70 | 6.6 | 7,471 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL4: PL 1X4 2P40T12 STD2 | PL32: PL 1X4 2P32T8 ELC2 | 12,236 | NA | 12,236 | 33,282 | 9,904 | 43,186 | 30,951 | 3.50 | 5.1 | 12,236 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL61: PL 1X8 4P96T12 STD2 | LB5: LPS 135 PEND | 4,347 | NA | 4,347 | 17,706 | 757 | 18,463 | 14,116 | 4.20 | 4.3 | 4,347 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL81: PL 2X4 2P40T12S8 STD2 | PL105: PL 2X4 2P40T12S8 ELC2 | 2,490 | NA | 2,490 | 4,285 | 2,251 | 6,536 | 4,045 | 2.60 | 6.8 | 2,490 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL79: PL 2X4 4P40T12S8 STD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 17,903 | NA | 17,903 | 39,424 | 11,322 | 50,746 | 32,842 | 2.80 | 6.3 | 17,904 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 RPF | 3,159 | NA | 3,159 | 10,726 | 1,850 | 12,576 | 9,417 | 4.00 | 4.5 | 3,159 |
| Lights | WAREHOUSE 05 | WAREHOUSE | INI1: INC 100 CEIL | PL189: CFL 2-15 CEIL FIXT | 20,278 | NA | 20,278 | 109,929 | 11,834 | 121,763 | 92,485 | 5.60 | 3.2 | 20,278 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN29: INC 200 PEND | H812: HPS 50 PEND | 15,395 | NA | 15,395 | 58,394 | 9,066 | 67,460 | 52,066 | 4.40 | 4.1 | 15,395 |
| Hot Water | WAREHOUSE 05 | WAREHOUSE | IN30: INC 300 PEND | LB2: LPS 35 PEND | 13,195 | NA | 13,195 | 86,359 | 10,616 | 96,975 | 83,779 | 7.30 | 2.5 | 13,195 |
| Roof | WAREHOUSE 05 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX4: EXIT - LED | 11,783 | NA | 11,783 | 41,457 | 24,506 | 65,963 | 54,180 | 5.60 | 3.2 | 11,783 |
| Wall | WAREHOUSE 05 | WAREHOUSE | Other Fuels 8HW Heater | Wrap Old LPD Tank, Ins Pipe, LPSHt, Aer., Lower Tank Temp | 439 | NA | 439 | 1,370 | 0 | 1,370 | 931 | 3.10 | 1.5 | 439 |
| Heating | WAREHOUSE 06 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 33,033 | NA | 33,033 | 131,440 | 0 | 131,440 | 98,407 | 4.00 | 5.2 | 33,033 |
| Cooling | WAREHOUSE 06 | WAREHOUSE | Wall Insulation R-Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 06 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 06 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Hot Water | WAREHOUSE 06 | WAREHOUSE | PL51: PL 1X4 1P40T12 STD1 | PL29: PL 1X4 1P40T12 ELC1 | 5,079 | NA | 5,079 | 6,645 | 3,929 | 10,574 | 5,495 | 2.10 | 8.5 | 5,079 |
| Roof | WAREHOUSE 06 | WAREHOUSE | EX11: EXIT - INC (2x20) | EX6: EXIT LED | 873 | NA | 873 | 3,053 | 1,815 | 4,868 | 3,995 | 5.60 | 3.2 | 873 |
| Wall | WAREHOUSE 06 | WAREHOUSE | Electric 8HW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHt, Aer., Lower Tank Temp | 86 | NA | 86 | 632 | 0 | 632 | 546 | 7.40 | 0.7 | 86 |
| Heating | WAREHOUSE 07 | WAREHOUSE | Roof Insulation R Value 0.00 | Attic Ceiling: Increase Insulation by R 19 | 4,873 | NA | 4,873 | 92,799 | 0 | 92,799 | 87,926 | 19.00 | 1.1 | 4,873 |
| Cooling | WAREHOUSE 07 | WAREHOUSE | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase Insulation by R 45 | 12,613 | NA | 12,613 | 41,163 | 0 | 41,163 | 28,550 | 3.30 | 6.4 | 12,613 |
| Lights | WAREHOUSE 07 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 07 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 07 | WAREHOUSE | PL63: PL 1X8 1P96T12 STD1 | PL75: PL 1X8 1P96T12 ELC1 | 515 | NA | 515 | 275 | 356 | 631 | 116 | 1.20 | 14.4 | 515 |
| Lights | WAREHOUSE 07 | WAREHOUSE | PL80: PL 2X4 3P40T12S8 STD1.2 | PL57: PL 2X4 2P32T8 ELC2 REF | 5,031 | NA | 5,031 | 12,764 | 3,226 | 15,990 | 10,959 | 3.20 | 5.6 | 5,031 |
| Lights | WAREHOUSE 07 | WAREHOUSE | PL2: PL 2X4 3P40T12 STD1.2 | PL234: PL 2X4 3P32T8 ELC3 | 517 | NA | 517 | 1,804 | 434 | 2,238 | 1,722 | 4.30 | 4.1 | 517 |
| Lights | WAREHOUSE 07 | WAREHOUSE | PL158: PL 1X8 4P96T12HO STD2 REF | L86: LPS 180 PEND | 18,527 | NA | 18,527 | 129,097 | 7,043 | 136,140 | 117,613 | 7.30 | 2.5 | 18,527 |
| Lights | WAREHOUSE 07 | WAREHOUSE | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 75,767 | NA | 75,767 | 383,336 | 44,216 | 427,552 | 351,785 | 5.60 | 3.2 | 75,767 |
| Lights | WAREHOUSE 07 | WAREHOUSE | IN29: INC 200 PEND | H812: HPS 50 PEND | 5,999 | NA | 5,999 | 25,834 | 3,533 | 29,367 | 23,368 | 4.90 | 3.7 | 5,999 |
| Hot Water | WAREHOUSE 07 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,344 | 1,815 | 4,159 | 3,286 | 4.80 | 3.6 | 873 |
| Roof | WAREHOUSE 07 | WAREHOUSE | Other Fuels 8HW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHt, Aer., Lower Tank Temp | 72 | NA | 72 | 231 | 0 | 231 | 160 | 3.20 | 1.4 | 72 |
| Wall | WAREHOUSE 07 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 30,037 | NA | 30,037 | 158,192 | 0 | 158,192 | 128,155 | 5.30 | 3.2 | 30,037 |
| Heating | WAREHOUSE 08 | WAREHOUSE | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 08 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 08 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 08 | WAREHOUSE | PL63: PL 1X8 1P96T12 STD1 | PL75: PL 1X8 1P96T12 ELC1 | 84 | NA | 84 | 42 | 58 | 100 | 17 | 1.20 | 14.7 | 84 |
| Lights | WAREHOUSE 08 | WAREHOUSE | PL80: PL 2X4 3P40T12S8 STD1.2 | PL57: PL 2X4 2P32T8 ELC2 REF | 816 | NA | 816 | 1,915 | 523 | 2,438 | 1,622 | 3.00 | 6.0 | 816 |
| Lights | WAREHOUSE 08 | WAREHOUSE | PL2: PL 2X4 3P40T12 STD1.2 | PL234: PL 2X4 3P32T8 ELC3 | 84 | NA | 84 | 288 | 70 | 358 | 275 | 4.30 | 4.2 | 84 |
| Lights | WAREHOUSE 08 | WAREHOUSE | PL158: PL 1X8 4P96T12HO STD2 REF | L86: LPS 180 PEND | 3,005 | NA | 3,005 | 19,777 | 1,142 | 20,919 | 17,914 | 7.00 | 2.6 | 3,005 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 12,290 | NA | 12,290 | 60,570 | 7,172 | 67,742 | 55,452 | 5.50 | 3.3 | 12,290 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN29: INC 200 PEND | H812: HPS 50 PEND | 973 | NA | 973 | 3,608 | 573 | 4,181 | 3,208 | 4.30 | 4.2 | 973 |
| Hot Water | WAREHOUSE 08 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,058 | 1,815 | 4,873 | 4,000 | 5.60 | 3.2 | 873 |
| Hot Water | WAREHOUSE 08 | WAREHOUSE | Other Fuels 8HW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHt, Aer., Lower Tank Temp. | 43 | NA | 43 | 132 | 0 | 132 | 90 | 3.10 | 1.5 | 43 |
| Roof | WAREHOUSE 08 | WAREHOUSE | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHt, Aerators | 11 | NA | 11 | 454 | 0 | 454 | 442 | 40.50 | 0.3 | 11 |
| Wall | WAREHOUSE 08 | WAREHOUSE | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 4,872 | NA | 4,872 | 22,102 | 0 | 22,102 | 17,230 | 4.50 | 4.5 | 4,872 |
| Heating | WAREHOUSE 09 | WAREHOUSE | Wall Insulation R-Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 09 | WAREHOUSE | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 09 | WAREHOUSE | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 09 | WAREHOUSE | PL62: PL 1X8 2P96T12 STD2 | LB3: LPS 55 PEND | 6,331 | NA | 6,331 | 16,389 | 339 | 16,050 | 9,719 | 2.50 | 7.2 | 6,331 |
| Hot Water | WAREHOUSE 09 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,784 | 2,723 | 7,507 | 6,198 | 5.70 | 3.1 | 1,309 |
| Hot Water | WAREHOUSE 09 | WAREHOUSE | Other Fuels 8HW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | WAREHOUSE 09 | WAREHOUSE | Electric 8HW Heater | 0.76 LPG WH (COM), Ins Pipe, LPSHt, Aerators, Lower Tank Temp | 32 | NA | 32 | 74 | 0 | 74 | 42 | 2.30 | 1.4 | 32 |
| Wall | WAREHOUSE 09 | WAREHOUSE | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 5,268 | NA | 5,268 | 19,445 | 0 | 19,445 | 14,177 | 3.70 | 5.5 | 5,268 |
| Lights | WAREHOUSE 10 | WAREHOUSE | Wall Insulation R Value 8.79 | Blow-in Insulation: Increase Insulation by R 24 | 18,813 | NA | 18,813 | 19,732 | 0 | 19,732 | 919 | 1.00 | 20.1 | 18,813 |
| Lights | WAREHOUSE 10 | WAREHOUSE | PL62: PL 1X8 2P96T12 STD2 | LB3: LPS 55 PEND | 7,614 | NA | 7,614 | 19,770 | 407 | 19,363 | 11,749 | 2.50 | 7.2 | 7,614 |
| Roof | WAREHOUSE 10 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 1,309 | NA | 1,309 | 4,794 | 2,723 | 7,517 | 6,207 | 5.70 | 3.1 | 1,309 |
| Wall | WAREHOUSE 10 | WAREHOUSE | Roof Insulation R Value 8.69 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 11 | WAREHOUSE | Wall Insulation R Value 8.79 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 11 | WAREHOUSE | Electric Conv Chiller | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | WAREHOUSE 11 | WAREHOUSE | PL62: PL 1X8 2P96T12 STD2 | LB3: LPS 55 PEND | 2,804 | NA | 2,804 | 9,903 | 150 | 9,753 | 6,949 | 3.50 | 5.2 | 2,804 |
| Hot Water | WAREHOUSE 11 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 436 | NA | 436 | 2,119 | 908 | 3,027 | 2,590 | 6.90 | 2.6 | 436 |
| Roof | WAREHOUSE 11 | WAREHOUSE | Other Fuels 8HW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | WAREHOUSE 11 | WAREHOUSE | Roof Insulation R Value 30.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | WAREHOUSE 12 | WAREHOUSE | Wall Insulation R Value 25.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | WAREHOUSE 12 | WAREHOUSE | Other Fuels Conv. Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| | | | Electric Package Unit | | | | | | | | | | | |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | Free Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | WAREHOUSE 12 | WAREHOUSE | INS: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 4,652 | NA | 4,652 | 94,691 | 21,445 | 116,136 | 111,484 | 25.00 | 0.7 | 4,652 |
| Lights | WAREHOUSE 12 | WAREHOUSE | FL1: FL 2X4 4P40T12 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 5,488 | NA | 5,488 | 26,524 | 3,213 | 29,737 | 24,250 | 5.40 | 3.3 | 5,488 |
| Lights | WAREHOUSE 12 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 2,109 | 908 | 3,017 | 2,581 | 6.90 | 2.6 | 436 |
| Hot Water | WAREHOUSE 12 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 43 | NA | 43 | 134 | 0 | 134 | 91 | 3.10 | 1.5 | 43 |
| Roof | WAREHOUSE 12 | WAREHOUSE | Roof Insulation R Value 0.00 | Suspended Ceiling: Increase insulation by R 30 | 12,314 | NA | 12,314 | 166,555 | 0 | 166,555 | 154,241 | 13.50 | 1.4 | 12,314 |
| Wall | WAREHOUSE 12 | WAREHOUSE | Wall Insulation R Value 0.00 | Blow in Insulation: Increase insulation by R 13 | 13,336 | NA | 13,336 | 43,884 | 0 | 43,884 | 30,547 | 3.30 | 5.6 | 13,336 |
| Heating | DINING HALLS 01 | DINING HALLS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DINING HALLS 01 | DINING HALLS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DINING HALLS 01 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | PL126: FL 1X8 1F96T12E8 EEF1 REP | 7,176 | NA | 7,176 | 7,585 | 2,387 | 10,372 | 3,196 | 1.40 | 12.4 | 7,176 |
| Lights | DINING HALLS 01 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,746 | NA | 1,746 | 6,515 | 3,630 | 10,145 | 8,400 | 5.80 | 3.1 | 1,746 |
| Hot Water | DINING HALLS 01 | DINING HALLS | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 676 | NA | 676 | 5,037 | 0 | 5,037 | 4,361 | 7.50 | 0.7 | 676 |
| Roof | DINING HALLS 01 | DINING HALLS | Roof Insulation R Value 11.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Wall | DINING HALLS 01 | DINING HALLS | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | DINING HALLS 03 | DINING HALLS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DINING HALLS 03 | DINING HALLS | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DINING HALLS 03 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | PL126: FL 1X8 1F96T12E8 EEF1 REP | 20,853 | NA | 20,853 | 24,167 | 6,936 | 31,103 | 10,250 | 1.50 | 12.1 | 20,853 |
| Lights | DINING HALLS 03 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,110 | NA | 6,110 | 22,314 | 12,707 | 35,021 | 28,911 | 5.70 | 3.1 | 6,110 |
| Hot Water | DINING HALLS 03 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 1,439 | NA | 1,439 | 4,645 | 0 | 4,645 | 3,206 | 3.20 | 1.4 | 1,439 |
| Roof | DINING HALLS 03 | DINING HALLS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 8 | 7,006 | NA | 7,006 | 12,745 | 0 | 12,745 | 5,739 | 1.80 | 11.4 | 7,006 |
| Wall | DINING HALLS 03 | DINING HALLS | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | DINING HALLS 04 | DINING HALLS | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DINING HALLS 04 | DINING HALLS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DINING HALLS 04 | DINING HALLS | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 456 | NA | 456 | 2,172 | 268 | 2,440 | 1,984 | 5.40 | 3.4 | 456 |
| Lights | DINING HALLS 04 | DINING HALLS | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FDT | 1,592 | NA | 1,592 | 14,004 | 1,759 | 15,763 | 14,170 | 9.90 | 1.8 | 1,592 |
| Lights | DINING HALLS 04 | DINING HALLS | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 1,073 | NA | 1,073 | 9,593 | 2,153 | 11,746 | 10,673 | 10.90 | 1.6 | 1,073 |
| Lights | DINING HALLS 04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,195 | 1,815 | 6,010 | 5,138 | 6.90 | 2.6 | 873 |
| Hot Water | DINING HALLS 04 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 1,328 | NA | 1,328 | 4,283 | 0 | 4,283 | 2,954 | 3.20 | 1.4 | 1,328 |
| Roof | DINING HALLS 04 | DINING HALLS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 13,024 | NA | 13,024 | 97,760 | 0 | 97,760 | 84,736 | 7.50 | 2.5 | 13,024 |
| Wall | DINING HALLS 04 | DINING HALLS | Wall Insulation R Value 0.00 | Interior Masonry Surface: Increase insulation by R 10 9 | 13,468 | NA | 13,468 | 80,473 | 0 | 80,473 | 67,005 | 6.00 | 3.1 | 13,468 |
| Heating | DINING HALLS 05 | DINING HALLS | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DINING HALLS 05 | DINING HALLS | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DINING HALLS 05 | DINING HALLS | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 890 | NA | 890 | 4,201 | 523 | 4,724 | 3,833 | 5.30 | 3.4 | 890 |
| Lights | DINING HALLS 05 | DINING HALLS | FLE2: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 1,394 | NA | 1,394 | 4,267 | 1,167 | 5,434 | 4,040 | 3.90 | 4.6 | 1,394 |
| Lights | DINING HALLS 05 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REP | 503 | NA | 503 | 1,702 | 124 | 1,826 | 1,324 | 3.60 | 5.0 | 503 |
| Lights | DINING HALLS 05 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 192 | NA | 192 | 812 | 399 | 1,211 | 1,020 | 6.30 | 2.8 | 192 |
| Hot Water | DINING HALLS 05 | DINING HALLS | Other Fuels SHW Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | DINING HALLS 05 | DINING HALLS | Roof Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 38 | 3,655 | NA | 3,655 | 372,611 | 0 | 372,611 | 368,956 | 101.90 | 0.2 | 3,655 |
| Wall | DINING HALLS 05 | DINING HALLS | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | DINING HALLS 06 | DINING HALLS | Hot Water (Generated) Forced Air Furnace | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | DINING HALLS 06 | DINING HALLS | Chilled Water Chill Water Coil | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | DINING HALLS 06 | DINING HALLS | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 2,747 | NA | 2,747 | 12,219 | 1,614 | 13,833 | 11,085 | 5.00 | 3.6 | 2,747 |
| Lights | DINING HALLS 06 | DINING HALLS | FLE2: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 4,301 | NA | 4,301 | 12,404 | 3,601 | 16,005 | 11,704 | 3.70 | 4.8 | 4,301 |
| Lights | DINING HALLS 06 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REP | 1,550 | NA | 1,550 | 4,725 | 384 | 5,109 | 3,559 | 3.30 | 5.5 | 1,550 |
| Lights | DINING HALLS 06 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 592 | NA | 592 | 2,381 | 1,232 | 3,613 | 3,021 | 6.10 | 2.9 | 592 |
| Hot Water | DINING HALLS 06 | DINING HALLS | Hot Water (Generated) Steam Central Htsr | LPG Pulse Combs. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 2,305 | NA | 2,305 | 53,399 | 0 | 53,399 | 51,093 | 23.20 | 0.9 | 2,305 |
| Roof | DINING HALLS 06 | DINING HALLS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-38 | 13,508 | NA | 13,508 | 95,829 | 0 | 95,829 | 82,321 | 7.10 | 2.7 | 13,508 |
| Wall | DINING HALLS 06 | DINING HALLS | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 02 | MORALE-WELFARE RECREATION | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 02 | MORALE-WELFARE RECREATION | Electric Air Cool Heat Pump | Air to Air Heat Pump with Supplementary Electric Heat Coil | 22,852 | NA | 22,852 | 23,786 | 0 | 23,786 | 934 | 1.00 | 4.4 | 49,514 |
| Lights | MWR 02 | MORALE-WELFARE RECREATION | FL79: FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REP | 8,963 | NA | 8,963 | 25,957 | 5,670 | 31,627 | 22,664 | 3.50 | 5.1 | 8,963 |
| Lights | MWR 02 | MORALE-WELFARE RECREATION | IN6: INC 2 60 CEIL | PL182: CFL 2-13 + BLST UNIT | 385 | NA | 385 | 3,161 | 770 | 3,931 | 3,545 | 10.20 | 1.8 | 385 |
| Lights | MWR 02 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,983 | NA | 6,983 | 29,114 | 14,522 | 43,636 | 36,653 | 6.20 | 2.9 | 6,983 |
| Hot Water | MWR 02 | MORALE-WELFARE RECREATION | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 183 | NA | 183 | 1,022 | 0 | 1,022 | 839 | 5.60 | 0.8 | 183 |
| Roof | MWR 02 | MORALE-WELFARE RECREATION | Roof Insulation R Value 30.00 | Attic Ceiling: Increase insulation by R 11 | 5,788 | NA | 5,788 | 5,904 | 0 | 5,904 | 116 | 1.00 | 17.8 | 5,788 |
| Wall | MWR 02 | MORALE-WELFARE RECREATION | Wall Insulation R Value 19.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 03 | MORALE-WELFARE RECREATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 03 | MORALE-WELFARE RECREATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | FL5: FL 1X4 1P40T12 STD1 | PL29: FL 1X4 1P40T12 ELC1 | 301 | NA | 301 | 589 | 233 | 822 | 521 | 2.70 | 6.5 | 301 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | FL3: FL 2X4 2P40T12 STD2 | PL51: FL 2X4 2P32T8 ELC2 | 5,666 | NA | 5,666 | 22,490 | 4,578 | 27,068 | 21,402 | 4.80 | 3.2 | 5,666 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | FL2: FL 2X4 3P40T12 STD1.2 | PL236: FL 2X4 3P32T8 ELC3 | 160 | NA | 160 | 823 | 134 | 957 | 798 | 6.00 | 3.0 | 160 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,210 | NA | 2,210 | 10,382 | 4,596 | 14,978 | 12,768 | 6.80 | 2.6 | 2,210 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 28 | NA | 28 | 644 | 140 | 784 | 755 | 27.50 | 0.7 | 28 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | IN37: INC 75 PLD | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Hot Water | MWR 03 | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 106 | NA | 106 | 122 | 0 | 122 | 16 | 1.20 | 3.2 | 106 |
| Roof | MWR 03 | MORALE-WELFARE RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 12,324 | NA | 12,324 | 28,596 | 0 | 28,596 | 16,272 | 2.30 | 8.0 | 12,324 |
| Wall | MWR 03 | MORALE-WELFARE RECREATION | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 04 | MORALE-WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 304 | NA | 304 | 602 | 0 | 602 | 298 | 2.00 | 8.7 | 304 |
| Heating | MWR 04 | MORALE-WELFARE RECREATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 04 | MORALE-WELFARE RECREATION | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 04 | MORALE-WELFARE RECREATION | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 621 | NA | 621 | 1,755 | 499 | 2,254 | 1,634 | 3.60 | 4.9 | 621 |
| Lights | MWR 04 | MORALE-WELFARE RECREATION | IN29: INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 04 | MORALE-WELFARE RECREATION | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 04 | MORALE-WELFARE RECREATION | IN10: INC 3 75 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 04 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4,364 | NA | 4,364 | 13,440 | 9,076 | 22,516 | 18,152 | 5.20 | 3.4 | 4,364 |
| Hot Water | MWR 04 | MORALE-WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combs. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 788 | NA | 788 | 8,412 | 0 | 8,412 | 7,624 | 10.70 | 1.6 | 920 |
| Hot Water | MWR 04 | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 99 | NA | 99 | 361 | 0 | 361 | 262 | 3.70 | 1.3 | 99 |
| Roof | MWR 04 | MORALE-WELFARE RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 8 | 5,864 | NA | 5,864 | 61,347 | 0 | 61,347 | 55,483 | 10.50 | 2.0 | 5,864 |
| Wall | MWR 04 | MORALE-WELFARE RECREATION | Wall Insulation R Value 0.00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 05 | MORALE-WELFARE RECREATION | Other Fuels Conv Boiler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 05 | MORALE-WELFARE RECREATION | Electric Conv Chiller | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05 | MORALE-WELFARE RECREATION | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 361 | NA | 361 | 2,119 | 290 | 2,409 | 2,048 | 6.70 | 2.8 | 361 |
| Lights | MWR 05 | MORALE-WELFARE RECREATION | IN29: INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05 | MORALE-WELFARE RECREATION | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05 | MORALE-WELFARE RECREATION | IN10: INC 3 75 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,276 | 1,815 | 6,091 | 5,218 | 7.00 | 2.6 | 873 |
| Hot Water | MWR 05 | MORALE-WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combs. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 503 | NA | 503 | 6,500 | 0 | 6,500 | 5,997 | 12.90 | 0.8 | 876 |
| Roof | MWR 05 | MORALE-WELFARE RECREATION | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 9,025 | NA | 9,025 | 47,726 | 0 | 47,726 | 38,701 | 5.30 | 3.5 | 9,025 |
| Wall | MWR 05 | MORALE-WELFARE RECREATION | Wall Insulation R Value 5.32 | Interior Masonry Surface: Increase insulation by R 10 9 | 11,818 | NA | 11,818 | 67,995 | 0 | 67,995 | 56,177 | 5.80 | 3.2 | 11,818 |
| Heating | MWR 05a | MORALE-WELFARE RECREATION | Other Fuels Conv Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 05a | MORALE-WELFARE RECREATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05a | MORALE-WELFARE RECREATION | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 97 | NA | 97 | 547 | 78 | 425 | 328 | 4.40 | 4.1 | 97 |
| Lights | MWR 05a | MORALE-WELFARE RECREATION | IN29: INC 200 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05a | MORALE-WELFARE RECREATION | IN30: INC 300 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |

# Table 3.6a. All Building EROs: Present Values of Costs and Savings

| Bld Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | Unit Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | MWR 05a | MORALE WELFARE RECREATION | IN10: INC 3 75 CEIL | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 05a | MORALE WELFARE RECREATION | PX1: EXIT - INC (2x20) | EX6 EXIT LED | 873 | NA | 873 | 3,754 | 1,815 | 5,569 | 4,697 | 6 40 | 2 8 | 873 |
| Hot Water | MWR 05a | MORALE WELFARE RECREATION | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins Pipe, LP81ls, Arr , Lower Tank Temp | 43 | NA | 43 | 147 | 0 | 147 | 104 | 3 40 | 1 3 | 43 |
| Roof | MWR 05a | MORALE WELFARE RECREATION | Roof Insulation R Value 11 00 | Attic Ceiling Increase insulation by R 38 | 2,582 | NA | 2,582 | 10,050 | 0 | 10 050 | 7,438 | 3 90 | 4 8 | 2,582 |
| Wall | MWR 05a | MORALE WELFARE RECREATION | Wall Insulation R Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 06 | MORALE WELFARE RECREATION | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | MWR 06 | MORALE WELFARE RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 105 | NA | 105 | 308 | 0 | 308 | 204 | 2 90 | 7 1 | 105 |
| Cooling | MWR 06 | MORALE WELFARE RECREATION | Electric Package Unit | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | PL4: PL 1X4 2P40T12 8TD2 | PL52 PL 1X4 2P32T8 ELC2 | 304 | NA | 304 | 1,227 | 244 | 1,471 | 1 167 | 4 80 | 3 7 | 304 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | PL1: PL 2X4 4P40T12 8TD2 | PL237 PL 2X4 3P32T8 ELC3 REP | 23,243 | NA | 23,243 | 113,627 | 13,589 | 127 216 | 103,973 | 5 50 | 3 3 | 23,243 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | PL63: PL 1X8 1P96T12 8TD1 | PL75 PL 1X8 1P96T12 ELC1 | 985 | NA | 985 | 772 | 680 | 1,452 | 468 | 1 50 | 12 0 | 985 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 681 | NA | 681 | 2,996 | 1,417 | 4,413 | 3,732 | 6 50 | 2 7 | 681 |
| Hot Water | MWR 06 | MORALE WELFARE RECREATION | IN6: INC 2 60 CEIL | PL182 CFL 2 13 + BLST UNIT | 567 | NA | 567 | 5,274 | 1,132 | 6,406 | 5,839 | 11 30 | 1 6 | 567 |
| Hot Water | MWR 06 | MORALE WELFARE RECREATION | Other Fuels 81W Heater | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Roof | MWR 06 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combn Boiler, Wrap Tank w/insulation, LP81ls, Aerators | 821 | NA | 821 | 6,153 | 0 | 6,153 | 5,332 | 7 50 | 2 8 | 821 |
| Wall | MWR 06 | MORALE WELFARE RECREATION | Roof Insulation R Value 30.00 | Attic Ceiling Increase insulation by R 19 | 8,780 | NA | 8,780 | 9,298 | 0 | 9,298 | 519 | 1 10 | 17 3 | 8,780 |
| Heating | MWR 07 | MORALE WELFARE RECREATION | Wall Insulation R Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | MWR 07 | MORALE WELFARE RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 130 | NA | 130 | 659 | 0 | 659 | 529 | 5 10 | 4 1 | 130 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | Electric Coav Chiller | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | PL4: PL 1X4 2P40T12 8TD2 | PL52 PL 1X4 2P32T8 ELC2 | 461 | NA | 461 | 2,004 | 371 | 2,375 | 1,914 | 5 20 | 3 5 | 461 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 35,259 | NA | 35,259 | 171,655 | 20,614 | 192,269 | 157,010 | 5 50 | 3 3 | 35,259 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | PL63: PL 1X8 1P96T12 8TD1 | PL126: PL 1X8 1P96T12E8 P8P1 REP | 2,592 | NA | 2,592 | 3,331 | 210 | 3,541 | 949 | 1 40 | 13 3 | 2,592 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6, EXIT - LED | 1,033 | NA | 1,033 | 4,967 | 2,149 | 7,116 | 6,083 | 6 90 | 2 6 | 1,033 |
| Hot Water | MWR 07 | MORALE WELFARE RECREATION | IN6: INC 2 60 CEIL | PL182 CFL 2 13 + BLST UNIT | 860 | NA | 860 | 7,680 | 1,717 | 9,397 | 8,537 | 10 90 | 1 6 | 860 |
| Roof | MWR 07 | MORALE WELFARE RECREATION | Other Fuels 81W Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LP81ls, Aerators | 32 | NA | 32 | 76 | 0 | 76 | 44 | 2 40 | 0 8 | 32 |
| Roof | MWR 07 | MORALE WELFARE RECREATION | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R 19 | 13,318 | NA | 13,318 | 15,772 | 0 | 15,772 | 2,454 | 1 20 | 15 7 | 13,318 |
| Wall | MWR 07 | MORALE WELFARE-RECREATION | Wall Insulation R-Value 5.32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | PL5: PL 1X4 1P40T12 8TD1 | PL29 PL 1X4 1P40T12 ELC1 | 1,480 | NA | 1,480 | 4,652 | 893 | 5,545 | 4,065 | 3 70 | 4 8 | 1,480 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | PL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 1,074 | NA | 1,074 | 7,307 | 745 | 8,052 | 6,978 | 7 50 | 2 4 | 1,074 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | PL6: PL 2X2 2P40T12U 8TD2 | PL54: PL 2X2 2P32T8U ELC2 | 33 | NA | 33 | 195 | 18 | 213 | 180 | 6,40 | 2 8 | 33 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | H813: HPS 70 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | PL178: CFL 9 + DLST UNIT | 240 | NA | 240 | 1,947 | 272 | 2,239 | 1,999 | 9 30 | 1 9 | 240 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 83 | NA | 83 | 2,879 | 618 | 3,497 | 3,415 | 42 30 | 0 4 | 83 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | MH36: MH 250 HB PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Hot Water | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,255 | 1,815 | 6,070 | 5,197 | 7 00 | 2 6 | 873 |
| Roof | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Electric 81W Heater | Wrap Old Elc Tank, Ins Pipe, LP81ls, Arr., Lower Tank Temp | 18 | NA | 18 | 176 | 0 | 176 | 158 | 9 90 | 0 6 | 18 |
| Wall | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.69 | Attic Ceiling Increase insulation by R 38 | 4,114 | NA | 4,114 | 36,678 | 0 | 36,678 | 32,564 | 8 90 | 2 0 | 4,114 |
| Heating | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Wall Insulation R-Value 8.79 | Blown-in Insulation Increase insulation by R 6.5 | 5,007 | NA | 5,007 | 9,369 | 0 | 9,369 | 4 362 | 1 90 | 9 7 | 5,007 |
| Cooling | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Other Fuels Coav Furn | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | PL5: PL 1X4 1P40T12 8TD1 | PL29: PL 1X4 1P40T12 ELC1 | 1,768 | NA | 1,768 | 2,878 | 1,016 | 3,894 | 2,126 | 2 20 | 8 1 | 1,768 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | PL82: PL 1X4 2P40T12E8 8TD2 | PL106: PL 1X4 2P40T12E8 ELC2 | 908 | NA | 908 | 1,990 | 725 | 2,715 | 1,807 | 3 00 | 6 0 | 908 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | PL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 5,107 | NA | 5,107 | 17,700 | 3,012 | 20,712 | 15,605 | 4 10 | 4 4 | 5,107 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | PL79: PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 2,547 | NA | 2,547 | 7,488 | 1,446 | 8,934 | 6,387 | 3 50 | 5 1 | 2,547 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | PL189: CFL 2-15 CEIL FIXT | 892 | NA | 892 | 5,413 | 885 | 6,298 | 5,407 | 7 10 | 2 5 | 892 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN5: INC 60 CEIL | PL181: CFL 13 + DLST UNIT | 574 | NA | 574 | 3,369 | 966 | 4,335 | 3,761 | 7 60 | 2 4 | 574 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 244 | NA | 244 | 4,318 | 1,445 | 5,763 | 5,518 | 23 60 | 0 8 | 244 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN6: INC 2 60 CEIL | PL182: CFL 2 13 + DLST UNIT | 274 | NA | 274 | 2,086 | 678 | 2,764 | 2,491 | 10 10 | 1 8 | 274 |
| Hot Water | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Electric 81W Heater | Wrap Old Elc Tank, Ins Pipe, LP81ls, Arr., Lower Tank Temp. | 57 | NA | 57 | 526 | 0 | 526 | 469 | 9 20 | 0 6 | 57 |
| Roof | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 8 | 4,438 | NA | 4,438 | 6,592 | 0 | 6,592 | 2,154 | 1 50 | 14 0 | 4,438 |
| Wall | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Wall Insulation R Value 0 00 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Heating | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels Coav Boiler | Add Automatic Electric Damper | 171 | NA | 171 | 461 | 0 | 461 | 289 | 2 70 | 7 8 | 171 |
| Cooling | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Electric Evap Cooler | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 435 | NA | 435 | 2,539 | 225 | 2,764 | 2,328 | 6 30 | 2 9 | 435 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL5: PL 1X4 1P40T12 8TD1 | PL29: PL 1X4 1P40T12 ELC1 | 1,103 | NA | 1,103 | 2,483 | 634 | 3,117 | 2,013 | 2 80 | 6 4 | 1,103 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL82: PL 1X4 2P40T12E8 8TD2 | PL106: PL 1X4 2P40T12E8 ELC2 | 4,559 | NA | 4,559 | 11,630 | 3,638 | 15,268 | 10,708 | 3 30 | 5 4 | 4,559 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL2: PL 2X4 3P40T12 8TD1,2 | PL236: PL 2X4 3P32T8 ELC3 | 235 | NA | 235 | 1,683 | 150 | 1,833 | 1,598 | 7 80 | 2 4 | 235 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL62: PL 1X8 2P96T12E8 8TD2 | PL131: PL 1X8 2P96T12E8 ELC2 REP | 241 | NA | 241 | 1,258 | 61 | 1,319 | 1,077 | 5 50 | 3 4 | 241 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL81: PL 2X4 2P40T12E8 8TD2 | PL105: PL 2X4 2P40T12E8 ELC2 | 147 | NA | 147 | 979 | 117 | 1,096 | 949 | 7 50 | 2 5 | 147 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL79: PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 6,748 | NA | 6,748 | 22,085 | 3,831 | 25,916 | 19,169 | 3 80 | 4 7 | 6,748 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 152 | NA | 152 | 1,593 | 152 | 1,745 | 1,592 | 11 40 | 1 6 | 152 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN6: INC 2 60 CEIL | PL182: CFL 2 13 + DLST UNIT | 674 | NA | 674 | 6,282 | 1,669 | 7,951 | 7,277 | 11 80 | 1 5 | 674 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 1,756 | NA | 1,756 | 4,499 | 1,815 | 6,314 | 4,557 | 3 60 | 5 0 | 1,209 |
| Hot Water | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins. Pipe, LP81ls, Arr., Lower Tank Temp | 27 | NA | 27 | 150 | 0 | 150 | 123 | 5 50 | 1 0 | 27 |
| Hot Water | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LP81ls, Aerators | 52 | NA | 52 | 2,021 | 0 | 2,021 | 1,969 | 38 80 | 0 2 | 52 |
| Roof | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 8 | 6,822 | NA | 6,822 | 23,692 | 0 | 23,692 | 16,864 | 3 50 | 5 9 | 6,822 |
| Wall | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Wall Insulation R-Value 0.00 | Interior Masonry Surface. Increase insulation by R 4.3 | 10,662 | NA | 10,662 | 12,474 | 0 | 12,474 | 1,812 | 1 20 | 18 0 | 10,662 |
| Heating | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Electric Air Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Cooling | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Electric Air Cool Heat Pump | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | PL5: PL 1X4 1P40T12 8TD1 | PL29: PL 1X4 1P40T12 ELC1 | 11,229 | NA | -11,229 | 29,114 | 6,778 | 35,892 | 24,663 | 3 20 | 5 6 | 11,229 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | PL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 8,150 | NA | 8,150 | 40,579 | 5,653 | 46,232 | 38,082 | 5 70 | 3 2 | 8,150 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | PL6: PL 2X2 2P40T12U 8TD2 | PL54 PL 2X2 2P32T8U ELC2 | 251 | NA | 251 | 1,068 | 138 | 1,206 | 953 | 4 80 | 3 8 | 251 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | H813: HPS 70 PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | PL178: CFL 9 + DLST UNIT | 1,823 | NA | 1,823 | 11,382 | 2,067 | 13,449 | 11,626 | 7 40 | 2 4 | 1,823 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | PL175: CFL 27 INTEGRAL UNIT | 628 | NA | 628 | 16,845 | 4,693 | 21,538 | 20,910 | 34 30 | 0 5 | 628 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | MH36: MH 250 HB PEND | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6, EXIT - LED | 873 | NA | 873 | 3,960 | 1,815 | 5,775 | 4,902 | 6 60 | 2 7 | 873 |
| Hot Water | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Electric Central Boiler | Electric Boiler: Wrap Tank w/ Insulation, LP81ls, Arrators | 119 | NA | 119 | 6,268 | 0 | 6,268 | 6,150 | 52 70 | 0 3 | 119 |
| Roof | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.90 | Suspended Ceiling Increase insulation by R 8 | 11,058 | NA | 11,058 | 22,822 | 0 | 22,822 | 11,764 | 2 10 | 8 8 | 11,058 |
| Wall | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Wall Insulation R Value 5 32 | none | NA | NA | NA | NA | NA | 0 | NA | NA | NA | 0 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 253 | 250 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 116,678 | 85,052 | 517 | 0 | 201,213 | 201,183 | 6,707 11 | 0 0 |
| AC | 2 | Bldg. 263 | 554 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 103,828 | 94,238 | 517 | 0 | 197,549 | 197,519 | 6,584 96 | 0 0 |
| AC | 3 | Bldg 273 | 200 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 103,613 | 34,021 | 517 | 0 | 139,117 | 139,087 | 4,637 24 | 0 0 |
| Central Chillers | 1 | | Existing Chillers | Connect B/253 & B/263, Add 100 ton chiller - RI | 153,700 | 0 | 153,700 | 331,320 | 54,502 | 12,916 | 0 | 372,907 | 219,207 | 2 43 | 7 1 |
| Central Chillers | 2 | | Existing Chillers | Connect B/253 & B/263, Add TES RI | 432,000 | 78,000 | 354,000 | 748,165 | 524,852 | 25,831 | 0 | 1,247,186 | 893,186 | 3 52 | 4 9 |
| Controls | MT-1 | | Thermostat | Night Setback - RI | 150,400 | 0 | 150,400 | 427,670 | 104,982 | 0 | -68,127 | 464,525 | 314,125 | 3 09 | 5 6 |
| DHW & A/C | 1 | 00013 | CHILLER-air cooled | Install Desuperheater RI | 3,319 | 0 | 3,319 | 1,410 | 11,907 | 861 | -1,503 | 10,953 | 7,635 | 3 30 | 5 2 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 10,429 | 5,103 | 861 | 839 | 13,832 | 11,980 | 7 47 | 2 3 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 10,429 | 5,103 | -861 | -839 | 13,832 | 11,980 | 7 47 | 2 3 |
| DHW & A/C | 4 | 00034 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 612 | 1,701 | 861 | -507 | 945 | 174 | 0 84 | 20 4 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 8,326 | 5,103 | 861 | -839 | 11,730 | 9,877 | 6 33 | 2 7 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 2,775 | 1,701 | 861 | -507 | 3,109 | 1,990 | 2 78 | 6 2 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 1,486 | 0 | 1,486 | 5,551 | 3,402 | -861 | -673 | 7,419 | 5,933 | 4 99 | 3 4 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater - RI | 2,585 | 0 | 2,585 | 13,877 | 8,505 | 861 | 1,171 | 20,330 | 17,765 | 7 87 | 2 2 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 22,204 | 13,608 | 861 | 1,669 | 33,282 | 29,597 | 9 03 | 1 9 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 8,326 | 5,103 | 861 | -839 | 11,730 | 9,877 | -6 33 | 2 7 |
| DHW & A/C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater - RI | 2,219 | 0 | 2,219 | 6,104 | 6,804 | 861 | -1,005 | 11,042 | 8,823 | 4 98 | 3 5 |
| DHW & A/C | 12 | 00152 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 246 | 1,701 | 861 | -507 | 580 | 539 | 0 52 | 33 2 |
| DHW & A/C | 13 | 00166 | CHILLER-air cooled | Install Desuperheater - RI | 26,415 | 0 | 26,415 | 285,635 | 119,073 | 861 | -11,965 | 391,901 | 365,486 | 14 84 | 1 2 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 3,832 | 0 | 3,832 | 28,609 | 14,289 | 861 | -1,736 | 40,301 | 36,469 | 10 52 | 1 6 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 1,486 | 0 | 1,486 | 6,568 | 3,402 | 861 | 673 | 8,436 | 6,950 | 5 68 | 3 0 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 2 072 | 0 | 2,072 | 11,822 | 6,124 | 861 | 939 | 16,146 | 14,074 | 7 79 | 2 2 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater - RI | 4,272 | 0 | 4,272 | 10,588 | 16,330 | 861 | -1,935 | 24,122 | 19,850 | 5 65 | 3 0 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 8,085 | 0 | 8,085 | 22,058 | 34,021 | 861 | -3,662 | 51,556 | 43,471 | 6 38 | 2 7 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 3,462 | 5,103 | 861 | 839 | 6,865 | 5,013 | 3 71 | 4 6 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater - RI | 2,512 | 0 | 2,512 | 4,248 | 8,165 | 861 | 1,138 | 10,414 | 7,902 | 4 15 | 4 2 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater - RI | 3,099 | 0 | 3,099 | 26,499 | 10,887 | 861 | -1,404 | 35,121 | 32,023 | 11 33 | 1 5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 1,632 | 0 | 1,632 | 816 | 4,082 | 861 | -739 | 3,298 | 1,666 | 2 02 | 8 5 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater - RI | 1,691 | 0 | 1,691 | 871 | 4,355 | 861 | -766 | 3,598 | 1,907 | 2 13 | 8 1 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 1,632 | 0 | 1,632 | 816 | 4,082 | 861 | 739 | 3,298 | 1,666 | 2 02 | 8 5 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 1,691 | 0 | 1,691 | 871 | 4,355 | 861 | -766 | 3,598 | 1,907 | 2 13 | 8 1 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater - RI | 2,402 | 0 | 2,402 | 6,609 | 7,655 | 861 | -1,088 | 12,314 | 9,912 | 5 13 | 3 4 |
| DHW & A/C | 27 | 00323 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 1,469 | 1,701 | -861 | -507 | 1,802 | 683 | 1 61 | 10 7 |
| DHW & A/C | 28 | 00488 | PKG A/C | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 1,593 | 13,608 | -861 | -1,669 | 12,671 | 8,986 | 3 44 | 5 0 |
| DHW & A/C | 29 | 00826 | PKG UNIT | Install Desuperheater - RI | 1,376 | 0 | 1,376 | 1,851 | 2,892 | -861 | 623 | 3,259 | 1,883 | 2 37 | 7 3 |
| DHW & A/C | 30 | 00857 | Chiller-air cooled | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 2,320 | 13,608 | -861 | -1,669 | 13,398 | 9,712 | 3 64 | 4 7 |
| DHW & A/C | 31 | 00905 | CHILLER-air cooled | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 16,488 | 13,608 | 861 | 1,669 | 27,566 | 23,881 | 7 48 | 2 3 |
| DHW & A/C | 32 | 00905 | PKG UNIT | Install Desuperheater - RI | 1,302 | 0 | 1,302 | 3,092 | 2,552 | 861 | 590 | 4,192 | 2,890 | 3 22 | 5 3 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 4,492 | 0 | 4,492 | 32,231 | 17,351 | -861 | -2,035 | 46,686 | 42,194 | 10 39 | 1 7 |
| DHW & A/C | 34 | 00983 | PKG A/C | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 1,053 | 5,103 | -861 | -839 | 4,456 | 2,604 | 2 41 | 7 2 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 6,104 | 13,608 | 861 | -1,669 | 17,181 | 13,496 | 4 66 | 3 7 |
| DHW & A/C | 36 | 01313 | PKG UNIT | Install Desuperheater - RI | 1,632 | 0 | 1,632 | 1,720 | 4,082 | -861 | -739 | 4,202 | 2,570 | 2 57 | 6 7 |
| DHW & A/C | 37 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 1,339 | 0 | 1,339 | 883 | 2,722 | 861 | -607 | 2,139 | 801 | 1 60 | 10 8 |
| DHW & A/C | 38 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 553 | 1,701 | -861 | -507 | 886 | -233 | 0 79 | 21 7 |
| DHW & A/C | 39 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 553 | 1,701 | -861 | -507 | 886 | -233 | 0 79 | 21.7 |
| DHW & A/C | 40 | 01322 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 553 | 1,701 | -861 | -507 | 886 | -233 | 0 79 | 21 7 |
| DHW & A/C | 41 | 01322 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 553 | 1,701 | 861 | -507 | 886 | 233 | 0 79 | 21 7 |
| DHW & A/C | 42 | 01322 | PKG UNIT | Install Desuperheater - RI | 1,119 | 0 | 1,119 | 553 | 1,701 | -861 | -507 | 886 | -233 | 0 79 | 21 7 |
| DHW & A/C | 43 | 01322 | PKG UNIT | Install Desuperheater - RI | 1,339 | 0 | 1,339 | 885 | 2,722 | 861 | -607 | 2,139 | 801 | 1 60 | 10 8 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 2,952 | 0 | 2,952 | 2,282 | 10,206 | -861 | -1,337 | 10,290 | 7,338 | 3 49 | 4 9 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater RI | 1,486 | 0 | 1,486 | 15,349 | 3,402 | -861 | -673 | 17,217 | 15,732 | 11 59 | 1 5 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side - RI | 6,138 | 0 | 6,138 | 15,377 | 14,439 | 0 | -6,317 | 23,500 | 17,362 | 3 83 | 4 5 |
| Envelope | MT-11a | | None | Crawl Space Insulation: R-19 - RI | 124,770 | 0 | 124,770 | 421,228 | 246,263 | 0 | 0 | 667,491 | 542,721 | 5 35 | 3 2 |
| Envelope | MT-11b | | None | Crawl Space Insulation: R-30 - RI | 178,915 | 0 | 178,915 | 440,852 | 257,736 | 0 | 0 | 698,587 | 519,672 | 3 90 | 4 4 |
| Envelope | MT-12 | | Leaky | Weatherization - RI | 8,967 | 0 | 8,967 | 453,986 | 203,198 | 0 | 0 | 657,185 | 648,218 | 73 29 | 0 2 |
| Envelope | MT-5 | | Black EDPM | Reflective roof - RI | 223,920 | 0 | 223,920 | 275,786 | 225,782 | 0 | 0 | 501,567 | 277,647 | 2 24 | 7 7 |
| Envelope | MT 6 | | Single pane window | Double pane windows - RI | 83,479 | 0 | 83,479 | 25,126 | 11,895 | 0 | 0 | 37,020 | -46,458 | 0 44 | 38 8 |
| Envelope | MT-7 | | Single pane window | Shade Screens - NE side - RI | 6,138 | 0 | 6,138 | 8,414 | 3,872 | 0 | -6,317 | 5,970 | -168 | 0 97 | 17.7 |
| Envelope | MT-8 | | Single pane window | Shade Screens - SE side - RI | 6,138 | 982 | 5,156 | 12,000 | 4,493 | 0 | -6,317 | 10,177 | 5,021 | 1.97 | 8 7 |
| Envelope | MT-9 | | Single pane window | Shade Screens - SW side - RI | 6,138 | 982 | 5,156 | 22,675 | 21,425 | 0 | -6,317 | 37,783 | 32,627 | 7 33 | 2 4 |
| Envelope | Family Housing | 1961 Vintage | | Double paned windows - RI | 311,196 | 0 | 311,196 | 57,271 | 7,316 | 0 | 0 | 64,586 | -246,610 | 0 21 | 83 0 |
| Envelope | Family Housing | 1963 Vintage | | Double-paned windows - RI | 340,215 | 0 | 340,215 | 62,611 | 7,998 | 0 | 0 | 70,609 | 269,606 | 0 21 | 83 0 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization - RI | 31,502 | 0 | 31,502 | 347,758 | 192,201 | 0 | 0 | 539,959 | 508,458 | 17.14 | 1.0 |
| Envelope | Family Housing | 1964, 1965, 1966 Vintage | | Double-paned windows - RI | 207,627 | 0 | 207,627 | 38,211 | 4,881 | 0 | 0 | 43,091 | -164,535 | 0.21 | 83 0 |
| Envelope | Family Housing | 1983 Vintage | | Double paned windows - RI | 321,835 | 0 | 321,835 | 59,229 | 7,566 | 0 | 0 | 66,795 | -255,041 | 0 21 | 83 0 |
| Envelope | Family Housing | 1984 Vintage | | Double-paned windows - RI | 239,079 | 0 | 239,079 | 43,999 | 5,620 | 0 | 0 | 49,619 | -189,460 | 0 21 | 83 0 |
| Envelope | Admin | ADMIN; MISC post 1964 | | Weatherization - RI | 2,732 | 0 | 2,732 | 19,553 | 10,807 | 0 | 0 | 30,359 | 27,627 | 11 11 | 1.5 |
| Envelope | Admin | ADMIN; MISC post 1964 | | Window Screen- NE side - RI | 4,872 | 0 | 4,872 | 6,679 | 3,074 | 0 | -5,014 | 4,739 | -134 | 0 97 | 17 7 |
| Envelope | Admin | ADMIN; MISC post 1964 | | Window Screen - SE side - RI | 1,218 | 195 | 1,023 | 2,381 | 892 | 0 | -1,254 | 2,020 | 996 | 1.97 | 8 7 |
| Envelope | Admin | ADMIN; MISC post 1964 | | Window Screen - SW side - RI | 4,872 | 780 | 4,093 | 17,999 | 17,006 | 0 | -5,014 | 29,991 | 25,898 | 7.33 | 2 4 |
| Envelope | Admin | ADMIN; MISC post 1964 | | Window Screen - NW Side - RI | 1,218 | 0 | 1,218 | 3,052 | 2,865 | 0 | 1,254 | 4,663 | 3,445 | 3.83 | 4.5 |
| Envelope | Family Housing | ADMIN; MISC post 1964 | | Double Paned Window - RI | 41,415 | 0 | 41,415 | 7,992 | 5,024 | 0 | 0 | 13,015 | 28,399 | 0 31 | 54 8 |
| Envelope | Admin | ADMIN; MISC pre 1964 | | Weatherization RI | 8,931 | 0 | 8,931 | 161,013 | 88,990 | 0 | 0 | 250,003 | 241,072 | 27.99 | 0 6 |
| Envelope | Admin | ADMIN; MISC pre 1964 | | Window Screen NE side - RI | 2,761 | 0 | 2,761 | 5,785 | 1,742 | 0 | 2,841 | 2,685 | -76 | 0 97 | 17 7 |
| Envelope | Admin | ADMIN; MISC pre 1964 | | Window Screen - SE side - RI | 690 | 110 | 580 | 1,350 | 505 | 0 | -710 | 1,144 | 565 | 1.97 | 8 7 |
| Envelope | Admin | ADMIN; MISC pre 1964 | | Window Screen - SW side - RI | 2,761 | 442 | 2,319 | 10,200 | 9,637 | 0 | -2,841 | 16,996 | 14,676 | 7 33 | 2 4 |
| Envelope | Admin | ADMIN; MISC pre 1964 | | Window Screen - NW Side - RI | 690 | 0 | 690 | 1,729 | 1,624 | 0 | 710 | 2,645 | 1,952 | 3.83 | 4 5 |
| Envelope | Family Housing | ADMIN; MISC pre 1964 | | Double Paned Window - RI | 23,470 | 0 | 23,470 | 4,529 | 2,847 | 0 | 0 | 7,376 | 16,094 | 0 31 | 54 8 |
| Envelope | Bdk/Adm | BRK/ADM MISC | | Weatherization - RI | 2,318 | 0 | 2,318 | 13,448 | 7,433 | 0 | 0 | 20,881 | 18,563 | 9 01 | 1 9 |
| Envelope | Bdk/Adm | BRK/ADM MISC | | Window Screen- NE side - RI | 2,648 | 0 | 2,648 | 3,631 | 1,671 | 0 | 2,726 | 2,576 | -73 | 0 97 | 17 7 |
| Envelope | Bdk/Adm | BRK/ADM MISC | | Window Screen - SE side - RI | 662 | 106 | 556 | 1,294 | 485 | 0 | -681 | 1,098 | 542 | 1 97 | 8 7 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen SW side RI | 2,648 | 424 | 2,225 | 9,784 | 9,244 | 0 | 2,726 | 16,302 | 14,078 | 7 33 | 2 4 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Window Screen NW Side RI | 662 | 0 | 662 | 1,659 | 1,558 | 0 | 681 | 2,535 | 1,873 | 3 83 | 4 5 |
| Envelope | Family Housing | BRK/ADM MISC | | Double Paned Window RI | 22,512 | 0 | 22,512 | 4,344 | 2,731 | 0 | 0 | 7,075 | 15,437 | 0 31 | 54 8 |
| Envelope | Barracks | Concrete Block: Barracks | | Weatherization RI | 10,378 | 0 | 10,378 | 118,282 | 65,373 | 0 | 0 | 183,655 | 173,276 | 17 70 | 1 0 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen NE side RI | 6,421 | 0 | 6,421 | 8,803 | 4,051 | 0 | 6,698 | 6,246 | 176 | 0 97 | 17 7 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen SE side RI | 4,774 | 764 | 4,010 | 9,333 | 3,494 | 0 | 4,912 | 7,914 | 3,905 | 1 97 | 8 7 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen SW side - RI | 6,417 | 1,027 | 5,391 | 23,707 | 22,400 | 0 | 6,604 | 39,502 | 34,111 | 7 33 | 2 4 |
| Envelope | Barracks | Concrete Block: Barracks | | Window Screen NW Side RI | 4,778 | 0 | 4,778 | 11,969 | 11,238 | 0 | 4,917 | 18,290 | 13,513 | 3 83 | 4 5 |
| Envelope | Family Housing | Concrete Block: Barracks | | Double Paned Window RI | 76,126 | 0 | 76,126 | 14,690 | 9,234 | 0 | 0 | 23,924 | 52,202 | 0 31 | 54 8 |
| Envelope | Family Housing | Concrete Block: Misc -post 1980 | | Double Paned Window RI | 23,574 | 0 | 23,574 | 4,549 | 2,860 | 0 | 0 | 7,409 | 16,165 | 0 31 | 54 8 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Weatherization RI | 9,621 | 0 | 9,621 | 86,535 | 47,827 | 0 | 0 | 134,362 | 124,741 | 13 97 | 1 2 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - NE side - RI | 1,733 | 0 | 1,733 | 2,376 | 1,094 | 0 | 1,784 | 1,686 | -48 | 0 97 | 17 7 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - SE side - RI | 1,733 | 277 | 1,456 | 3,389 | 1,269 | 0 | 1,784 | 2,874 | 1,418 | 1 97 | 8 7 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen - SW side - RI | 1,733 | 277 | 1,456 | 6,403 | 6,050 | 0 | 1,784 | 10,670 | 9,214 | 7 33 | 2 4 |
| Envelope | Misc | Concrete Block: Misc -post 1980 | | Window Screen NW Side - RI | 1,733 | 0 | 1,733 | 4,342 | 4,078 | 0 | 1,784 | 6,636 | 4,903 | 3 83 | 4 5 |
| Envelope | Family Housing | Concrete Block: Misc -pre 1980 | | Double Paned Window RI | 27,030 | 0 | 27,030 | 5,216 | 3,279 | 0 | 0 | 8,495 | 18,535 | 0 31 | 54 8 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Weatherization RI | 5,088 | 0 | 5,088 | 62,604 | 34,601 | 0 | 0 | 97,205 | 92,117 | 19 11 | 0 9 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - NE side - RI | 1,987 | 0 | 1,987 | 2,725 | 1,254 | 0 | 2,045 | 1,933 | -54 | 0 97 | 17 7 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - SE side - RI | 1,987 | 318 | 1,669 | 3,886 | 1,455 | 0 | 2,045 | 3,295 | 1,626 | 1 97 | 8 7 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - SW side - RI | 1,987 | 318 | 1,669 | 7,342 | 6,937 | 0 | 2,045 | 12,234 | 10,564 | 7 33 | 2 4 |
| Envelope | Misc | Concrete Block: Misc -pre 1980 | | Window Screen - NW Side - RI | 1,987 | 0 | 1,987 | 4,979 | 4,675 | 0 | 2,045 | 7,699 | 5,622 | 3 83 | 4 5 |
| Envelope | | Concrete Block: w/ SE win only | | Weatherization - RI | 4,195 | 0 | 4,195 | 6,871 | 3,798 | 0 | 0 | 10,669 | 6,474 | 2 54 | 6 8 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - NE side - RI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen SE side RI | 3,040 | 486 | 2,554 | 5,943 | 2,225 | 0 | 3,128 | 5,040 | 2,487 | 1 97 | 8 7 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - SW side - RI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | | Concrete Block: w/ SE win only | | Window Screen - NW Side - RI | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA |
| Envelope | Family Housing | Concrete Block: w/ SE win only | | Double Paned Window RI | 10,336 | 0 | 10,336 | 1,995 | 1,254 | 0 | 0 | 3,248 | 7,088 | 0 31 | 54 8 |
| Envelope | Dining | DINING: MSIC | | Weatherization - RI | 5,777 | 0 | 5,777 | 58,674 | 32,428 | 0 | 0 | 91,102 | 85,324 | 15 77 | 1 1 |
| Envelope | Dining | DINING: MSIC | | Window Screen - NE side - RI | 2,960 | 0 | 2,960 | 4,058 | 1,867 | 0 | 3,046 | 2,879 | 81 | 0 97 | 17 7 |
| Envelope | Dining | DINING: MSIC | | Window Screen - SE side - RI | 740 | 118 | 622 | 1,447 | 542 | 0 | 762 | 1,227 | 605 | 1 97 | 8 7 |
| Envelope | Dining | DINING: MSIC | | Window Screen - SW side RI | 2,960 | 474 | 2,486 | 10,935 | 10,332 | 0 | 3,046 | 18,220 | 15,734 | 7 33 | 2 4 |
| Envelope | Dining | DINING: MSIC | | Window Screen - NW Side - RI | 740 | 0 | 740 | 1,854 | 1,741 | 0 | 762 | 2,833 | 2,093 | 3 83 | 4 5 |
| Envelope | Family Housing | DINING: MSIC | | Double Paned Window - RI | 25,160 | 0 | 25,160 | 4,786 | 3,031 | 0 | 0 | 7,818 | -17,342 | 0 31 | 55 4 |
| Envelope | | Masonite Siding: post 1950 | | Weatherization - RI | 7,336 | 0 | 7,336 | 218,137 | 120,561 | 0 | 0 | 338,699 | 331,363 | 46 17 | 0 4 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - NE side - RI | 7,147 | 0 | 7,147 | 9,798 | 4,509 | 0 | 7,353 | 6,951 | -196 | 0 97 | 17 7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SE side RI | 1,871 | 299 | 1,572 | 3,658 | 1,370 | 0 | 1,926 | 3,102 | 1,531 | 1 97 | 8 7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SW side RI | 7,215 | 1,154 | 6,060 | 26,651 | 25,182 | 0 | -7,425 | 44,409 | 38,348 | 7 33 | 2 4 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - NW Side - RI | 1,804 | 0 | 1,804 | 4,519 | 4,243 | 0 | -1,856 | 6,905 | 5,102 | 3 83 | 4 5 |
| Envelope | Family Housing | Masonite Siding: post 1950 | | Double Paned Window - RI | 61,324 | 0 | 61,324 | 11,834 | 7,439 | 0 | 0 | 19,273 | -42,052 | 0 31 | 54 8 |
| Envelope | | Masonite Siding: pre 1950 | | Weatherization - RI | 25,617 | 0 | 25,617 | 528,129 | 291,890 | 0 | 0 | 820,019 | 794,401 | 32 01 | 0 5 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - NE side RI | 17,113 | 0 | 17,113 | 23,460 | 10,796 | 0 | 17,611 | 16,644 | -469 | 0 97 | 17 7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SE side RI | 5,659 | 905 | 4,754 | 11,064 | 4,143 | 0 | -5,824 | 9,383 | 4,629 | 1 97 | 8 7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SW side - RI | 18,002 | 2,880 | 15,121 | 66,499 | 62,832 | 0 | -18,525 | 110,806 | 95,684 | 7 33 | 2 4 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - NW Side - RI | 4,771 | 0 | 4,771 | 11,932 | 11,223 | 0 | -4,910 | 18,266 | 13,495 | 3 83 | 4 5 |
| Envelope | Family Housing | Masonite Siding: pre 1950 | | Double Paned Window RI | 154,853 | 0 | 154,853 | 29,882 | 18,784 | 0 | 0 | 48,666 | -106,187 | 0 31 | 54 8 |
| Envelope | | Metal Siding | | Weatherization - RI | 13,638 | 0 | 13,638 | 295,925 | 163,554 | 0 | 0 | 459,479 | 445,841 | 33 69 | 0 5 |
| Envelope | | Metal Siding | | Window Screen - NE side - RI | 13,120 | 0 | 13,120 | 17,986 | 8,277 | 0 | 13,502 | 12,761 | -360 | 0 97 | 17 7 |
| Envelope | | Metal Siding | | Window Screen - SE side RI | 12,640 | 2,022 | 10,618 | 24,712 | 9,253 | 0 | 13,008 | 20,957 | 10,339 | 1 97 | 8 7 |
| Envelope | | Metal Siding | | Window Screen - SW side RI | 12,640 | 2,022 | 10,618 | 46,694 | 44,119 | 0 | 13,008 | 77,805 | 67,187 | 7 33 | 2 4 |
| Envelope | | Metal Siding | | Window Screen - NW Side - RI | 13,120 | 0 | 13,120 | 32,869 | 30,864 | 0 | 13,502 | 50,230 | 37,110 | 3 83 | 4 5 |
| Envelope | Family Housing | Metal Siding | | Double Paned Window - RI | 175,171 | 0 | 175,171 | 33,803 | 21,249 | 0 | 0 | 55,052 | -120,120 | 0 31 | 54 8 |
| Envelope | Family Housing | MOTORPOOL | | Double Paned Window - RI | 42,221 | 0 | 42,221 | 8,147 | 5,122 | 0 | 0 | 13,269 | 28,952 | 0 31 | 54 8 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization - RI | 1,806 | 0 | 1,806 | 17,981 | 9,938 | 0 | 0 | 27,920 | 26,113 | 15 46 | 1 1 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - NE side - RI | 4,967 | 0 | 4,967 | 6,809 | 3,134 | 0 | -5,112 | 4,831 | -136 | 0 97 | 17 7 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - SE side RI | 1,242 | 199 | 1,043 | 2,428 | 909 | 0 | 1,278 | 2,059 | 1,016 | 1 97 | 8 7 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - SW side RI | 4,967 | 795 | 4,172 | 18,349 | 17,338 | 0 | -5,112 | 30,575 | 26,403 | 7 33 | 2 4 |
| Envelope | Motorpool | MOTORPOOL | | Window Screen - NW Side RI | 1,242 | 0 | 1,242 | 3,111 | 2,921 | 0 | 1,278 | 4,754 | 3,512 | 3 83 | 4 5 |
| Envelope | Family Housing | MWR | | Double Paned Window - RI | 9,786 | 0 | 9,786 | 1,888 | 1,187 | 0 | 0 | 3,075 | -6,711 | 0 31 | 54 8 |
| Envelope | MWR | MWR | | Weatherization - RI | 1,366 | 0 | 1,366 | 2,786 | 1,540 | 0 | 0 | 4,326 | 2,960 | 3 17 | 5 4 |
| Envelope | MWR | MWR | | Window Screen - NE side - RI | 1,151 | 0 | 1,151 | 1,578 | 726 | 0 | -1,185 | 1,120 | -32 | 0 97 | 17 7 |
| Envelope | MWR | MWR | | Window Screen - SE side RI | 288 | 46 | 242 | 563 | 211 | 0 | -296 | 477 | 235 | 1 97 | 8 7 |
| Envelope | MWR | MWR | | Window Screen - SW side RI | 1,151 | 184 | 967 | 4,253 | 4,018 | 0 | 1,185 | 7,087 | 6,120 | 7 33 | 2 4 |
| Envelope | MWR | MWR | | Window Screen - NW Side - RI | 288 | 0 | 288 | 721 | 677 | 0 | -296 | 1,102 | 814 | 3 83 | 4 5 |
| Envelope | Family Housing | Northeast, 1961 Vintage | | Window Screen - RI | 61,683 | 0 | 61,683 | 84,557 | 38,913 | 0 | 63,478 | 59,992 | -1,690 | 0 97 | 17 7 |
| Envelope | Family Housing | Northeast, 1963 Vintage | | Window Screen - RI | 67,503 | 0 | 67,503 | 92,536 | 42,585 | 0 | -69,468 | 65,653 | -1,850 | 0 97 | 17 7 |
| Envelope | Family Housing | Northeast, 1964, 1965, 1966 Vintage | | Window Screen RI | 41,196 | 0 | 41,196 | 56,473 | 25,989 | 0 | -42,395 | 40,067 | -1,129 | 0 97 | 17 7 |
| Envelope | Family Housing | Northeast, 1983 Vintage | | Window Screen - RI | 63,078 | 0 | 63,078 | 86,470 | 39,793 | 0 | 64,914 | 61,349 | -1,729 | 0 97 | 17 7 |
| Envelope | Family Housing | Northeast, 1984 Vintage | | Window Screen RI | 47,436 | 0 | 47,436 | 65,028 | 29,925 | 0 | -48,817 | 46,136 | -1,300 | 0 97 | 17 7 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screen RI | 24,679 | 0 | 24,679 | 61,826 | 38,054 | 0 | -25,397 | 94,482 | 69,803 | 3 83 | 4 5 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screen - RI | 27,001 | 0 | 27,001 | 67,643 | 63,517 | 0 | 27,787 | 103,373 | 76,372 | 3 83 | 4 5 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screen RI | 16,478 | 0 | 16,478 | 41,281 | 38,763 | 0 | 16,958 | 63,086 | 46,608 | 3 83 | 4 5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screen - RI | 25,231 | 0 | 25,231 | 63,209 | 59,353 | 0 | 25,965 | 96,596 | 71,365 | 3 83 | 4 5 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screen RI | 18,975 | 0 | 18,975 | 47,535 | 44,635 | 0 | 19,527 | 72,643 | 53,668 | 3 83 | 4 5 |
| Envelope | Family Housing | SECURTY | | Double Paned Window RI | 2,005 | 0 | 2,005 | 387 | 243 | 0 | 0 | 630 | 1,375 | 0 31 | 54 8 |
| Envelope | Security | SECURTY | | Window Screen - NE side - RI | 236 | 0 | 236 | 323 | 149 | 0 | 243 | 229 | -6 | 0 97 | 17 7 |
| Envelope | Security | SECURTY | | Window Screen SE side - RI | 59 | 9 | 50 | 115 | 43 | 0 | 61 | 98 | 48 | 1 97 | 8 7 |
| Envelope | Security | SECURTY | | Window Screen SW side RI | 236 | 38 | 198 | 871 | 823 | 0 | -243 | 1,452 | 1,254 | 7 33 | 2 4 |
| Envelope | Security | SECURTY | | Window Screen - NW Side RI | 59 | 0 | 59 | 148 | 139 | 0 | 61 | 226 | 167 | 3 83 | 4 5 |
| Envelope | Family Housing | SHOP | | Double Paned Window RI | 41,357 | 0 | 41,357 | 7,981 | 5,017 | 0 | 0 | 12,997 | 28,359 | 0 31 | 54 8 |
| Envelope | Shop | SHOP | | Weatherization RI | 4,780 | 0 | 4,780 | 57,472 | 31,764 | 0 | 0 | 89,236 | 84,456 | 18 67 | 0 9 |
| Envelope | Shop | SHOP | | Window Screen NE side RI | 4,865 | 0 | 4,865 | 6,670 | 3,069 | 0 | 5,407 | 4,732 | 133 | 0 97 | 17 7 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | Shop | SHOP | | Window Screen - SE side RI | 1,216 | 195 | 1,022 | 2,378 | 890 | 0 | -1,252 | 2,017 | 995 | 1 97 | 8 7 |
| Envelope | Shop | SHOP | | Window Screen - SW side - RI | 4,865 | 778 | 4,087 | 17,973 | 16,982 | 0 | 5,907 | 29,949 | 25,862 | 7 33 | 2 4 |
| Envelope | Shop | SHOP | | Window Screen - NW Side RI | 1,216 | 0 | 1,216 | 3,047 | 2,861 | 0 | -1,252 | 4,657 | 3,440 | 3 83 | 4.5 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screen - RI | 61,671 | 9,867 | 51,804 | 120,571 | 45,144 | 0 | 63,466 | 102,249 | 50,445 | 1 97 | 8 7 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screen - RI | 67,508 | 10,800 | 56,708 | 131,973 | 49,413 | 0 | 69,468 | 111,918 | 55,215 | 1 97 | 8 7 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 41,196 | 6,591 | 34,604 | 80,540 | 30,156 | 0 | 42,395 | 68,301 | 33,697 | 1 97 | 8 7 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screen - RI | 63,078 | 10,092 | 52,985 | 123,321 | 46,173 | 0 | 64,914 | 104,581 | 51,595 | 1 97 | 8 7 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screen - RI | 47,436 | 7,590 | 39,846 | 92,741 | 34,724 | 0 | 48,817 | 78,648 | 38,801 | 1 97 | 8 7 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen - RI | 24,854 | 3,977 | 20,877 | 91,813 | 86,750 | 0 | 25,577 | 152,985 | 132,108 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screen - RI | 27,001 | 4,320 | 22,681 | 99,744 | 94,245 | 0 | 27,787 | 166,292 | 143,521 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen - RI | 16,478 | 2,637 | 13,842 | 60,872 | 57,516 | 0 | 16,958 | 101,430 | 87,588 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screen - RI | 25,231 | 4,037 | 21,194 | 93,205 | 88,066 | 0 | 25,965 | 155,306 | 134,112 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screen - RI | 18,975 | 3,036 | 15,939 | 70,093 | 66,228 | 0 | 19,527 | 116,791 | 100,856 | 7 33 | 2 4 |
| Envelope | Family Housing | TRAINING | | Double Paned Window - RI | 13,701 | 0 | 13,701 | 2,644 | 1,662 | 0 | 0 | 4,306 | 9,395 | 0 31 | 54 8 |
| Envelope | Training | TRAINING | | Weatherization - RI | 4,080 | 0 | 4,080 | 23,799 | 13,154 | 0 | 0 | 36,953 | 32,873 | 9 06 | 1 9 |
| Envelope | Training | TRAINING | | Window Screen - NE side - RI | 1,612 | 0 | 1,612 | 2,210 | 1,017 | 0 | 1,659 | 1,568 | -44 | 0 97 | 17.7 |
| Envelope | Training | TRAINING | | Window Screen - SE side RI | 403 | 64 | 338 | 788 | 295 | 0 | -415 | 668 | 330 | 1 97 | 8 7 |
| Envelope | Training | TRAINING | | Window Screen - SW side RI | 1,612 | 258 | 1,354 | 5,954 | 5,626 | 0 | -1,659 | 9,922 | 8,568 | 7 33 | 2 4 |
| Envelope | Training | TRAINING | | Window Screen - NW Side - RI | 403 | 0 | 403 | 1,010 | 948 | 0 | -415 | 1,543 | 1,140 | 3 83 | 4 5 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Weatherization - RI | 28,505 | 0 | 28,505 | 413,900 | 228,756 | 0 | 0 | 642,656 | 614,151 | 22 55 | 0 8 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen- NE side - RI | 14,193 | 0 | 14,193 | 19,443 | 8,948 | 0 | 14,596 | 13,795 | 389 | 0 97 | 17 7 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - SE side - RI | 32,879 | 5,261 | 27,619 | 64,281 | 24,068 | 0 | 33,836 | 54,513 | 26,894 | 1 97 | 8.7 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - SW side - RI | 32,879 | 5,261 | 27,619 | 121,459 | 114,762 | 0 | 33,836 | 202,384 | 174,765 | 7.33 | 2.4 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Window Screen - NW Side - RI | 14,183 | 0 | 14,183 | 35,532 | 33,364 | 0 | 14,596 | 54,300 | 40,117 | 3 83 | 4.5 |
| Envelope | Family Housing | U Shaped Bldgs: Barracks | | Double Paned Window - RI | 320,025 | 0 | 320,025 | 61,755 | 38,820 | 0 | 0 | 100,575 | 219,450 | 0 31 | 54 8 |
| Envelope | Family Housing | U Shaped Bldgs: Other | | Double Paned Window - RI | 45,696 | 0 | 45,696 | 8,818 | 5,543 | 0 | 0 | 14,361 | 31,335 | 0 31 | 54 8 |
| Envelope | Other | U Shaped Bldgs: Other | | Weatherization RI | 5,330 | 0 | 5,330 | 110,373 | 61,002 | 0 | 0 | 171,375 | 166,045 | 32 15 | 0 5 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen- NE side RI | 2,025 | 0 | 2,025 | 2,776 | 1,278 | 0 | 2,084 | 1,970 | -56 | 0 97 | 17.7 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - SE side - RI | 4,695 | 751 | 3,944 | 9,179 | 3,437 | 0 | -4,831 | 7,784 | 3,840 | 1 97 | 8.7 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - SW side - RI | 4,695 | 751 | 3,944 | 17,343 | 16,387 | 0 | -4,831 | 28,898 | 24,955 | 7 33 | 2 4 |
| Envelope | Other | U Shaped Bldgs: Other | | Window Screen - NW Side RI | 2,025 | 0 | 2,025 | 5,074 | 4,764 | 0 | -2,084 | 7,753 | 5,728 | 3 83 | 4 5 |
| Envelope | Family Housing | WHS | | Double Paned Window - RI | 8,639 | 0 | 8,639 | 1,851 | 1,048 | 0 | 0 | 2,898 | 5,741 | 0 34 | 51 3 |
| Envelope | WHS | WHS | | Weatherization - RI | 2,480 | 0 | 2,480 | 30,013 | 16,588 | 0 | 0 | 46,601 | 44,122 | 18 79 | 0.9 |
| Envelope | WHS | WHS | | Window Screen- NE side - RI | 1,016 | 0 | 1,016 | 1,393 | 641 | 0 | 1,046 | 988 | -28 | 0 97 | 17.7 |
| Envelope | WHS | WHS | | Window Screen - SE side - RI | 254 | 41 | 213 | 497 | 186 | 0 | 261 | 421 | 208 | 1.97 | 8 7 |
| Envelope | WHS | WHS | | Window Screen - SW side - RI | 1,016 | 163 | 854 | 3,754 | 3,547 | 0 | -1,046 | 6,256 | 5,402 | 7 33 | 2 4 |
| Envelope | WHS | WHS | | Window Screen - NW Side - RI | 254 | 0 | 254 | 637 | 598 | 0 | -261 | 973 | 719 | 3 83 | 4.5 |
| Envelope | | Wood Siding | | Weatherization - RI | 1,811 | 0 | 1,811 | 25,017 | 13,827 | 0 | 0 | 38,844 | 37,033 | 21 45 | 0 8 |
| Envelope | | Wood Siding | | Window Screen- NE side - RI | 2,203 | 0 | 2,203 | 3,019 | 1,390 | 0 | -2,267 | 2,142 | -60 | 0 97 | 17.7 |
| Envelope | | Wood Siding | | Window Screen - SE side - RI | 551 | 88 | 463 | 1,077 | 403 | 0 | 567 | 913 | 450 | 1 97 | 8 7 |
| Envelope | | Wood Siding | | Window Screen - SW side - RI | 2,203 | 352 | 1,850 | 8,137 | 7,688 | 0 | -2,267 | 13,558 | 11,708 | 7 33 | 2.4 |
| Envelope | | Wood Siding | | Window Screen - NW Side - RI | 551 | 0 | 551 | 1,380 | 1,295 | 0 | -567 | 2,108 | 1,558 | 3 83 | 4 5 |
| Envelope | Family Housing | Wood Siding | | Double Paned Window - RI | 18,722 | 0 | 18,722 | 3,613 | 2,271 | 0 | 0 | 5,884 | -12,838 | 0 31 | 54.8 |
| Envelope | Family Housing | 1961 | | Weatherization - RI | 59,959 | 0 | 59,959 | 521,228 | 288,075 | 0 | 0 | 809,304 | 749,345 | 13 50 | 1 3 |
| Envelope | Family Housing | 1963 | | Weatherization - RI | 54,608 | 0 | 54,608 | 569,833 | 314,939 | 0 | 0 | 884,771 | 830,164 | 16 20 | 1 1 |
| Envelope | Family Housing | 1983 | | Weatherization - RI | 45,070 | 0 | 45,070 | 215,619 | 119,170 | 0 | 0 | 334,789 | 289,719 | 7 43 | 2.3 |
| Envelope | Family Housing | 1984 | | Weatherization - RI | 34,480 | 0 | 34,480 | 160,175 | 88,526 | 0 | 0 | 248,702 | 214,222 | 7.21 | 2 4 |
| Fam. Hsg HVAC | 1a | Family Housing | Residential HVAC | Std. Eff. Air Source HP - RI | 4,483,820 | 0 | 4,483,820 | 2,190,332 | 2,021,043 | 281,903 | 937,140 | 5,430,418 | 946,598 | 1.21 | 14 2 |
| Fam. Hsg HVAC | 1a | Family Housing | Residential HVAC | Std. Eff. Air Source HP - ROF | 3,621,075 | 0 | 3,621,075 | 1,625,445 | 1,298,746 | 180,296 | 2,422,554 | 5,527,041 | 1,905,966 | 1 53 | 11.3 |
| Fam. Hsg HVAC | 1b | Family Housing | Residential HVAC | High Eff. Air Source HP - RI | 9,387,147 | 0 | 9,387,147 | 6,190,656 | 4,192,740 | 281,903 | -1,283,936 | 9,381,362 | -5,785 | 1 00 | 17.2 |
| Fam. Hsg HVAC | 1b | Family Housing | Residential HVAC | High Eff. Air Source HP - ROF | 7,580,939 | 0 | 7,580,939 | 4,196,100 | 2,694,303 | 180,296 | 1,825,868 | 8,896,568 | 1,315,629 | 1 17 | 14.7 |
| Fam. Hsg HVAC | 2a | Family Housing | Residential HVAC | Std. Eff. Gnd Source HP - RI | 5,826,672 | 0 | 5,826,672 | 6,155,208 | 3,294,375 | 281,903 | 328,863 | 10,060,350 | 4,233,677 | 1 73 | 10.0 |
| Fam. Hsg HVAC | 2a | Family Housing | Residential HVAC | Std. Eff. Gnd Source HP - ROF | 4,705,545 | 0 | 4,705,545 | 4,173,321 | 2,117,004 | 180,296 | 2,259,142 | 8,729,763 | 4,024,218 | 1 86 | 9.3 |
| Fam. Hsg HVAC | 2b | Family Housing | Residential HVAC | High Eff. Gnd Source HP - RI | 7,086,917 | 0 | 7,086,917 | 8,254,166 | 4,037,704 | 281,903 | -241,994 | 12,331,780 | 5,244,863 | 1 74 | 9.9 |
| Fam. Hsg HVAC | 2b | Family Housing | Residential HVAC | High Eff. Gnd Source HP - ROF | 5,723,502 | 0 | 5,723,502 | 5,522,156 | 2,594,676 | 180,296 | 2,105,783 | 10,402,691 | 4,679,589 | 1 82 | 9.5 |
| Fam. Hsg HVAC | 3a | Family Housing | Residential HVAC | Std. Eff. NG Furnace & DX RI | 3,194,085 | 0 | 3,194,085 | 4,095,746 | 1,928,323 | 0 | 1,521,355 | 7,545,424 | 4,351,339 | 2 36 | 7.3 |
| Fam. Hsg HVAC | 3a | Family Housing | Residential HVAC | Std. Eff. NG Furnace & DX ROF | 2,579,502 | 0 | 2,579,502 | 2,582,050 | 1,239,163 | -0 | 2,579,502 | 6,400,714 | 3,821,213 | 2 48 | 6 9 |
| Fam. Hsg. HVAC | 3b | Family Housing | Residential HVAC | High Eff. NG Furnace & DX - RI | 8,501,098 | 0 | 8,501,098 | 7,904,570 | 4,010,390 | 0 | -882,580 | 11,032,381 | 2,531,283 | 1.30 | 15.3 |
| Fam. Hsg HVAC | 3b | Family Housing | Residential HVAC | High Eff. NG Furnace & DX - ROF | 6,865,377 | 0 | 6,865,377 | 5,071,874 | 2,577,124 | -0 | 1,933,691 | 9,582,689 | 2,717,312 | 1.40 | 12.3 |
| Fam. Hsg HVAC | 4a | Family Housing | Residential HVAC | Std. Eff. LPG Furnace & DX - RI | 3,194,085 | 0 | 3,194,085 | 2,753,818 | 1,928,323 | 0 | 1,521,355 | 6,203,496 | 3,009,411 | 1 94 | 8 9 |
| Fam. Hsg HVAC | 4a | Family Housing | Residential HVAC | Std. Eff. LPG Furnace & DX - ROF | 2,579,502 | 0 | 2,579,502 | 1,790,589 | 1,239,163 | -0 | 2,579,502 | 5,609,253 | 3,029,752 | 2 17 | 7.9 |
| Fam. Hsg. HVAC | 4b | Family Housing | Residential HVAC | High Eff. LPG Furnace & DX - RI | 8,501,098 | 0 | 8,501,098 | 6,774,221 | 4,010,390 | 0 | -882,580 | 9,902,031 | 1,400,933 | 1 16 | 14 8 |
| Fam. Hsg HVAC | 4b | Family Housing | Residential HVAC | High Eff. LPG Furnace & DX - ROF | 6,865,377 | 0 | 6,865,377 | 4,405,201 | 2,577,124 | -0 | 1,933,691 | 8,916,015 | 2,050,639 | 1 30 | 13.3 |
| Fam. Hsg HVAC | 5 | Family Housing | Residential HVAC | Gas Heat Pump - RI | 9,412,750 | 0 | 9,412,750 | 9,658,520 | 8,557,808 | -563,806 | -1,295,534 | 16,356,988 | 6,944,238 | -1 74 | 9 9 |
| Fam. Hsg. HVAC | 5 | Family Housing | Residential HVAC | Gas Heat Pump - ROF | 7,601,615 | 0 | 7,601,615 | 6,834,364 | 5,499,347 | -360,593 | 1,822,752 | 13,795,871 | 6,194,256 | 1 81 | 9.5 |
| Heating | 1 | HANGAR - 00203 | Unit Heaters | Radiant Heat - RI | 3,820 | 0 | 3,820 | 13,115 | 887 | 0 | 3,699 | 17,702 | 13,882 | 4 63 | 3 7 |
| Heating | 1 | HANGAR - 00203 | Unit Heaters | Radiant Heat - ROF | 3,705 | 0 | 3,705 | 12,431 | 838 | 0 | 3,897 | 17,167 | 13,461 | 4 63 | 3 7 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - RI | 12,240 | 0 | 12,240 | 41,450 | 2,839 | 0 | 947 | 45,236 | 32,996 | 3 70 | 4.7 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - ROF | 9,588 | 0 | 9,588 | 25,547 | 1,693 | 0 | 5,513 | 32,753 | 23,165 | 3 42 | 5 0 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - RI | 9,180 | 0 | 9,180 | 31,863 | 2,129 | 0 | 710 | 34,705 | 25,525 | 3 78 | 4 6 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - ROF | 7,191 | 0 | 7,191 | 19,639 | 1,270 | 0 | 4,135 | 25,044 | 17,853 | 3 48 | 4 9 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - RI | 12,240 | 0 | 12,240 | 41,450 | 2,839 | 0 | 947 | 45,236 | 32,996 | 3 70 | 4 7 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - ROF | 9,588 | 0 | 9,588 | 25,547 | 1,693 | 0 | 5,513 | 32,753 | 23,165 | 3 42 | 5 0 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,612 | 311 | 0 | 1,192 | 7,115 | 4,055 | 2 33 | 7.4 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - ROF | 2,968 | 0 | 2,968 | 5,317 | 294 | 0 | 1,350 | 6,961 | 3,993 | 2 35 | 7.3 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - RI | 2,560 | 0 | 2,560 | 3,858 | 260 | 0 | 2,460 | 6,578 | 4,018 | 2 57 | 6 7 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - ROF | 2,483 | 0 | 2,483 | 3,656 | 245 | 0 | 2,593 | 6,493 | 4,010 | 2 62 | 6 6 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 9,996 | 692 | 0 | 1,643 | 12,331 | 10,631 | 7 25 | 2 4 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - ROF | 1,649 | 0 | 1,649 | 9,471 | 654 | 0 | 1,731 | 11,856 | 10,207 | 7 19 | 2 4 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 4,600 | 0 | 4,600 | 36,512 | 2,803 | 0 | 1,783 | 41,098 | 36,498 | 8 93 | 1 9 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - ROF | 4,462 | 0 | 4,462 | 34,596 | 2,647 | 0 | 2,921 | 39,264 | 34,802 | 8 80 | 2 0 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,480 | 511 | 0 | 671 | 6,462 | 3,402 | 2 11 | 8 2 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - ROF | 2,968 | 0 | 2,968 | 5,193 | 294 | 0 | 829 | 6,316 | 3,348 | 2 13 | 8 1 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,480 | 511 | 0 | 1,192 | 6,983 | 3,923 | 2 28 | 7 5 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - ROF | 2,968 | 0 | 2,968 | 5,193 | 294 | 0 | 1,350 | 6,837 | 3,869 | 2 30 | 7 5 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 4,209 | 346 | 0 | 101 | 4,655 | 2,955 | 2 74 | 6 3 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - ROF | 1,649 | 0 | 1,649 | 3,988 | 327 | 0 | 189 | 4,505 | 2,854 | 2 73 | 6 3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 4,209 | 346 | 0 | 101 | 4,655 | 2,955 | 2 74 | 6 3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - ROF | 1,649 | 0 | 1,649 | 3,988 | 327 | 0 | 189 | 4,505 | 2,854 | 2 73 | 6 3 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - RI | 1,540 | 0 | 1,540 | 5,480 | 467 | 0 | 591 | 6,539 | 4,999 | 4 25 | 4 1 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - ROF | 1,494 | 0 | 1,494 | 5,193 | 441 | 0 | 671 | 6,305 | 4,811 | 4 22 | 4 1 |
| Heating | 9 | MTRPOOL - 00642 | Unit Heaters | Radiant Heat - RI | 7,660 | 0 | 7,660 | 4,428 | 0 | 0 | 973 | 5,401 | 2,259 | 0 71 | 24 4 |
| Heating | 9 | MTRPOOL - 00642 | Unit Heaters | Radiant Heat - ROF | 7,430 | 0 | 7,430 | 4,196 | 0 | 0 | 1,369 | 5,565 | 1,865 | 0 75 | 23 0 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - RI | 1,020 | 0 | 1,020 | 4,209 | 311 | 0 | 745 | 5,265 | 4,245 | 5 16 | 3 3 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - ROF | 989 | 0 | 989 | 3,988 | 294 | 0 | 797 | 5,079 | 4,090 | 5 13 | 3 4 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - RI | 2,120 | 0 | 2,120 | 5,480 | 433 | 0 | 2,056 | 7,969 | 5,849 | 3 76 | 4 6 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - ROF | 2,056 | 0 | 2,056 | 5,193 | 409 | 0 | 2,166 | 7,767 | 5,711 | 3 78 | 4 6 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - RI | 10,830 | 0 | 10,830 | 29,182 | 2,205 | 0 | 975 | 30,412 | 19,582 | 2 81 | 6 1 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - ROF | 8,746 | 0 | 8,746 | 19,247 | 1,417 | 0 | 2,613 | 23,277 | 14,531 | 2 66 | 6 5 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - RI | 10,830 | 0 | 10,830 | 32,881 | 2,205 | 0 | 975 | 34,111 | 23,281 | 3 15 | 5 5 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - ROF | 8,746 | 0 | 8,746 | 21,687 | 1,417 | 0 | 2,613 | 25,717 | 16,971 | 2 94 | 5 9 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 9,180 | 0 | 9,180 | 16,572 | 934 | 0 | 710 | 18,217 | 9,037 | 1 98 | 8 7 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - ROF | 7,191 | 0 | 7,191 | 10,180 | 557 | 0 | 4,135 | 14,872 | 7,681 | 2 07 | 8 3 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 4,600 | 0 | 4,600 | 8,768 | 467 | 0 | 6 | 9,230 | 4,630 | 2 01 | 8 6 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - ROF | 3,390 | 0 | 3,390 | 4,622 | 237 | 0 | 2,078 | 6,938 | 3,548 | 2 05 | 8 4 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - RI | 2,300 | 0 | 2,300 | 11,285 | 934 | 0 | 891 | 13,111 | 10,811 | 5 70 | 3 0 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - ROF | 2,231 | 0 | 2,231 | 10,693 | 882 | 0 | 1,011 | 12,586 | 10,355 | 5 64 | 3 1 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - RI | 1,540 | 0 | 1,540 | 6,720 | 467 | 0 | 591 | 7,779 | 6,239 | 5 05 | 3 4 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - ROF | 1,494 | 0 | 1,494 | 6,367 | 441 | 0 | 671 | 7,480 | 5,986 | 5 01 | 3 4 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - RI | 5,360 | 0 | 5,360 | 10,193 | 545 | 0 | -581 | 10,157 | 4,797 | 1 89 | 9 1 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - ROF | 3,604 | 0 | 3,604 | 4,122 | 210 | 0 | 2,442 | 6,774 | 3,170 | 1 88 | 9 2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,042 | 311 | 0 | 361 | 5,714 | 2,654 | 1 87 | 9 2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - ROF | 2,471 | 0 | 2,471 | 3,325 | 200 | 0 | 1,375 | 4,900 | 2,429 | 1 98 | 8 7 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - RI | 6,120 | 0 | 6,120 | 39,093 | 3,114 | 0 | 1,341 | 43,549 | 37,429 | 7 12 | 2 4 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - ROF | 5,936 | 0 | 5,936 | 37,041 | 2,941 | 0 | 1,658 | 41,641 | 35,705 | 7 01 | 2 5 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 15,345 | 1,246 | 0 | 1,192 | 17,782 | 14,722 | 5 81 | 3 0 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - ROF | 2,968 | 0 | 2,968 | 14,539 | 1,176 | 0 | 1,350 | 17,066 | 14,098 | 5 75 | 3 0 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,480 | 311 | 0 | 671 | 6,462 | 3,402 | 2 11 | 8 2 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - ROF | 2,968 | 0 | 2,968 | 5,193 | 294 | 0 | 829 | 6,316 | 3,348 | 2 13 | 8 1 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 27,480 | 0 | 27,480 | 60,819 | 3,730 | 0 | 6,928 | 57,622 | 30,142 | 2 10 | 8 2 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - ROF | 22,192 | 0 | 22,192 | 40,113 | 2,397 | 0 | 2,176 | 44,686 | 22,494 | 2 01 | 8 6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - RI | 32,490 | 0 | 32,490 | 61,921 | 4,408 | 0 | 8,194 | 58,136 | 25,646 | 1 79 | 9 6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - ROF | 26,239 | 0 | 26,239 | 40,840 | 2,833 | 0 | 2,570 | 46,243 | 20,004 | 1 76 | 9 8 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 6,120 | 0 | 6,120 | 10,851 | 623 | 0 | 473 | 11,947 | 5,827 | 1 95 | 8 8 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - ROF | 4,794 | 0 | 4,794 | 6,665 | 371 | 0 | 2,757 | 9,793 | 5,000 | 2 04 | 8 4 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - RI | 3,060 | 0 | 3,060 | 5,919 | 311 | 0 | 237 | 6,467 | 3,407 | 2 11 | 8 1 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - ROF | 2,397 | 0 | 2,397 | 3,636 | 186 | 0 | 1,378 | 5,200 | 2,803 | 2 17 | 7 9 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 2,560 | 0 | 2,560 | 4,428 | 260 | 0 | 1,857 | 6,544 | 3,984 | 2 56 | 6 7 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - ROF | 2,483 | 0 | 2,483 | 4,196 | 245 | 0 | 1,989 | 6,430 | 3,947 | 2 59 | 6 6 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 1,540 | 0 | 1,540 | 4,209 | 311 | 0 | 591 | 5,112 | 3,572 | 3 32 | 5 2 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - ROF | 1,494 | 0 | 1,494 | 3,988 | 294 | 0 | 671 | 4,953 | 3,459 | 3 32 | 5 2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 520 | 0 | 520 | 1,076 | 0 | 0 | 368 | 1,444 | 924 | 2 78 | 6 2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - ROF | 504 | 0 | 504 | 1,017 | 0 | 0 | 393 | 1,411 | 907 | 2 80 | 6 2 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 7,681 | 0 | 0 | 1,643 | 9,324 | 7,624 | 5 48 | 3 1 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - ROF | 1,649 | 0 | 1,649 | 7,258 | 0 | 0 | 1,731 | 8,989 | 7,340 | 5 45 | 3 2 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - RI | 420 | 0 | 420 | 1,835 | 0 | 0 | 413 | 2,248 | 1,828 | 5 35 | 3 2 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - ROF | 407 | 0 | 407 | 1,734 | 0 | 0 | 435 | 2,169 | 1,762 | 5 32 | 3 2 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - RI | 760 | 0 | 760 | 3,587 | 1,125 | 0 | -26 | 4,686 | 3,926 | 6 17 | 2 8 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - ROF | 543 | 0 | 543 | 1,682 | 525 | 0 | 347 | 2,554 | 2,011 | 4 70 | 3 7 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - RI | 1,200 | 0 | 1,200 | 3,766 | 1,180 | 0 | 101 | 5,047 | 3,847 | 4 21 | 4 1 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - ROF | 1,164 | 0 | 1,164 | 3,559 | 1,115 | 0 | 163 | 4,836 | 3,672 | 4 16 | 4 1 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - RI | 11,480 | 0 | 11,480 | 37,912 | 0 | 0 | 4,466 | 42,379 | 30,899 | 3 69 | 4 7 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - ROF | 11,135 | 0 | 11,135 | 35,823 | 0 | 0 | 5,061 | 40,884 | 29,749 | 3 67 | 4 7 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 19,120 | 0 | 19,120 | 54,595 | 0 | 0 | 2,445 | 57,041 | 37,921 | 2 98 | 5 8 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - ROF | 18,545 | 0 | 18,545 | 51,587 | 0 | 0 | 3,435 | 55,022 | 36,477 | 2 97 | 5 8 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - RI | 1,540 | 0 | 1,540 | 1,822 | 316 | 0 | 442 | 2,580 | 1,040 | 1 68 | 10 3 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - ROF | 1,206 | 0 | 1,206 | 1,109 | 189 | 0 | 1,016 | 2,314 | 1,108 | 1 92 | 9 0 |
| Heating | 39 | SHOP-HVY BD005 | Unit Heaters | Radiant Heat - RI | 2,560 | 0 | 2,560 | 2,914 | 527 | 0 | 739 | 4,181 | 1,621 | 1 63 | 10 5 |
| Heating | 39 | SHOP HVY - BD005 | Unit Heaters | Radiant Heat - ROF | 2,005 | 0 | 2,005 | 1,774 | 314 | 0 | 1,695 | 3,783 | 1,778 | 1 89 | 9 1 |
| HVAC | MT-3 | | Heat pump | 2 speed compressor - RI | 240,507 | 0 | 240,507 | 342,991 | 334,687 | 0 | -108,943 | 568,735 | 328,228 | 2 36 | 7 3 |
| HVAC | MT-4 | | Heat pump | Economizer cooling - RI | 553,800 | 0 | 553,800 | 522,317 | 150,147 | 0 | 250,857 | 421,607 | 132,193 | 0 76 | 22 6 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback - RI | 20,079 | 0 | 20,079 | 933,750 | 4,672 | 0 | -9,095 | 929,327 | 909,248 | 46 28 | 0 4 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback - RI | 1,039 | 0 | 1,039 | 37,246 | 231 | 0 | 470 | 37,007 | 35,968 | 35 63 | 0 5 |
| HVAC | 3 | Clinic | Programmable T-Stat | Night Setback - RI | 2,077 | 0 | 2,077 | 114,249 | 1,313 | 0 | 941 | 114,621 | 112,544 | 55 18 | 0 3 |
| HVAC | 4 | Comcntn | Programmable T-Stat | Night Setback - RI | 2,077 | 0 | 2,077 | 138,353 | 1,089 | 0 | 941 | 138,501 | 136,424 | 66 68 | 0 3 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 3,808 | 0 | 3,808 | 95,978 | 922 | 0 | -1,725 | 95,175 | 91,366 | 24 99 | 0 7 |
| HVAC | 6 | MtrPool | Programmable T-Stat | Night Setback - RI | 2,770 | 0 | 2,770 | 421,880 | 2,121 | 0 | 1,255 | 422,746 | 419,976 | 152 64 | 0 1 |
| HVAC | 7 | Shop Elc | Programmable T-Stat | Night Setback - RI | 1,385 | 0 | 1,385 | 12,782 | 176 | 0 | 627 | 12,331 | 10,946 | 8 90 | 1 9 |
| HVAC | 8 | Trang | Programmable T-Stat | Night Setback - RI | 5,885 | 0 | 5,885 | 120,331 | 2,054 | 0 | 2,245 | 120,339 | 114,454 | 20 45 | 0 8 |
| Lighting | DLC-3a | Conference | Existing Lighting | Existing + Daylighting Controls - RI | 1,394 | 81 | 1,313 | 39,747 | NA | 7,010 | NA | 46,756 | 45,443 | 35 62 | 0 5 |
| Lighting | DLC-3b | Conference | T8 Lighting | T8 + Daylighting Controls - RI | 1,394 | 54 | 1,340 | 26,630 | NA | 6,920 | NA | 33,550 | 32,210 | 25 04 | 0 7 |
| Lighting | OS-3a | Conference | Existing Lighting | Existing + Occupancy Controls - RI | 5,904 | 1,771 | 4,133 | 155,278 | NA | 27,151 | NA | 182,429 | 178,297 | 44 14 | 0 4 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lighting | OS 3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 5,904 | 1,771 | 4,133 | 104,037 | NA | 26,704 | NA | 130,741 | 126,608 | 31 63 | 0 5 |
| Lighting | DLC-5a | Copy Room | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-5b | Copy Room | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS-5a | Copy Room | Existing Lighting | Existing + Occupancy Controls - RI | 4,536 | 654 | 3,882 | 31,185 | NA | 5,445 | NA | 36,631 | 32,748 | 9 44 | 1 8 |
| Lighting | OS-5b | Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 4,536 | 438 | 4,098 | 20,894 | NA | 5,353 | NA | 26,247 | 22,149 | 6 40 | 2 7 |
| Lighting | DLC-7a | Hallway | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-7b | Hallway | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS-7a | Hallway | Existing Lighting | Existing + Occupancy Controls - RI | 16,416 | 4,925 | 11,491 | 572,726 | NA | 99,520 | NA | 672,246 | 660,755 | 58 50 | 0 3 |
| Lighting | OS-7b | Hallway | T8 Lighting | T8 + Occupancy Controls RI | 16,416 | 4,925 | 11,491 | 383,726 | NA | 97,662 | NA | 481,389 | 469,897 | 41 89 | 0 4 |
| Lighting | DLC-8a | Highbay | Existing Lighting | Existing + Daylighting Controls - RI | 7,820 | 2,346 | 5,474 | 709,990 | NA | 129,046 | NA | 839,037 | 833,563 | 153 28 | 0 1 |
| Lighting | DLC-8b | Highbay | T8 Lighting | T8 + Daylighting Controls - RI | 7,820 | 2,346 | 5,474 | 475,693 | NA | 128,881 | NA | 604,575 | 599,101 | 110 44 | 0 2 |
| Lighting | OS 8a | Highbay | Existing Lighting | Existing + Occupancy Controls - RI | 16,560 | 4,968 | 11,592 | 1,290,565 | NA | 231,903 | NA | 1,522,468 | 1,510,876 | 131 34 | 0 1 |
| Lighting | OS-8b | Highbay | T8 Lighting | T8 + Occupancy Controls - RI | 16,560 | 4,968 | 11,592 | 864,678 | NA | 229,102 | NA | 1,093,780 | 1,082,188 | 94 36 | 0 2 |
| Lighting | DLC-2a | Large Office/Room | Existing Lighting | Existing + Daylighting Controls - RI | 25,500 | 7,650 | 17,850 | 605,660 | NA | 122,119 | NA | 727,779 | 709,929 | 40 77 | 0 4 |
| Lighting | DLC-2b | Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 25,500 | 7,650 | 17,850 | 405,792 | NA | 126,512 | NA | 532,304 | 514,454 | 29 82 | 0 6 |
| Lighting | OS 2a | Large Office/Room | Existing Lighting | Existing + Occupancy Controls - RI | 45,000 | 13,500 | 31,500 | 688,694 | NA | 127,374 | NA | 816,068 | 784,568 | 25 91 | 0 7 |
| Lighting | OS 2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 45,000 | 9,671 | 35,329 | 461,425 | NA | 127,909 | NA | 589,334 | 554,005 | 16 68 | 1 0 |
| Lighting | DLC-4a | Lunchroom | Existing Lighting | Existing + Daylighting Controls - RI | 1,360 | 220 | 1,140 | 41,010 | NA | 7,405 | NA | 48,415 | 47,274 | 42 45 | 0 4 |
| Lighting | DLC-4b | Lunchroom | T8 Lighting | T8 + Daylighting Controls - RI | 1,360 | 147 | 1,213 | 27,477 | NA | 7,377 | NA | 34,853 | 33,641 | 28 74 | 0 6 |
| Lighting | OS-4a | Lunchroom | Existing Lighting | Existing + Occupancy Controls - RI | 14,400 | 4,320 | 10,080 | 385,025 | NA | 68,046 | NA | 453,071 | 442,991 | 44 95 | 0 4 |
| Lighting | OS-4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 14,400 | 4,320 | 10,080 | 257,967 | NA | 67,184 | NA | 325,151 | 315,071 | 32 26 | 0 5 |
| Lighting | DLC-MT-3a | MT Conference | Existing Lighting | Existing + Daylighting Controls - RI | 1,394 | 81 | 1,313 | 23,941 | NA | 4,263 | NA | 28,205 | 26,892 | 21 48 | 0 8 |
| Lighting | DLC-MT-3b | MT Conference | T8 Lighting | T8 + Daylighting Controls - RI | 1,394 | 54 | 1,340 | 16,041 | NA | 4,224 | NA | 20,265 | 18,925 | 15 13 | 1 1 |
| Lighting | OS MT-3a | MT Conference | Existing Lighting | Existing + Occupancy Controls - RI | 5,904 | 1,771 | 4,133 | 92,058 | NA | 16,165 | NA | 108,223 | 104,090 | 26 19 | 0 7 |
| Lighting | OS-MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 5,904 | 1,293 | 4,611 | 61,679 | NA | 15,924 | NA | 77,602 | 72,991 | 16 83 | 1 0 |
| Lighting | DLC-MT-5a | MT Copy Room | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-MT-5b | MT Copy Room | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS MT-5a | MT Copy Room | Existing Lighting | Existing + Occupancy Controls - RI | 4,536 | 395 | 4,141 | 18,858 | NA | 3,303 | NA | 22,161 | 18,021 | 5 35 | 3 2 |
| Lighting | OS-MT-5b | MT Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 4,536 | 265 | 4,271 | 12,635 | NA | 3,251 | NA | 15,886 | 11,615 | 3 72 | 4 6 |
| Lighting | DLC-MT-7a | MT Hallway | Existing Lighting | Existing + Daylighting Controls RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-MT-7b | MT Hallway | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS MT-7a | MT Hallway | Existing Lighting | Existing + Occupancy Controls - RI | 16,416 | 3,557 | 19,973 | 169,697 | NA | -29,487 | NA | 199,184 | -219,157 | 9 97 | NA |
| Lighting | OS-MT-7b | MT Hallway | T8 Lighting | T8 + Occupancy Controls - RI | 16,416 | -2,383 | 18,799 | -113,697 | NA | 28,937 | NA | 142,634 | -161,433 | -7 59 | NA |
| Lighting | DLC-MT-8a | MT Highbay | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-MT-8b | MT Highbay | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS-MT-8a | MT Highbay | Existing Lighting | Existing + Occupancy Controls RI | 16,560 | 6,588 | 23,148 | -314,296 | NA | -46,967 | NA | 361,262 | -384,410 | 15 61 | NA |
| Lighting | OS-MT-8b | MT Highbay | T8 Lighting | T8 + Occupancy Controls - RI | 16,560 | -4,414 | 20,974 | -210,578 | NA | -44,562 | NA | 255,140 | -276,114 | -12 16 | NA |
| Lighting | DLC-MT-2a | MT Large Office/Room | Existing Lighting | Existing + Daylighting Controls - RI | 17,000 | 5,100 | 11,900 | 124,157 | NA | 32,825 | NA | 156,982 | 145,082 | 13 19 | 1 3 |
| Lighting | DLC-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 17,000 | 5,100 | 11,900 | 83,185 | NA | 36,661 | NA | 119,846 | 107,946 | 10 07 | 1 7 |
| Lighting | OS-MT-2a | MT Large Office/Room | Existing Lighting | Existing + Occupancy Controls RI | 45,000 | -217 | 45,217 | -10,347 | NA | 5,904 | NA | -4,443 | -49,660 | -0 10 | NA |
| Lighting | OS-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 45,000 | -145 | 45,145 | -6,933 | NA | 8,707 | NA | 1,774 | -43,371 | 0 04 | 438 2 |
| Lighting | DLC-MT-4a | MT Lunchroom | Existing Lighting | Existing + Daylighting Controls - RI | 1,360 | 220 | 1,140 | 5,708 | NA | 1,271 | NA | 6,978 | 5,838 | 6 12 | 2 8 |
| Lighting | DLC-MT-4b | MT Lunchroom | T8 Lighting | T8 + Daylighting Controls - RI | 1,360 | 147 | 1,213 | 3,824 | NA | 1,357 | NA | 5,181 | 3,968 | 4 27 | 4 0 |
| Lighting | OS-MT-4a | MT Lunchroom | Existing Lighting | Existing + Occupancy Controls - RI | 14,400 | 671 | 13,729 | 32,002 | NA | 6,702 | NA | 38,705 | 24,976 | 2 82 | 6 1 |
| Lighting | OS-MT-4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 14,400 | 449 | 13,951 | 21,442 | NA | 6,986 | NA | 28,427 | 14,477 | 2 04 | 8 5 |
| Lighting | DLC-MT-6a | MT Restroom | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-MT-6b | MT Restroom | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS-MT-6a | MT Restroom | Existing Lighting | Existing + Occupancy Controls - RI | 27,072 | 79 | 26,993 | 3,789 | NA | 1,925 | NA | 5,714 | -21,279 | 0 21 | 81 4 |
| Lighting | OS MT-6b | MT Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 27,072 | 53 | 27,019 | 2,539 | NA | 2,342 | NA | 4,881 | -22,138 | 0 18 | 95 3 |
| Lighting | DLC-MT-1a | MT Small Office | Existing Lighting | Existing + Daylighting Controls - RI | 40,093 | 12,028 | 28,065 | -4,132 | NA | 18,408 | NA | 14,275 | -13,790 | 0 51 | 33 9 |
| Lighting | DLC-MT-1b | MT Small Office | T8 Lighting | T8 + Daylighting Controls - RI | 40,093 | 10,097 | 29,996 | -2,769 | NA | 25,626 | NA | 22,858 | -7,138 | 0 76 | 22 6 |
| Lighting | OS-MT-1a | MT Small Office | Existing Lighting | Existing + Occupancy Controls - RI | 106,128 | -9,886 | 116,014 | -471,686 | NA | 64,521 | NA | -536,007 | -652,022 | -4 62 | NA |
| Lighting | OS-MT-1b | MT Small Office | T8 Lighting | T8 + Occupancy Controls - RI | 106,128 | -6,624 | 112,752 | -316,050 | NA | -56,683 | NA | 372,712 | -485,464 | -3 31 | NA |
| Lighting | DLC-6a | Restroom | Existing Lighting | Existing + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | DLC-6b | Restroom | T8 Lighting | T8 + Daylighting Controls - RI | 0 | 0 | 0 | 0 | NA | 0 | NA | 0 | 0 | NA | NA |
| Lighting | OS-6a | Restroom | Existing Lighting | Existing + Occupancy Controls - RI | 27,072 | 4,021 | 23,051 | 191,862 | NA | 34,605 | NA | 226,467 | 203,416 | 9 82 | 1 8 |
| Lighting | OS-6b | Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 27,072 | 2,694 | 24,378 | 128,547 | NA | 34,413 | NA | 162,960 | 138,582 | 6 68 | 2 6 |
| Lighting | DLC-1a | Small Office | Existing Lighting | Existing + Daylighting Controls - RI | 60,139 | 18,042 | 42,097 | 167,852 | NA | 57,855 | NA | 225,708 | 183,610 | 5 36 | 3 2 |
| Lighting | DLC-1b | Small Office | T8 Lighting | T8 + Daylighting Controls - RI | 60,139 | 15,146 | 44,994 | 112,461 | NA | 68,119 | NA | 180,580 | 135,586 | 4 01 | 4 3 |
| Lighting | OS-1a | Small Office | Existing Lighting | Existing + Occupancy Controls - RI | 106,128 | -3,806 | 109,934 | -181,602 | NA | -13,914 | NA | 195,516 | 305,450 | 1 78 | NA |
| Lighting | OS-1b | Small Office | T8 Lighting | T8 + Occupancy Controls - RI | 106,128 | -2,550 | 108,678 | -121,673 | NA | 7,217 | NA | 128,890 | -237,568 | -1 19 | NA |
| Motors | MT-2 | | Fan motor | 2-speed fan motor - RI | 71,530 | 0 | 71,530 | 75,029 | 0 | 0 | 32,401 | 42,628 | -28,902 | 0 60 | 28 9 |
| Motors | MTR-97 | 01315 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-97 | 01315 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - ROF | 1,017 | 0 | 1,017 | 1,635 | 1,103 | 0 | -14 | 2,724 | 1,707 | 2 68 | 6 4 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,147 | 2,124 | 0 | 567 | 4,704 | 3,462 | 3 79 | 4 5 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - ROF | 446 | 0 | 446 | 310 | 209 | 0 | 12 | 506 | 60 | 1 14 | 15 2 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - RI | 552 | 40 | 512 | 561 | 378 | 0 | 195 | 744 | 232 | 1 45 | 11 9 |
| Motors | MTR-100 | ADMIN - 00157 | EVAP | EEM - ROF | 367 | 0 | 367 | 57 | 38 | 0 | -21 | 75 | 293 | 0 20 | 84 7 |
| Motors | MTR-100 | ADMIN - 00157 | EVAP | EEM - RI | 455 | 14 | 441 | 106 | 71 | 0 | 171 | 5 | -436 | 0 01 | 1,387 3 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-102 | ADMIN - 00236 | EVAP | EEM - ROF | 1,102 | 0 | 1,102 | 171 | 115 | 0 | -62 | 224 | -878 | 0 20 | 84 7 |
| Motors | MTR-102 | ADMIN - 00236 | EVAP | EEM RI | 1,365 | 42 | 1,323 | 317 | 214 | 0 | 514 | 16 | 1,307 | 0 01 | 1,387 3 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM ROF | 1,531 | 0 | 1,531 | 2,915 | 1,967 | 0 | -99 | 4,784 | 3,252 | 3 12 | 5 3 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM RI | 1,784 | 128 | 1,656 | 4,095 | 2,763 | 0 | 534 | 6,325 | 4,669 | 3 82 | 4 5 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - ROF | 574 | 0 | 574 | 1,093 | 738 | 0 | 37 | 1,794 | 1,220 | 3 12 | 5 3 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - RI | 669 | 48 | 621 | 1,536 | 1,036 | 0 | 200 | 2,372 | 1,751 | 3 82 | 4 3 |
| Motors | MTR-51a | ADMIN - 00243 | COOL | EEM ROF | 367 | 0 | 367 | 28 | 38 | 0 | 21 | 46 | 321 | 0 13 | 136 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-51a | ADMIN 00243 | COOL | EFM RI | 455 | 14 | 441 | 53 | 71 | 0 | 171 | 47 | -488 | 0 11 | NA |
| Motors | MTR 51b | ADMIN 00243 | COOL | VSD to Std ROF | 3,025 | 0 | 3,025 | 433 | 21 | 110 | 386 | 85 | 1,110 | 0 03 | NA |
| Motors | MTR 51b | ADMIN 00243 | COOL | VSD to Std RI | 3,746 | 6 | 3,740 | 682 | 21 | 172 | 1,533 | 1,044 | -4,784 | 0 28 | NA |
| Motors | MTR 51c | ADMIN 00243 | COOL | VSD & EEM ROF | 3,163 | 0 | 3,163 | 445 | 38 | 110 | 386 | 13 | 3,175 | 0 00 | NA |
| Motors | MTR-51c | ADMIN 00243 | COOL | VSD & EEM - RI | 3,916 | 19 | 3,897 | 702 | 71 | 172 | 1,533 | 932 | -4,829 | 0 24 | NA |
| Motors | MTR 106 | ADMIN 00248 | EVAP | EEM - ROF | 1,250 | 0 | 1,250 | 350 | 236 | 0 | 70 | 516 | 734 | 0 41 | 41 7 |
| Motors | MTR 106 | ADMIN 00248 | EVAP | EEM RI | 1,548 | 60 | 1,488 | 646 | 436 | 0 | 583 | 500 | 988 | 0 34 | 51 3 |
| Motors | MTR 107 | ADMIN 00256 | EVAP | EFM ROF | 1,894 | 0 | 1,894 | 306 | 206 | 0 | 140 | 372 | 1,523 | 0 20 | 87 8 |
| Motors | MTR 107 | ADMIN 00256 | EVAP | EEM RI | 2,275 | 70 | 2,205 | 517 | 349 | 0 | 796 | 70 | 2,135 | 0 03 | 541 9 |
| Motors | MTR 108 | ADMIN 00257 | EVAP | EEM ROF | 1,894 | 0 | 1,894 | 306 | 206 | 0 | 140 | 372 | 1,523 | 0 20 | 87 8 |
| Motors | MTR-108 | ADMIN 00257 | EVAP | EEM RI | 2,275 | 70 | 2,205 | 517 | 349 | 0 | 796 | 70 | -2,135 | 0 03 | 541 9 |
| Motors | MTR 109 | ADMIN - 00279 | EVAP | EEM - ROF | 2,148 | 0 | 2,148 | 626 | 422 | 0 | 158 | 890 | 1,259 | 0 41 | 41 6 |
| Motors | MTR-109 | ADMIN - 00279 | EVAP | EEM - RI | 2,580 | 100 | 2,480 | 1,055 | 712 | 0 | 902 | 865 | 1,615 | 0 35 | 49 4 |
| Motors | MTR-110 | ADMIN - 00281 | EVAP | EEM - ROF | 443 | 0 | 443 | 134 | 90 | 0 | -40 | 184 | 259 | 0 42 | 41 5 |
| Motors | MTR-110 | ADMIN - 00281 | EVAP | EEM RI | 516 | 20 | 496 | 206 | 139 | 0 | 166 | 180 | 316 | 0 36 | 47 5 |
| Motors | MTR-111 | ADMIN 00281 | EVAP | EEM - ROF | 446 | 0 | 446 | 241 | 163 | 0 | 12 | 391 | 55 | 0 88 | 19 6 |
| Motors | MTR-111 | ADMIN - 00281 | EVAP | EEM - RI | 552 | 40 | 512 | 452 | 305 | 0 | -195 | 562 | 50 | 1 10 | 15 7 |
| Motors | MTR-418a | ADMIN - 00281 | Fan Motor | EEM - ROF | 359 | 0 | 359 | 85 | 71 | 0 | 16 | 141 | 219 | 0 39 | 44 0 |
| Motors | MTR-418a | ADMIN - 00281 | Fan Motor | EEM - RI | 445 | 18 | 427 | 158 | 132 | 0 | 163 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-418b | ADMIN - 00281 | Fan Motor | VSD to Std ROF | 4,070 | 0 | 4,070 | 1,298 | 38 | 110 | 537 | 613 | 3,457 | 0 15 | 114 3 |
| Motors | MTR-418b | ADMIN - 00281 | Fan Motor | VSD to Std - RI | 5,040 | 17 | 5,023 | 2,045 | 38 | 172 | 2,102 | 267 | 5,289 | 0 05 | NA |
| Motors | MTR-418c | ADMIN - 00281 | Fan Motor | VSD & EEM - ROF | 4,175 | 0 | 4,175 | 1,336 | 71 | 110 | 537 | 760 | 3,415 | 0 18 | 94 6 |
| Motors | MTR-418c | ADMIN - 00281 | Fan Motor | VSD & FEM - RI | 5,170 | 34 | 5,136 | 2,105 | 132 | 172 | 2,102 | 38 | 5,174 | 0 01 | NA |
| Motors | PMTR 8a | ADMIN - 00281 | PMPMTR | EEM ROF | 367 | 0 | 367 | 57 | 47 | 0 | 21 | 84 | 284 | 0 23 | 75 7 |
| Motors | PMTR-8a | ADMIN - 00281 | PMPMTR | EEM - RI | 455 | 14 | 441 | 106 | 88 | 0 | 171 | 22 | -419 | 0 05 | 346 4 |
| Motors | PMTR-8b | ADMIN - 00281 | PMPMTR | VSD to Std - ROF | 1,168 | 0 | 1,168 | 865 | 25 | 110 | 107 | 623 | 545 | 0 53 | 32 3 |
| Motors | PMTR-8b | ADMIN - 00281 | PMPMTR | VSD to Std - RI | 1,446 | 12 | 1,434 | 1,364 | -25 | 172 | -491 | 675 | -760 | 0 47 | 36 6 |
| Motors | PMTR-8c | ADMIN - 00281 | PMPMTR | VSD & EEM - ROF | 1,305 | 0 | 1,305 | 891 | 47 | 110 | 107 | 721 | -584 | 0 55 | 31 2 |
| Motors | PMTR-8c | ADMIN - 00281 | PMPMTR | VSD & EEM - RI | 1,616 | 25 | 1,591 | 1,403 | 88 | 172 | -491 | 827 | 764 | 0 52 | 33 1 |
| Motors | PMTR 9a | ADMIN - 00281 | PMPMTR | EEM - ROF | 367 | 0 | 367 | 57 | 47 | 0 | -21 | 84 | 284 | 0 23 | 75.7 |
| Motors | PMTR 9a | ADMIN - 00281 | PMPMTR | EEM - RI | 455 | 14 | 441 | 106 | 88 | 0 | 171 | 22 | -419 | 0 05 | 346 4 |
| Motors | PMTR-9b | ADMIN - 00281 | PMPMTR | VSD to Std - ROF | 1,168 | 0 | 1,168 | 865 | 25 | -110 | 107 | 623 | 545 | 0 53 | 32 3 |
| Motors | PMTR-9b | ADMIN - 00281 | PMPMTR | VSD to Std - RI | 1,446 | 12 | 1,434 | 1,364 | 25 | 172 | 491 | 675 | -760 | 0 47 | 36 6 |
| Motors | PMTR-9c | ADMIN - 00281 | PMPMTR | VSD & EEM - ROF | 1,305 | 0 | 1,305 | 891 | 47 | 110 | 107 | 721 | -584 | 0 55 | 31 2 |
| Motors | PMTR-9c | ADMIN - 00281 | PMPMTR | VSD & EEM - RI | 1,616 | 25 | 1,591 | 1,403 | 88 | 172 | -491 | 827 | -764 | 0 52 | 33 1 |
| Motors | MTR 112 | ADMIN - 00320 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-112 | ADMIN - 00320 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-116 | ADMIN - 00408 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 116 | ADMIN - 00408 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3.80 | 4 5 |
| Motors | MTR-117 | ADMIN - 00411 | EVAP | EEM - ROF | 719 | 0 | 719 | 171 | 115 | 0 | 52 | 254 | -464 | 0 35 | 48 6 |
| Motors | MTR-117 | ADMIN - 00411 | EVAP | EEM - RI | 890 | 36 | 854 | 317 | 214 | 0 | 326 | 204 | 650 | 0 24 | 72 0 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5.9 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-122 | ADMIN - 00429 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | -232 | 0 35 | 48 6 |
| Motors | MTR-122 | ADMIN - 00429 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | -325 | 0 24 | 72 0 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | -243 | 2,361 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - ROF | 151 | 0 | 151 | 322 | 151 | 0 | -5 | 468 | 317 | 3 10 | 5 6 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - RI | 187 | 0 | 187 | 523 | 245 | 0 | 67 | 701 | 514 | 3 75 | 4 6 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - ROF | 592 | 0 | 592 | 1,167 | 788 | 0 | -45 | 1,910 | 1,317 | 3 23 | 5 3 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - RI | 669 | 48 | 621 | 1,525 | 1,029 | 0 | 178 | 2,377 | 1,756 | 3 83 | 4 5 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-126 | ADMIN - 00437 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | -232 | 0 35 | 48 6 |
| Motors | MTR-126 | ADMIN - 00437 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | -325 | 0 24 | 72 0 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR 127 | ADMIN - 00439 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - ROF | 151 | 0 | 151 | 322 | 151 | 0 | -5 | 468 | 317 | 3 10 | 5 6 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - RI | 187 | 0 | 187 | 523 | 245 | 0 | -67 | 701 | 514 | 3 75 | 4 6 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - ROF | 395 | 0 | 395 | 778 | 525 | 0 | -30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3 83 | 4 5 |
| Motors | MTR-129 | ADMIN 00442 | EVAP | EEM - ROF | 788 | 0 | 788 | 209 | 141 | 0 | -66 | 284 | 503 | 0 36 | 47 7 |
| Motors | MTR 129 | ADMIN - 00442 | EVAP | EEM - RI | 890 | 36 | 854 | 296 | 200 | 0 | 242 | 254 | 600 | 0 30 | 58 0 |
| Motors | MTR 130 | ADMIN - 00443 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | 15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR-130 | ADMIN 00443 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3 83 | 4 5 |
| Motors | MTR 131 | ADMIN - 00443 | EVAP | EEM ROF | 197 | 0 | 197 | 389 | 263 | 0 | 15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR 131 | ADMIN - 00443 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3 83 | 4 5 |
| Motors | MTR 132 | ADMIN 00444 | EVAP | EEM ROF | 395 | 0 | 395 | 778 | 525 | 0 | 30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-132 | ADMIN 00444 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3 83 | 4 5 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-134 | ADMIN - 00451 | EVAP | EEM - ROF | 394 | 0 | 394 | 105 | 71 | 0 | 33 | 142 | 252 | 0.36 | 47 7 |
| Motors | MTR-134 | ADMIN - 00451 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | -121 | 127 | 300 | 0.30 | 58 0 |
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 1,905 | 1,285 | 0 | -43 | 3,147 | 2,066 | 2 91 | 5 9 |
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | -486 | 4,723 | 3,481 | 3 80 | 4.5 |
| Motors | MTR-136 | ADMIN - 00452 | EVAP | EEM - ROF | 367 | 0 | 367 | 57 | 38 | 0 | 21 | 75 | 293 | 0 20 | 84 7 |
| Motors | MTR-136 | ADMIN - 00452 | EVAP | EEM - RI | 455 | 14 | 441 | 106 | 71 | 0 | 171 | 5 | 436 | 0 01 | 1,387 3 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2.91 | 5 9 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3 80 | 4.5 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5 9 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2.91 | 5 9 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-143 | ADMIN - 00466 | EVAP | EEM ROF | 735 | 0 | 735 | 114 | 77 | 0 | 41 | 149 | 586 | 0 20 | 84 7 |
| Motors | MTR-143 | ADMIN - 00466 | EVAP | EEM - RI | 910 | 28 | 882 | 211 | 143 | 0 | 343 | 11 | 871 | 0 01 | 1,387 3 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM ROF | 197 | 0 | 197 | 389 | 263 | 0 | -15 | 637 | 439 | 3 23 | 5.3 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3 83 | 4.5 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM - ROF | 395 | 0 | 395 | 778 | 525 | 0 | -30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3 83 | 4.5 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM ROF | 395 | 0 | 395 | 778 | 525 | 0 | -30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | -118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | -29 | 2,098 | 1,378 | 2.91 | 5 9 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | -324 | 3,148 | 2,320 | 3 80 | 4.5 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | -15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | -59 | 792 | 585 | 3 83 | 4 5 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - ROF | 1,184 | 0 | 1,184 | 2,334 | 1,575 | 0 | -90 | 3,819 | 2,635 | 3.23 | 5.3 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,051 | 2,059 | 0 | -355 | 4,755 | 3,513 | 3.83 | 4 5 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | -15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | -59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5 9 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3.80 | 4 5 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5.9 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | -15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | -59 | 792 | 585 | 3.83 | 4 5 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | -243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - ROF | 395 | 0 | 395 | 778 | 525 | 0 | 30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | -118 | 1,585 | 1,171 | 3 83 | 4 5 |
| Motors | MTR-167 | ADMIN - 00549 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0.35 | 48 6 |
| Motors | MTR-167 | ADMIN - 00549 | EVAP | EEM RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-168 | ADMIN - 00551 | EVAP | EEM ROF | 394 | 0 | 394 | 105 | 71 | 0 | -33 | 142 | 252 | 0 36 | 47.7 |
| Motors | MTR-168 | ADMIN - 00551 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | -121 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - ROF | 540 | 0 | 540 | 952 | 643 | 0 | -22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | -243 | 2,361 | 1,740 | 3 80 | 4.5 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | -29 | 2,098 | 1,378 | 2 91 | 5 9 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | -324 | 3,148 | 2,320 | 3 80 | 4 5 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4 5 |
| Motors | MTR-173 | ADMIN - 00579 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 173 | ADMIN 00579 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 174 | ADMIN 00580 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 174 | ADMIN - 00580 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-175 | ADMIN 00583 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-175 | ADMIN 00583 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 176 | ADMIN - 00604 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-177 | ADMIN 00604 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-177 | ADMIN - 00604 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 178 | ADMIN - 00813 | EVAP | EEM ROF | 735 | 0 | 735 | 114 | 77 | 0 | -41 | 149 | 586 | 0 20 | 84 7 |
| Motors | MTR-178 | ADMIN 00813 | EVAP | EEM RI | 910 | 28 | 882 | 211 | 143 | 0 | 143 | 11 | 871 | 0 01 | 1,387 3 |
| Motors | MTR-52a | ADMIN - 00828 | COOL | EEM ROF | 367 | 0 | 367 | 28 | 38 | 0 | 21 | 46 | 321 | 0 13 | 136 9 |
| Motors | MTR 52a | ADMIN - 00828 | COOL | EEM - RI | 455 | 14 | 441 | 53 | 71 | 0 | 171 | -47 | -488 | 0 11 | NA |
| Motors | MTR-52b | ADMIN - 00828 | COOL | VSD to Std ROF | 3,025 | 0 | 3,025 | 433 | -21 | 110 | 386 | 85 | 3,110 | 0 03 | NA |
| Motors | MTR-52b | ADMIN - 00828 | COOL | VSD to Std RI | 3,746 | 6 | 3,740 | 682 | 21 | 172 | 1,533 | 1,044 | -4,784 | 0 28 | NA |
| Motors | MTR-52o | ADMIN 00828 | COOL | VSD & EEM ROF | 3,163 | 0 | 3,163 | 445 | 38 | -110 | 386 | -13 | -3,175 | 0 00 | NA |
| Motors | MTR-52o | ADMIN - 00828 | COOL | VSD & EEM RI | 3,916 | 19 | 3,897 | 702 | 71 | 172 | 1,533 | 932 | -4,829 | 0 24 | NA |
| Motors | MTR 179 | ADMIN - 00930 | EVAP | EEM ROF | 1,256 | 51 | 1,205 | 355 | 240 | 0 | 197 | 458 | 747 | 0 38 | 45 3 |
| Motors | MTR-179 | ADMIN - 00930 | EVAP | EEM RI | 1,335 | 54 | 1,281 | 422 | 285 | 0 | 273 | 434 | 847 | 0 34 | 50 8 |
| Motors | MTR 180 | ADMIN - 00930 | EVAP | EEM ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-180 | ADMIN - 00930 | EVAP | EEM RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM ROF | 180 | 0 | 180 | 284 | 264 | 0 | 7 | 540 | 360 | 3 00 | 5 7 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM RI | 223 | 16 | 207 | 463 | 431 | 0 | 81 | 812 | 605 | 3 92 | 4 4 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM ROF | 360 | 0 | 360 | 567 | 527 | 0 | -14 | 1,080 | 720 | 3 00 | 5 7 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM RI | 446 | 32 | 414 | 926 | 861 | 0 | 162 | 1,625 | 1,211 | 3 92 | 4 4 |
| Motors | PMTR-7a | ADMIN - 00985 | PMPMTR | EEM ROF | 892 | 0 | 892 | 619 | 418 | 0 | 25 | 1,012 | 120 | 1 14 | 15 2 |
| Motors | PMTR-7a | ADMIN - 00985 | PMPMTR | EEM RI | 1,104 | 80 | 1,024 | 1,122 | 757 | 0 | 391 | 1,488 | 464 | 1 45 | 11 9 |
| Motors | PMTR-7b | ADMIN - 00985 | PMPMTR | VSD to Std ROF | 3,098 | 0 | 3,098 | 8,353 | -192 | 220 | -248 | 7,693 | 4,595 | 2 48 | 6 9 |
| Motors | PMTR-7b | ADMIN - 00985 | PMPMTR | VSD to Std - RI | 3,836 | 112 | 3,724 | 13,157 | 192 | 344 | 1,220 | 11,400 | 7,676 | 3 06 | 5 6 |
| Motors | PMTR-7o | ADMIN - 00985 | PMPMTR | VSD & EEM ROF | 3,263 | 0 | 3,263 | 8,615 | 418 | 220 | 248 | 8,565 | 5,302 | 2 63 | 6 6 |
| Motors | PMTR-7o | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 4,040 | 184 | 3,856 | 13,565 | 757 | 344 | 1,220 | 12,757 | 8,900 | 3 31 | 5 2 |
| Motors | MTR-1 | ADMIN - 00988 | AIRCOMP | EEM - ROF | 359 | 0 | 359 | 66 | 71 | 0 | 16 | 121 | 238 | 0 34 | 51 1 |
| Motors | MTR-1 | ADMIN - 00988 | AIRCOMP | EEM - RI | 445 | 18 | 427 | 122 | 132 | 0 | -163 | 91 | -336 | 0 21 | 81 0 |
| Motors | MTR 181 | ADMIN - 00988 | EVAP | EEM - ROF | 167 | 0 | 167 | 272 | 184 | 0 | 6 | 450 | 282 | 2 69 | 6 4 |
| Motors | MTR-181 | ADMIN - 00988 | EVAP | EEM RI | 297 | 15 | 192 | 443 | 299 | 0 | 75 | 667 | 475 | 3 47 | 5 0 |
| Motors | MTR 182 | ADMIN - 00988 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 182 | ADMIN - 00988 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 183 | ADMIN - 00988 | EVAP | EEM ROF | 207 | 15 | 192 | 399 | 270 | 0 | 24 | 645 | 453 | 3 36 | 5 1 |
| Motors | MTR-183 | ADMIN - 00988 | EVAP | EEM - RI | 207 | 15 | 192 | 427 | 288 | 0 | 24 | 691 | 499 | 3 60 | 4 8 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - ROF | 334 | 0 | 334 | 545 | 368 | 0 | 13 | 899 | 565 | 2 69 | 6 4 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - RI | 414 | 30 | 384 | 886 | 598 | 0 | 150 | 1,334 | 950 | 3 47 | 5 0 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM ROF | 395 | 0 | 395 | 223 | 185 | 0 | 16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-421b | ADMIN - 00988 | Fan Motor | VSD to Std ROF | 7,205 | 0 | 7,205 | 2,550 | 73 | -110 | 1,000 | 1,367 | 5,838 | 0 19 | 90 8 |
| Motors | MTR-421b | ADMIN - 00988 | Fan Motor | VSD to Std RI | 8,922 | 34 | 8,888 | 4,018 | 73 | 172 | 3,838 | -66 | 8,954 | 0 01 | NA |
| Motors | MTR-421o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | 110 | 1,000 | 1,716 | -5,598 | 0 23 | 73 4 |
| Motors | MTR-421o | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 9,057 | 66 | 8,991 | 4,158 | 329 | 172 | 3,838 | 477 | 8,514 | 0 05 | 324 5 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 223 | 185 | 0 | 16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-422b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 2,550 | 73 | 110 | 1,000 | 1,367 | -5,838 | 0 19 | 90 8 |
| Motors | MTR-422b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8,922 | 34 | 8,888 | 4,018 | 73 | 172 | 3,838 | -66 | 8,954 | 0 01 | NA |
| Motors | MTR-422o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | -110 | 1,000 | 1,716 | -5,598 | 0 23 | 73 4 |
| Motors | MTR-422o | ADMIN - 00988 | Fan Motor | VSD & EEM RI | 9,057 | 66 | 8,991 | 4,158 | 329 | 172 | -3,838 | 477 | -8,514 | 0 05 | 324 5 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - ROF | 1,176 | 0 | 1,176 | 798 | 662 | 0 | -26 | 1,434 | 258 | 1 22 | 14 1 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - RI | 1,456 | 120 | 1,336 | 1,468 | 1,219 | 0 | 508 | 2,178 | 842 | 1 63 | 10 6 |
| Motors | MTR-423b | ADMIN - 00988 | Fan Motor | VSD to Std ROF | 32,660 | 0 | 32,660 | 12,246 | 338 | 220 | -4,619 | 7,068 | -25,592 | 0 22 | 79 6 |
| Motors | MTR-423b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 40,442 | 164 | 40,278 | 19,283 | 338 | -344 | 17,605 | 995 | 39,283 | 0 02 | 697 0 |
| Motors | MTR-423o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 32,833 | 0 | 32,833 | 12,596 | 662 | -220 | -4,619 | 8,419 | -24,415 | 0 26 | 67 2 |
| Motors | MTR-423o | ADMIN - 00988 | Fan Motor | VSD & EEM RI | 40,656 | 273 | 40,383 | 19,827 | 1,219 | -344 | 17,605 | 3,096 | 37,287 | 0 08 | 224 6 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - ROF | 167 | 0 | 167 | 272 | 226 | 0 | 6 | 492 | 325 | 2 94 | 5 9 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - RI | 207 | 15 | 192 | 443 | 368 | 0 | -75 | 736 | 544 | 3 83 | 4 5 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 223 | 185 | 0 | -16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-425b | ADMIN - 00988 | Fan Motor | VSD to Std ROF | 7,205 | 0 | 7,205 | 2,550 | 73 | 110 | -1,000 | 1,367 | 5,838 | 0 19 | 90 8 |
| Motors | MTR-425b | ADMIN - 00988 | Fan Motor | VSD to Std RI | 8,922 | 34 | 8,888 | 4,018 | -73 | 172 | -3,838 | -66 | -8,954 | 0 01 | NA |
| Motors | MTR-425o | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | -110 | 1,000 | 1,716 | 5,598 | 0 23 | 73 4 |
| Motors | MTR-425o | ADMIN - 00988 | Fan Motor | VSD & EEM RI | 9,057 | 66 | 8,991 | 4,158 | 329 | 172 | -3,838 | 477 | -8,514 | 0 05 | 324 5 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 223 | 185 | 0 | 16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | -178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-426b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 2,550 | -73 | -110 | -1,000 | 1,367 | -5,838 | 0 19 | 90 8 |
| Motors | MTR-426b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8,922 | 34 | 8,888 | 4,018 | -73 | 172 | -3,838 | -66 | -8,954 | 0 01 | NA |
| Motors | MTR-426o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | 110 | -1,000 | 1,716 | -5,598 | 0 23 | 73 4 |
| Motors | MTR-426o | ADMIN - 00988 | Fan Motor | VSD & EEM RI | 9,057 | 66 | 8,991 | 4,158 | 329 | 172 | 3,838 | 477 | -8,514 | 0 05 | 324 5 |
| Motors | MTR-427a | ADMIN - 00988 | Fan Motor | EEM - ROF | 359 | 0 | 359 | 85 | 71 | 0 | 16 | 141 | -219 | 0 39 | 44 0 |
| Motors | MTR-427a | ADMIN - 00988 | Fan Motor | EEM - RI | 445 | 18 | 427 | 158 | 132 | 0 | 163 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-427b | ADMIN - 00988 | Fan Motor | VSD to Std ROF | 4,070 | 0 | 4,070 | 1,298 | 38 | 110 | 537 | 613 | 3,457 | 0 15 | 114 3 |
| Motors | MTR-427b | ADMIN 00988 | Fan Motor | VSD to Std RI | 5,040 | 17 | 5,023 | 2,045 | 38 | 172 | 2,102 | -267 | 5,289 | 0 05 | NA |
| Motors | MTR-427o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 4,175 | 0 | 4,175 | 1,336 | 71 | 110 | 537 | 760 | 3,415 | 0 18 | 94 6 |
| Motors | MTR-427c | ADMIN 00988 | Fan Motor | VSD & EEM RI | 5,170 | 34 | 5,136 | 2,105 | 132 | 172 | 2,102 | 38 | -5,174 | 0 01 | NA |
| Motors | MTR-428 | ADMIN 00988 | Fan Motor | EEM - ROF | 1,975 | 0 | 1,975 | 4,754 | 926 | 0 | 82 | 5,597 | 3,623 | 2 83 | 6 1 |
| Motors | MTR-428 | ADMIN 00988 | Fan Motor | EEM - RI | 2,445 | 175 | 2,270 | 8,447 | 1,645 | 0 | 892 | 9,200 | 6,930 | 4 05 | 4 2 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 223 | 185 | 0 | 16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-429b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 2,550 | -73 | -110 | 1,000 | 1,367 | 5,838 | 0 19 | 90 8 |
| Motors | MTR-429b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8,922 | 34 | 8,888 | 4,018 | -73 | 172 | 3,838 | 66 | 8,954 | 0 01 | NA |
| Motors | MTR-429o | ADMIN - 00988 | Fan Motor | VSD & EEM ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | -110 | 1,000 | 1,716 | 5,598 | 0 23 | 73 4 |
| Motors | MTR-429o | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 9,057 | 66 | 8,991 | 4,158 | 329 | -172 | -3,838 | 477 | 8,514 | 0 05 | 324.5 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 223 | 185 | 0 | 16 | 392 | 3 | 0 99 | 17 4 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14 3 |
| Motors | MTR-430b | ADMIN - 00988 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 2,550 | -73 | -110 | -1,000 | 1,367 | 5,838 | 0 19 | 90 8 |
| Motors | MTR-430b | ADMIN - 00988 | Fan Motor | VSD to Std - RI | 8,922 | 34 | 8,888 | 4,018 | -73 | -172 | -3,838 | 66 | 8,954 | 0 01 | NA |
| Motors | MTR-430o | ADMIN - 00988 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 2,641 | 185 | -110 | -1,000 | 1,716 | 5,598 | 0 23 | 73 4 |
| Motors | MTR-430o | ADMIN - 00988 | Fan Motor | VSD & EEM - RI | 9,057 | 66 | 8,991 | 4,158 | 329 | -172 | -3,838 | 477 | 8,514 | 0 05 | 324.5 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - ROF | 1,003 | 0 | 1,003 | 1,634 | 1,357 | 0 | -39 | 2,952 | 1,949 | 2 94 | 5 9 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - RI | 1,242 | 90 | 1,152 | 2,659 | 2,208 | 0 | -450 | 4,417 | 3,265 | 3 83 | 4.5 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - ROF | 419 | 0 | 419 | 266 | 179 | 0 | -4 | 441 | 22 | 1.05 | 16 4 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - RI | 552 | 40 | 512 | 581 | 392 | 0 | 232 | 741 | 229 | 1 45 | 11 9 |
| Motors | MTR-53b | ADMIN - 00988 | COOL | VSD to Std ROF | 10,498 | 0 | 10,498 | 3,585 | -82 | -95 | -508 | 2,899 | 7,599 | 0 28 | 62 4 |
| Motors | MTR-53b | ADMIN - 00988 | COOL | VSD to Std RI | 13,818 | 56 | 13,762 | 6,599 | -82 | -172 | 6,038 | 306 | 13,456 | 0 02 | 773 6 |
| Motors | MTR-53o | ADMIN - 00988 | COOL | VSD & EEM - ROF | 10,576 | 0 | 10,576 | 3,697 | 179 | -95 | -508 | 3,274 | 7,302 | 0 31 | 55 6 |
| Motors | MTR-53o | ADMIN - 00988 | COOL | VSD & EEM - RI | 13,920 | 92 | 13,828 | 6,803 | 392 | -172 | -6,038 | 985 | 12,843 | 0 07 | 241 8 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - ROF | 419 | 0 | 419 | 266 | 179 | 0 | -4 | 441 | 22 | 1 05 | 16 4 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - RI | 552 | 40 | 512 | 581 | 392 | 0 | 232 | 741 | 229 | 1.45 | 11 9 |
| Motors | MTR-54b | ADMIN - 00988 | COOL | VSD to Std ROF | 10,498 | 0 | 10,498 | 3,585 | -82 | -95 | 508 | 2,899 | 7,599 | 0 28 | 62.4 |
| Motors | MTR-54b | ADMIN - 00988 | COOL | VSD to Std - RI | 13,818 | 56 | 13,762 | 6,599 | -82 | -172 | 6,038 | 306 | 13,456 | 0 02 | 773 6 |
| Motors | MTR-54o | ADMIN - 00988 | COOL | VSD & EEM - ROF | 10,576 | 0 | 10,576 | 3,697 | 179 | -95 | -508 | 3,274 | 7,302 | 0 31 | 55 6 |
| Motors | MTR-54o | ADMIN - 00988 | COOL | VSD & EEM - RI | 13,920 | 92 | 13,828 | 6,803 | 392 | -172 | 6,038 | 985 | 12,843 | 0 07 | 241.8 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - ROF | 419 | 0 | 419 | 266 | 179 | 0 | -4 | 441 | 22 | 1 05 | 16 4 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - RI | 552 | 40 | 512 | 581 | 392 | 0 | -232 | 741 | 229 | 1 45 | 11 9 |
| Motors | MTR-55b | ADMIN - 00988 | COOL | VSD to Std - ROF | 10,498 | 0 | 10,498 | 3,585 | -82 | -95 | 508 | 2,899 | -7,599 | 0 28 | 62 4 |
| Motors | MTR-55b | ADMIN - 00988 | COOL | VSD to Std - RI | 13,818 | 56 | 13,762 | 6,599 | -82 | -172 | -6,038 | 306 | 13,456 | 0 02 | 773.6 |
| Motors | MTR-55o | ADMIN - 00988 | COOL | VSD & EEM - ROF | 10,576 | 0 | 10,576 | 3,697 | 179 | -95 | -508 | 3,274 | 7,302 | 0 31 | 55 6 |
| Motors | MTR-55o | ADMIN - 00988 | COOL | VSD & EEM - RI | 13,920 | 92 | 13,828 | 6,803 | 392 | -172 | 6,038 | 985 | 12,843 | 0 07 | 241.8 |
| Motors | PMTR-1a | ADMIN - 00988 | PMPMTR | EEM - ROF | 367 | 0 | 367 | 57 | 38 | 0 | 21 | 75 | -293 | 0 20 | 84 7 |
| Motors | PMTR-1a | ADMIN - 00988 | PMPMTR | EEM - RI | 455 | 14 | 441 | 106 | 71 | 0 | -171 | 5 | -436 | 0 01 | 1,387.3 |
| Motors | PMTR-1b | ADMIN - 00988 | PMPMTR | VSD to Std ROF | 1,572 | 0 | 1,572 | 865 | -21 | -110 | -167 | 567 | 1,004 | 0 36 | 47.7 |
| Motors | PMTR-1b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 1,946 | 12 | 1,934 | 1,364 | -21 | -172 | -718 | 453 | 1,481 | 0 23 | 73 5 |
| Motors | PMTR-1o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 1,709 | 0 | 1,709 | 891 | 38 | -110 | -167 | 652 | 1,057 | 0.38 | 45.2 |
| Motors | PMTR-1o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 2,116 | 25 | 2,091 | 1,403 | 71 | -172 | -718 | 585 | 1,507 | 0.28 | 61.6 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 558 | 376 | 0 | -16 | 918 | 523 | 2 32 | 7.4 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - RI | 489 | 35 | 454 | 927 | 626 | 0 | 178 | 1,374 | 920 | 3 03 | 5.7 |
| Motors | PMTR-2b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 2,844 | 0 | 2,844 | 2,783 | -71 | -110 | -342 | 2,259 | 585 | 0 79 | 21.7 |
| Motors | PMTR-2b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 3,522 | 37 | 3,485 | 4,390 | -71 | -172 | -1,392 | 2,754 | -730 | 0.79 | 21.8 |
| Motors | PMTR-2o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 2,953 | 0 | 2,953 | 2,975 | 376 | -110 | 342 | 2,899 | 54 | 0 98 | 17.5 |
| Motors | PMTR-2o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 3,657 | 66 | 3,591 | 4,689 | 626 | -172 | -1,392 | 3,751 | 160 | 1.04 | 16 5 |
| Motors | PMTR-3a | ADMIN - 00988 | PMPMTR | EEM ROF | 446 | 0 | 446 | 640 | 432 | 0 | -12 | 1,059 | 613 | 2 38 | 7 3 |
| Motors | PMTR-3a | ADMIN - 00988 | PMPMTR | EEM - RI | 552 | 40 | 512 | 1,084 | 731 | 0 | 195 | 1,619 | 1,107 | 3 16 | 5 4 |
| Motors | PMTR 3b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 3,891 | 0 | 3,891 | 4,406 | -107 | -110 | -477 | 3,712 | -179 | 0 95 | 18 1 |
| Motors | PMTR-3b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 4,818 | 59 | 4,759 | 6,945 | -107 | -172 | -1,924 | 4,742 | -17 | 1 00 | 17 3 |
| Motors | PMTR-3o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 3,973 | 0 | 3,973 | 4,638 | 432 | -110 | -477 | 4,482 | 509 | 1 13 | 15 3 |
| Motors | PMTR-3o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 4,920 | 92 | 4,828 | 7,305 | 731 | -172 | 1,924 | 5,940 | 1,112 | 1 23 | 14 0 |
| Motors | PMTR-4a | ADMIN - 00988 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 558 | 376 | 0 | -16 | 918 | 523 | 2 32 | 7.4 |
| Motors | PMTR-4a | ADMIN - 00988 | PMPMTR | EEM - RI | 489 | 35 | 454 | 927 | 626 | 0 | -178 | 1,374 | 920 | 3 03 | 5.7 |
| Motors | PMTR-4b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 1,471 | 0 | 1,471 | 2,783 | -71 | -110 | -136 | 2,466 | 994 | 1 68 | 10.3 |
| Motors | PMTR-4b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 1,822 | 37 | 1,785 | 4,390 | -71 | -172 | 622 | 3,524 | 1,740 | 1.97 | 8 7 |
| Motors | PMTR-4o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 1,580 | 0 | 1,580 | 2,975 | 376 | -110 | 136 | 3,106 | 1,526 | 1 97 | 8.8 |
| Motors | PMTR-4o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 1,957 | 66 | 1,891 | 4,689 | 626 | -172 | 622 | 4,521 | 2,630 | 2 39 | 7 2 |
| Motors | PMTR-5a | ADMIN - 00988 | PMPMTR | EEM - ROF | 698 | 0 | 698 | 532 | 359 | 0 | -32 | 858 | 161 | 1 23 | 14 0 |
| Motors | PMTR 5a | ADMIN - 00988 | PMPMTR | EEM - RI | 864 | 70 | 794 | 978 | 660 | 0 | 318 | 1,320 | 526 | 1.66 | 10.4 |
| Motors | PMTR-5b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 2,316 | 0 | 2,316 | 8,164 | -183 | -110 | 203 | 7,668 | 5,352 | 3.31 | 5.2 |
| Motors | PMTR-5b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 2,868 | 109 | 2,759 | 12,856 | -183 | -172 | -954 | 11,546 | 8,787 | 4 19 | 4 1 |
| Motors | PMTR-5o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 2,529 | 0 | 2,529 | 8,397 | 359 | -110 | -203 | 8,443 | 5,913 | 3 34 | 5 2 |
| Motors | PMTR-5o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 3,132 | 172 | 2,960 | 13,218 | 660 | -172 | -954 | 12,752 | 9,792 | 4 31 | 4 0 |
| Motors | PMTR-6a | ADMIN - 00988 | PMPMTR | EEM - ROF | 1,128 | 0 | 1,128 | 1,467 | 990 | 0 | -18 | 2,439 | 1,310 | 2.16 | 8 0 |
| Motors | PMTR-6a | ADMIN - 00988 | PMPMTR | EEM - RI | 1,397 | 120 | 1,277 | 2,585 | 1,744 | 0 | -481 | 3,848 | 2,571 | 3 01 | 5.7 |
| Motors | PMTR-6b | ADMIN - 00988 | PMPMTR | VSD to Std - ROF | 3,901 | 0 | 3,901 | 16,328 | -367 | -110 | -284 | 15,568 | 11,666 | 3.99 | 4 3 |
| Motors | PMTR-6b | ADMIN - 00988 | PMPMTR | VSD to Std - RI | 4,831 | 219 | 4,612 | 25,711 | -367 | -172 | 1,470 | 23,702 | 19,090 | 5.14 | 3.4 |
| Motors | PMTR-6o | ADMIN - 00988 | PMPMTR | VSD & EEM - ROF | 4,020 | 0 | 4,020 | 16,911 | 990 | -110 | 284 | 17,507 | 13,487 | 4 35 | 4 0 |
| Motors | PMTR-6o | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 4,978 | 320 | 4,658 | 26,618 | 1,744 | -172 | -1,470 | 26,720 | 22,062 | 5 74 | 3.0 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - ROF | 339 | 0 | 339 | 545 | 368 | 0 | -5 | 908 | 569 | 2 68 | 6 4 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - RI | 446 | 32 | 414 | 1,049 | 708 | 0 | -189 | 1,568 | 1,154 | 3.79 | 4 5 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2.91 | 5 9 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5.9 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM ROF | 175 | 0 | 175 | 390 | 199 | 0 | -5 | 584 | 410 | 3.35 | 5 1 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM - RI | 223 | 16 | 207 | 691 | 352 | 0 | 88 | 955 | 748 | 4.61 | 3 7 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM - ROF | 180 | 0 | 180 | 421 | 214 | 0 | 7 | 628 | 448 | 3 49 | 4 9 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM RI | 223 | 16 | 207 | 687 | 350 | 0 | -81 | 956 | 749 | 4 62 | 3 7 |
| Motors | PMTR-11a | BRK/ADM - 00099 | PMPMTR | EEM ROF | 430 | 0 | 430 | 83 | 84 | 0 | 32 | 136 | 294 | 0 32 | 54 5 |
| Motors | PMTR 11a | BRK/ADM - 00099 | PMPMTR | EEM RI | 516 | 20 | 496 | 140 | 142 | 0 | 180 | 102 | -394 | 0 21 | 83 9 |
| Motors | PMTR-11b | BRK/ADM - 00099 | PMPMTR | VSD to Std - ROF | 2,258 | 0 | 2,258 | 1,231 | -44 | 118 | 340 | 728 | -1,530 | 0 32 | 53 4 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-11b | BRK/ADM 00099 | PMPMTR | VSD to Std - RI | 2,712 | 17 | 2,695 | 1,844 | -44 | 172 | 1,028 | 559 | 2,136 | 0 21 | 83 0 |
| Motors | PMTR-11c | BRK/ADM 00099 | PMPMTR | VSD & EEM - ROF | 2,418 | 0 | 2,418 | 1,267 | 84 | 118 | 340 | 893 | 1,525 | 0 37 | 46 6 |
| Motors | PMTR-11c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - RI | 2,904 | 36 | 2,868 | 1,857 | 142 | 172 | 1,028 | 799 | 2,069 | 0 28 | 61 8 |
| Motors | PMTR 14a | BRK/ADM 00099 | PMPMTR | EEM - ROF | 417 | 0 | 417 | 77 | 79 | 0 | 23 | 133 | 284 | 0 32 | 54 1 |
| Motors | PMTR 14a | BRK/ADM 00099 | PMPMTR | EEM - RI | 516 | 20 | 496 | 143 | 145 | 0 | 194 | 94 | -402 | 0 19 | 91 0 |
| Motors | PMTR 14b | BRK/ADM 00099 | PMPMTR | VSD to Std - ROF | 2,190 | 0 | 2,190 | 1,147 | -41 | 110 | 251 | 744 | 1,446 | 0 34 | 50 7 |
| Motors | PMTR-14b | BRK/ADM - 00099 | PMPMTR | VSD to Std - RI | 2,712 | 17 | 2,695 | 1,807 | -41 | 172 | 1,042 | 551 | 2,144 | 0 20 | 84 2 |
| Motors | PMTR 14c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - ROF | 2,345 | 0 | 2,345 | 1,181 | 79 | 110 | 251 | 898 | 1,447 | 0 38 | 45 0 |
| Motors | PMTR-14c | BRK/ADM - 00099 | PMPMTR | VSD & EEM - RI | 2,904 | 36 | 2,868 | 1,860 | 145 | 172 | 1,042 | 791 | 2,077 | 0 28 | 62 4 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - ROF | 151 | 0 | 151 | 222 | 292 | 0 | 5 | 418 | 267 | 2 77 | 6 2 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - RI | 187 | 0 | 187 | 359 | 327 | 0 | 67 | 619 | 432 | 3 31 | 5 2 |
| Motors | MTR 190 | BRK/ADM - 00102 | EVAP | EEM ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-190 | BRK/ADM - 00102 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,714 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 191 | BRK/ADM - 00103 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR 191 | BRK/ADM - 00103 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,714 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 192 | BRK/ADM - 00104 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-192 | BRK/ADM - 00104 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - ROF | 2,416 | 0 | 2,416 | 2,658 | 454 | 0 | 88 | 3,025 | 609 | 1 25 | 13 8 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR-56 | BRK/ADM - 00105 | COOL | EEM - ROF | 2,416 | 0 | 2,416 | 1,933 | 1,969 | 0 | 88 | 3,814 | 1,398 | 1 58 | 10 9 |
| Motors | MTR 56 | BRK/ADM - 00105 | COOL | EEM RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1 75 | 9 8 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM ROF | 2,416 | 0 | 2,416 | 2,658 | 454 | 0 | 88 | 3,025 | 609 | 1 25 | 13 8 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 57 | BRK/ADM 00106 | COOL | EEM ROF | 2,416 | 0 | 2,416 | 1,933 | 1,969 | 0 | 88 | 3,814 | 1,398 | 1 58 | 10 9 |
| Motors | MTR 57 | BRK/ADM - 00106 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1 75 | 9 8 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - ROF | 2,416 | 0 | 2,416 | 2,658 | 454 | 0 | 88 | 3,025 | 609 | 1 25 | 13 8 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM ROF | 2,416 | 0 | 2,416 | 1,933 | 1,969 | 0 | 88 | 3,814 | 1,398 | 1 58 | 10 9 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1 75 | 9 8 |
| Motors | MTR-490 | BRK/ADM 00108 | HEAT | EEM - ROF | 2,416 | 0 | 2,416 | 2,658 | 454 | 0 | 88 | 3,025 | 609 | 1 25 | 13 8 |
| Motors | MTR-490 | BRK/ADM - 00108 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM ROF | 2,416 | 0 | 2,416 | 1,933 | 1,969 | 0 | 88 | 3,814 | 1,398 | 1 58 | 10 9 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1 75 | 9 8 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM ROF | 3,020 | 0 | 3,020 | 3,323 | 568 | 0 | 110 | 3,781 | 761 | 1 25 | 13 8 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM - RI | 3,740 | 0 | 3,740 | 5,386 | 920 | 0 | 1,349 | 4,957 | 1,217 | 1 33 | 13 0 |
| Motors | MTR 60 | BRK/ADM - 00110 | COOL | EEM ROF | 3,020 | 0 | 3,020 | 2,416 | 2,461 | 0 | 110 | 4,767 | 1,747 | 1 58 | 10 9 |
| Motors | MTR-60 | BRK/ADM - 00110 | COOL | EEM - RI | 3,740 | 0 | 3,740 | 3,916 | 3,988 | 0 | 1,349 | 6,556 | 2,816 | 1 75 | 9 8 |
| Motors | PMTR 10a | BRK/ADM - 00110 | PMPMTR | EEM - ROF | 367 | 0 | 367 | 38 | 38 | 0 | -21 | 55 | -312 | 0 15 | 114 1 |
| Motors | PMTR 10a | BRK/ADM - 00110 | PMPMTR | EEM RI | 455 | 14 | 441 | 70 | 71 | 0 | 171 | -30 | -471 | 0 07 | NA |
| Motors | PMTR 10b | BRK/ADM - 00110 | PMPMTR | VSD to Std - ROF | 1,572 | 0 | 1,572 | 573 | -21 | 110 | 167 | 275 | 1,296 | 0 18 | 98 4 |
| Motors | PMTR-10b | BRK/ADM - 00110 | PMPMTR | VSD to Std - RI | 1,946 | 9 | 1,937 | 944 | 21 | 172 | 718 | 7 | 1,944 | 0 00 | NA |
| Motors | PMTR-10c | BRK/ADM - 00110 | PMPMTR | VSD & EEM - ROF | 1,709 | 0 | 1,709 | 590 | 38 | 110 | 167 | 351 | 1,358 | 0 21 | 83 8 |
| Motors | PMTR-10c | BRK/ADM - 00110 | PMPMTR | VSD & EEM - RI | 2,116 | 22 | 2,094 | 930 | 71 | 172 | 718 | 111 | 1,983 | 0 05 | 324 7 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM - ROF | 151 | 0 | 151 | 219 | 200 | 0 | 5 | 414 | 263 | 2 74 | 6 3 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM RI | 187 | 0 | 187 | 355 | 324 | 0 | 67 | 612 | 425 | 3 27 | 5 3 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - ROF | 2,416 | 0 | 2,416 | 2,658 | 454 | 0 | 88 | 3,025 | 609 | 1 25 | 13 8 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 61 | BRK/ADM - 00111 | COOL | EEM - ROF | 2,416 | 0 | 2,416 | 1,933 | 1,969 | 0 | 88 | 3,814 | 1,398 | 1 58 | 10 9 |
| Motors | MTR-61 | BRK/ADM - 00111 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1 75 | 9 8 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - ROF | 11,326 | 0 | 11,326 | 9,061 | 9,228 | 0 | -411 | 17,878 | 6,552 | 1 58 | 10 9 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,685 | 14,956 | 0 | 5,057 | 24,584 | 10,559 | 1 75 | 9 8 |
| Motors | MTR 63 | BRK/ADM - 00226 | COOL | EEM - ROF | 1,025 | 0 | 1,025 | 785 | 799 | 0 | -25 | 1,559 | 533 | 1 52 | 11 3 |
| Motors | MTR-63 | BRK/ADM - 00226 | COOL | EEM - RI | 1,309 | 0 | 1,309 | 1,378 | 1,403 | 0 | 514 | 2,267 | 958 | 1 73 | 9 9 |
| Motors | MTR-64 | BRK/ADM - 00226 | COOL | EEM - ROF | 293 | 0 | 293 | 224 | 228 | 0 | 7 | 445 | 152 | 1 52 | 11 3 |
| Motors | MTR 64 | BRK/ADM - 00226 | COOL | EEM - RI | 374 | 0 | 374 | 394 | 401 | 0 | 147 | 648 | 274 | 1 73 | 9 9 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-194 | BRK/ADM - 00249 | EVAP | EEM - ROF | 180 | 0 | 180 | 421 | 214 | 0 | 7 | 628 | 448 | 3 49 | 4 9 |
| Motors | MTR 194 | BRK/ADM - 00249 | EVAP | EEM - RI | 223 | 16 | 207 | 687 | 350 | 0 | 81 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - ROF | 4,380 | 0 | 4,380 | 4,818 | 823 | 0 | 159 | 5,483 | 1,103 | 1 25 | 13 8 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - RI | 5,423 | 0 | 5,423 | 7,809 | 1,335 | 0 | 1,955 | 7,188 | 1,765 | 1 33 | 13 0 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | -61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-497 | BRK/ADM 00249 | HEAT | EEM ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-497 | BRK/ADM - 00249 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - ROF | 623 | 0 | 623 | 713 | 122 | 0 | 30 | 805 | 183 | 1 29 | 13 3 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - ROF | 2,491 | 0 | 2,491 | 2,853 | 488 | 0 | 119 | 3,221 | 730 | 1 29 | 13 3 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-195 | BRK/ADM - 00250 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR 195 | BRK/ADM - 00250 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-196 | BRK/ADM 00250 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-196 | BRK/ADM - 00250 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-500 | BRK/ADM 00250 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR 500 | BRK/ADM 00250 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 501 | BRK/ADM - 00250 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR 501 | BRK/ADM 00250 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 502 | BRK/ADM - 00250 | HEAT | EEM - ROF | 2,491 | 0 | 2,491 | 2,853 | 488 | 0 | -119 | 3,221 | 730 | 1 29 | 13 3 |
| Motors | MTR 502 | BRK/ADM - 00250 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - ROF | 4,515 | 0 | 4,515 | 5,170 | 884 | 0 | -215 | 5,839 | 1,324 | 1 29 | 13 3 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - ROF | 623 | 0 | 623 | 713 | 122 | 0 | -30 | 805 | 183 | 1 29 | 13 3 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 197 | BRK/ADM - 00251 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-197 | BRK/ADM - 00251 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - ROF | 2,491 | 0 | 2,491 | 2,853 | 488 | 0 | 119 | 3,221 | 730 | 1 29 | 13 3 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - ROF | 4,515 | 0 | 4,515 | 5,170 | 884 | 0 | -215 | 5,839 | 1,324 | 1 29 | 13 3 |
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-512 | BRK/ADM - 00251 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR 512 | BRK/ADM - 00251 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - ROF | 623 | 0 | 623 | 713 | 122 | 0 | 30 | 805 | 183 | 1 29 | 13 3 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - ROF | 2,491 | 0 | 2,491 | 2,853 | 488 | 0 | 119 | 3,221 | 730 | 1 29 | 13 3 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-517 | BRK/ADM - 00252 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | 7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR 517 | BRK/ADM - 00252 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - ROF | 4,515 | 0 | 4,515 | 5,170 | 884 | 0 | -215 | 5,839 | 1,324 | 1 29 | 13 3 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - ROF | 156 | 0 | 156 | 178 | 30 | 0 | -7 | 201 | 46 | 1 29 | 13 3 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - ROF | 623 | 0 | 623 | 713 | 122 | 0 | -30 | 805 | 183 | 1 29 | 13 3 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR 202 | BRK/ADM - 00261 | EVAP | EEM - ROF | 186 | 0 | 186 | 451 | 230 | 0 | 10 | 672 | 486 | 3 62 | 4 8 |
| Motors | MTR-202 | BRK/ADM - 00261 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | -74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - ROF | 9,784 | 0 | 9,784 | 6,781 | 6,906 | 0 | 0 | 13,687 | 3,903 | 1 40 | 12 3 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | -6,014 | 22,467 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - ROF | 146 | 0 | 146 | 112 | 114 | 0 | -4 | 223 | 76 | 1 52 | 11 3 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - RI | 187 | 0 | 187 | 197 | 200 | 0 | -73 | 324 | 137 | 1 73 | 9 9 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-67 | BRK/ADM - 00262 | COOL | EEM - ROF | 9,784 | 0 | 9,784 | 6,781 | 6,906 | 0 | 0 | 13,687 | 3,903 | 1 40 | 12 3 |
| Motors | MTR 67 | BRK/ADM - 00262 | COOL | EEM - RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - ROF | 138 | 0 | 138 | 96 | 97 | 0 | 0 | 193 | 55 | 1 40 | 12 3 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1 69 | 10 2 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-206 | BRK/ADM - 00264 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR 206 | BRK/ADM - 00264 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - ROF | 138 | 0 | 138 | 96 | 97 | 0 | 0 | 193 | 55 | 1 40 | 12 3 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1 69 | 10 2 |
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - ROF | 9,784 | 0 | 9,784 | 6,781 | 6,906 | 0 | 0 | 13,687 | 3,903 | 1 40 | 12 3 |
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | -6,014 | 22,467 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - ROF | 9,784 | 0 | 9,784 | 6,781 | 6,906 | 0 | 0 | 13,687 | 3,903 | 1 40 | 12 3 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - ROF | 138 | 0 | 138 | 96 | 97 | 0 | 0 | 193 | 55 | 1 40 | 12 3 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1 69 | 10 2 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR-210 | BRK/ADM - 00267 | EVAP | EEM - ROF | 164 | 0 | 164 | 333 | 169 | 0 | 0 | 502 | 338 | 3 05 | 5 6 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 210 | BRK/ADM - 00267 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | -101 | 954 | 747 | 4 61 | 3 7 |
| Motors | MTR 73 | BRK/ADM - 00267 | COOL | EEM - ROF | 9,784 | 0 | 9,784 | 6,781 | 6,906 | 0 | 0 | 13,687 | 3,903 | 1 40 | 12 3 |
| Motors | MTR-73 | BRK/ADM - 00267 | COOL | EEM - RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - ROF | 138 | 0 | 138 | 96 | 97 | 0 | 0 | 193 | 55 | 1 40 | 12 3 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 516 | 329 | 1 69 | 10 2 |
| Motors | MTR 432a | BRK/ADM - 00273 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 295 | 185 | 0 | 16 | 464 | 69 | 1 18 | 14 7 |
| Motors | MTR-432a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 489 | 35 | 454 | 525 | 329 | 0 | -178 | 676 | 222 | 1 49 | 11 6 |
| Motors | MTR-432b | BRK/ADM - 00273 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 3,379 | 73 | 110 | 1,000 | 2,196 | 5,009 | 0 30 | 56 5 |
| Motors | MTR-432b | BRK/ADM - 00273 | Fan Motor | VSD to Std - RI | 8,922 | 50 | 8,872 | 5,324 | 73 | 172 | 3,838 | 1,240 | 7,631 | 0 14 | 123 2 |
| Motors | MTR-432o | BRK/ADM - 00273 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 3,499 | 185 | 110 | 1,000 | 2,575 | 4,740 | 0 35 | 48 9 |
| Motors | MTR-432o | BRK/ADM - 00273 | Fan Motor | VSD & EEM - RI | 9,057 | 81 | 8,976 | 5,510 | 329 | 172 | 3,838 | 1,829 | 7,147 | 0 20 | 84 5 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 295 | 185 | 0 | 16 | 464 | 69 | 1 18 | 14 7 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 489 | 35 | 454 | 525 | 329 | 0 | 178 | 676 | 222 | 1 49 | 11 6 |
| Motors | MTR-433b | BRK/ADM - 00273 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 3,379 | 73 | 110 | 1,000 | 2,196 | 5,009 | 0 30 | 56 5 |
| Motors | MTR-433b | BRK/ADM - 00273 | Fan Motor | VSD to Std - RI | 8,922 | 50 | 8,872 | 5,324 | 73 | 172 | 3,838 | 1,240 | 7,631 | 0 14 | 123 2 |
| Motors | MTR-433o | BRK/ADM - 00273 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 3,499 | 185 | 110 | 1,000 | 2,575 | 4,740 | 0 35 | 48 9 |
| Motors | MTR-433o | BRK/ADM - 00273 | Fan Motor | VSD & EEM - RI | 9,057 | 81 | 8,976 | 5,510 | 329 | 172 | 3,838 | 1,829 | 7,147 | 0 20 | 84 5 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - ROF | 965 | 0 | 965 | 669 | 681 | 0 | 0 | 1,349 | 385 | 1 40 | 12 3 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - RI | 1,309 | 0 | 1,309 | 1,391 | 1,417 | 0 | 593 | 2,215 | 906 | 1 69 | 10 2 |
| Motors | MTR 76 | BRK/ADM - 00273 | COOL | EEM - ROF | 293 | 0 | 293 | 224 | 228 | 0 | -7 | 445 | 152 | 1 52 | 11 3 |
| Motors | MTR-76 | BRK/ADM - 00273 | COOL | EEM - RI | 374 | 0 | 374 | 394 | 401 | 0 | 147 | 648 | 274 | 1 73 | 9 9 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - ROF | 10,986 | 0 | 10,986 | 8,407 | 8,562 | 0 | -270 | 16,699 | 5,713 | 1 52 | 11 3 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,761 | 15,033 | 0 | 5,502 | 24,292 | 10,267 | 1 73 | 9 9 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 588 | 0 | 588 | 264 | 269 | 0 | -13 | 520 | 68 | 0 89 | 19 5 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 728 | 60 | 668 | 486 | 495 | 0 | 254 | 727 | 59 | 1 09 | 15 8 |
| Motors | PMTR-12b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 5,428 | 0 | 5,428 | 4,057 | 137 | 110 | 667 | 3,143 | 2,283 | 0 58 | 29 7 |
| Motors | PMTR-12b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 6,721 | 60 | 6,661 | 6,388 | 137 | 172 | -2,688 | 3,391 | 3,269 | 0 51 | 33 8 |
| Motors | PMTR-12o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 5,514 | 0 | 5,514 | 4,173 | 269 | 110 | 667 | 3,665 | 1,849 | 0 66 | 25 9 |
| Motors | PMTR-12o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 6,828 | 116 | 6,712 | 6,569 | 495 | 172 | 2,688 | 4,204 | 2,508 | 0 63 | 27 5 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 588 | 0 | 588 | 297 | 303 | 0 | -13 | 587 | 1 | 1 00 | 17 2 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 728 | 60 | 668 | 539 | 549 | 0 | 254 | 833 | 165 | 1 25 | 13 8 |
| Motors | PMTR-13b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 5,428 | 0 | 5,428 | 4,080 | 139 | 110 | 667 | 3,164 | 2,264 | 0 58 | 29 5 |
| Motors | PMTR-13b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 6,721 | 61 | 6,660 | 6,425 | 139 | 172 | -2,688 | 3,426 | 3,234 | 0 51 | 33 5 |
| Motors | PMTR-13o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 5,514 | 0 | 5,514 | 4,206 | 303 | 110 | 667 | 3,732 | 1,782 | 0 68 | 25 4 |
| Motors | PMTR 13o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 6,828 | 116 | 6,712 | 6,621 | 549 | 172 | -2,688 | 4,310 | 2,402 | 0 64 | 26 8 |
| Motors | PMTR-15a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 552 | 562 | 0 | -19 | 1,095 | 169 | 1 18 | 14 6 |
| Motors | PMTR-15a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 1,006 | 1,024 | 0 | 399 | 1,631 | 574 | 1 54 | 11 2 |
| Motors | PMTR-15b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 3,118 | 0 | 3,118 | 8,023 | -269 | -110 | -228 | 7,416 | 4,298 | 2 38 | 7 2 |
| Motors | PMTR-15b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 3,861 | 119 | 3,742 | 12,632 | 269 | -172 | 1,179 | 11,012 | 7,271 | 2 94 | 5 9 |
| Motors | PMTR-15o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 3,243 | 0 | 3,243 | 8,260 | 562 | -110 | -228 | 8,484 | 5,240 | 2 62 | 6 6 |
| Motors | PMTR-15o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 4,016 | 201 | 3,815 | 13,000 | 1,024 | -172 | -1,179 | 12,673 | 8,859 | 3 32 | 5 2 |
| Motors | PMTR-16a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 1,853 | 0 | 1,853 | 1,104 | 1,124 | 0 | 38 | 2,191 | 338 | 1 18 | 14 6 |
| Motors | PMTR-16a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 2,294 | 180 | 2,114 | 2,011 | 2,049 | 0 | -798 | 3,262 | 1,148 | 1 54 | 11 2 |
| Motors | PMTR-16b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 6,236 | 0 | 6,236 | 16,047 | -537 | -220 | -457 | 14,832 | 8,596 | 2 38 | 7 2 |
| Motors | PMTR-16b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 7,722 | 239 | 7,483 | 25,264 | 537 | -344 | -2,358 | 22,025 | 14,542 | 2 94 | 5 9 |
| Motors | PMTR-16o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 6,487 | 0 | 6,487 | 16,520 | 1,124 | -220 | -457 | 16,967 | 10,481 | 2 62 | 6 6 |
| Motors | PMTR-16o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 8,032 | 402 | 7,630 | 26,001 | 2,049 | -344 | 2,358 | 25,347 | 17,717 | 3 32 | 5 2 |
| Motors | PMTR-17a | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 1,853 | 0 | 1,853 | 1,104 | 1,124 | 0 | -38 | 2,191 | 338 | 1 18 | 14 6 |
| Motors | PMTR-17a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 2,294 | 180 | 2,114 | 2,011 | 2,049 | 0 | -798 | 3,262 | 1,148 | 1 54 | 11 2 |
| Motors | PMTR-17b | BRK/ADM - 00273 | PMPMTR | VSD to Std - ROF | 6,236 | 0 | 6,236 | 16,047 | 537 | 220 | -457 | 14,832 | 8,596 | 2 38 | 7 2 |
| Motors | PMTR-17b | BRK/ADM - 00273 | PMPMTR | VSD to Std - RI | 7,722 | 239 | 7,483 | 25,264 | 537 | -344 | -2,358 | 22,025 | 14,542 | 2 94 | 5 9 |
| Motors | PMTR-17o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - ROF | 6,487 | 0 | 6,487 | 16,520 | 1,124 | -220 | -457 | 16,967 | 10,481 | 2 62 | 6 6 |
| Motors | PMTR-17o | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 8,032 | 402 | 7,630 | 26,001 | 2,049 | -344 | -2,358 | 25,347 | 17,717 | 3 32 | 5 2 |
| Motors | PMTR-20 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 78 | 71 | 0 | -16 | 133 | 226 | 0 37 | 46 6 |
| Motors | PMTR-20 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 443 | 18 | 427 | 144 | 132 | 0 | 163 | 113 | 314 | 0 26 | 65 2 |
| Motors | PMTR-21 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 367 | 0 | 367 | 52 | 47 | 0 | -21 | 78 | -289 | 0 21 | 80 6 |
| Motors | PMTR-21 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 455 | 14 | 441 | 96 | 88 | 0 | -171 | 13 | -428 | 0 03 | 605 2 |
| Motors | PMTR-23 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 78 | 71 | 0 | -16 | 133 | 226 | 0 37 | 46 6 |
| Motors | PMTR-23 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 443 | 18 | 427 | 144 | 132 | 0 | -163 | 113 | 314 | 0 26 | 65 2 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 82 | 292 | 0 | -6 | 367 | 200 | 2 20 | 7 8 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 207 | 15 | 192 | 133 | 385 | 0 | -75 | 443 | 251 | 2 31 | 7 5 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 82 | 148 | 0 | -6 | 224 | 56 | 1 34 | 12 9 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 207 | 15 | 192 | 133 | 242 | 0 | -75 | 299 | 107 | 1 56 | 11 0 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - ROF | 360 | 0 | 360 | 234 | 146 | 0 | 0 | 380 | 20 | 1 05 | 16 3 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 489 | 35 | 454 | 550 | 344 | 0 | -222 | 672 | 218 | 1 48 | 11 6 |
| Motors | MTR-434b | BRK/ADM - 00275 | Fan Motor | VSD to Std - ROF | 6,575 | 0 | 6,575 | 2,672 | 58 | -87 | 0 | 2,526 | 4,048 | 0 38 | 44 8 |
| Motors | MTR-434b | BRK/ADM - 00275 | Fan Motor | VSD to Std - RI | 8,922 | 50 | 8,872 | 5,349 | 58 | -172 | -3,881 | 1,237 | -7,634 | 0 14 | 123 5 |
| Motors | MTR-434o | BRK/ADM - 00275 | Fan Motor | VSD & EEM - ROF | 6,674 | 0 | 6,674 | 2,766 | 146 | -87 | 0 | 2,825 | 3,849 | 0 42 | 40 7 |
| Motors | MTR-434o | BRK/ADM - 00275 | Fan Motor | VSD & EEM - RI | 9,057 | 81 | 8,976 | 5,535 | 344 | -172 | 3,881 | 1,826 | 7,150 | 0 20 | 84 6 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - ROF | 360 | 0 | 360 | 234 | 146 | 0 | 0 | 380 | 20 | 1 05 | 16 3 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 489 | 35 | 454 | 550 | 344 | 0 | 222 | 672 | 218 | 1 48 | 11 6 |
| Motors | MTR-435b | BRK/ADM - 00275 | Fan Motor | VSD to Std - ROF | 6,575 | 0 | 6,575 | 2,672 | 58 | -87 | 0 | 2,526 | 4,048 | 0 38 | 44 8 |
| Motors | MTR-435b | BRK/ADM - 00275 | Fan Motor | VSD to Std - RI | 8,922 | 50 | 8,872 | 5,349 | 58 | 172 | -3,881 | 1,237 | 7,634 | 0 14 | 123 5 |
| Motors | MTR-435o | BRK/ADM - 00275 | Fan Motor | VSD & EEM - ROF | 6,674 | 0 | 6,674 | 2,766 | 146 | 87 | 0 | 2,825 | 3,849 | 0 42 | 40 7 |
| Motors | MTR-435o | BRK/ADM - 00275 | Fan Motor | VSD & EEM - RI | 9,057 | 81 | 8,976 | 5,535 | 344 | -172 | 3,881 | 1,826 | 7,150 | 0 20 | 84 6 |
| Motors | MTR-78 | BRK/ADM - 00275 | COOL | EEM - ROF | 10,986 | 0 | 10,986 | 8,407 | 8,562 | 0 | 270 | 16,699 | 5,713 | 1 52 | 11 3 |
| Motors | MTR 78 | BRK/ADM 00275 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,761 | 15,033 | 0 | 5,502 | 24,292 | 10,267 | 1 73 | 9 9 |
| Motors | MTR 79 | BRK/ADM 00275 | COOL | EEM - ROF | 1,025 | 0 | 1,025 | 785 | 799 | 0 | -25 | 1,559 | 533 | 1 52 | 11 3 |
| Motors | MTR 79 | BRK/ADM 00275 | COOL | EEM - RI | 1,309 | 0 | 1,309 | 1,378 | 1,403 | 0 | -514 | 2,267 | 958 | 1 73 | 9 9 |
| Motors | MTR 80 | BRK/ADM - 00275 | COOL | EEM - ROF | 293 | 0 | 293 | 224 | 228 | 0 | 7 | 445 | 152 | 1 52 | 11 3 |
| Motors | MTR 80 | BRK/ADM 00275 | COOL | EEM - RI | 374 | 0 | 374 | 394 | 401 | 0 | 147 | 648 | 274 | 1 73 | 9 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 211 | BRK/ADM - 00412 | EVAP | EEM ROF | 3,615 | 0 | 3,615 | 7,316 | 3,726 | 0 | 0 | 11,042 | 7,427 | 3 05 | 5 6 |
| Motors | MTR-211 | BRK/ADM - 00412 | EVAP | EEM - RI | 4,906 | 332 | 4,554 | 15,379 | 7,832 | 0 | -2,222 | 20,989 | 16,435 | 4 61 | 3 7 |
| Motors | MTR 212 | BRK/ADM 00413 | EVAP | EEM ROF | 720 | 0 | 720 | 1,683 | 857 | 0 | -29 | 2,511 | 1,791 | 3 49 | 4 9 |
| Motors | MTR 212 | BRK/ADM - 00413 | EVAP | EEM - RI | 892 | 64 | 828 | 2,748 | 1,399 | 0 | -324 | 3,823 | 2,995 | 4 62 | 3 7 |
| Motors | MTR-213 | BRK/ADM - 00414 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | 818 | 0 43 | 39 9 |
| Motors | MTR 213 | BRK/ADM - 00414 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | 653 | 614 | 1,094 | 0.36 | 47 9 |
| Motors | MTR 214 | BRK/ADM - 00416 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-214 | BRK/ADM - 00416 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-215 | BRK/ADM - 00417 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | -818 | 0 43 | 39 9 |
| Motors | MTR-215 | BRK/ADM - 00417 | EVAP | EEM RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | -653 | 614 | 1,094 | 0.36 | 47 9 |
| Motors | MTR-216 | BRK/ADM 00418 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | 818 | 0 43 | 39 9 |
| Motors | MTR-216 | BRK/ADM - 00418 | EVAP | EEM RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | 653 | 614 | 1,094 | 0.36 | 47 9 |
| Motors | MTR-217 | BRK/ADM - 00419 | EVAP | EEM ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | -818 | 0 43 | 39 9 |
| Motors | MTR-217 | BRK/ADM - 00419 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | 653 | 614 | 1,094 | 0.36 | 47 9 |
| Motors | MTR-218 | BRK/ADM - 00420 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | 818 | 0 43 | 39 9 |
| Motors | MTR-218 | BRK/ADM - 00420 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | -653 | 614 | 1,094 | 0.36 | 47 9 |
| Motors | MTR 219 | BRK/ADM - 00421 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | 818 | 0 43 | 39 9 |
| Motors | MTR-219 | BRK/ADM 00421 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | 653 | 614 | 1,094 | 0 36 | 47 9 |
| Motors | MTR-220 | BRK/ADM - 00422 | EVAP | EEM ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | 818 | 0 43 | 39.9 |
| Motors | MTR-220 | BRK/ADM - 00422 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | 653 | 614 | -1,094 | 0 36 | 47 9 |
| Motors | MTR-221 | BRK/ADM - 00423 | EVAP | EEM - ROF | 1,438 | 0 | 1,438 | 453 | 231 | 0 | -63 | 620 | -818 | 0 43 | 39 9 |
| Motors | MTR-221 | BRK/ADM 00423 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 840 | 428 | 0 | -653 | 614 | 1,094 | 0 36 | 47 9 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3.7 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-225 | BRK/ADM 00487 | EVAP | EEM ROF | 359 | 0 | 359 | 113 | 58 | 0 | -16 | 155 | -204 | 0 43 | 39 9 |
| Motors | MTR-225 | BRK/ADM 00487 | EVAP | EEM - RI | 445 | 18 | 427 | 210 | 107 | 0 | -163 | 154 | 273 | 0 36 | 47.9 |
| Motors | MTR-226 | BRK/ADM 00489 | EVAP | EEM - ROF | 338 | 0 | 338 | 97 | 49 | 0 | -5 | 141 | 197 | 0.42 | 41.1 |
| Motors | MTR-226 | BRK/ADM 00489 | EVAP | EEM RI | 445 | 18 | 427 | 219 | 111 | 0 | -189 | 141 | 286 | 0 33 | 52.3 |
| Motors | MTR-227 | BRK/ADM - 00491 | EVAP | EEM ROF | 338 | 0 | 338 | 97 | 49 | 0 | -5 | 141 | -197 | 0 42 | 41.1 |
| Motors | MTR 227 | BRK/ADM - 00491 | EVAP | EEM - RI | 445 | 18 | 427 | 219 | 111 | 0 | -189 | 141 | -286 | 0 33 | 52.3 |
| Motors | MTR-228 | BRK/ADM - 00493 | EVAP | EEM - ROF | 338 | 0 | 338 | 97 | 49 | 0 | -5 | 141 | -197 | 0 42 | 41.1 |
| Motors | MTR-228 | BRK/ADM - 00493 | EVAP | EEM - RI | 445 | 18 | 427 | 219 | 111 | 0 | -189 | 141 | -286 | 0.33 | 52 3 |
| Motors | MTR-229 | BRK/ADM - 00494 | EVAP | EEM - ROF | 338 | 0 | 338 | 97 | 49 | 0 | -5 | 141 | -197 | 0 42 | 41.1 |
| Motors | MTR-229 | BRK/ADM - 00494 | EVAP | EEM - RI | 445 | 18 | 427 | 219 | 111 | 0 | -189 | 141 | -286 | 0.33 | 52 3 |
| Motors | PMTR-22 | BRK/ADM - 00494 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 78 | 71 | 0 | -16 | 133 | -226 | 0.37 | 46 6 |
| Motors | PMTR-22 | BRK/ADM - 00494 | PMPMTR | EEM - RI | 445 | 18 | 427 | 144 | 132 | 0 | -163 | 113 | -314 | 0 26 | 65 2 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - ROF | 847 | 0 | 847 | 1,805 | 919 | 0 | -12 | 2,713 | 1,866 | 3 20 | 5.4 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - RI | 1,115 | 80 | 1,035 | 3,476 | 1,770 | 0 | -473 | 4,773 | 3,738 | 4 61 | 3 7 |
| Motors | MTR-231 | BRK/ADM 00512 | EVAP | EEM ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR 231 | BRK/ADM - 00512 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3.7 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4.9 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3.49 | 4 9 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 235 | BRK/ADM - 00519 | EVAP | EEM - ROF | 359 | 0 | 359 | 113 | 58 | 0 | -16 | 155 | -204 | 0 43 | 39.9 |
| Motors | MTR-235 | BRK/ADM - 00519 | EVAP | EEM - RI | 445 | 18 | 427 | 210 | 107 | 0 | -163 | 154 | -273 | 0 36 | 47 9 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - ROF | 1,017 | 0 | 1,017 | 2,166 | 1,103 | 0 | -14 | 3,256 | 2,239 | 3 20 | 5.4 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,171 | 2,124 | 0 | -567 | 5,727 | 4,485 | 4 61 | 3.7 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - ROF | 1,091 | 0 | 1,091 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3.49 | 4 9 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4.62 | 3.7 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 2,524 | 1,285 | 0 | -43 | 3,766 | 2,686 | 3 49 | 4 9 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | -486 | 5,734 | 4,492 | 4 62 | 3.7 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-241 | CHAPEL - 00212 | EVAP | EEM - ROF | 719 | 0 | 719 | 171 | 115 | 0 | -32 | 254 | -464 | 0 35 | 48 6 |
| Motors | MTR-241 | CHAPEL - 00212 | EVAP | EEM - RI | 890 | 36 | 854 | 317 | 214 | 0 | -326 | 204 | -650 | 0 24 | 72 0 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-243 | CHAPEL - 00315 | EVAP | EEM - ROF | 417 | 0 | 417 | 117 | 79 | 0 | -23 | 172 | -245 | 0 41 | 41.7 |
| Motors | MTR-243 | CHAPEL - 00315 | EVAP | EEM - RI | 516 | 29 | 496 | 215 | 145 | 0 | -194 | 167 | 329 | 0 34 | 51.3 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EEM - ROF | 1,396 | 0 | 1,396 | 1,029 | 1,106 | 0 | -64 | 2,071 | 675 | 1 48 | 11 6 |
| Motors | MTR-2 | CLINIC 00171 | AIRCOMP | EEM - RI | 1,728 | 140 | 1,588 | 1,840 | 1,978 | 0 | -637 | 5,181 | 1,593 | 2 00 | 8 6 |
| Motors | MTR-3 | CLINIC - 00171 | AIRCOMP | EEM - ROF | 735 | 0 | 735 | 224 | 241 | 0 | -41 | 423 | 312 | 0.58 | 29 9 |
| Motors | MTR-3 | CLINIC - 00171 | AIRCOMP | EEM - RI | 910 | 28 | 882 | 379 | 407 | 0 | -343 | 443 | -439 | 0 50 | 34 3 |
| Motors | MTR-40a | CLINIC - 00171 | CONDMTR | EEM - ROF | 2,156 | 0 | 2,156 | 458 | 426 | 0 | -95 | 788 | -1,368 | 0 37 | 47.1 |
| Motors | MTR-40a | CLINIC - 00171 | CONDMTR | EEM - RI | 2,670 | 108 | 2,562 | 849 | 790 | 0 | -979 | 659 | -1,903 | 0 26 | 66 9 |
| Motors | MTR-40b | CLINIC 00171 | CONDMTR | VSD to Std - ROF | 7,462 | 0 | 7,462 | 4,826 | -229 | -661 | -664 | 3,272 | -4,190 | 0 44 | 39 3 |
| Motors | MTR-40b | CLINIC 00171 | CONDMTR | VSD to Std - RI | 9,240 | 212 | 9,028 | 7,646 | -229 | -1,033 | -3,099 | 3,285 | -5,743 | 0 36 | 47 3 |
| Motors | MTR-40c | CLINIC - 00171 | CONDMTR | VSD & EEM ROF | 8,092 | 0 | 8,092 | 5,177 | 426 | -661 | 664 | 4,278 | -3,814 | 0 53 | 32 6 |
| Motors | MTR-40c | CLINIC - 00171 | CONDMTR | VSD & EEM RI | 10,020 | 305 | 9,715 | 8,194 | 790 | -1,033 | -3,099 | 4,851 | -4,864 | 0 50 | 34 5 |
| Motors | MTR-436a | CLINIC 00171 | Fan Motor | EEM ROF | 588 | 0 | 588 | 705 | 331 | 0 | -13 | 1,023 | 435 | 1 74 | 9 9 |
| Motors | MTR-436a | CLINIC - 00171 | Fan Motor | EEM - RI | 728 | 60 | 668 | 1,298 | 610 | 0 | 254 | 1,653 | 985 | 2 47 | 7 0 |
| Motors | MTR-436b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 16,330 | 0 | 16,330 | 10,827 | -169 | -110 | 2,310 | 8,238 | 8,092 | 0 50 | 34 1 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-436b | CLINIC - 00171 | Fan Motor | VSD to Std RI | 20,221 | 164 | 20,057 | 17,049 | 169 | 172 | 8,913 | 7,904 | 12,153 | 0 19 | 43 7 |
| Motors | MTR-436o | CLINIC - 00171 | Fan Motor | VSD & EEM ROF | 16,417 | 0 | 16,417 | 11,136 | 331 | 110 | 2,310 | 9,047 | 7,369 | 0 55 | 31 2 |
| Motors | MTR-436o | CLINIC - 00171 | Fan Motor | VSD & EEM RI | 20,328 | 213 | 20,115 | 17,529 | 610 | 172 | 8,913 | 9,164 | 10,951 | 0 46 | 37 8 |
| Motors | MTR-437a | CLINIC 00171 | Fan Motor | EEM ROF | 926 | 0 | 926 | 2,503 | 1,176 | 0 | 19 | 3,662 | 2,736 | 3 95 | 4 4 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM RI | 1,147 | 90 | 1,057 | 4,316 | 2,027 | 0 | 399 | 5,945 | 4,888 | 5.62 | 3 1 |
| Motors | MTR-437b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 32,110 | 0 | 32,110 | 22,130 | 354 | 110 | 4,597 | 17,069 | 15,042 | 0 53 | 32 4 |
| Motors | MTR-437b | CLINIC - 00171 | Fan Motor | VSD to Std - RI | 39,761 | 335 | 39,426 | 34,856 | 354 | 172 | 17,441 | 16,889 | 22,537 | 0 43 | 40 2 |
| Motors | MTR-437o | CLINIC - 00171 | Fan Motor | VSD & EEM ROF | 32,236 | 0 | 32,236 | 23,074 | 1,176 | 110 | 4,597 | 19,543 | 12,692 | 0 61 | 28 4 |
| Motors | MTR-437o | CLINIC - 00171 | Fan Motor | VSD & EEM RI | 39,916 | 391 | 39,525 | 36,326 | 2,027 | 172 | 17,441 | 20,740 | 18,784 | 0 52 | 32 8 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM ROF | 1,449 | 0 | 1,449 | 1,626 | 764 | 0 | 38 | 2,351 | 902 | 1 62 | 10 6 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM RI | 1,794 | 135 | 1,659 | 3,147 | 1,478 | 0 | 632 | 3,992 | 2,333 | 2 41 | 7 2 |
| Motors | MTR-438b | CLINIC - 00171 | Fan Motor | VSD to Std - ROF | 53,222 | 0 | 53,222 | 34,715 | 521 | 110 | 7,659 | 26,425 | 26,797 | 0 50 | 34 7 |
| Motors | MTR-438b | CLINIC - 00171 | Fan Motor | VSD to Std - RI | 65,902 | 525 | 65,377 | 54,638 | 521 | 172 | 29,xxx | 24,945 | -40,433 | 0 38 | 45 1 |
| Motors | MTR-438o | CLINIC - 00171 | Fan Motor | VSD & EEM - ROF | 53,474 | 0 | 53,474 | 35,508 | 764 | 110 | 7,659 | 28,502 | 24,971 | 0 53 | 32 9 |
| Motors | MTR-438o | CLINIC - 00171 | Fan Motor | VSD & EEM - RI | 66,214 | 631 | 65,583 | 55,872 | 1,478 | 172 | 29,xxx | 28,178 | 17,405 | 0 43 | 40 1 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM ROF | 151 | 0 | 151 | 91 | 123 | 0 | 5 | 219 | 58 | 1 38 | 12 5 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM RI | 187 | 0 | 187 | 148 | 199 | 0 | 67 | 280 | 93 | 1 50 | 11 5 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM ROF | 1,853 | 0 | 1,853 | 1,666 | 1,384 | 0 | 38 | 3,012 | 1,160 | 1 63 | 10 6 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM RI | 2,294 | 180 | 2,114 | 3,036 | 2,521 | 0 | 798 | 4,759 | 2,645 | 2 25 | 7 6 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM ROF | 1,853 | 0 | 1,853 | 1,666 | 1,384 | 0 | 38 | 3,012 | 1,160 | 1 63 | 10 6 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM - RI | 2,294 | 180 | 2,114 | 3,036 | 2,521 | 0 | 798 | 4,759 | 2,645 | 2 25 | 7 6 |
| Motors | MTR-244 | CLINIC - 00235 | EVAP | EEM ROF | 1,006 | 0 | 1,006 | 135 | 91 | 0 | 0 | 226 | 780 | 0 22 | 76 6 |
| Motors | MTR-244 | CLINIC - 00235 | EVAP | EEM - RI | 1,365 | 42 | 1,323 | 336 | 227 | 0 | 618 | 55 | 1,378 | 0 04 | NA |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM ROF | 395 | 0 | 395 | 778 | 525 | 0 | 30 | 1,273 | 878 | 3 23 | 5 3 |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3 83 | 4 5 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | 15 | 637 | 439 | 3 23 | 5 3 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM RI | 223 | 16 | 207 | 508 | 343 | 0 | 19 | 792 | 585 | 3 83 | 4 5 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - ROF | 349 | 0 | 349 | 781 | 398 | 0 | 9 | 1,169 | 819 | 3 35 | 5 1 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - RI | 446 | 32 | 414 | 1,382 | 704 | 0 | 176 | 1,910 | 1,496 | 4 61 | 3 7 |
| Motors | MTR-249 | CLUB - 00037 | EVAP | EEM - ROF | 359 | 0 | 359 | 113 | 58 | 0 | 16 | 155 | -204 | 0 43 | 39 9 |
| Motors | MTR-249 | CLUB - 00037 | EVAP | EEM RI | 445 | 18 | 427 | 210 | 107 | 0 | 163 | 154 | -273 | 0 36 | 47 9 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - ROF | 151 | 0 | 151 | 296 | 151 | 0 | 5 | 442 | 291 | 2.92 | 5 9 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - RI | 187 | 0 | 187 | 479 | 245 | 0 | 67 | 657 | 470 | 3 51 | 4 9 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,183 | 606 | 0 | 22 | 1,766 | 1,162 | 2 92 | 5 9 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM RI | 748 | 0 | 748 | 1,917 | 982 | 0 | 270 | 2,629 | 1,881 | 3 51 | 4 9 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - ROF | 302 | 0 | 302 | 591 | 303 | 0 | 11 | 883 | 581 | 2 92 | 5 9 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - RI | 374 | 0 | 374 | 958 | 491 | 0 | 135 | 1,314 | 940 | 3 51 | 4 9 |
| Motors | MTR-17 | CLUB 00202 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,183 | 606 | 0 | 22 | 1,766 | 1,162 | 2 92 | 5 9 |
| Motors | MTR-17 | CLUB - 00202 | COMPMTR | EEM RI | 748 | 0 | 748 | 1,917 | 982 | 0 | 270 | 2,629 | 1,881 | 3 51 | 4 9 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - ROF | 180 | 0 | 180 | 421 | 214 | 0 | 7 | 628 | 448 | 3 49 | 4 9 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - RI | 223 | 16 | 207 | 687 | 350 | 0 | 81 | 956 | 749 | 4 62 | 3.7 |
| Motors | MTR-251 | CLUB - 00202 | EVAP | EEM - ROF | 2,205 | 0 | 2,205 | 453 | 231 | 0 | 124 | 559 | -1,646 | 0 25 | 67 9 |
| Motors | MTR-251 | CLUB - 00202 | EVAP | EEM RI | 2,730 | 84 | 2,646 | 840 | 428 | 0 | 1,029 | 239 | 2,407 | 0.09 | 190 7 |
| Motors | MTR-252 | CLUB - 00202 | EVAP | EEM - ROF | 367 | 0 | 367 | 75 | 38 | 0 | 21 | 93 | 274 | 0 25 | 67.9 |
| Motors | MTR-252 | CLUB - 00202 | EVAP | EEM RI | 455 | 14 | 441 | 140 | 71 | 0 | 171 | 40 | -401 | 0.09 | 190 7 |
| Motors | MTR-41 | CLUB - 00202 | CONDMTR | EEM ROF | 719 | 0 | 719 | 274 | 142 | 0 | 32 | 384 | 335 | 0 53 | 32 2 |
| Motors | MTR-41 | CLUB - 00202 | CONDMTR | EEM RI | 890 | 36 | 854 | 508 | 263 | 0 | 326 | 445 | -409 | 0 52 | 33 1 |
| Motors | MTR-42 | CLUB - 00202 | CONDMTR | EEM - ROF | 151 | 0 | 151 | 292 | 151 | 0 | 5 | 438 | 287 | 2.90 | 5 9 |
| Motors | MTR-42 | CLUB 00202 | CONDMTR | EEM - RI | 187 | 0 | 187 | 474 | 245 | 0 | 67 | 652 | 465 | 3 49 | 4 9 |
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM - ROF | 151 | 0 | 151 | 121 | 123 | 0 | 5 | 238 | 87 | 1 58 | 10.9 |
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM RI | 187 | 0 | 187 | 196 | 199 | 0 | 67 | 328 | 141 | 1 75 | 9.8 |
| Motors | MTR-253 | DGR - 00308 | EVAP | EEM ROF | 1,438 | 0 | 1,438 | 342 | 231 | 0 | 63 | 509 | 929 | 0 35 | 48 6 |
| Motors | MTR-253 | DGR - 00308 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 634 | 428 | 0 | -653 | 408 | -1,300 | 0 24 | 72 0 |
| Motors | MTR-254 | DGR - 00308 | EVAP | EEM - ROF | 383 | 0 | 383 | 729 | 492 | 0 | 25 | 1,196 | 813 | 3 12 | 5 5 |
| Motors | MTR-254 | DGR - 00308 | EVAP | EEM RI | 446 | 32 | 414 | 1,024 | 691 | 0 | -133 | 1,581 | 1,167 | 3 82 | 4 5 |
| Motors | MTR-4 | DGR - 00308 | AIRCOMP | EEM - ROF | 367 | 0 | 367 | 44 | 47 | 0 | 21 | 71 | 297 | 0.19 | 89 6 |
| Motors | MTR-4 | DGR - 00308 | AIRCOMP | EEM RI | 455 | 14 | 441 | 82 | 88 | 0 | 171 | 2 | -443 | 0.00 | NA |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM - ROF | 540 | 0 | 540 | 1,684 | 791 | 0 | 22 | 2,453 | 1,913 | 4 54 | 3 8 |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM RI | 669 | 48 | 621 | 2,750 | 1,292 | 0 | 243 | 3,798 | 3,177 | 6.12 | 2 8 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - ROF | 446 | 32 | 414 | 1,647 | 774 | 0 | 53 | 2,367 | 1,953 | 5.72 | 3 0 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - RI | 446 | 32 | 414 | 1,761 | 827 | 0 | -53 | 2,534 | 2,120 | 6 12 | 2 8 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - ROF | 167 | 0 | 167 | 482 | 226 | 0 | -6 | 701 | 534 | 4.19 | 4 1 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - ROF | 420 | 0 | 420 | 453 | 213 | 0 | -28 | 637 | 217 | 1.52 | 11 4 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - RI | 489 | 35 | 454 | 677 | 318 | 0 | 147 | 848 | 394 | 1 87 | 9 2 |
| Motors | MTR-522b | DGR - 00308 | VENTLTR | VSD to Std ROF | 7,659 | 0 | 7,659 | 3,592 | 84 | 127 | -1,719 | 1,663 | 5,996 | 0 22 | 79 3 |
| Motors | MTR 522b | DGR - 00308 | VENTLTR | VSD to Std - RI | 8,922 | 83 | 8,839 | 4,934 | -84 | 172 | 3,807 | 870 | -7,969 | 0 10 | 175 0 |
| Motors | MTR 522o | DGR - 00308 | VENTLTR | VSD & EEM ROF | 7,775 | 0 | 7,775 | 3,908 | 213 | 127 | 1,719 | 2,276 | 5,499 | 0 29 | 58 8 |
| Motors | MTR-522o | DGR 00308 | VENTLTR | VSD & EEM - RI | 9,057 | 111 | 8,946 | 5,362 | 318 | 172 | 3,807 | 1,701 | -7,245 | 0 19 | 90 6 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM ROF | 433 | 0 | 433 | 483 | 227 | 0 | 34 | 676 | 243 | 1.56 | 11 0 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM - RI | 489 | 35 | 454 | 665 | 312 | 0 | 131 | 846 | 392 | 1 86 | 9 2 |
| Motors | MTR-523b | DGR - 00308 | VENTLTR | VSD to Std ROF | 7,896 | 0 | 7,896 | 3,835 | 90 | 135 | 2,095 | 1,515 | 6,382 | 0 19 | 89 8 |
| Motors | MTR-523b | DGR - 00308 | VENTLTR | VSD to Std - RI | 8,922 | 83 | 8,839 | 4,921 | 90 | 172 | 3,791 | 868 | -7,971 | 0 10 | 175 3 |
| Motors | MTR-523o | DGR - 00308 | VENTLTR | VSD & EEM ROF | 8,016 | 0 | 8,016 | 4,172 | 227 | 135 | 2,095 | 2,169 | -5,847 | 0 27 | 63 6 |
| Motors | MTR-523o | DGR - 00308 | VENTLTR | VSD & EEM RI | 9,057 | 111 | 8,946 | 5,350 | 312 | 172 | 3,791 | 1,699 | 7,247 | 0 19 | 90 7 |
| Motors | MTR-524a | DGR - 00308 | VENTLTR | EEM ROF | 474 | 0 | 474 | 628 | 295 | 0 | 21 | 902 | 428 | 1 90 | 9 0 |
| Motors | MTR-524a | DGR - 00308 | VENTLTR | EEM - RI | 552 | 40 | 512 | 954 | 448 | 0 | 156 | 1,247 | 735 | 2.44 | 7 1 |
| Motors | MTR-524b | DGR - 00308 | VENTLTR | VSD to Std ROF | 11,862 | 0 | 11,862 | 5,835 | 136 | 127 | 2,703 | 2,929 | 8,942 | 0 25 | 70 0 |
| Motors | MTR-524b | DGR - 00308 | VENTLTR | VSD to Std RI | 13,818 | 136 | 13,682 | 8,089 | 136 | 172 | 5,961 | 1,811 | 11,871 | 0 13 | 130 1 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 524o | DGR - 00308 | VENTLTR | VSD & EEM ROF | 11,949 | 0 | 11,949 | 6,343 | 295 | 127 | 2,703 | 3,869 | 8,140 | 0 32 | 54 0 |
| Motors | MTR 524o | DGR - 00308 | VENTLTR | VSD & EEM RI | 19,920 | 166 | 13,754 | 8,702 | 448 | 172 | 5,961 | 3,017 | 10,738 | 0 22 | 78 5 |
| Motors | MTR-525a | DGR - 00308 | VENTLTR | EEM - ROF | 382 | 0 | 382 | 173 | 81 | 0 | 27 | 228 | 154 | 0 60 | 28 9 |
| Motors | MTR-525a | DGR - 00308 | VENTLTR | EEM - RI | 445 | 18 | 427 | 268 | 126 | 0 | 136 | 258 | 169 | 0 61 | 28 5 |
| Motors | MTR-525b | DGR - 00308 | VENTLTR | VSD to Std - ROF | 4,327 | 0 | 4,327 | 1,828 | 44 | 127 | 923 | 735 | 3,592 | 0 17 | 101 4 |
| Motors | MTR-525b | DGR - 00308 | VENTLTR | VSD to Std - RI | 5,040 | 42 | 4,998 | 2,511 | 44 | 172 | 2,074 | 221 | 4,777 | 0 04 | 389 9 |
| Motors | MTR-525o | DGR - 00308 | VENTLTR | VSD & EEM ROF | 4,438 | 0 | 4,438 | 1,961 | 81 | 127 | 923 | 993 | 3,445 | 0 22 | 76 9 |
| Motors | MTR-525o | DGR - 00308 | VENTLTR | VSD & EEM RI | 5,170 | 57 | 5,113 | 2,692 | 126 | 172 | 2,074 | 571 | 4,542 | 0 11 | 154 2 |
| Motors | PMTR 29 | DGR - 00308 | PMPMTR | EEM - ROF | 446 | 0 | 446 | 275 | 228 | 0 | 12 | 491 | 45 | 1 10 | 15 6 |
| Motors | PMTR-29 | DGR - 00308 | PMPMTR | EEM - RI | 552 | 40 | 512 | 506 | 420 | 0 | 195 | 731 | 219 | 1 43 | 12 1 |
| Motors | MTR 255 | DGR - 00404 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-255 | DGR - 00404 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 256 | DGR - 00404 | EVAP | EEM - ROF | 191 | 0 | 191 | 364 | 246 | 0 | -12 | 598 | 407 | 3 12 | 5 5 |
| Motors | MTR 256 | DGR - 00404 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | -67 | 791 | 584 | 3 82 | 4 5 |
| Motors | MTR-257 | DGR - 00430 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 1,905 | 1,285 | 0 | -43 | 3,147 | 2,066 | 2 91 | 5 9 |
| Motors | MTR-257 | DGR - 00430 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | 486 | 4,723 | 3,481 | 3 80 | 4 5 |
| Motors | PMTR 28 | DGR - 00430 | PMPMTR | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | PMTR 28 | DGR - 00430 | PMPMTR | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 272 | 226 | 0 | -6 | 492 | 325 | 2 94 | 5 9 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - RI | 207 | 15 | 192 | 443 | 368 | 0 | 75 | 736 | 544 | 3 83 | 4 5 |
| Motors | MTR-258 | DGR - 00909 | EVAP | EEM - ROF | 216 | 16 | 201 | 467 | 315 | 0 | -24 | 758 | 557 | 3 77 | 4 6 |
| Motors | MTR-258 | DGR - 00909 | EVAP | EEM - RI | 223 | 16 | 207 | 498 | 336 | 0 | 35 | 798 | 591 | 3 86 | 4 5 |
| Motors | MTR-259 | DGR - 00909 | EVAP | EEM - ROF | 407 | 29 | 378 | 828 | 559 | 0 | 36 | 1,352 | 974 | 3 58 | 4 8 |
| Motors | MTR-259 | DGR - 00909 | EVAP | EEM - RI | 446 | 32 | 414 | 1,010 | 682 | 0 | 103 | 1,589 | 1,175 | 3 84 | 4 5 |
| Motors | MTR 83 | DINING - 00222 | COOL | EEM - ROF | 276 | 0 | 276 | 144 | 195 | 0 | 0 | 339 | 63 | 1 23 | 14 0 |
| Motors | MTR 83 | DINING - 00222 | COOL | EEM - RI | 374 | 0 | 374 | 300 | 405 | 0 | -169 | 535 | 161 | 1 43 | 12 0 |
| Motors | MTR-84 | DINING - 00222 | COOL | EEM - ROF | 276 | 0 | 276 | 144 | 195 | 0 | 0 | 339 | 63 | 1 23 | 14 0 |
| Motors | MTR 84 | DINING - 00222 | COOL | EEM - RI | 374 | 0 | 374 | 300 | 405 | 0 | -169 | 535 | 161 | 1 43 | 12 0 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - ROF | 186 | 0 | 186 | 341 | 230 | 0 | 10 | 561 | 375 | 3 02 | 5 7 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | 74 | 789 | 582 | 3 81 | 4 5 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - ROF | 186 | 0 | 186 | 341 | 230 | 0 | 10 | 561 | 375 | 3 02 | 5 7 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | 74 | 789 | 582 | 3 81 | 4 5 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - ROF | 1,003 | 0 | 1,003 | 2,889 | 1,357 | 0 | -39 | 4,207 | 3,204 | 4 19 | 4 1 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - RI | 1,242 | 90 | 1,152 | 4,701 | 2,208 | 0 | -450 | 6,460 | 5,308 | 5 61 | 3 1 |
| Motors | MTR-443a | DINING - 00254 | Fan Motor | EEM - ROF | 2,500 | 0 | 2,500 | 1,237 | 581 | 0 | 140 | 1,678 | 823 | 0 67 | 25 7 |
| Motors | MTR-443a | DINING - 00254 | Fan Motor | EEM - RI | 3,096 | 120 | 2,976 | 2,286 | 1,074 | 0 | -1,166 | 2,194 | 782 | 0 74 | 23 4 |
| Motors | MTR-443b | DINING - 00254 | Fan Motor | VSD to Std - ROF | 30,585 | 0 | 30,585 | 18,362 | 305 | -661 | -4,136 | 13,261 | 17,324 | 0 43 | 39 7 |
| Motors | MTR-443b | DINING - 00254 | Fan Motor | VSD to Std - RI | 37,872 | 278 | 37,594 | 28,935 | -305 | 1,033 | -16,038 | 11,559 | 26,035 | 0 31 | 56 0 |
| Motors | MTR-443o | DINING - 00254 | Fan Motor | VSD & EEM - ROF | 31,515 | 0 | 31,515 | 18,909 | 581 | -661 | -4,136 | 14,694 | 16,822 | 0 47 | 36 9 |
| Motors | MTR-443o | DINING - 00254 | Fan Motor | VSD & EEM - RI | 39,024 | 379 | 38,645 | 29,786 | 1,074 | -1,033 | -16,038 | 13,789 | 24,857 | 0 36 | 48 3 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - ROF | 1,580 | 0 | 1,580 | 1,577 | 741 | 0 | -66 | 2,252 | 672 | 1 43 | 12 1 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - RI | 1,956 | 140 | 1,816 | 2,802 | 1,316 | 0 | 714 | 3,404 | 1,588 | 1 87 | 9 2 |
| Motors | MTR-444b | DINING - 00254 | Fan Motor | VSD to Std - ROF | 28,821 | 0 | 28,821 | 18,037 | -294 | -441 | -3,998 | 13,305 | 15,517 | 0 46 | 37 3 |
| Motors | MTR-444b | DINING - 00254 | Fan Motor | VSD to Std - RI | 35,688 | 273 | 35,415 | 28,417 | -294 | -689 | -15,352 | 12,082 | 23,333 | 0 34 | 50 5 |
| Motors | MTR-444o | DINING - 00254 | Fan Motor | VSD & EEM - ROF | 29,257 | 0 | 29,257 | 18,676 | 741 | -441 | -3,998 | 14,978 | 14,279 | 0 51 | 33 6 |
| Motors | MTR-444o | DINING - 00254 | Fan Motor | VSD & EEM - RI | 36,228 | 390 | 35,838 | 29,411 | 1,316 | -689 | -15,352 | 14,686 | 21,151 | 0 41 | 42 0 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - ROF | 167 | 0 | 167 | 482 | 226 | 0 | -6 | 701 | 534 | 4 19 | 4 1 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - ROF | 180 | 0 | 180 | 561 | 264 | 0 | -7 | 818 | 638 | 4 54 | 3 8 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - RI | 223 | 16 | 207 | 917 | 431 | 0 | 81 | 1,266 | 1,059 | 6 12 | 2 8 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - ROF | 156 | 0 | 156 | 98 | 132 | 0 | -7 | 222 | 67 | 1 43 | 12 1 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - RI | 187 | 0 | 187 | 147 | 198 | 0 | -61 | 284 | 97 | 1 52 | 11 3 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 399 | 662 | 0 | -26 | 1,035 | 141 | 0 88 | 19 6 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 734 | 1,219 | 0 | 508 | 1,445 | 109 | 1 08 | 15 9 |
| Motors | PMTR-31b | DINING - 00254 | PMPMTR | VSD to Std - ROF | 10,856 | 0 | 10,856 | 6,123 | -338 | -220 | -1,333 | 4,231 | 6,625 | 0 39 | 44 2 |
| Motors | PMTR-31b | DINING - 00254 | PMPMTR | VSD to Std - RI | 13,442 | 82 | 13,360 | 9,642 | -338 | -344 | -5,375 | 3,584 | 9,776 | 0 27 | 64 2 |
| Motors | PMTR-31o | DINING - 00254 | PMPMTR | VSD & EEM - ROF | 11,028 | 0 | 11,028 | 6,298 | 662 | -220 | -1,333 | 5,406 | 5,622 | 0 49 | 35 1 |
| Motors | PMTR-31o | DINING - 00254 | PMPMTR | VSD & EEM - RI | 13,656 | 196 | 13,460 | 9,914 | 1,219 | -344 | -5,375 | 5,413 | 8,047 | 0 40 | 42 8 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 136 | 226 | 0 | -6 | 356 | 189 | 2 13 | 8 1 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - RI | 207 | 15 | 192 | 222 | 368 | 0 | 75 | 515 | 323 | 2 68 | 6 4 |
| Motors | PMTR-33 | DINING - 00254 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 43 | 71 | 0 | -16 | 98 | 262 | 0 27 | 63 3 |
| Motors | PMTR-33 | DINING - 00254 | PMPMTR | EEM - RI | 445 | 18 | 427 | 79 | 132 | 0 | 163 | 48 | 379 | 0 11 | 154 6 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-263 | DINING - 00431 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-263 | DINING - 00431 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-264 | DINING - 00447 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-264 | DINING - 00447 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-266 | DINING - 00449 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-266 | DINING - 00449 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-267 | DINING - 00449 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 267 | DINING - 00449 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - ROF | 1,081 | 0 | 1,081 | 1,905 | 1,285 | 0 | -43 | 3,147 | 2,066 | 2 91 | 5 9 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | 486 | 4,723 | 3,481 | 3 80 | 4 5 |
| Motors | MTR 269 | DINING - 00535 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-269 | DINING - 00535 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR 270 | DINING - 00560 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 270 | DINING - 00560 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 526 | Fans Housing | Heat System Fan | EEM - ROF | 254,726 | 0 | 254,726 | 291,683 | 695,292 | 0 | 12,132 | 884,842 | 630,116 | 3 47 | 5 0 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 526 | Fan Housing | Heat System Fan | EEM RI | 305,932 | 0 | 305,932 | 438,229 | 630,336 | 0 | 100,295 | 968,270 | 662,338 | 3 16 | 5 4 |
| Motors | MTR 527 | Fan Housing | Cool System Fan | EEM ROF | 247,067 | 0 | 247,067 | 197,644 | 201,295 | 0 | 8,959 | 389,980 | 142,913 | 1 58 | 10 9 |
| Motors | MTR 527 | Fan Housing | Cool System Fan | EEM - RI | 305,932 | 0 | 305,932 | 320,322 | 326,239 | 0 | 110,309 | 536,252 | 230,320 | 1 75 | 9 8 |
| Motors | MTR 271 | FUELDSP 00836 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 271 | FUELDSP 00836 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 18 | GROCERY - 00920 | COMPMTR | EEM - ROF | 588 | 0 | 588 | 647 | 331 | 0 | 13 | 965 | 377 | 1 64 | 10 5 |
| Motors | MTR 18 | GROCERY - 00920 | COMPMTR | EEM RI | 728 | 60 | 668 | 1,190 | 610 | 0 | 254 | 1,545 | 877 | 2 31 | 7 4 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM ROF | 1,176 | 0 | 1,176 | 1,293 | 662 | 0 | 26 | 1,930 | 754 | 1 64 | 10 5 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM RI | 1,456 | 120 | 1,336 | 2,380 | 1,219 | 0 | 508 | 3,091 | 1,755 | 2 31 | 7 4 |
| Motors | MTR 20 | GROCERY - 00920 | COMPMTR | EEM - ROF | 588 | 0 | 588 | 647 | 331 | 0 | 13 | 965 | 377 | 1 64 | 10 5 |
| Motors | MTR-20 | GROCERY - 00920 | COMPMTR | EEM RI | 728 | 60 | 668 | 1,190 | 610 | 0 | 254 | 1,545 | 877 | 2 31 | 7 4 |
| Motors | MTR 21 | GROCERY - 00920 | COMPMTR | EEM ROF | 7,578 | 0 | 7,578 | 8,533 | 4,371 | 0 | 211 | 12,692 | 5,114 | 1 67 | 10 3 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EEM RI | 9,384 | 680 | 8,704 | 15,460 | 7,919 | 0 | -3,320 | 20,058 | 11,354 | 2 30 | 7 5 |
| Motors | MTR-273 | GROCERY 00920 | EVAP | EEM ROF | 1,115 | 0 | 1,115 | 574 | 387 | 0 | 16 | 946 | 169 | 0 85 | 20 3 |
| Motors | MTR-273 | GROCERY 00920 | EVAP | EEM RI | 1,467 | 105 | 1,362 | 1,226 | 827 | 0 | 623 | 1,431 | 69 | 1 05 | 16 4 |
| Motors | MTR-274 | GROCERY 00920 | EVAP | EEM - ROF | 1,185 | 0 | 1,185 | 669 | 451 | 0 | -49 | 1,071 | 114 | 0 90 | 19 1 |
| Motors | MTR-274 | GROCERY - 00920 | EVAP | EEM - RI | 1,467 | 105 | 1,362 | 1,188 | 872 | 0 | -535 | 1,455 | 93 | 1 07 | 16 1 |
| Motors | MTR-43 | GROCERY 00920 | CONDMTR | EEM ROF | 1,176 | 0 | 1,176 | 1,293 | 621 | 0 | 26 | 1,888 | 712 | 1 61 | 10 7 |
| Motors | MTR-43 | GROCERY 00920 | CONDMTR | EEM RI | 1,456 | 120 | 1,336 | 2,380 | 1,143 | 0 | 508 | 3,014 | 1,678 | 2 26 | 7 6 |
| Motors | MTR-447 | GROCERY 00920 | Fan Motor | EEM ROF | 1,176 | 0 | 1,176 | 1,410 | 662 | 0 | -26 | 2,047 | 871 | 1 74 | 9 9 |
| Motors | MTR-447 | GROCERY 00920 | Fan Motor | EEM RI | 1,456 | 120 | 1,336 | 2,595 | 1,219 | 0 | 508 | 3,306 | 1,970 | 2 47 | 7 0 |
| Motors | MTR-448 | GROCERY - 00920 | Fan Motor | EEM - ROF | 359 | 0 | 359 | 151 | 71 | 0 | 16 | 206 | 153 | 0 57 | 30 0 |
| Motors | MTR-448 | GROCERY - 00920 | Fan Motor | EEM - RI | 445 | 18 | 427 | 280 | 132 | 0 | 163 | 248 | 179 | 0 58 | 29 6 |
| Motors | MTR-449 | GROCERY 00920 | Fan Motor | EEM ROF | 1,128 | 0 | 1,128 | 1,365 | 641 | 0 | 18 | 1,988 | 859 | 1 76 | 9 8 |
| Motors | MTR-449 | GROCERY 00920 | Fan Motor | EEM - RI | 1,397 | 120 | 1,277 | 2,626 | 1,233 | 0 | -481 | 3,378 | 2,101 | 2 65 | 6 5 |
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM ROF | 588 | 0 | 588 | 705 | 331 | 0 | 13 | 1,023 | 435 | 1 74 | 9 9 |
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM RI | 728 | 60 | 668 | 1,298 | 610 | 0 | 254 | 1,653 | 985 | 2 47 | 7 0 |
| Motors | PMTR-34 | GROCERY 00920 | power vents | EEM ROF | 892 | 0 | 892 | 619 | 514 | 0 | 25 | 1,108 | 217 | 1 24 | 13 9 |
| Motors | PMTR 34 | GROCERY 00920 | power vents | EEM - RI | 1,104 | 80 | 1,024 | 1,122 | 932 | 0 | -391 | 1,663 | 639 | 1 62 | 10 6 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM ROF | 167 | 0 | 167 | 272 | 184 | 0 | -6 | 450 | 282 | 2 69 | 6 4 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM RI | 207 | 15 | 192 | 443 | 299 | 0 | -75 | 667 | 475 | 3 47 | 5 0 |
| Motors | PMTR-36a | GROCERY - 00920 | PMPMTR | EEM - ROF | 735 | 0 | 735 | 114 | 77 | 0 | -41 | 149 | -586 | 0 20 | 84 7 |
| Motors | PMTR-36a | GROCERY - 00920 | PMPMTR | EEM RI | 910 | 28 | 882 | 211 | 143 | 0 | -343 | 11 | 871 | 0 01 | 1,387 3 |
| Motors | PMTR-36b | GROCERY - 00920 | PMPMTR | VSD to Std - ROF | 2,336 | 0 | 2,336 | 1,731 | -41 | 220 | -213 | 1,256 | 1,080 | 0 54 | 32 0 |
| Motors | PMTR 36b | GROCERY - 00920 | PMPMTR | VSD to Std - RI | 2,892 | 23 | 2,869 | 2,727 | -41 | 344 | -982 | 1,359 | 1,510 | 0 47 | 36 3 |
| Motors | PMTR-36c | GROCERY - 00920 | PMPMTR | VSD & EEM - ROF | 2,610 | 0 | 2,610 | 1,781 | 77 | 220 | 213 | 1,425 | 1,185 | 0 55 | 31 5 |
| Motors | PMTR-36c | GROCERY - 00920 | PMPMTR | VSD & EEM - RI | 3,232 | 50 | 3,182 | 2,806 | 143 | 344 | -982 | 1,622 | -1,560 | 0 51 | 33 8 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 272 | 184 | 0 | -6 | 450 | 282 | 2 69 | 6 4 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - RI | 207 | 15 | 192 | 443 | 299 | 0 | -75 | 667 | 475 | 3 47 | 5 0 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - ROF | 395 | 0 | 395 | 525 | 240 | 0 | -16 | 748 | 353 | 1 89 | 9 1 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 489 | 35 | 454 | 909 | 416 | 0 | 178 | 1,147 | 693 | 2 53 | 6 8 |
| Motors | MTR-275 | HOSPITL - 00166 | EVAP | EEM - ROF | 367 | 0 | 367 | 103 | 38 | 0 | -21 | 121 | 247 | 0 33 | 52 4 |
| Motors | MTR-275 | HOSPITL - 00166 | EVAP | EEM - RI | 455 | 14 | 441 | 191 | 71 | 0 | 171 | 91 | 350 | 0 21 | 83 4 |
| Motors | MTR-451a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 926 | 0 | 926 | 3,553 | 692 | 0 | 19 | 4,226 | 3,299 | 4 56 | 3 8 |
| Motors | MTR-451a | HOSPITL - 00166 | Fan Motor | EEM - RI | 1,147 | 90 | 1,057 | 6,473 | 1,261 | 0 | 399 | 7,334 | 6,277 | 6 94 | 2 5 |
| Motors | MTR-451b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 32,110 | 0 | 32,110 | 51,638 | -331 | 110 | -4,597 | 46,600 | 14,489 | 1 45 | 11 9 |
| Motors | MTR-451b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 39,761 | 1,167 | 38,594 | 81,300 | -331 | 172 | -17,441 | 63,357 | 24,762 | 1 64 | 10 5 |
| Motors | MTR-451o | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 32,236 | 0 | 32,236 | 53,160 | 692 | 110 | -4,597 | 49,145 | 16,909 | 1 52 | 11 3 |
| Motors | MTR-451o | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 39,916 | 1,175 | 38,741 | 83,670 | 1,261 | -172 | 17,441 | 67,317 | 28,576 | 1 74 | 9 9 |
| Motors | MTR-452a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 698 | 0 | 698 | 2,268 | 442 | 0 | -32 | 2,677 | 1,979 | 3 84 | 4 5 |
| Motors | MTR-452a | HOSPITL - 00166 | Fan Motor | EEM - RI | 864 | 70 | 794 | 4,173 | 813 | 0 | -318 | 4,667 | 3,873 | 5 88 | 2 9 |
| Motors | MTR-452b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 21,617 | 0 | 21,617 | 34,815 | 226 | 110 | -3,111 | 31,368 | 9,750 | 1 45 | 11 9 |
| Motors | MTR-452b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 26,768 | 787 | 25,981 | 54,821 | 226 | 172 | -11,780 | 42,643 | 16,662 | 1 64 | 10 5 |
| Motors | MTR-452o | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 21,831 | 0 | 21,831 | 35,808 | 442 | 110 | -3,111 | 33,028 | 11,198 | 1 51 | 11 4 |
| Motors | MTR-452o | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 27,032 | 804 | 26,228 | 56,367 | 813 | 172 | -11,780 | 45,227 | 18,999 | 1 72 | 10 0 |
| Motors | MTR-453a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 588 | 0 | 588 | 3,248 | 633 | 0 | 13 | 3,867 | 3,279 | 6 58 | 2 6 |
| Motors | MTR-453a | HOSPITL - 00166 | Fan Motor | EEM - RI | 728 | 60 | 668 | 5,579 | 1,087 | 0 | -254 | 6,411 | 5,743 | 9 60 | 1 8 |
| Motors | MTR-453b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 16,330 | 0 | 16,330 | 27,188 | 184 | 110 | -2,310 | 24,584 | 8,254 | 1 51 | 11 4 |
| Motors | MTR-453b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 20,221 | 615 | 19,606 | 42,833 | 184 | 172 | 8,803 | 33,674 | 14,069 | 1 72 | 10 0 |
| Motors | MTR-453o | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 16,417 | 0 | 16,417 | 28,403 | 633 | 110 | -2,310 | 26,616 | 10,199 | 1 62 | 10 6 |
| Motors | MTR-453o | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 20,328 | 610 | 19,718 | 44,724 | 1,087 | 172 | 8,803 | 36,836 | 17,118 | 1 87 | 9 2 |
| Motors | MTR-454a | HOSPITL 00166 | Fan Motor | EEM - ROF | 1,128 | 0 | 1,128 | 3,291 | 641 | 0 | 18 | 3,914 | 2,786 | 3 47 | 5 0 |
| Motors | MTR-454a | HOSPITL - 00166 | Fan Motor | EEM - RI | 1,397 | 120 | 1,277 | 6,332 | 1,233 | 0 | -481 | 7,085 | 5,808 | 5 55 | 3 1 |
| Motors | MTR-454b | HOSPITL - 00166 | Fan Motor | VSD to Std - ROF | 42,585 | 0 | 42,585 | 67,565 | -424 | 110 | -6,113 | 60,918 | 18,333 | 1 43 | 12 0 |
| Motors | MTR-454b | HOSPITL - 00166 | Fan Motor | VSD to Std - RI | 52,731 | 1,526 | 51,205 | 106,333 | -424 | -172 | -23,167 | 82,589 | 31,383 | 1 61 | 10 7 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - ROF | 42,704 | 0 | 42,704 | 69,151 | 641 | 110 | -6,113 | 63,569 | 20,866 | 1 49 | 11 6 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 52,878 | 1,561 | 51,317 | 108,821 | 1,233 | 172 | 23,167 | 86,714 | 35,397 | 1 69 | 10 2 |
| Motors | MTR-455a | HOSPITL - 00166 | Fan Motor | EEM - ROF | 833 | 0 | 833 | 994 | 194 | 0 | -47 | 1,141 | 308 | 1 37 | 12 6 |
| Motors | MTR-455a | HOSPITL - 00166 | Fan Motor | EEM RI | 1,032 | 40 | 992 | 1,838 | 358 | 0 | -389 | 1,807 | 815 | 1 82 | 9 5 |
| Motors | MTR-455b | HOSPITL - 00166 | Fan Motor | VSD to Std ROF | 10,195 | 0 | 10,195 | 14,761 | 102 | -220 | 1,379 | 13,061 | 2,866 | 1 28 | 13 4 |
| Motors | MTR-455b | HOSPITL 00166 | Fan Motor | VSD to Std - RI | 12,624 | 334 | 12,290 | 23,261 | 102 | 344 | -5,346 | 17,469 | 5,179 | 1 42 | 12 1 |
| Motors | MTR-455o | HOSPITL 00166 | Fan Motor | VSD & EEM - ROF | 10,505 | 0 | 10,505 | 15,201 | 194 | -220 | -1,379 | 13,796 | 3,291 | 1 31 | 13 1 |
| Motors | MTR-455o | HOSPITL - 00166 | Fan Motor | VSD & EEM RI | 13,008 | 351 | 12,657 | 23,945 | 358 | 344 | 5,346 | 18,612 | 5,955 | 1 47 | 11 7 |
| Motors | MTR 5 | HOSPITL 00166 | AIRCOMP | EEM ROF | 719 | 0 | 719 | 364 | 142 | 0 | 32 | 474 | 244 | 0 66 | 26 1 |
| Motors | MTR 5 | HOSPITL - 00166 | AIRCOMP | EEM RI | 890 | 36 | 854 | 676 | 263 | 0 | 326 | 612 | 242 | 0 72 | 24 0 |
| Motors | MTR-6 | HOSPITL 00166 | AIRCOMP | EEM - ROF | 1,176 | 0 | 1,176 | 3,248 | 1,265 | 0 | -26 | 4,487 | 3,311 | 3 82 | 4 5 |
| Motors | MTR 6 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 1,456 | 120 | 1,336 | 5,579 | 2,173 | 0 | 508 | 7,243 | 5,907 | 5 42 | 3 2 |
| Motors | MTR 7 | HOSPITL 00166 | AIRCOMP | EEM ROF | 359 | 0 | 359 | 182 | 71 | 0 | 16 | 237 | 122 | 0 66 | 26 1 |
| Motors | MTR 7 | HOSPITL 00166 | AIRCOMP | EEM - RI | 445 | 18 | 427 | 338 | 132 | 0 | 163 | 306 | 121 | 0 72 | 24 0 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR 86 | HOSPITL 00166 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | MTR-87 | HOSPITL 00166 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR-87 | HOSPITL 00166 | COOL | EEM RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | PMTR-38 | HOSPITL 00166 | PMPMTR | EEM - ROF | 719 | 0 | 719 | 728 | 142 | 0 | 32 | 839 | 120 | 1 17 | 14 8 |
| Motors | PMTR-38 | HOSPITL - 00166 | PMPMTR | EEM - RI | 890 | 36 | 854 | 1,351 | 263 | 0 | 326 | 1,288 | 434 | 1 51 | 11 4 |
| Motors | PMTR 39 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 790 | 0 | 790 | 1,901 | 370 | 0 | -33 | 2,239 | 1,449 | 2 83 | 6 1 |
| Motors | PMTR 39 | HOSPITL - 00166 | PMPMTR | EEM - RI | 978 | 70 | 908 | 3,379 | 658 | 0 | 357 | 3,680 | 2,772 | 4 05 | 4 2 |
| Motors | PMTR-40 | HOSPITL 00166 | PMPMTR | EEM - ROF | 790 | 0 | 790 | 1,901 | 370 | 0 | -33 | 2,239 | 1,449 | 2 83 | 6 1 |
| Motors | PMTR-40 | HOSPITL 00166 | PMPMTR | EEM - RI | 978 | 70 | 908 | 3,379 | 658 | 0 | -357 | 3 680 | 2,772 | 4 05 | 4 2 |
| Motors | PMTR-41 | HOSPITL 00166 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 951 | 185 | 0 | -16 | 1,119 | 725 | 2 83 | 6 1 |
| Motors | PMTR-41 | HOSPITL 00166 | PMPMTR | EEM - RI | 489 | 35 | 454 | 1,689 | 329 | 0 | -178 | 1,840 | 1,386 | 4 05 | 4 2 |
| Motors | PMTR-42 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 892 | 0 | 892 | 5,062 | 986 | 0 | -25 | 6,023 | 5,131 | 6 75 | 2.5 |
| Motors | PMTR-42 | HOSPITL 00166 | PMPMTR | EEM RI | 1,104 | 80 | 1,024 | 8,618 | 1,679 | 0 | -391 | 9,906 | 8,882 | 9 67 | 1 8 |
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 588 | 0 | 588 | 4,434 | 864 | 0 | -13 | 5,285 | 4,697 | 8 99 | 1 9 |
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - RI | 728 | 60 | 668 | 7,458 | 1,453 | 0 | -254 | 8,656 | 7,988 | 12 96 | 1 3 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 8,868 | 1,727 | 0 | -26 | 10,570 | 9,394 | 8 99 | 1 9 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 14,916 | 2,905 | 0 | 508 | 17,313 | 15,977 | 12 96 | 1 3 |
| Motors | MTR 23 | HOTEL - 00900 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,325 | 606 | 0 | 22 | 1,908 | 1,304 | 3 16 | 5 5 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | 270 | 2,859 | 2,111 | 3 82 | 4 5 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,325 | 606 | 0 | -22 | 1,908 | 1,304 | 3 16 | 5 5 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | -270 | 2,859 | 2,111 | 3 82 | 4 5 |
| Motors | MTR-89 | HOTEL - 00901 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR 89 | HOTEL - 00901 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,325 | 606 | 0 | -22 | 1,908 | 1,304 | 3 16 | 5 5 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | -270 | 2,859 | 2,111 | 3 82 | 4 5 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1.73 | 10 0 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8.2 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,325 | 606 | 0 | 22 | 1,908 | 1,304 | 3 16 | 5.5 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | -270 | 2,859 | 2,111 | 3 82 | 4 5 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - ROF | 453 | 0 | 453 | 993 | 454 | 0 | -16 | 1,431 | 978 | 3 16 | 5.5 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - RI | 561 | 0 | 561 | 1,610 | 736 | 0 | -202 | 2,144 | 1,583 | 3 82 | 4 5 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1.73 | 10 0 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2.10 | 8 2 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EEM - ROF | 604 | 0 | 604 | 1,325 | 606 | 0 | -22 | 1,908 | 1,304 | 3 16 | 5 5 |
| Motors | MTR 28 | HOTEL - 00906 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | -270 | 2,859 | 2,111 | 3 82 | 4.5 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - ROF | 142 | 0 | 142 | 142 | 106 | 0 | -2 | 245 | 103 | 1 73 | 10 0 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | -79 | 392 | 205 | 2 10 | 8 2 |
| Motors | MTR-276 | KITCHEN - 00819 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0.55 | 48.6 |
| Motors | MTR-276 | KITCHEN - 00819 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-277 | LAB MED - 00144 | EVAP | EEM - ROF | 788 | 0 | 788 | 209 | 141 | 0 | -66 | 284 | 503 | 0 36 | 47.7 |
| Motors | MTR-277 | LAB-MED - 00144 | EVAP | EEM - RI | 890 | 36 | 854 | 296 | 200 | 0 | -242 | 254 | 600 | 0 30 | 58 0 |
| Motors | MTR-278 | LAB-MED - 00144 | EVAP | EEM - ROF | 1,575 | 0 | 1,575 | 419 | 283 | 0 | -133 | 569 | 1,007 | 0 36 | 47 7 |
| Motors | MTR-278 | LAB-MED - 00144 | EVAP | EEM - RI | 1,780 | 72 | 1,708 | 592 | 400 | 0 | -485 | 507 | 1,201 | 0 30 | 58 0 |
| Motors | MTR-279 | LAB-MED - 00228 | EVAP | EEM - ROF | 1,078 | 0 | 1,078 | 256 | 173 | 0 | -47 | 382 | 696 | 0 35 | 48 6 |
| Motors | MTR-279 | LAB MED - 00228 | EVAP | EEM - RI | 1,335 | 54 | 1,281 | 475 | 321 | 0 | -490 | 306 | 975 | 0.24 | 72.0 |
| Motors | MTR 280 | MTRPOOL - 00600 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-280 | MTRPOOL - 00600 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-281 | MTRPOOL - 00600 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48.6 |
| Motors | MTR-281 | MTRPOOL - 00600 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR 282 | MTRPOOL - 00600 | EVAP | EEM - ROF | 395 | 0 | 395 | 289 | 195 | 0 | -16 | 467 | 73 | 1 18 | 14.5 |
| Motors | MTR 282 | MTRPOOL - 00600 | EVAP | EEM - RI | 489 | 35 | 454 | 501 | 338 | 0 | -178 | 660 | 206 | 1 45 | 11.8 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR 284 | MTRPOOL - 00605 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-284 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR 285 | MTRPOOL - 00605 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-285 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR 286 | MTRPOOL - 00605 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 286 | MTRPOOL - 00605 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5.9 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-288 | MTRPOOL - 00608 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR 288 | MTRPOOL - 00608 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 289 | MTRPOOL - 00608 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 289 | MTRPOOL - 00608 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 290 | MTRPOOL - 00612 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4.5 |
| Motors | MTR 291 | MTRPOOL - 00612 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 291 | MTRPOOL - 00612 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4.5 |
| Motors | MTR 292 | MTRPOOL - 00614 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-292 | MTRPOOL 00614 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-293 | MTRPOOL - 00620 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 293 | MTRPOOL - 00620 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 294 | MTRPOOL 00621 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 294 | MTRPOOL - 00621 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 295 | MTRPOOL - 00621 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 295 | MTRPOOL 00621 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 296 | MTRPOOL 00623 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-296 | MTRPOOL 00623 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 297 | MTRPOOL 00626 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-297 | MTRPOOL 00626 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 298 | MTRPOOL 00639 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 298 | MTRPOOL 00639 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 299 | MTRPOOL 00642 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-299 | MTRPOOL 00642 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 300 | MTRPOOL 00646 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-300 | MTRPOOL 00646 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-301 | MTRPOOL 00646 | EVAP | EEM ROF | 334 | 0 | 334 | 545 | 368 | 0 | 13 | 899 | 565 | 2 69 | 6 4 |
| Motors | MTR 301 | MTRPOOL 00646 | EVAP | EEM RI | 414 | 30 | 384 | 886 | 598 | 0 | 150 | 1,334 | 950 | 3 47 | 5 0 |
| Motors | MTR 8 | MTRPOOL 00646 | AIRCOMP | EEM ROF | 417 | 0 | 417 | 266 | 286 | 0 | 23 | 330 | 113 | 1 27 | 13 6 |
| Motors | MTR-8 | MTRPOOL 00646 | AIRCOMP | EEM RI | 516 | 20 | 496 | 446 | 480 | 0 | 194 | 711 | 235 | 1 47 | 11 7 |
| Motors | MTR-302 | MTRPOOL 00650 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-302 | MTRPOOL 00650 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-303 | MTRPOOL 00680 | EVAP | EEM ROF | 1,953 | 0 | 1,953 | 327 | 221 | 0 | 178 | 370 | 1,583 | 0 19 | 91 0 |
| Motors | MTR-303 | MTRPOOL 00680 | EVAP | EEM RI | 2,275 | 70 | 2,205 | 505 | 341 | 0 | 732 | 114 | 2,091 | 0 05 | 332 4 |
| Motors | MTR 304 | MTRPOOL 00680 | EVAP | EEM ROF | 383 | 0 | 383 | 729 | 492 | 0 | 25 | 1,196 | 813 | 3 12 | 5 5 |
| Motors | MTR-304 | MTRPOOL 00680 | EVAP | EEM RI | 446 | 32 | 414 | 1,024 | 691 | 0 | 133 | 1,581 | 1,167 | 3 82 | 4 5 |
| Motors | MTR-94 | MTRPOOL 00680 | COOL | EEM ROF | 161 | 0 | 161 | 105 | 141 | 0 | 9 | 236 | 76 | 1 47 | 11 7 |
| Motors | MTR 94 | MTRPOOL 00680 | COOL | EEM RI | 187 | 0 | 187 | 146 | 197 | 0 | 55 | 288 | 101 | 1 54 | 11 2 |
| Motors | MTR 305 | MTRPOOL 00681 | EVAP | EEM ROF | 1,562 | 0 | 1,562 | 261 | 176 | 0 | 142 | 296 | 1,267 | 0 19 | 91 0 |
| Motors | MTR-305 | MTRPOOL 00681 | EVAP | EEM RI | 1,820 | 56 | 1,764 | 404 | 273 | 0 | 986 | 91 | 1,673 | 0 05 | 332 4 |
| Motors | MTR-306 | MTRPOOL 00681 | EVAP | EEM ROF | 383 | 0 | 383 | 729 | 492 | 0 | 25 | 1,196 | 813 | 3 12 | 5 5 |
| Motors | MTR-306 | MTRPOOL 00681 | EVAP | EEM RI | 446 | 32 | 414 | 1,024 | 691 | 0 | 133 | 1,581 | 1,167 | 3 82 | 4 5 |
| Motors | MTR-521 | MTRPOOL 00681 | HEAT | EEM ROF | 161 | 0 | 161 | 187 | 33 | 0 | 9 | 210 | 50 | 1 31 | 13 2 |
| Motors | MTR-521 | MTRPOOL 00681 | HEAT | EEM RI | 187 | 0 | 187 | 261 | 46 | 0 | 55 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR-307 | MTRPOOL 00830 | EVAP | EEM ROF | 540 | 0 | 540 | 952 | 643 | 0 | 22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR 307 | MTRPOOL 00830 | EVAP | EEM RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3 80 | 4 5 |
| Motors | MTR 308 | MTRPOOL 00832 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 308 | MTRPOOL 00832 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-309 | MTRPOOL 00832 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 309 | MTRPOOL 00832 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-310 | MTRPOOL 00837 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-310 | MTRPOOL 00837 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-311 | MTRPOOL 00840 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-311 | MTRPOOL 00840 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-312 | MTRPOOL 00840 | EVAP | EEM ROF | 540 | 0 | 540 | 952 | 643 | 0 | 22 | 1,573 | 1,033 | 2 91 | 5 9 |
| Motors | MTR-312 | MTRPOOL 00840 | EVAP | EEM RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-313 | MTRPOOL 00840 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-313 | MTRPOOL 00840 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-314 | MTRPOOL 00847 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 314 | MTRPOOL 00847 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-315 | MTRPOOL 00847 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-315 | MTRPOOL 00847 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-316 | MTRPOOL 00850 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-316 | MTRPOOL 00850 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-317 | MTRPOOL 00850 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-317 | MTRPOOL 00850 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-29 | MTRPOOL 00857 | COMPMTR | EEM ROF | 2,256 | 0 | 2,256 | 1,737 | 1,042 | 0 | 36 | 2,743 | 486 | 1 22 | 14 2 |
| Motors | MTR-29 | MTRPOOL 00857 | COMPMTR | EEM RI | 2,794 | 240 | 2,554 | 3,342 | 2,004 | 0 | 961 | 4,385 | 1,831 | 1 72 | 10 0 |
| Motors | MTR-44 | MTRPOOL 00857 | CONDMTR | EEM ROF | 2,352 | 0 | 2,352 | 1,795 | 1,242 | 0 | 52 | 2,985 | 633 | 1 27 | 13 6 |
| Motors | MTR-44 | MTRPOOL 00857 | CONDMTR | EEM RI | 2,912 | 240 | 2,672 | 3,303 | 2,286 | 0 | 1,017 | 4,572 | 1,900 | 1 71 | 10 1 |
| Motors | MTR-456 | MTRPOOL 00857 | Fan Motor | EEM ROF | 1,128 | 0 | 1,128 | 1,885 | 641 | 0 | 18 | 2,508 | 1,380 | 2 22 | 7 7 |
| Motors | MTR-456 | MTRPOOL 00857 | Fan Motor | EEM RI | 1,397 | 120 | 1,277 | 3,627 | 1,233 | 0 | 481 | 4,380 | 3,103 | 3 43 | 5 0 |
| Motors | MTR-95 | MTRPOOL 00857 | COOL | EEM ROF | 151 | 0 | 151 | 91 | 123 | 0 | 5 | 209 | 58 | 1 38 | 12 5 |
| Motors | MTR-95 | MTRPOOL 00857 | COOL | EEM RI | 187 | 0 | 187 | 148 | 199 | 0 | 67 | 280 | 93 | 1 50 | 11 5 |
| Motors | PMTR-47a | MTRPOOL 00857 | PMPMTR | EEM ROF | 417 | 0 | 417 | 36 | 49 | 0 | 23 | 62 | 355 | 0 15 | 113 8 |
| Motors | PMTR-47a | MTRPOOL 00857 | PMPMTR | EEM RI | 516 | 20 | 496 | 73 | 98 | 0 | 194 | 23 | 519 | 0 05 | NA |
| Motors | PMTR-47b | MTRPOOL 00857 | PMPMTR | VSD to Std ROF | 2,190 | 0 | 2,190 | 850 | -40 | 110 | 251 | 449 | 1,741 | 0 20 | 84 0 |
| Motors | PMTR-47b | MTRPOOL 00857 | PMPMTR | VSD to Std RI | 2,712 | 11 | 2,701 | 1,339 | -40 | 172 | 1,042 | 83 | 2,616 | 0 03 | 547 4 |
| Motors | PMTR-47o | MTRPOOL 00857 | PMPMTR | VSD & EEM ROF | 2,345 | 0 | 2,345 | 869 | 49 | -110 | 251 | 557 | 1,788 | 0 24 | 72 5 |
| Motors | PMTR-47o | MTRPOOL 00857 | PMPMTR | VSD & EEM RI | 2,904 | 31 | 2,873 | 1,369 | 98 | -172 | 1,042 | 253 | 2,620 | 0 09 | 195 7 |
| Motors | MTR-318 | MTRPOOL 00873 | EVAP | EEM ROF | 3,820 | 0 | 3,820 | 980 | 662 | 0 | 272 | 1,370 | 2,450 | 0 36 | 48 0 |
| Motors | MTR-318 | MTRPOOL 00873 | EVAP | EEM RI | 4,450 | 180 | 4,270 | 1,516 | 1,023 | 0 | 1,357 | 1,183 | 3,087 | 0 28 | 62 2 |
| Motors | MTR 9 | MTRPOOL 00873 | AIRCOMP | EEM ROF | 926 | 0 | 926 | 873 | 938 | 0 | 19 | 1,793 | 866 | 1 94 | 8 9 |
| Motors | MTR-9 | MTRPOOL 00873 | AIRCOMP | EEM RI | 1,147 | 90 | 1,057 | 1,535 | 1,651 | 0 | 399 | 2,787 | 1,730 | 2 64 | 6 5 |
| Motors | PMTR-45a | MTRPOOL 00873 | PMPMTR | EEM ROF | 1,078 | 0 | 1,078 | 128 | 173 | 0 | 47 | 254 | 825 | 0 24 | 73 2 |
| Motors | PMTR-45a | MTRPOOL 00873 | PMPMTR | EEM RI | 1,335 | 54 | 1,281 | 238 | 321 | 0 | 490 | 69 | 1,212 | 0 05 | 321 3 |
| Motors | PMTR-45b | MTRPOOL 00873 | PMPMTR | VSD to Std ROF | 5,669 | 0 | 5,669 | 1,947 | -93 | 330 | 624 | 899 | 4,770 | 0 16 | 108 5 |
| Motors | PMTR-45b | MTRPOOL 00873 | PMPMTR | VSD to Std RI | 7,020 | 26 | 6,994 | 3,068 | -93 | 517 | 2,637 | 178 | 7,172 | 0 03 | NA |
| Motors | PMTR-45o | MTRPOOL 00873 | PMPMTR | VSD & EEM ROF | 5,984 | 0 | 5,984 | 2,004 | 173 | 330 | 624 | 1,222 | 4,762 | 0 20 | 84 3 |
| Motors | PMTR-45o | MTRPOOL 00873 | PMPMTR | VSD & EEM RI | 7,410 | 78 | 7,332 | 3,157 | 321 | 517 | 2,637 | 324 | 7,007 | 0 04 | 389 2 |
| Motors | PMTR-46a | MTRPOOL 00873 | PMPMTR | EEM ROF | 1,438 | 0 | 1,438 | 171 | 231 | 0 | 63 | 338 | 1,099 | 0 24 | 73 2 |
| Motors | PMTR-46a | MTRPOOL 00873 | PMPMTR | EEM RI | 1,780 | 72 | 1,708 | 317 | 428 | 0 | 653 | 92 | 1,616 | 0 05 | 321 3 |
| Motors | PMTR-46b | MTRPOOL 00873 | PMPMTR | VSD to Std ROF | 7,559 | 0 | 7,559 | 2,596 | 124 | 441 | 832 | 1,199 | 6,360 | 0 16 | 108 5 |
| Motors | PMTR-46b | MTRPOOL 00873 | PMPMTR | VSD to Std RI | 9,360 | 35 | 9,325 | 4 091 | 124 | 689 | 3,516 | 237 | 9,563 | 0 03 | NA |
| Motors | PMTR-46c | MTRPOOL 00873 | PMPMTR | VSD & EEM ROF | 7,979 | 0 | 7,979 | 2,672 | 231 | 441 | 832 | 1,630 | 6,349 | 0 20 | 84 3 |
| Motors | PMTR-46c | MTRPOOL 00873 | PMPMTR | VSD & EEM RI | 9,880 | 104 | 9,776 | 4,209 | 428 | 689 | 3,516 | 433 | 9,343 | 0 04 | 389 2 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-319 | MTRPOOL 00879 | EVAP | EEM - ROF | 3,820 | 0 | 3,820 | 980 | 662 | 0 | 272 | 1,370 | 2,450 | 0.36 | 48.0 |
| Motors | MTR-319 | MTRPOOL 00879 | EVAP | EEM RI | 4,450 | 180 | 4,270 | 1,516 | 1,023 | 0 | 1,357 | 1,183 | 9,087 | 0.28 | 62.2 |
| Motors | MTR-320 | MTRPOOL 00941 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2.91 | 5.9 |
| Motors | MTR-320 | MTRPOOL 00941 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 709 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-321 | MWR - 00312 | EVAP | EEM ROF | 735 | 0 | 735 | 114 | 77 | 0 | -41 | 149 | 586 | 0.20 | 84.7 |
| Motors | MTR-321 | MWR - 00312 | EVAP | EEM RI | 910 | 28 | 882 | 211 | 143 | 0 | 343 | 11 | 871 | 0.01 | 1,387.3 |
| Motors | MTR-322 | MWR - 00312 | EVAP | EEM ROF | 367 | 0 | 367 | 57 | 38 | 0 | 21 | 75 | 291 | 0.20 | 84.7 |
| Motors | MTR-322 | MWR - 00312 | EVAP | EEM RI | 455 | 14 | 441 | 106 | 71 | 0 | 171 | 5 | 436 | 0.01 | 1,387.3 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-327 | MWR - 00910 | EVAP | EEM ROF | 443 | 0 | 443 | 134 | 90 | 0 | 40 | 184 | 259 | 0.42 | 41.5 |
| Motors | MTR-327 | MWR - 00910 | EVAP | EEM RI | 516 | 20 | 496 | 206 | 139 | 0 | 166 | 180 | 316 | 0.36 | 47.5 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM - ROF | 302 | 0 | 302 | 891 | 303 | 0 | 11 | 1,183 | 881 | 3.92 | 4.4 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM RI | 374 | 0 | 374 | 1,444 | 491 | 0 | 135 | 1,800 | 1,426 | 4.81 | 3.6 |
| Motors | MTR-458a | MWR - 01313 | Fan Motor | EEM ROF | 359 | 0 | 359 | 209 | 71 | 0 | 16 | 264 | 96 | 0.73 | 23.5 |
| Motors | MTR-458a | MWR - 01313 | Fan Motor | EEM RI | 445 | 18 | 427 | 387 | 132 | 0 | 163 | 355 | 72 | 0.83 | 20.7 |
| Motors | MTR-458b | MWR - 01313 | Fan Motor | VSD to Std ROF | 4,070 | 0 | 4,070 | 3,170 | 38 | 110 | 537 | 2,486 | 1,585 | 0.61 | 28.2 |
| Motors | MTR-458b | MWR - 01313 | Fan Motor | VSD to Std RI | 5,040 | 51 | 4,989 | 4,996 | -38 | 172 | -2,102 | 2,684 | 2,305 | 0.54 | 32.0 |
| Motors | MTR-458o | MWR - 01313 | Fan Motor | VSD & EEM - ROF | 4,175 | 0 | 4,175 | 3,263 | 71 | 110 | 537 | 2,688 | 1,488 | 0.64 | 26.8 |
| Motors | MTR-458o | MWR - 01313 | Fan Motor | VSD & EEM - RI | 5,170 | 65 | 5,105 | 5,141 | 132 | 172 | -2,102 | 2,998 | 2,106 | 0.59 | 29.3 |
| Motors | MTR-459a | MWR - 01313 | Fan Motor | EEM ROF | 367 | 0 | 367 | 139 | 47 | 0 | -21 | 166 | 202 | 0.45 | 38.2 |
| Motors | MTR-459a | MWR - 01313 | Fan Motor | EEM - RI | 455 | 14 | 441 | 258 | 88 | 0 | 171 | 174 | 267 | 0.40 | 43.6 |
| Motors | MTR-459b | MWR - 01313 | Fan Motor | VSD to Std ROF | 3,025 | 0 | 3,025 | 2,114 | -25 | -110 | 386 | 1,592 | 1,434 | 0.53 | 32.7 |
| Motors | MTR-459b | MWR - 01313 | Fan Motor | VSD to Std RI | 3,746 | 34 | 3,712 | 3,331 | -25 | 172 | 1,533 | 1,600 | 2,112 | 0.43 | 40.0 |
| Motors | MTR-459o | MWR - 01313 | Fan Motor | VSD & EEM - ROF | 3,163 | 0 | 3,163 | 2,176 | 47 | 110 | 386 | 1,726 | 1,436 | 0.55 | 31.5 |
| Motors | MTR-459o | MWR - 01313 | Fan Motor | VSD & EEM - RI | 3,916 | 46 | 3,870 | 3,427 | 88 | 172 | 1,533 | 1,810 | 2,961 | 0.47 | 36.8 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | EEM ROF | 151 | 0 | 151 | 445 | 151 | 0 | -5 | 591 | 440 | 3.92 | 4.4 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4.81 | 3.6 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM ROF | 151 | 0 | 151 | 163 | 28 | 0 | -5 | 186 | 35 | 1.23 | 14.0 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1.30 | 13.3 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM - ROF | 151 | 0 | 151 | 163 | 28 | 0 | 5 | 186 | 35 | 1.23 | 14.0 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1.30 | 13.3 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM ROF | 151 | 0 | 151 | 163 | 28 | 0 | 5 | 186 | 35 | 1.23 | 14.0 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1.30 | 13.3 |
| Motors | MTR-328 | MWR - 01322 | EVAP | EEM - ROF | 735 | 0 | 735 | 114 | 77 | 0 | -41 | 149 | 586 | 0.20 | 84.7 |
| Motors | MTR-328 | MWR - 01322 | EVAP | EEM - RI | 910 | 28 | 882 | 211 | 143 | 0 | 343 | 11 | 871 | 0.01 | 1,387.3 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - ROF | 151 | 0 | 151 | 182 | 123 | 0 | 5 | 300 | 149 | 1.99 | 8.7 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - RI | 187 | 0 | 187 | 296 | 199 | 0 | 67 | 427 | 240 | 2.29 | 7.5 |
| Motors | MTR 33 | MWR - 01322 | COMPMTR | EEM - ROF | 151 | 0 | 151 | 163 | 28 | 0 | 5 | 186 | 35 | 1.23 | 14.0 |
| Motors | MTR-33 | MWR - 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1.30 | 13.3 |
| Motors | MTR-330 | MWR - 01322 | EVAP | EEM - ROF | 367 | 0 | 367 | 57 | 38 | 0 | 21 | 75 | 293 | 0.20 | 84.7 |
| Motors | MTR 330 | MWR - 01322 | EVAP | EEM - RI | 455 | 14 | 441 | 106 | 71 | 0 | 171 | 5 | 436 | 0.01 | 1,387.3 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2.91 | 5.9 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR-45a | MWR - 01322 | CONDMTR | EEM - ROF | 359 | 0 | 359 | 76 | 58 | 0 | -16 | 118 | 241 | 0.33 | 52.4 |
| Motors | MTR-45a | MWR - 01322 | CONDMTR | EEM RI | 445 | 18 | 427 | 141 | 107 | 0 | 163 | 85 | 342 | 0.20 | 86.3 |
| Motors | MTR-45b | MWR - 01322 | CONDMTR | VSD to Std - ROF | 1,244 | 0 | 1,244 | 804 | -31 | -110 | 111 | 552 | 691 | 0.44 | 38.8 |
| Motors | MTR-45b | MWR - 01322 | CONDMTR | VSD to Std - RI | 1,540 | 35 | 1,505 | 1,274 | -31 | -172 | 517 | 555 | 950 | 0.37 | 46.7 |
| Motors | MTR-45o | MWR - 01322 | CONDMTR | VSD & EEM - ROF | 1,349 | 0 | 1,349 | 863 | 58 | 110 | 111 | 700 | 649 | 0.52 | 33.2 |
| Motors | MTR-45o | MWR - 01322 | CONDMTR | VSD & EEM - RI | 1,670 | 51 | 1,619 | 1,366 | 107 | 172 | 517 | 784 | 835 | 0.48 | 35.6 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - ROF | 151 | 0 | 151 | 163 | 28 | 0 | -5 | 186 | 35 | 1.23 | 14.0 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1.30 | 13.3 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - ROF | 151 | 0 | 151 | 445 | 151 | 0 | -5 | 591 | 440 | 3.92 | 4.4 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4.81 | 3.6 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM ROF | 151 | 0 | 151 | 445 | 151 | 0 | 5 | 591 | 440 | 3.92 | 4.4 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4.81 | 3.6 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | -23 | 358 | 58 | 0.86 | 20.0 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1.03 | 16.7 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | 51 | 110 | 689 | 3,377 | -1,720 | 0.66 | 26.0 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | -51 | 172 | 2,673 | 3,765 | 2,479 | 0.60 | 28.6 |
| Motors | MTR-463o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | 110 | 689 | 3,651 | 1,602 | 0.70 | 24.8 |
| Motors | MTR-463o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | 172 | 2,673 | 4,191 | 2,230 | 0.65 | 26.4 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM - ROF | 151 | 0 | 151 | 445 | 151 | 0 | -5 | 591 | 440 | 3.92 | 4.4 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4.81 | 3.6 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM ROF | 417 | 0 | 417 | 285 | 97 | 0 | 23 | 358 | 58 | 0.86 | 20.0 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1.03 | 16.7 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | 51 | 110 | 689 | 3,377 | 1,720 | 0.66 | 26.0 |
| Motors | MTR-463b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | 51 | 172 | 2,673 | 3,765 | 2,479 | 0.60 | 28.6 |
| Motors | MTR-463o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | 110 | 689 | 3,651 | 1,602 | 0.70 | 24.8 |
| Motors | MTR-463o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | 172 | 2,673 | 4,191 | 2,230 | 0.65 | 26.4 |
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM ROF | 151 | 0 | 151 | 445 | 151 | 0 | 5 | 591 | 440 | 3.92 | 4.4 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 940 | 753 | 4 81 | 3 6 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 545 | 185 | 0 | 16 | 713 | 318 | 1 81 | 9 5 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM RI | 489 | 35 | 454 | 968 | 329 | 0 | 178 | 1,118 | 664 | 2 46 | 7 0 |
| Motors | MTR-467b | MWR 01322 | Fan Motor | VSD to Std ROF | 7,205 | 0 | 7,205 | 6,229 | -73 | 110 | 1,100 | 5,046 | 2,160 | 0 70 | 24 6 |
| Motors | MTR-467b | MWR 01322 | Fan Motor | VSD to Std - RI | 8,922 | 100 | 8,822 | 9,813 | -73 | -172 | 3,838 | 5,790 | 3,092 | 0 65 | 26 5 |
| Motors | MTR-467o | MWR 01322 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 6,450 | 185 | -110 | 1,000 | 5,525 | 1,789 | 0 76 | 22 8 |
| Motors | MTR-467o | MWR 01322 | Fan Motor | VSD & EEM - RI | 9,057 | 127 | 8,930 | 10,157 | 329 | -172 | 3,838 | 6,475 | 2,455 | 0 73 | 23 7 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | 23 | 358 | 58 | 0 86 | 20 0 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR-468b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | 51 | 110 | 689 | 3,377 | 1,720 | 0 66 | 26 0 |
| Motors | MTR-468b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | 51 | 172 | 2,673 | 3,765 | 2 479 | 0 60 | 28 6 |
| Motors | MTR-468o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | 110 | 689 | 3,651 | 1,692 | 0 70 | 24 8 |
| Motors | MTR-468o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | 172 | 2,673 | 4,191 | 2,230 | 0 65 | 26 4 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | EEM - ROF | 167 | 0 | 167 | 665 | 226 | 0 | 6 | 885 | 718 | 5 29 | 3 3 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | EEM - RI | 207 | 15 | 192 | 1,082 | 368 | 0 | 75 | 1,375 | 1,183 | 7 16 | 2 4 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | EEM - ROF | 151 | 0 | 151 | 163 | 28 | 0 | 5 | 186 | 35 | 1 23 | 14 0 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | FEM - RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | 23 | 358 | 58 | 0 86 | 20 0 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR-470b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | 51 | -110 | 689 | 3,377 | 1,720 | 0 66 | 26 0 |
| Motors | MTR-470b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | -51 | 172 | 2,673 | 3,765 | 2,479 | 0 60 | 28 6 |
| Motors | MTR-470o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | -110 | 689 | 3,651 | 1,692 | 0 70 | 24 8 |
| Motors | MTR-470o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | 172 | 2,673 | 4 191 | 2,230 | 0 65 | 26 4 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | 23 | 358 | 58 | 0 86 | 20 0 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR-471b | MWR - 01322 | Fan Motor | VSD to Std ROF | 5,097 | 0 | 5,097 | 4,227 | 51 | -110 | 689 | 3,377 | 1,720 | 0 66 | 26 0 |
| Motors | MTR-471b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | -51 | 172 | 2,673 | 3,765 | 2,479 | 0 60 | 28 6 |
| Motors | MTR-471o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | 110 | 689 | 3,651 | 1,692 | 0 70 | 24 8 |
| Motors | MTR-471o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | 172 | 2,673 | 4,191 | 2,230 | 0 65 | 26 4 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | 23 | 358 | 58 | 0 86 | 20 0 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR-472b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | -51 | -110 | 689 | 3,377 | 1,720 | 0 66 | 26 0 |
| Motors | MTR-472b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | -51 | -172 | 2,673 | 3,765 | 2,479 | 0 60 | 28 6 |
| Motors | MTR-472o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | -110 | 689 | 3,651 | 1,692 | 0 70 | 24 8 |
| Motors | MTR-472o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | -172 | 2,673 | 4,191 | 2,230 | 0 65 | 26 4 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - ROF | 417 | 0 | 417 | 285 | 97 | 0 | -23 | 358 | 58 | 0 86 | 20 0 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR-473b | MWR - 01322 | Fan Motor | VSD to Std - ROF | 5,097 | 0 | 5,097 | 4,227 | -51 | -110 | 689 | 3,377 | 1,720 | 0 66 | 26 0 |
| Motors | MTR-473b | MWR - 01322 | Fan Motor | VSD to Std - RI | 6,312 | 68 | 6,244 | 6,661 | -51 | -172 | 2,673 | 3,765 | 2,479 | 0 60 | 28 6 |
| Motors | MTR-473o | MWR - 01322 | Fan Motor | VSD & EEM - ROF | 5,253 | 0 | 5,253 | 4,353 | 97 | -110 | 689 | 3,651 | 1,692 | 0 70 | 24 8 |
| Motors | MTR-473o | MWR - 01322 | Fan Motor | VSD & EEM - RI | 6,504 | 83 | 6,421 | 6,857 | 179 | -172 | -2,673 | 4,191 | 2,230 | 0 65 | 26 4 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - ROF | 502 | 0 | 502 | 1,995 | 679 | 0 | 19 | 2,655 | 2,153 | 5 29 | 3 3 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - RI | 621 | 45 | 576 | 3,247 | 1,104 | 0 | -225 | 4,126 | 3,550 | 7 16 | 2 4 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - ROF | 151 | 0 | 151 | 163 | 28 | 0 | -5 | 186 | 35 | 1 23 | 14 0 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - ROF | 169 | 0 | 169 | 272 | 184 | 0 | -2 | 454 | 285 | 2 68 | 6 4 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - RI | 223 | 16 | 207 | 525 | 354 | 0 | 95 | 784 | 577 | 3 79 | 4 5 |
| Motors | PMTR-51a | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 111 | 150 | 0 | -16 | 245 | 149 | 0 62 | 27 7 |
| Motors | PMTR-51a | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 489 | 35 | 454 | 198 | 267 | 0 | 178 | 287 | 167 | 0 63 | 27 2 |
| Motors | PMTR-51b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - ROF | 2,844 | 0 | 2,844 | 1,275 | -60 | -110 | 342 | 763 | 2,082 | 0 27 | 64 2 |
| Motors | PMTR-51b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - RI | 3,522 | 17 | 3,505 | 2,009 | -60 | 172 | 1,392 | 385 | 3,120 | 0 11 | 156 8 |
| Motors | PMTR-51o | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - ROF | 2,953 | 0 | 2,953 | 1,320 | 150 | -110 | 342 | 1,018 | 1,935 | 0 34 | 50 0 |
| Motors | PMTR-51o | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - RI | 3,657 | 51 | 3,606 | 2,079 | 267 | -172 | 1,392 | 782 | -2,824 | 0 22 | 79 4 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 136 | 184 | 0 | -6 | 313 | 146 | 1 88 | 9 2 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 207 | 15 | 192 | 222 | 299 | 0 | 75 | 446 | 254 | 2 32 | 7 4 |
| Motors | PMTR-61a | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 892 | 0 | 892 | 310 | 418 | 0 | -25 | 702 | -189 | 0 79 | 21 9 |
| Motors | PMTR-61a | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 1,104 | 80 | 1,024 | 561 | 757 | 0 | -391 | 927 | -97 | 0 91 | 19 0 |
| Motors | PMTR-61b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - ROF | 3,098 | 0 | 3,098 | 4,177 | -192 | 220 | 248 | 3,516 | 419 | 1 14 | 15 2 |
| Motors | PMTR-61b | PLT-BLDG - 00109 | PMPMTR | VSD to Std - RI | 3,836 | 56 | 3,780 | 6,578 | -192 | -344 | 1,220 | 4,822 | 1,042 | 1 28 | 13 5 |
| Motors | PMTR-61o | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - ROF | 3,263 | 0 | 3,263 | 4,308 | 418 | -220 | 248 | 4,257 | 995 | 1 30 | 13 2 |
| Motors | PMTR-61o | PLT-BLDG - 00109 | PMPMTR | VSD & EEM RI | 4,040 | 132 | 3,908 | 6,782 | 757 | -344 | 1,220 | 5,974 | 2,066 | 1 53 | 11 3 |
| Motors | PMTR-68 | PLT-BLDG - 00109 | PMPMTR | EEM - ROF | 417 | 0 | 417 | 73 | 122 | 0 | 23 | 172 | 245 | 0 41 | 41 7 |
| Motors | PMTR-68 | PLT BLDG - 00109 | PMPMTR | EEM - RI | 516 | 20 | 496 | 132 | 219 | 0 | -194 | 156 | 340 | 0 31 | 54 7 |
| Motors | MTR 335 | PLT-BLDG - 00253 | EVAP | EEM - ROF | 186 | 0 | 186 | 341 | 230 | 0 | 10 | 561 | 375 | 3 02 | 5 7 |
| Motors | MTR-335 | PLT-BLDG - 00253 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | 74 | 789 | 582 | 3 81 | 4 5 |
| Motors | MTR-336 | PLT-BLDG - 00253 | EVAP | EEM - ROF | 186 | 0 | 186 | 341 | 230 | 0 | 10 | 561 | 375 | 3 02 | 5 7 |
| Motors | MTR 336 | PLT BLDG 00253 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | 74 | 789 | 582 | 3 81 | 4 5 |
| Motors | MTR 337 | PLT BLDG - 00253 | EVAP | EEM - ROF | 379 | 0 | 379 | 61 | 41 | 0 | 28 | 74 | 305 | 0 20 | 87 8 |
| Motors | MTR-337 | PLT BLDG - 00253 | EVAP | EEM - RI | 455 | 14 | 441 | 103 | 70 | 0 | 159 | 14 | -427 | 0 03 | 541 9 |
| Motors | MTR-475 | PLT-BLDG - 00253 | Fan Motor | EEM - ROF | 360 | 0 | 360 | 1,123 | 527 | 0 | 14 | 1,636 | 1,275 | 4 54 | 3 8 |
| Motors | MTR-475 | PLT BLDG - 00253 | Fan Motor | EEM - RI | 446 | 32 | 414 | 1,833 | 861 | 0 | 162 | 2,532 | 2,118 | 6 12 | 2 8 |
| Motors | PMTR-54a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 399 | 538 | 0 | -26 | 911 | 265 | 0 77 | 22 2 |
| Motors | PMTR-54a | PLT BLDG - 00253 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 734 | 990 | 0 | 508 | 1,216 | 120 | 0 91 | 18 9 |
| Motors | PMTR-54b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 10,856 | 0 | 10,856 | 6,123 | -275 | -220 | 1,333 | 4,294 | 6,561 | 0 40 | 43 5 |
| Motors | PMTR 54b | PLT BLDG - 00253 | PMPMTR | VSD to Std - RI | 13,442 | 82 | 13,360 | 9,642 | -275 | -344 | -5,375 | 3,647 | 9,713 | 0 27 | 63 1 |
| Motors | PMTR-54o | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 11,028 | 0 | 11,028 | 6,298 | 538 | 220 | 1,333 | 5,282 | 5,746 | 0 48 | 36 0 |
| Motors | PMTR-54o | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 13,636 | 196 | 13,460 | 9,914 | 990 | -344 | 5,375 | 5,184 | 8,275 | 0 39 | 44 7 |
| Motors | PMTR-55a | PLT BLDG - 00253 | PMPMTR | EEM - ROF | 2,256 | 0 | 2,256 | 1,204 | 1,625 | 0 | -36 | 2,794 | 538 | 1 24 | 13 9 |
| Motors | PMTR-55a | PLT BLDG 00253 | PMPMTR | EEM - RI | 2,794 | 240 | 2,554 | 2,169 | 2,928 | 0 | 961 | 4,136 | 1,582 | 1 62 | 10 6 |
| Motors | PMTR-55b | PLT-BLDG 00253 | PMPMTR | VSD to Std - ROF | 27,023 | 0 | 27,023 | 16,145 | -716 | -220 | 3,464 | 11,745 | 15,278 | 0 49 | 19 6 |
| Motors | PMTR 55b | PLT-BLDG 00253 | PMPMTR | VSD to Std - RI | 33,462 | 216 | 33,246 | 25,420 | -716 | 344 | 13,721 | 10,638 | 22,697 | 0 92 | 33 8 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR 55c | PLT BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 27,261 | 0 | 27,261 | 16,649 | 1,625 | 220 | -3,464 | 14,590 | 12,671 | 0.54 | 32 2 |
| Motors | PMTR-55c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 33,756 | 440 | 33,316 | 26,205 | 2,928 | 344 | 11,721 | 15,066 | -18,250 | 0.45 | 38 1 |
| Motors | PMTR 56a | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 2,256 | 0 | 2,256 | 1,204 | 1,625 | 0 | 36 | 2,794 | 538 | 1 24 | 13 9 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 2,794 | 240 | 2,554 | 2,169 | 2,928 | 0 | 961 | 4,136 | 1,582 | 1 62 | 10 6 |
| Motors | PMTR-56b | PLT BLDG - 00253 | PMPMTR | VSD to Std - ROF | 27,023 | 0 | 27,023 | 16,145 | 716 | 220 | -3,464 | 11,745 | 15,278 | 0 43 | 39 6 |
| Motors | PMTR-56b | PLT BLDG - 00253 | PMPMTR | VSD to Std - RI | 33,462 | 216 | 33,246 | 25,420 | 716 | 344 | 13,721 | 10,638 | 22,497 | 0 32 | 33 8 |
| Motors | PMTR-56o | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 27,261 | 0 | 27,261 | 16 649 | 1,625 | 220 | -3,464 | 14,590 | 12,671 | 0 54 | 32 2 |
| Motors | PMTR-56o | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 33,756 | 440 | 33,316 | 26,205 | 2,928 | 344 | 13,721 | 15,066 | 18,250 | 0 45 | 38 1 |
| Motors | PMTR-57a | PLT BLDG - 00253 | PMPMTR | EEM ROF | 1,176 | 0 | 1,176 | 399 | 538 | 0 | 26 | 911 | 265 | 0 77 | 22 2 |
| Motors | PMTR-57a | PLT BLDG - 00253 | PMPMTR | EEM RI | 1,456 | 120 | 1,336 | 734 | 990 | 0 | 508 | 1,216 | 120 | 0 91 | 18 9 |
| Motors | PMTR-57b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 10,856 | 0 | 10,856 | 6,123 | 275 | 220 | -1,333 | 4,294 | 6,561 | 0 40 | 43 5 |
| Motors | PMTR-57b | PLT BLDG - 00253 | PMPMTR | VSD to Std - RI | 13,442 | 82 | 13,360 | 9,642 | 275 | 344 | 5,375 | 3,647 | 9,713 | 0 27 | 63 1 |
| Motors | PMTR-57o | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 11,028 | 0 | 11,028 | 6,298 | 538 | 220 | -1,333 | 5,282 | 5,746 | 0 48 | 36 0 |
| Motors | PMTR-57o | PLT BLDG - 00253 | PMPMTR | VSD & EEM - RI | 13,656 | 196 | 13,460 | 9,914 | 990 | 344 | -5,375 | 5,184 | 8,275 | 0 39 | 44 7 |
| Motors | PMTR-59a | PLT-BLDG - 00253 | PMPMTR | EEM ROF | 1,853 | 0 | 1,853 | 833 | 1,124 | 0 | 38 | 1,920 | 67 | 1 04 | 16 6 |
| Motors | PMTR-59a | PLT BLDG - 00253 | PMPMTR | EEM - RI | 2,294 | 180 | 2,114 | 1,518 | 2,049 | 0 | 798 | 2,769 | 655 | 1 31 | 13 1 |
| Motors | PMTR-59b | PLT-BLDG - 00253 | PMPMTR | VSD to Std - ROF | 6,236 | 0 | 6,236 | 12,109 | 537 | 220 | 457 | 10,895 | 4,658 | 1 75 | 9 9 |
| Motors | PMTR 59b | PLT BLDG - 00253 | PMPMTR | VSD to Std - RI | 7,722 | 162 | 7,560 | 19,065 | 537 | 344 | 2,358 | 15,825 | 8,266 | 2 09 | 8 2 |
| Motors | PMTR-59o | PLT BLDG - 00253 | PMPMTR | VSD & EEM - ROF | 6,487 | 0 | 6,487 | 12,466 | 1,124 | 220 | 457 | 12,913 | 6,427 | 1 99 | 8 7 |
| Motors | PMTR-59o | PLT BLDG - 00253 | PMPMTR | VSD & EEM - RI | 8,052 | 331 | 7,701 | 19,621 | 2,049 | 344 | 2,358 | 18,967 | 11,266 | 2 46 | 7 0 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 892 | 0 | 892 | 1,512 | 514 | 0 | 25 | 2,001 | 1,110 | 2 24 | 7 7 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 1,104 | 80 | 1,024 | 2,740 | 932 | 0 | 391 | 3,281 | 2,257 | 3 20 | 5 4 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | EEM ROF | 698 | 0 | 698 | 2,489 | 843 | 0 | 32 | 3,292 | 2,594 | 4 72 | 3 7 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | EEM RI | 864 | 70 | 794 | 4,260 | 1,449 | 0 | 318 | 5,591 | 4,597 | 6.79 | 2.5 |
| Motors | PMTR-67 | PLT-BLDG - 00253 | PMPMTR | EEM - ROF | 698 | 0 | 698 | 1,299 | 442 | 0 | 32 | 1,708 | 1,011 | 2 45 | 7 0 |
| Motors | PMTR 67 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 864 | 70 | 794 | 2,390 | 813 | 0 | 518 | 2,884 | 2,090 | 3.63 | 4 7 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - ROF | 164 | 0 | 164 | 251 | 169 | 0 | 0 | 420 | 256 | 2.56 | 6 7 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - RI | 223 | 16 | 207 | 528 | 356 | 0 | -101 | 782 | 575 | 3 78 | 4 6 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - ROF | 329 | 0 | 329 | 502 | 339 | 0 | 0 | 841 | 512 | 2 56 | 6 7 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - RI | 446 | 32 | 414 | 1,055 | 712 | 0 | 202 | 1,565 | 1,151 | 3.78 | 4 6 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 394 | 35 | 0 | -16 | 413 | 18 | 1 04 | 16 5 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 62 | 0 | 178 | 584 | 130 | 1 29 | 13 4 |
| Motors | PMTR-48a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 399 | 538 | 0 | -26 | 911 | 265 | 0 77 | 22 2 |
| Motors | PMTR-48a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 734 | 990 | 0 | 508 | 1,216 | -120 | 0 91 | 18 9 |
| Motors | PMTR-48b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 10,856 | 0 | 10,856 | 6,123 | 275 | 220 | -1,333 | 4,294 | -6,561 | 0 40 | 43.5 |
| Motors | PMTR-48b | PLT BLDG - 00263 | PMPMTR | VSD to Std - RI | 13,442 | 82 | 13,360 | 9,642 | 275 | 344 | -5,375 | 3,647 | 9,713 | 0 27 | 63 1 |
| Motors | PMTR-48o | PLT-BLDG 00263 | PMPMTR | VSD & EEM - ROF | 11,028 | 0 | 11,028 | 6,298 | 538 | 220 | -1,333 | 5,282 | -5,746 | 0 48 | 36 0 |
| Motors | PMTR-48o | PLT-BLDG 00263 | PMPMTR | VSD & EEM - RI | 13,656 | 196 | 13,460 | 9,914 | 990 | 344 | -5,375 | 5,184 | -8,275 | 0.39 | 44 7 |
| Motors | PMTR-49a | PLT-BLDG 00263 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 111 | 150 | 0 | -16 | 245 | -149 | 0.62 | 27 7 |
| Motors | PMTR-49a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 489 | 35 | 454 | 198 | 267 | 0 | -178 | 287 | 167 | 0.63 | 27 2 |
| Motors | PMTR-49b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 2,844 | 0 | 2,844 | 1,275 | 60 | 110 | -342 | 763 | -2,082 | 0 27 | 64 2 |
| Motors | PMTR-49b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 3,522 | 17 | 3,505 | 2,009 | 60 | 172 | -1,392 | 385 | 3,120 | 0.11 | 156 8 |
| Motors | PMTR-49o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 2,933 | 0 | 2,933 | 1,320 | 150 | 110 | -342 | 1,018 | -1,935 | 0.34 | 50 0 |
| Motors | PMTR-49o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 3,657 | 51 | 3,606 | 2,079 | 267 | 172 | -1,392 | 782 | -2,824 | 0 22 | 79 4 |
| Motors | PMTR-50a | PLT-BLDG 00263 | PMPMTR | EEM - ROF | 588 | 0 | 588 | 199 | 269 | 0 | -13 | 456 | -132 | 0.77 | 22 2 |
| Motors | PMTR-50a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 728 | 60 | 668 | 367 | 495 | 0 | -254 | 608 | -60 | 0.91 | 18 9 |
| Motors | PMTR-50b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 5,428 | 0 | 5,428 | 3,062 | 137 | 110 | 667 | 2,147 | -3,281 | 0 40 | 43 5 |
| Motors | PMTR-50b | PLT-BLDG 00263 | PMPMTR | VSD to Std - RI | 6,721 | 41 | 6,680 | 4,821 | 137 | 172 | -2,688 | 1,824 | -4,856 | 0 27 | 63 1 |
| Motors | PMTR-50o | PLT BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 5,514 | 0 | 5,514 | 3,149 | 269 | 110 | -667 | 2,641 | -2,873 | 0 48 | 36 0 |
| Motors | PMTR 50o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 6,828 | 98 | 6,730 | 4,957 | 495 | 172 | -2,688 | 2,592 | -4,138 | 0.39 | 44 7 |
| Motors | PMTR-52a | PLT BLDG 00263 | PMPMTR | EEM - ROF | 588 | 0 | 588 | 381 | 514 | 0 | 13 | 882 | 294 | 1.50 | 11.5 |
| Motors | PMTR-52a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 728 | 60 | 668 | 654 | 883 | 0 | -254 | 1,283 | 615 | 1.92 | 9 0 |
| Motors | PMTR-52b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - ROF | 5,428 | 0 | 5,428 | 3,188 | 149 | 110 | -667 | 2,262 | -3,166 | 0 42 | 41 3 |
| Motors | PMTR-52b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 6,721 | 43 | 6,678 | 5,022 | 149 | 172 | -2,688 | 2,013 | -4,665 | 0 30 | 57 1 |
| Motors | PMTR-52o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 5,514 | 0 | 5,514 | 3,330 | 514 | 110 | -667 | 3,067 | -2,447 | 0 56 | 31 0 |
| Motors | PMTR-52o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 6,828 | 98 | 6,730 | 5,244 | 883 | 172 | -2,688 | 3,267 | -3,463 | 0.49 | 35 5 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM ROF | 1,449 | 0 | 1,449 | 1,018 | 1,374 | 0 | 38 | 2,354 | 905 | 1 62 | 10 6 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1,794 | 135 | 1,659 | 1,773 | 2,393 | 0 | -632 | 3,533 | 1,874 | 2.13 | 8 1 |
| Motors | PMTR-53b | PLT BLDG - 00263 | PMPMTR | VSD to Std - ROF | 16,880 | 0 | 16,880 | 10,205 | 458 | 110 | -2,183 | 7,454 | -9,426 | 0 44 | 39 0 |
| Motors | PMTR-53b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 20,902 | 137 | 20,765 | 16,069 | 458 | 172 | -8,616 | 6,823 | -13,943 | 0 33 | 52 4 |
| Motors | PMTR-53o | PLT BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 17,132 | 0 | 17,132 | 10,599 | 1,374 | 110 | -2,183 | 9,679 | -7,453 | 0 56 | 30 5 |
| Motors | PMTR-53o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 21,214 | 259 | 20,955 | 16,682 | 2,393 | 172 | 8,616 | 10,286 | -10,669 | 0.49 | 35 1 |
| Motors | PMTR-60a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 1,449 | 0 | 1,449 | 1,018 | 1,374 | 0 | -38 | 2,354 | 905 | 1.62 | 10 6 |
| Motors | PMTR-60a | PLT-BLDG - 00263 | PMPMTR | EEM RI | 1,794 | 135 | 1,659 | 1,773 | 2,393 | 0 | 632 | 3,533 | 1,874 | 2 13 | 8 1 |
| Motors | PMTR-60b | PLT BLDG - 00263 | PMPMTR | VSD to Std - ROF | 4,847 | 0 | 4,847 | 10,205 | 458 | 110 | 370 | 9,267 | 4,420 | 1.91 | 9 0 |
| Motors | PMTR-60b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 6,002 | 137 | 5,865 | 16,069 | 458 | 172 | -1,867 | 13,572 | 7,707 | 2.31 | 7 4 |
| Motors | PMTR-60o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 5,099 | 0 | 5,099 | 10,599 | 1,374 | 110 | 370 | 11,493 | 6,393 | 2 25 | 7 6 |
| Motors | PMTR-60o | PLT BLDG - 00263 | PMPMTR | VSD & EEM - RI | 6,314 | 259 | 6,055 | 16,682 | 2,393 | 172 | -1,867 | 17,055 | 10,980 | 2 81 | 6 1 |
| Motors | PMTR-62a | PLT-BLDG - 00263 | PMPMTR | EEM ROF | 417 | 0 | 417 | 58 | 79 | 0 | -23 | 114 | -303 | 0 27 | 63 2 |
| Motors | PMTR 62a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 516 | 20 | 496 | 108 | 145 | 0 | 194 | 59 | -437 | 0 12 | 145 2 |
| Motors | PMTR-62b | PLT BLDG - 00263 | PMPMTR | VSD to Std - ROF | 2,190 | 0 | 2,190 | 865 | -41 | 110 | -251 | 463 | -1,727 | 0 21 | 81 5 |
| Motors | PMTR-62b | PLT-BLDG - 00263 | PMPMTR | VSD to Std - RI | 2,712 | 12 | 2,700 | 1,364 | -41 | 172 | -1,042 | 108 | -2,593 | 0 04 | 431 0 |
| Motors | PMTR-62o | PLT BLDG 00263 | PMPMTR | VSD & EEM - ROF | 2,345 | 0 | 2,345 | 891 | 79 | 110 | -251 | 609 | -1,737 | 0 26 | 66 4 |
| Motors | PMTR-62o | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 2,904 | 31 | 2,873 | 1,404 | 145 | 172 | -1,042 | 335 | -2,539 | 0 12 | 147 8 |
| Motors | PMTR 63a | PLT-BLDG - 00263 | PMPMTR | EEM - ROF | 446 | 0 | 446 | 155 | 209 | 0 | -12 | 351 | -95 | 0 79 | 21 9 |
| Motors | PMTR-63a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 552 | 40 | 512 | 280 | 378 | 0 | 195 | 464 | -48 | 0 91 | 19 0 |
| Motors | PMTR 63b | PLT BLDG - 00263 | PMPMTR | VSD to Std - ROF | 3,891 | 0 | 3,891 | 2,088 | 96 | 110 | -477 | 1,405 | 2,486 | 0 36 | 47 7 |
| Motors | PMTR-63b | PLT BLDG - 00263 | PMPMTR | VSD to Std - RI | 4,818 | 28 | 4,790 | 3,289 | 96 | 172 | -1,924 | 1,097 | -3,693 | 0 23 | 75 2 |
| Motors | PMTR-63o | PLT BLDG - 00263 | PMPMTR | VSD & EEM - ROF | 3,973 | 0 | 3,973 | 2,154 | 209 | 110 | -477 | 1,776 | 2,198 | 0 45 | 38 5 |
| Motors | PMTR 63c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 4,920 | 66 | 4,854 | 3,391 | 378 | 172 | 1,924 | 1,674 | -3,180 | 0 34 | 49 9 |
| Motors | PMTR 64a | PLT BLDG - 00263 | PMPMTR | EEM ROF | 446 | 0 | 446 | 155 | 209 | 0 | 12 | 351 | 95 | 0 79 | 21 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR 64a | PLT-BLDG 00263 | PMPMTR | EEM RI | 552 | 40 | 512 | 280 | 378 | 0 | 195 | 464 | -48 | 0 91 | 19 0 |
| Motors | PMTR 64b | PLT-BLDG - 00263 | PMPMTR | VSD to Std ROF | 3,891 | 0 | 3,891 | 2,088 | 96 | 110 | -477 | 1,405 | 2,486 | 0 36 | 47 7 |
| Motors | PMTR 64b | PLT-BLDG - 00263 | PMPMTR | VSD to Std RI | 4,818 | 28 | 4,790 | 3,289 | 96 | 172 | 1,924 | 1,097 | 3,693 | 0 23 | 75 2 |
| Motors | PMTR 64c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM ROF | 3,973 | 0 | 3,973 | 2,154 | 209 | 110 | -477 | 1,776 | 2,198 | 0 45 | 38 5 |
| Motors | PMTR-64c | PLT BLDG - 00263 | PMPMTR | VSD & EEM RI | 4,920 | 66 | 4,854 | 3,391 | 378 | 172 | -1,924 | 1,674 | 3,180 | 0 34 | 49 9 |
| Motors | PMTR 69 | PLT BLDG - 00263 | PMPMTR | EEM ROF | 892 | 0 | 892 | 1,512 | 514 | 0 | 25 | 2,001 | 1,110 | 2 24 | 7 7 |
| Motors | PMTR 69 | PLT-BLDG - 00263 | PMPMTR | EEM RI | 1,104 | 80 | 1,024 | 2,740 | 932 | 0 | 191 | 3,281 | 2,257 | 3 20 | 5 4 |
| Motors | PMTR 70 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 151 | 0 | 151 | 778 | 151 | 0 | 5 | 923 | 772 | 6 12 | 2 8 |
| Motors | PMTR 70 | POOL-OT 00328 | PMPMTR | EEM RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2 2 |
| Motors | PMTR 71 | POOL-OT - 00328 | PMPMTR | EEM ROF | 167 | 0 | 167 | 1,161 | 226 | 0 | 6 | 1,381 | 1,214 | 8 26 | 2 1 |
| Motors | PMTR 71 | POOL-OT - 00328 | PMPMTR | EEM - RI | 207 | 15 | 192 | 1,890 | 368 | 0 | 75 | 2,183 | 1,991 | 11 37 | 1 5 |
| Motors | PMTR 72 | POOL-OT - 00328 | PMPMTR | EEM - ROF | 151 | 0 | 151 | 778 | 151 | 0 | 5 | 923 | 772 | 6 12 | 2 8 |
| Motors | PMTR 72 | POOL OT - 00328 | PMPMTR | EEM RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2 2 |
| Motors | PMTR 73 | POOL-OT - 00328 | PMPMTR | EEM ROF | 151 | 0 | 151 | 778 | 151 | 0 | 5 | 923 | 772 | 6 12 | 2 8 |
| Motors | PMTR 73 | POOL-OT - 00328 | PMPMTR | EEM - RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2 2 |
| Motors | PMTR 74 | PUMP - 00042 | PMPMTR | EEM ROF | 790 | 0 | 790 | 652 | 370 | 0 | 33 | 989 | 199 | 1 25 | 13 8 |
| Motors | PMTR 74 | PUMP - 00042 | PMPMTR | EEM RI | 978 | 70 | 908 | 1,158 | 658 | 0 | 357 | 1,459 | 551 | 1 61 | 10 7 |
| Motors | PMTR 91 | PUMP - 00042 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 1,623 | 692 | 0 | 19 | 2,296 | 1,370 | 2 48 | 6 9 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,957 | 1,261 | 0 | 399 | 3,819 | 2,762 | 3 61 | 4 8 |
| Motors | PMTR 115 | PUMP - 00043 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 3,823 | 2,154 | 0 | 96 | 5,893 | 2,983 | 2 03 | 8 5 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 7,445 | 4,194 | 0 | 1,285 | 10,354 | 7,036 | 3 12 | 5 5 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 1,447 | 2,154 | 0 | 96 | 3,505 | 607 | 1 21 | 14 2 |
| Motors | MTR-10 | PUMP - 00044 | AIRCOMP | EEM - RI | 3,588 | 270 | 3,318 | 2,819 | 4,194 | 0 | 1,285 | 5,728 | 2,410 | 1 73 | 10 0 |
| Motors | MTR 10 | PUMP - 00044 | AIRCOMP | EEM - ROF | 417 | 0 | 417 | 90 | 97 | 0 | 23 | 164 | 253 | 0 39 | 43 9 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM RI | 516 | 20 | 496 | 166 | 179 | 0 | 194 | 151 | 345 | 0 30 | 56 5 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | PMTR 75 | PUMP - 00044 | PMPMTR | EEM - ROF | 395 | 0 | 395 | 326 | 185 | 0 | 16 | 495 | 100 | 1 25 | 13 8 |
| Motors | PMTR-81 | PUMP - 00044 | PMPMTR | EEM - RI | 489 | 35 | 454 | 579 | 329 | 0 | 178 | 730 | 276 | 1 61 | 10 7 |
| Motors | PMTR 81 | PUMP - 00044 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 2,111 | 1,125 | 0 | 19 | 3,217 | 2,291 | 3 47 | 5 0 |
| Motors | PMTR 88 | PUMP - 00044 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 3,652 | 1,946 | 0 | 199 | 5,198 | 4,141 | 4 92 | 3 5 |
| Motors | PMTR-88 | PUMP - 00044 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 4,260 | 830 | 0 | 26 | 5,063 | 3,888 | 4 31 | 4 0 |
| Motors | PMTR 89 | PUMP - 00044 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 7,618 | 1,484 | 0 | 308 | 8,593 | 7,257 | 6 43 | 2 7 |
| Motors | PMTR 89 | PUMP - 00044 | PMPMTR | EEM - ROF | 1,176 | 0 | 1,176 | 3,401 | 662 | 0 | 26 | 4,038 | 2,862 | 3 43 | 5 0 |
| Motors | PMTR 90 | PUMP - 00044 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 6,259 | 1,219 | 0 | 508 | 6,970 | 5,634 | 5 22 | 3 3 |
| Motors | PMTR 90 | PUMP - 00044 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 1,623 | 692 | 0 | 19 | 2,296 | 1,370 | 2 48 | 6 9 |
| Motors | PMTR-92 | PUMP - 00044 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,957 | 1,261 | 0 | 399 | 3,819 | 2,762 | 3 61 | 4 8 |
| Motors | PMTR 92 | PUMP - 00044 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 3,789 | 2,154 | 0 | 96 | 5,846 | 2,949 | 2 02 | 8 5 |
| Motors | PMTR 93 | PUMP - 00044 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 7,379 | 4,194 | 0 | 1,285 | 10,288 | 6,970 | 3 10 | 5 6 |
| Motors | PMTR 93 | PUMP - 00044 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 11,057 | 2,154 | 0 | 96 | 13,114 | 10,217 | 4 53 | 3 8 |
| Motors | PMTR 94 | PUMP - 00044 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 21,533 | 4,194 | 0 | 1,285 | 24,442 | 21,124 | 7 37 | 2 3 |
| Motors | PMTR-94 | PUMP 00044 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 11,057 | 2,154 | 0 | 96 | 13,114 | 10,217 | 4 53 | 3 8 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 21,533 | 4,194 | 0 | 1,285 | 24,442 | 21,124 | 7 37 | 2 3 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - ROF | 3,476 | 0 | 3,476 | 6,082 | 3,241 | 0 | 159 | 9,163 | 5,687 | 2 64 | 6 5 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - RI | 4,304 | 320 | 3,984 | 11,573 | 6,166 | 0 | 1,585 | 16,154 | 12,170 | 4 05 | 4 2 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - ROF | 3,476 | 0 | 3,476 | 6,196 | 3,241 | 0 | 159 | 9,277 | 5,802 | 2 67 | 6 5 |
| Motors | MTR-477 | PUMP - 00324 | Fan Motor | EEM - RI | 4,304 | 320 | 3,984 | 11,790 | 6,166 | 0 | 1,585 | 16,371 | 12,387 | 4 11 | 4 2 |
| Motors | PMTR-76 | PUMP - 00324 | PMPMTR | EEM - ROF | 446 | 0 | 446 | 547 | 257 | 0 | 12 | 792 | 346 | 1 78 | 9 7 |
| Motors | PMTR-76 | PUMP - 00324 | PMPMTR | EEM - RI | 552 | 40 | 512 | 992 | 466 | 0 | 195 | 1,262 | 750 | 2 47 | 7 0 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 168 | 90 | 0 | 16 | 242 | 117 | 0 67 | 25 5 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - RI | 445 | 18 | 427 | 303 | 161 | 0 | 163 | 301 | 126 | 0 71 | 24 4 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 1,473 | 130 | 0 | 19 | 1,584 | 658 | 1 71 | 10 1 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,684 | 236 | 0 | 399 | 2,521 | 1,464 | 2 39 | 7 2 |
| Motors | PMTR-86 | PUMP - 00324 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 482 | 42 | 0 | 6 | 517 | 350 | 3 10 | 5 6 |
| Motors | PMTR 86 | PUMP - 00324 | PMPMTR | EEM - RI | 207 | 15 | 192 | 784 | 69 | 0 | 75 | 778 | 586 | 4 05 | 4 3 |
| Motors | PMTR 87 | PUMP - 00324 | PMPMTR | EEM - ROF | 1,128 | 0 | 1,128 | 2,918 | 1,555 | 0 | 18 | 4,454 | 3,326 | 3 93 | 4 4 |
| Motors | PMTR 87 | PUMP - 00324 | PMPMTR | EEM RI | 1,397 | 120 | 1,277 | 5,028 | 2,679 | 0 | 481 | 7,226 | 5,949 | 5 66 | 3 0 |
| Motors | PMTR 95 | PUMP - 00324 | PMPMTR | EEM - ROF | 417 | 0 | 417 | 182 | 97 | 0 | 23 | 255 | 162 | 0 61 | 28 1 |
| Motors | PMTR-95 | PUMP - 00324 | PMPMTR | EEM - RI | 516 | 20 | 496 | 336 | 179 | 0 | 194 | 320 | 176 | 0 65 | 26 7 |
| Motors | PMTR-96 | PUMP - 00324 | PMPMTR | EEM - ROF | 359 | 0 | 359 | 133 | 71 | 0 | 16 | 188 | 171 | 0 52 | 32 9 |
| Motors | PMTR-96 | PUMP - 00324 | PMPMTR | EEM - RI | 445 | 18 | 427 | 247 | 132 | 0 | 163 | 215 | 212 | 0 50 | 34 2 |
| Motors | PMTR 97 | PUMP - 00324 | PMPMTR | EEM - ROF | 417 | 0 | 417 | 182 | 97 | 0 | 23 | 255 | 162 | 0 61 | 28 1 |
| Motors | PMTR 97 | PUMP - 00324 | PMPMTR | EEM - RI | 516 | 20 | 496 | 336 | 179 | 0 | 194 | 320 | 176 | 0 65 | 26 7 |
| Motors | PMTR-98 | PUMP - 00324 | PMPMTR | EEM ROF | 417 | 0 | 417 | 182 | 97 | 0 | 23 | 255 | 162 | 0 61 | 28 1 |
| Motors | PMTR 98 | PUMP - 00324 | PMPMTR | EEM RI | 516 | 20 | 496 | 336 | 179 | 0 | 194 | 320 | 176 | 0 65 | 26 7 |
| Motors | PMTR 99 | PUMP - 00324 | PMPMTR | EEM - ROF | 926 | 0 | 926 | 1,299 | 692 | 0 | 19 | 1,972 | 1,045 | 2 13 | 8 1 |
| Motors | PMTR 99 | PUMP - 00324 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,366 | 1,261 | 0 | 399 | 3,228 | 2,171 | 3 05 | 5 6 |
| Motors | PMTR-106 | PUMP 00636 | PMPMTR | EEM ROF | 2,898 | 0 | 2,898 | 7,116 | 3,914 | 0 | 101 | 10,928 | 8,031 | 3 77 | 4 6 |
| Motors | PMTR 106 | PUMP - 00636 | PMPMTR | EEM RI | 3,588 | 270 | 3,318 | 12,410 | 6,826 | 0 | 1,290 | 17,946 | 14,628 | 5 41 | 3 2 |
| Motors | PMTR 107 | PUMP - 00636 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 803 | 3,914 | 0 | 101 | 4,616 | 1,718 | 1 59 | 10 8 |
| Motors | PMTR-107 | PUMP - 00636 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 1,401 | 6,826 | 0 | 1,290 | 6,937 | 3,619 | 2 09 | 8 2 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM ROF | 2,898 | 0 | 2,898 | 7,843 | 3,914 | 0 | 101 | 11,656 | 8,758 | 4 02 | 4 3 |
| Motors | PMTR 109 | PUMP - 00636 | PMPMTR | EEM RI | 3,588 | 270 | 3,318 | 13,679 | 6,826 | 0 | 1,290 | 19,215 | 15,897 | 5 79 | 3 0 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - ROF | 926 | 0 | 926 | 873 | 938 | 0 | 19 | 1,793 | 866 | 1 94 | 8 9 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - RI | 1,147 | 90 | 1,057 | 1,535 | 1,651 | 0 | 399 | 2,787 | 1,730 | 2 64 | 6 5 |
| Motors | PMTR-105 | PUMP - 00652 | PMPMTR | EEM ROF | 393 | 0 | 395 | 470 | 259 | 0 | 16 | 713 | 318 | 1 80 | 9 5 |
| Motors | PMTR 105 | PUMP - 00652 | PMPMTR | EEM - RI | 489 | 35 | 454 | 810 | 445 | 0 | 178 | 1,077 | 623 | 2 37 | 7 3 |
| Motors | PMTR 108 | PUMP - 00652 | PMPMTR | EEM ROF | 2,898 | 0 | 2,898 | 4,171 | 3,914 | 0 | 101 | 7,983 | 5,086 | 2 76 | 6 3 |
| Motors | PMTR-108 | PUMP - 00652 | PMPMTR | EEM RI | 3,588 | 270 | 3,318 | 7,274 | 6,826 | 0 | 1,290 | 12,810 | 9,492 | 3 86 | 4 5 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-114 | PUMP - 00663 | PMPMTR | EEM ROF | 7,409 | 0 | 7,409 | 12,798 | 7,214 | 0 | 191 | 19,821 | 12,412 | 2 68 | 6 4 |
| Motors | PMTR 114 | PUMP 00663 | PMPMTR | EEM RI | 9,174 | 550 | 8,624 | 23,902 | 13,473 | 0 | 3,230 | 34,145 | 25,521 | 3 96 | 4 3 |
| Motors | MTR-341 | PUMP - 00700 | EVAP | EEM ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-341 | PUMP 00700 | EVAP | EEM RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM ROF | 2,215 | 0 | 2,215 | 5,599 | 1,090 | 0 | -78 | 6,611 | 4,396 | 2 98 | 5 8 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR 101 | PUMP - 00700 | PMPMTR | EEM ROF | 2,215 | 0 | 2,215 | 5,599 | 1,090 | 0 | 78 | 6,611 | 4,396 | 2 98 | 5 8 |
| Motors | PMTR 101 | PUMP 00700 | PMPMTR | EEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR-102 | PUMP - 00700 | PMPMTR | EEM ROF | 2,215 | 0 | 2,215 | 5,599 | 1,090 | 0 | 78 | 6,611 | 4,396 | 2 98 | 5 8 |
| Motors | PMTR 102 | PUMP - 00700 | PMPMTR | FEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR 103 | PUMP 00700 | PMPMTR | EEM ROF | 2,215 | 0 | 2,215 | 5,599 | 1,090 | 0 | 78 | 6,611 | 4,396 | 2 98 | 5 8 |
| Motors | PMTR-103 | PUMP 00700 | PMPMTR | EEM - RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR-104 | PUMP 00700 | PMPMTR | EEM - ROF | 2,898 | 0 | 2,898 | 3,583 | 1,527 | 0 | 76 | 5,034 | 2,136 | 1 74 | 9 9 |
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 6,934 | 2,956 | 0 | -1,265 | 8,626 | 5,308 | 2 60 | 6 6 |
| Motors | MTR-342 | PUMP 00838 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-342 | PUMP - 00838 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 8 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM ROF | 9,174 | 550 | 8,624 | 6,858 | 10,583 | 0 | 711 | 16,730 | 8,106 | 1 94 | 8 9 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM RI | 9,174 | 550 | 8,624 | 7,508 | 11,586 | 0 | -711 | 18,383 | 9,759 | 2 13 | 8 1 |
| Motors | PMTR-79 | PUMP 05590 | PMPMTR | EEM ROF | 7,409 | 0 | 7,409 | 3,693 | 7,214 | 0 | 191 | 10,716 | 3,307 | 1 45 | 11 9 |
| Motors | PMTR 79 | PUMP 05590 | PMPMTR | EEM - RI | 9,174 | 550 | 8,624 | 6,898 | 13,473 | 0 | 3,230 | 17,140 | 8,516 | 1 99 | 8 7 |
| Motors | PMTR-80 | PUMP - 05590 | PMPMTR | EEM ROF | 7,409 | 0 | 7,409 | 6,537 | 7,214 | 0 | 191 | 13,559 | 6,150 | 1 83 | 9 4 |
| Motors | PMTR 80 | PUMP - 05590 | PMPMTR | EEM RI | 9,174 | 550 | 8,624 | 12,208 | 13,473 | 0 | 3,230 | 22,450 | 13,826 | 2 60 | 6 6 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM ROF | 4,590 | 0 | 4,680 | 8,859 | 4,280 | 0 | -264 | 12,875 | 8,195 | 2 75 | 6 5 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM RI | 5,795 | 450 | 5,345 | 16,692 | 8,065 | 0 | 2,184 | 22,573 | 17,228 | 4 22 | 4 1 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM ROF | 4,680 | 0 | 4,680 | 6,125 | 4,280 | 0 | 264 | 10,141 | 5,461 | 2 17 | 7 9 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - RI | 5,795 | 450 | 5,345 | 11,541 | 8,065 | 0 | -2,184 | 17,422 | 12,077 | 3 26 | 5 3 |
| Motors | PMTR 83 | PUMP - 18005 | PMPMTR | EEM - ROF | 5,879 | 0 | 5,879 | 8,228 | 5,410 | 0 | 370 | 13,269 | 7,389 | 2 26 | 7 6 |
| Motors | PMTR 83 | PUMP - 18005 | PMPMTR | EEM - RI | 7,280 | 500 | 6,780 | 15,367 | 10,104 | 0 | -2,781 | 22,690 | 15,910 | 3 35 | 5 1 |
| Motors | PMTR 84 | PUMP 18005 | PMPMTR | EEM ROF | 5,879 | 0 | 5,879 | 9,687 | 5,410 | 0 | 370 | 14,728 | 8,849 | 2 51 | 6 9 |
| Motors | PMTR-84 | PUMP 18005 | PMPMTR | EEM - RI | 7,280 | 500 | 6,780 | 18,093 | 10,104 | 0 | 2,781 | 25,416 | 18,636 | 3 75 | 4 6 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - ROF | 5,879 | 0 | 5,879 | 4,782 | 5,410 | 0 | -370 | 9,823 | 3,943 | 1 67 | 10 3 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - RI | 7,280 | 500 | 6,780 | 8,931 | 10,104 | 0 | 2,781 | 16,254 | 9,474 | 2 40 | 7 2 |
| Motors | MTR-343 | REC 00322 | EVAP | EEM ROF | 3,675 | 0 | 3,675 | 569 | 384 | 0 | -207 | 747 | 2,928 | 0 20 | 84 7 |
| Motors | MTR-343 | REC 00322 | EVAP | EEM - RI | 4,550 | 140 | 4,410 | 1,056 | 713 | 0 | 1,714 | 55 | -4,355 | 0 01 | 1,387.3 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 482 | 226 | 0 | -6 | 701 | 534 | 4 19 | 4 1 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5.61 | 3 1 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - ROF | 167 | 0 | 167 | 482 | 226 | 0 | 6 | 701 | 534 | 4 19 | 4 1 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR-345 | REC - 00905 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-345 | REC - 00905 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-34a | REC - 00905 | COMPMTR | EEM - ROF | 1,703 | 0 | 1,703 | 1,666 | 916 | 0 | -58 | 2,525 | 821 | 1.48 | 11 6 |
| Motors | MTR-34a | REC - 00905 | COMPMTR | EEM - RI | 2,109 | 175 | 1,934 | 3,225 | 1,774 | 0 | 756 | 4,242 | 2,308 | 2 19 | 7 9 |
| Motors | MTR 34b | REC - 00905 | COMPMTR | VSD to Std ROF | 5,152 | 0 | 5,152 | 24,718 | -625 | -110 | 379 | 23,604 | 18,452 | 4 58 | 3 8 |
| Motors | MTR-34b | REC - 00905 | COMPMTR | VSD to Std - RI | 6,379 | 914 | 5,465 | 39,096 | 625 | -172 | -1,951 | 36,349 | 30,884 | 6 65 | 2.6 |
| Motors | MTR-34o | REC - 00905 | COMPMTR | VSD & EEM - ROF | 5,535 | 0 | 5,535 | 26,119 | 916 | -110 | 379 | 26,547 | 21,011 | 4 80 | 3.6 |
| Motors | MTR-34o | REC - 00905 | COMPMTR | VSD & EEM - RI | 6,854 | 1,039 | 5,815 | 41,277 | 1,774 | -172 | 1,951 | 40,928 | 35,113 | 7 04 | 2 4 |
| Motors | MTR-35a | REC - 00905 | COMPMTR | EEM - ROF | 1,703 | 0 | 1,703 | 1,944 | 1,069 | 0 | -58 | 2,955 | 1,252 | 1 73 | 9 9 |
| Motors | MTR-35a | REC - 00905 | COMPMTR | EEM - RI | 2,109 | 175 | 1,934 | 3,762 | 2,069 | 0 | -756 | 5,075 | 3,141 | 2 62 | 6 6 |
| Motors | MTR-35b | REC - 00905 | COMPMTR | VSD to Std - ROF | 5,152 | 0 | 5,152 | 28,837 | -729 | -110 | 379 | 27,619 | 22,468 | 5.36 | 3.2 |
| Motors | MTR-35b | REC - 00905 | COMPMTR | VSD to Std - RI | 6,379 | 1,066 | 5,313 | 45,613 | -729 | -172 | 1,951 | 42,761 | 37,448 | 8 05 | 2 1 |
| Motors | MTR-35o | REC - 00905 | COMPMTR | VSD & EEM - ROF | 5,535 | 0 | 5,535 | 30,472 | 1,069 | -110 | -379 | 31,052 | 25,517 | 5 61 | 3 1 |
| Motors | MTR-35o | REC - 00905 | COMPMTR | VSD & EEM - RI | 6,854 | 1,183 | 5,671 | 48,156 | 2,069 | -172 | 1,951 | 48,105 | 42,432 | 8 48 | 2 0 |
| Motors | MTR-36 | REC - 00905 | COMPMTR | EEM - ROF | 1,470 | 0 | 1,470 | 344 | 189 | 0 | -83 | 450 | -1,019 | 0 31 | 36 2 |
| Motors | MTR-36 | REC - 00905 | COMPMTR | EEM - RI | 1,820 | 56 | 1,764 | 638 | 351 | 0 | -686 | 303 | 1,461 | 0 17 | 100 2 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 394 | 150 | 0 | -16 | 528 | 133 | 1 34 | 12 9 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 267 | 0 | -178 | 789 | 335 | 1 74 | 9 9 |
| Motors | MTR-478b | REC - 00905 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 4,509 | -60 | -110 | -1,000 | 3,340 | 3,865 | 0 46 | 37 2 |
| Motors | MTR-478b | REC - 00905 | Fan Motor | VSD to Std - RI | 8,922 | 68 | 8,854 | 7,104 | 60 | -172 | -3,838 | 3,034 | 5,819 | 0 34 | 50 2 |
| Motors | MTR-478o | REC - 00905 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 4,669 | 150 | -110 | -1,000 | 3,710 | 3,605 | 0 51 | 34.0 |
| Motors | MTR-478o | REC - 00905 | Fan Motor | VSD & EEM - RI | 9,057 | 98 | 8,959 | 7,353 | 267 | -172 | -3,838 | 3,610 | 5,350 | 0 40 | 42 7 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 394 | 150 | 0 | -16 | 528 | 133 | 1 34 | 12 9 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 267 | 0 | -178 | 789 | 335 | 1.74 | 9 9 |
| Motors | MTR-479b | REC - 00905 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 4,509 | -60 | -110 | 1,000 | 3,340 | -3,865 | 0 46 | 37 2 |
| Motors | MTR-479b | REC 00905 | Fan Motor | VSD to Std - RI | 8,922 | 68 | 8,854 | 7,104 | -60 | -172 | -3,838 | 3,034 | -5,819 | 0 34 | 50 2 |
| Motors | MTR-479o | REC - 00905 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 4,669 | 150 | -110 | -1,000 | 3,710 | 3,605 | 0 51 | 34 0 |
| Motors | MTR-479o | REC - 00905 | Fan Motor | VSD & EEM - RI | 9,057 | 98 | 8,959 | 7,353 | 267 | -172 | -3,838 | 3,610 | -5,350 | 0.40 | 42 7 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - ROF | 395 | 0 | 395 | 394 | 150 | 0 | -16 | 528 | 133 | 1 34 | 12.9 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 267 | 0 | -178 | 789 | 335 | 1 74 | 9 9 |
| Motors | MTR-480b | REC - 00905 | Fan Motor | VSD to Std - ROF | 7,205 | 0 | 7,205 | 4,509 | -60 | -110 | -1,000 | 3,340 | 3,865 | 0 46 | 37 2 |
| Motors | MTR-480b | REC - 00905 | Fan Motor | VSD to Std RI | 8,922 | 68 | 8,854 | 7,104 | -60 | -172 | 3,838 | 3,034 | 5,819 | 0 34 | 50 2 |
| Motors | MTR-480o | REC - 00905 | Fan Motor | VSD & EEM - ROF | 7,314 | 0 | 7,314 | 4,669 | 150 | -110 | 1,000 | 3,710 | 3,605 | 0 51 | 34 0 |
| Motors | MTR-480o | REC - 00905 | Fan Motor | VSD & EEM - RI | 9,057 | 98 | 8,959 | 7,353 | 267 | -172 | -3,838 | 3,610 | 5,350 | 0 40 | 42 7 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM ROF | 446 | 0 | 446 | 547 | 257 | 0 | 12 | 792 | 346 | 1 78 | 9 7 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM - RI | 552 | 40 | 512 | 992 | 466 | 0 | 195 | 1,262 | 750 | 2 47 | 7 0 |
| Motors | PMTR 117 | REC 00905 | PMPMTR | EEM - ROF | 180 | 0 | 180 | 561 | 264 | 0 | 7 | 818 | 638 | 4 54 | 3 8 |
| Motors | PMTR-117 | REC - 00905 | PMPMTR | EEM - RI | 223 | 16 | 207 | 917 | 431 | 0 | 81 | 1,266 | 1,059 | 6 12 | 2 8 |
| Motors | MTR-346 | SECURITY - 00826 | EVAP | EEM - ROF | 394 | 0 | 394 | 105 | 71 | 0 | 33 | 142 | 252 | 0 36 | 47 7 |
| Motors | MTR-346 | SECURITY 00826 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | 121 | 127 | 369 | 0 30 | 58 0 |
| Motors | MTR 347 | SECURITY - 00826 | EVAP | EEM - ROF | 197 | 0 | 197 | 389 | 263 | 0 | 15 | 637 | 439 | 5 23 | 5 3 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 347 | SECURTY 00026 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3 83 | 4 5 |
| Motors | MTR 348 | SECURTY 00026 | EVAP | EEM - ROF | 394 | 0 | 394 | 105 | 71 | 0 | 33 | 142 | 252 | 0 36 | 47 7 |
| Motors | MTR 348 | SECURTY 00026 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | 121 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-349 | SECURTY - 00427 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-349 | SECURTY - 00427 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-350 | SHOP 00356 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 350 | SHOP - 00356 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 352 | SHOP - 00357 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-352 | SHOP - 00357 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-353 | SHOP - 00357 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 353 | SHOP - 00357 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM - ROF | 1,128 | 0 | 1,128 | 596 | 641 | 0 | 18 | 1,219 | 91 | 1 08 | 15 9 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM RI | 1,397 | 120 | 1,277 | 1,147 | 1,233 | 0 | -481 | 1,900 | 623 | 1 49 | 11 6 |
| Motors | MTR 354 | SHOP - 00367 | EVAP | EEM - ROF | 900 | 0 | 900 | 1,587 | 1,071 | 0 | 36 | 2,622 | 1,722 | 2 91 | 5 9 |
| Motors | MTR-354 | SHOP - 00367 | EVAP | EEM RI | 1,115 | 80 | 1,035 | 2,592 | 1,749 | 0 | -405 | 3,935 | 2,900 | 3 80 | 4 5 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-356 | SHOP - 00384 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 356 | SHOP - 00384 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-357 | SHOP - 00384 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | 29 | 2,098 | 1,378 | 2 91 | 5 9 |
| Motors | MTR 357 | SHOP - 00384 | EVAP | EEM RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3 80 | 4 5 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 360 | SHOP-ELC - 00581 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 360 | SHOP ELC - 00581 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-361 | SHOP ELC 00581 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | 29 | 2,098 | 1,378 | 2 91 | 5 9 |
| Motors | MTR 361 | SHOP-ELC - 00581 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3 80 | 4 5 |
| Motors | MTR-362 | SHOP-ELC - 00616 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 362 | SHOP ELC - 00616 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-363 | SHOP-WPN - 07602 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-363 | SHOP WPN - 07602 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-364 | STOR UH - 00148 | EVAP | EEM - ROF | 391 | 0 | 391 | 65 | 44 | 0 | 36 | 74 | -317 | 0 19 | 91 0 |
| Motors | MTR-364 | STOR-UH - 00148 | EVAP | EEM RI | 455 | 14 | 441 | 101 | 68 | 0 | 146 | 23 | -418 | 0 05 | 332 4 |
| Motors | MTR 365 | TRAING - 00490 | EVAP | EEM - ROF | 1,470 | 0 | 1,470 | 228 | 154 | 0 | -83 | 299 | -1,171 | 0 20 | 84 7 |
| Motors | MTR-365 | TRAING - 00490 | EVAP | EEM - RI | 1,820 | 56 | 1,764 | 422 | 285 | 0 | 686 | 22 | -1,742 | 0 01 | 1,387 3 |
| Motors | MTR 366 | TRAING - 00492 | EVAP | EEM - ROF | 1,470 | 0 | 1,470 | 228 | 154 | 0 | 83 | 299 | -1,171 | 0 20 | 84 7 |
| Motors | MTR-366 | TRAING - 00492 | EVAP | EEM - RI | 1,820 | 56 | 1,764 | 422 | 285 | 0 | 686 | 22 | 1,742 | 0 01 | 1,387 3 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-369 | TRAING - 00547 | EVAP | EEM - ROF | 394 | 0 | 394 | 105 | 71 | 0 | 33 | 142 | 252 | 0 36 | 47 7 |
| Motors | MTR-369 | TRAING - 00547 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | 121 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - ROF | 167 | 0 | 167 | 482 | 226 | 0 | -6 | 701 | 534 | 4 19 | 4 1 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5.61 | 3 1 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - ROF | 151 | 0 | 151 | 429 | 202 | 0 | -5 | 626 | 475 | 4 14 | 4 2 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - RI | 187 | 0 | 187 | 696 | 327 | 0 | 67 | 955 | 768 | 5.11 | 3 4 |
| Motors | MTR-370 | WHS - 00024 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-370 | WHS 00024 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-371 | WHS 00234 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 371 | WHS 00234 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-372 | WHS - 00277 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-372 | WHS 00277 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-373 | WHS 00306 | EVAP | EEM - ROF | 719 | 0 | 719 | 171 | 115 | 0 | -32 | 254 | -464 | 0 35 | 48 6 |
| Motors | MTR-373 | WHS 00306 | EVAP | EEM - RI | 890 | 36 | 854 | 317 | 214 | 0 | -326 | 204 | 650 | 0 24 | 72 0 |
| Motors | MTR 374 | WHS 00318 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-374 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-375 | WHS - 00318 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR 375 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 376 | WHS - 00318 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-376 | WHS 00318 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4 5 |
| Motors | MTR 378 | WHS - 00333 | EVAP | EEM - ROF | 367 | 0 | 367 | 57 | 38 | 0 | 21 | 75 | -293 | 0 20 | 84 7 |
| Motors | MTR 378 | WHS - 00333 | EVAP | EEM - RI | 455 | 14 | 441 | 106 | 71 | 0 | 171 | 5 | -436 | 0 01 | 1,387 3 |
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 380 | WHS 00333 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 380 | WHS - 00333 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 381 | WHS - 00342 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-381 | WHS - 00342 | EVAP | EEM RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 382 | WHS - 00342 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | 29 | 2,098 | 1,378 | 2 91 | 5 9 |
| Motors | MTR-382 | WHS - 00342 | EVAP | EEM RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3 80 | 4 5 |
| Motors | MTR 383 | WHS - 00344 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-383 | WHS - 00344 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 384 | WHS 00552 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 384 | WHS - 00552 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR 386 | WHS - 00364 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR 386 | WHS - 00364 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM ROF | 360 | 0 | 360 | 635 | 428 | 0 | 14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR 389 | WHS - 00435 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | -232 | 0 35 | 48 6 |
| Motors | MTR-389 | WHS - 00435 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR 390 | WHS - 00456 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | -232 | 0 35 | 48 6 |
| Motors | MTR-390 | WHS - 00456 | EVAP | EEM RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-391 | WHS - 00460 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-391 | WHS - 00460 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-395 | WHS - 00470 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | 16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-395 | WHS - 00470 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | 7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-397 | WHS - 00472 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-397 | WHS - 00472 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | -163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-398 | WHS - 00474 | EVAP | EEM - ROF | 394 | 0 | 394 | 105 | 71 | 0 | 33 | 142 | 252 | 0 36 | 47 7 |
| Motors | MTR-398 | WHS - 00474 | EVAP | EEM - RI | 445 | 18 | 427 | 148 | 100 | 0 | 121 | 127 | 300 | 0 30 | 58 0 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - ROF | 334 | 0 | 334 | 963 | 452 | 0 | -13 | 1,402 | 1,068 | 4 19 | 4 1 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - RI | 414 | 30 | 384 | 1,567 | 736 | 0 | -150 | 2,153 | 1,769 | 5 61 | 3 1 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - ROF | 720 | 0 | 720 | 1,270 | 857 | 0 | 29 | 2,098 | 1,378 | 2 91 | 5 9 |
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | -324 | 3,148 | 2,320 | 3 80 | 4 5 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-404 | WHS - 00537 | EVAP | EEM - ROF | 359 | 0 | 359 | 85 | 58 | 0 | -16 | 127 | 232 | 0 35 | 48 6 |
| Motors | MTR-404 | WHS - 00537 | EVAP | EEM - RI | 445 | 18 | 427 | 158 | 107 | 0 | 163 | 102 | 325 | 0 24 | 72 0 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - ROF | 334 | 0 | 334 | 421 | 452 | 0 | -13 | 860 | 526 | 2 57 | 6 7 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - RI | 414 | 30 | 384 | 685 | 736 | 0 | -150 | 1,271 | 887 | 3 31 | 5 2 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - ROF | 1,128 | 0 | 1,128 | 772 | 521 | 0 | -18 | 1,275 | 146 | 1 13 | 15 2 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - RI | 1,397 | 120 | 1,277 | 1,485 | 1,002 | 0 | -481 | 2,006 | 729 | 1 57 | 11 0 |
| Motors | MTR-410 | WHS 00827 | EVAP | EEM - ROF | 191 | 0 | 191 | 364 | 246 | 0 | -12 | 598 | 407 | 3 12 | 5 5 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | 67 | 791 | 584 | 3 82 | 4 5 |
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - ROF | 574 | 0 | 574 | 1,093 | 738 | 0 | 37 | 1,794 | 1,220 | 3 12 | 5 5 |
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - RI | 669 | 48 | 621 | 1,536 | 1,036 | 0 | -200 | 2,372 | 1,751 | 3 82 | 4 5 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - ROF | 191 | 0 | 191 | 364 | 246 | 0 | 12 | 598 | 407 | 3 12 | 5 5 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | -67 | 791 | 584 | 3 82 | 4 5 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - ROF | 360 | 0 | 360 | 635 | 428 | 0 | -14 | 1,049 | 689 | 2 91 | 5 9 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | -162 | 1,574 | 1,160 | 3 80 | 4 5 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - ROF | 180 | 0 | 180 | 317 | 214 | 0 | -7 | 524 | 344 | 2 91 | 5 9 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | -81 | 787 | 580 | 3 80 | 4 5 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - ROF | 629 | 45 | 584 | 1,320 | 891 | 0 | -62 | 2,148 | 1,564 | 3 68 | 4 7 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - RI | 669 | 48 | 621 | 1,504 | 1,015 | 0 | 130 | 2,389 | 1,768 | 3 85 | 4 5 |
| Motors | MTR-96 | WHS 20001 | COOL | EEM - ROF | 586 | 0 | 586 | 338 | 457 | 0 | -14 | 781 | 195 | 1 33 | 12 9 |
| Motors | MTR-96 | WHS - 20001 | COOL | EEM - RI | 748 | 0 | 748 | 594 | 802 | 0 | 293 | 1,102 | 354 | 1 47 | 11 7 |
| Motors | MTR-37 | WHS CLD - 00862 | COMPMTR | EEM - ROF | 151 | 0 | 151 | 275 | 151 | 0 | -5 | 421 | 270 | 2 79 | 6 2 |
| Motors | MTR-37 | WHS CLD - 00862 | COMPMTR | EEM - RI | 187 | 0 | 187 | 446 | 245 | 0 | 67 | 624 | 437 | 3 34 | 5 2 |
| Motors | MTR-485 | WHS CLD - 00862 | Fan Motor | EEM - ROF | 334 | 0 | 334 | 2,322 | 452 | 0 | 13 | 2,762 | 2,428 | 8 26 | 2 1 |
| Motors | MTR-485 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 414 | 30 | 384 | 3,779 | 736 | 0 | -150 | 4,365 | 3,981 | 11 37 | 1 5 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - ROF | 790 | 0 | 790 | 788 | 370 | 0 | 33 | 1,126 | 336 | 1 43 | 12 1 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 978 | 70 | 908 | 1,401 | 658 | 0 | 357 | 1,702 | 794 | 1 87 | 9 2 |
| Motors | MTR-49 | WHS-CLD 00862 | CONDMTR | EEM - ROF | 151 | 0 | 151 | 163 | 142 | 0 | -5 | 299 | 148 | 1 98 | 8 7 |
| Motors | MTR-49 | WHS CLD 00862 | CONDMTR | EEM - RI | 187 | 0 | 187 | 264 | 230 | 0 | 67 | 427 | 240 | 2 28 | 7 5 |
| Motors | MTR 50a | WHS CLD - 00862 | CONDMTR | EEM - ROF | 892 | 0 | 892 | 553 | 418 | 0 | 25 | 946 | 54 | 1 06 | 16 2 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-50a | WHS CLD 00862 | CONDMTR | EEM RI | 1,104 | 80 | 1,024 | 1,002 | 757 | 0 | 391 | 1,368 | 344 | 1 34 | 12 9 |
| Motors | MTR 50b | WHS CLD - 00862 | CONDMTR | VSD to Std ROF | 22,318 | 0 | 22,318 | 5,178 | -192 | 220 | 3,144 | 1,622 | 20,696 | 0 07 | 236 9 |
| Motors | MTR-50b | WHS CLD 00862 | CONDMTR | VSD to Std RI | 27,636 | 227 | 27,409 | 8,200 | 192 | 344 | 12,001 | 4,338 | 31,747 | 0 16 | NA |
| Motors | MTR-50o | WHS CLD 00862 | CONDMTR | VSD & EEM ROF | 22,483 | 0 | 22,483 | 5,582 | 418 | 220 | 3,144 | 2,636 | 19,848 | 0 12 | 146 9 |
| Motors | MTR-50o | WHS CLD 00862 | CONDMTR | VSD & EEM RI | 27,840 | 290 | 27,550 | 8,828 | 757 | 344 | 12,001 | 2,761 | 30,311 | 0 10 | NA |
| Motors | PMTR-120 | WHS CLD 00862 | refrigeration unit | EEM - ROF | 4,187 | 0 | 4,187 | 13,605 | 2,650 | 0 | 193 | 16,062 | 11,876 | 3 84 | 4 5 |
| Motors | PMTR 120 | WHS CLD 00862 | refrigeration unit | EEM RI | 5,184 | 420 | 4,764 | 25,036 | 4,876 | 0 | 1,910 | 28,002 | 23,238 | 5 88 | 2 9 |
| Motors | PMTR 121 | WHS CLD - 00862 | refrigeration unit | EEM - ROF | 2,093 | 0 | 2,093 | 6,803 | 1,325 | 0 | 96 | 8,031 | 5,938 | 3 84 | 4 5 |
| Motors | PMTR 121 | WHS CLD 00862 | refrigeration unit | EEM - RI | 2,592 | 210 | 2,382 | 12,518 | 2,438 | 0 | 955 | 14,101 | 11,619 | 5 88 | 2 9 |
| Motors | PMTR-122 | WHS CLD 00862 | PMPMTR | EEM ROF | 334 | 0 | 334 | 803 | 452 | 0 | 13 | 1,242 | 908 | 3 71 | 4 6 |
| Motors | PMTR-122 | WHS CLD - 00862 | PMPMTR | EEM RI | 414 | 30 | 384 | 1,306 | 736 | 0 | 150 | 1,892 | 1,508 | 4 91 | 3 5 |
| Refrigeration | | Commercial | Refrigerators | Efficient Refrigerators - RI | 286,928 | 0 | 286,928 | 94,206 | 20,596 | 0 | 136,665 | 251,467 | 35,461 | 0 88 | 19 6 |
| Refrigeration | | HSG-FAM | Refrigerators | Efficient Refrigerators - RI | 1,257,407 | 0 | 1,257,407 | 412,840 | 90,256 | 0 | 598,908 | 1,102,004 | 155,403 | 0 88 | 19 6 |
| T&D | 10a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 29,291 | 0 | 29,291 | 2,848 | 606 | 0 | 6,614 | 10,068 | 19,223 | 0 34 | 50 1 |
| T&D | 10b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 15,906 | 0 | 15,906 | 409 | 87 | 0 | 15,544 | 16,040 | 134 | 1 01 | 17 1 |
| T&D | 10o | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 32,117 | 0 | 32,117 | 7,974 | 1,697 | 0 | 6,925 | 16,596 | 15,522 | 0 52 | 33 3 |
| T&D | 10d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 17,441 | 0 | 17,441 | 1,146 | 244 | 0 | 16,716 | 18,107 | 666 | 1 04 | 16 6 |
| T&D | 10e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 30,704 | 0 | 30,704 | 3,638 | 1,668 | 0 | 6,770 | 12,076 | 18,629 | 0 39 | 43 8 |
| T&D | 10f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 16,673 | 0 | 16,673 | 523 | 240 | 0 | 16,130 | 16,893 | 219 | 1 01 | 17 0 |
| T&D | 10g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 33,531 | 0 | 33,531 | 8,764 | 2,759 | 0 | 7,081 | 18,603 | 14,927 | 0 55 | 31 0 |
| T&D | 10h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 18,208 | 0 | 18,208 | 1,260 | 397 | 0 | 17,305 | 18,959 | 751 | 1 04 | 16 5 |
| T&D | 11a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 15,622 | 0 | 15,622 | 1,519 | 323 | 0 | 8,090 | 9,932 | 5,690 | 0 64 | 27 1 |
| T&D | 11b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 11,512 | 0 | 11,512 | 772 | 164 | 0 | 10,832 | 11,767 | 255 | 1 02 | 16 8 |
| T&D | 11o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 17,129 | 0 | 17,129 | 4,253 | 905 | 0 | 8,256 | 13,413 | 3,716 | 0 78 | 22 0 |
| T&D | 11d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 12,623 | 0 | 12,623 | 2,160 | 460 | 0 | 11,262 | 13,882 | 1,259 | 1 10 | 15 7 |
| T&D | 11e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16,376 | 0 | 16,376 | 1,940 | 890 | 0 | 8,173 | 11,002 | 5,373 | 0 67 | 25 6 |
| T&D | 11f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 12,067 | 0 | 12,067 | 986 | 452 | 0 | 11,047 | 12,484 | 417 | 1 03 | 16 6 |
| T&D | 11g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 17,883 | 0 | 17,883 | 4,674 | 1,471 | 0 | 8,338 | 14,484 | 3,399 | 0 81 | 21 3 |
| T&D | 11h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 13,178 | 0 | 13,178 | 2,374 | 748 | 0 | 11,477 | 14,599 | 1,421 | 1 11 | 15 5 |
| T&D | 12a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 25,386 | 0 | 25,386 | 2,468 | 525 | 0 | 22,056 | 25,049 | 336 | 0 99 | 17 5 |
| T&D | 12b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 24,622 | 0 | 24,622 | 2,331 | 496 | 0 | 22,565 | 25,392 | 770 | 1 03 | 16 7 |
| T&D | 12o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 27,835 | 0 | 27,835 | 6,910 | 1,471 | 0 | 22,325 | 30,707 | 2,872 | 1 10 | 15 6 |
| T&D | 12d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 26,998 | 0 | 26,998 | 6,527 | 1,389 | 0 | 22,884 | 30,799 | 3,801 | 1 14 | 15 1 |
| T&D | 12e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 26,610 | 0 | 26,610 | 3,153 | 1,446 | 0 | 22,191 | 26,789 | 179 | 1 01 | 17 1 |
| T&D | 12f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 25,810 | 0 | 25,810 | 2,978 | 1,365 | 0 | 22,725 | 27,068 | 1,257 | 1 05 | 16 4 |
| T&D | 12g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 29,060 | 0 | 29,060 | 7,595 | 2,391 | 0 | 22,460 | 32,447 | 3,387 | 1 12 | 15 4 |
| T&D | 12h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 28,186 | 0 | 28,186 | 7,173 | 2,258 | 0 | 23,043 | 32,475 | 4,289 | 1 15 | 14 9 |
| T&D | 13a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 29,291 | 0 | 29,291 | 3,594 | 765 | 0 | 15,168 | 19,527 | 9,765 | 0 67 | 25 8 |
| T&D | 13b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 21,585 | 0 | 21,585 | 1,826 | 389 | 0 | 20,309 | 22,523 | 938 | 1 04 | 16 5 |
| T&D | 13o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 32,117 | 0 | 32,117 | 10,062 | 2,142 | 0 | 15,479 | 27,683 | -4,435 | 0 86 | 29 0 |
| T&D | 13d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 23,668 | 0 | 23,668 | 5,112 | 1,088 | 0 | 21,116 | 27,316 | 3,648 | 1 15 | 14 9 |
| T&D | 13e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 30,704 | 0 | 30,704 | 4,711 | 2,267 | 0 | 15,324 | 22,301 | -8,403 | 0 73 | 23 7 |
| T&D | 13f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 22,626 | 0 | 22,626 | 2,393 | 1,151 | 0 | 20,713 | 24,257 | 1,631 | 1 07 | 16 1 |
| T&D | 13g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 33,531 | 0 | 33,531 | 11,179 | 3,643 | 0 | 15,635 | 30,457 | -3,073 | 0 91 | 19 0 |
| T&D | 13h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 24,709 | 0 | 24,709 | 5,679 | 1,851 | 0 | 21,520 | 29,050 | 4,341 | 1 18 | 14 6 |
| T&D | 14a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,716 | 0 | 11,716 | 1,437 | 306 | 0 | 10,180 | 11,923 | 207 | 1 02 | 16 9 |
| T&D | 14b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 11,364 | 0 | 11,364 | 1,358 | 289 | 0 | 10,415 | 12,061 | 697 | 1 06 | 16 2 |
| T&D | 14o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,847 | 0 | 12,847 | 4,025 | 857 | 0 | 10,304 | 15,185 | 2,338 | 1 18 | 14 6 |
| T&D | 14d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 12,461 | 0 | 12,461 | 3,801 | 809 | 0 | 10,562 | 15,172 | 2,711 | 1 22 | 14 1 |
| T&D | 14e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 12,282 | 0 | 12,282 | 1,884 | 907 | 0 | 10,242 | 13,033 | 751 | 1 06 | 16 2 |
| T&D | 14f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 11,912 | 0 | 11,912 | 1,780 | 856 | 0 | 10,488 | 13,124 | 1,212 | 1 10 | 15 6 |
| T&D | 14g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,412 | 0 | 13,412 | 4,472 | 1,457 | 0 | 10,366 | 16,295 | 2,883 | 1 21 | 14 2 |
| T&D | 14h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 13,009 | 0 | 13,009 | 4,223 | 1,376 | 0 | 10,635 | 16,235 | 3,226 | 1 25 | 13 8 |
| T&D | 15a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,716 | 0 | 11,716 | 1,437 | 306 | 0 | 2,646 | 4,389 | -7,327 | 0 37 | 46 0 |
| T&D | 15b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 6,362 | 0 | 6,362 | 207 | 44 | 0 | 6,218 | 6,468 | 106 | 1 02 | 16 9 |
| T&D | 15c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,847 | 0 | 12,847 | 4,025 | 857 | 0 | 2,770 | 7,651 | 5,195 | 0 60 | 28 9 |
| T&D | 15d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 6,976 | 0 | 6,976 | 579 | 123 | 0 | 6,687 | 7,388 | 412 | 1 06 | 16 3 |
| T&D | 15e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 12,282 | 0 | 12,282 | 1,884 | 907 | 0 | 2,708 | 5,499 | 6,783 | 0 45 | 38 5 |
| T&D | 15f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 6,669 | 0 | 6,669 | 271 | 130 | 0 | 6,452 | 6,853 | 184 | 1 03 | 16 8 |
| T&D | 15g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,412 | 0 | 13,412 | 4,472 | 1,457 | 0 | 2,832 | 8,761 | -4,651 | 0 65 | 26 4 |
| T&D | 15h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 7,283 | 0 | 7,283 | 643 | 209 | 0 | 6,921 | 7,773 | 490 | 1 07 | 16 1 |
| T&D | 16a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 21,480 | 0 | 21,480 | 2,088 | 444 | 0 | 18,663 | 21,196 | -285 | 0 99 | 17 5 |
| T&D | 16b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 20,834 | 0 | 20,834 | 1,972 | 420 | 0 | 19,094 | 21,486 | 651 | 1 03 | 16 7 |
| T&D | 16o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23,553 | 0 | 23,553 | 5,847 | 1,245 | 0 | 18,891 | 25,983 | 2,430 | 1 10 | 15 6 |
| T&D | 16d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 22,845 | 0 | 22,845 | 5,522 | 1,175 | 0 | 19,363 | 26,061 | 3,216 | 1 14 | 15 1 |
| T&D | 16e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 22,516 | 0 | 22,516 | 2,668 | 1,223 | 0 | 18,777 | 22,668 | 151 | 1 01 | 17 1 |
| T&D | 16f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 21,839 | 0 | 21,839 | 2,520 | 1,155 | 0 | 19,228 | 22,903 | 1,064 | 1 05 | 16 4 |
| T&D | 16g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 24,589 | 0 | 24,589 | 6,427 | 2,023 | 0 | 19,005 | 27,455 | 2,866 | 1 12 | 15 4 |
| T&D | 16h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 23,850 | 0 | 23,850 | 6,070 | 1,911 | 0 | 19,498 | 27,479 | 3,629 | 1 15 | 14 9 |
| T&D | 17a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 35,149 | 0 | 35,149 | 3,539 | 753 | 0 | 18,202 | 22,494 | 12,655 | 0 64 | 26 9 |
| T&D | 17b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 25,902 | 0 | 25,902 | 1,798 | 383 | 0 | 24,371 | 26,552 | 650 | 1 03 | 16 8 |
| T&D | 17o | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 38,541 | 0 | 38,541 | 9,910 | 2,109 | 0 | 18,575 | 30,594 | -7,947 | 0 79 | 21 7 |
| T&D | 17d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 28,401 | 0 | 28,401 | 5,034 | 1,072 | 0 | 25,339 | 31,445 | 3,044 | 1 11 | 15 6 |
| T&D | 17e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 36,845 | 0 | 36,845 | 4,487 | 2,028 | 0 | 18,388 | 24,903 | 11,942 | 0 68 | 25 5 |
| T&D | 17f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 27,151 | 0 | 27,151 | 2,280 | 1,050 | 0 | 24,855 | 28,185 | 1,014 | 1 04 | 16 6 |
| T&D | 17g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 40,237 | 0 | 40,237 | 10,858 | 3,384 | 0 | 18,761 | 33,003 | 7,233 | 0 82 | 21 0 |
| T&D | 17h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 29,651 | 0 | 29,651 | 5,516 | 1,719 | 0 | 25,824 | 33,059 | 3,408 | 1 11 | 15 4 |
| T&D | 18a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 10,323 | 0 | 10,323 | 1,967 | 227 | 0 | 8,942 | 10,236 | 87 | 0 99 | 17 4 |
| T&D | 18b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,012 | 0 | 10,012 | 1,007 | 214 | 0 | 9,149 | 10,371 | 358 | 1 04 | 16 6 |
| T&D | 18o | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 11,351 | 0 | 11,351 | 2,587 | 636 | 0 | 9,055 | 12,678 | 1,327 | 1 12 | 15 4 |
| T&D | 18d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 11,010 | 0 | 11,010 | 2,821 | 660 | 0 | 9,283 | 12,764 | 1,694 | 1 15 | 14 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 18e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10,837 | 0 | 10,837 | 1,390 | 662 | 0 | 8,998 | 11,051 | 214 | 1 02 | 16 9 |
| T&D | 18f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 10,511 | 0 | 10,511 | 1,313 | 625 | 0 | 9,216 | 11,154 | 643 | 1 06 | 16 2 |
| T&D | 18g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11,865 | 0 | 11,865 | 3,310 | 1,071 | 0 | 9,112 | 13,492 | 1,627 | 1 14 | 15 1 |
| T&D | 18h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 11,508 | 0 | 11,508 | 3,127 | 1,011 | 0 | 9,350 | 13,487 | 1,979 | 1 17 | 14 7 |
| T&D | 19a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15,484 | 0 | 15,484 | 1,600 | 341 | 0 | 7,997 | 9,937 | -5,547 | 0 64 | 26 8 |
| T&D | 19b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 11,410 | 0 | 11,410 | 813 | 173 | 0 | 10,714 | 11,700 | 290 | 1 03 | 16 8 |
| T&D | 19c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 17,026 | 0 | 17,026 | 4,480 | 954 | 0 | 8,166 | 13,600 | -3,426 | 0 80 | 21 6 |
| T&D | 19d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 12,547 | 0 | 12,547 | 2,276 | 484 | 0 | 11,155 | 13,915 | 1,368 | 1 11 | 15 5 |
| T&D | 19e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16,255 | 0 | 16,255 | 2,085 | 993 | 0 | 8,081 | 11,160 | -5,096 | 0 69 | 25 1 |
| T&D | 19f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 11,979 | 0 | 11,979 | 1,059 | 504 | 0 | 10,934 | 12,498 | 520 | 1 04 | 16 5 |
| T&D | 19g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 17,798 | 0 | 17,798 | 4,966 | 1,606 | 0 | 8,251 | 14,823 | -2,975 | 0 83 | 20 7 |
| T&D | 19h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 13,115 | 0 | 13,115 | 2,523 | 816 | 0 | 11,375 | 14,713 | 1,598 | 1 12 | 15 4 |
| T&D | 1a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 2,155 | 0 | 2,155 | 185 | 39 | 0 | 1,122 | 1,347 | -808 | 0 63 | 27 5 |
| T&D | 1b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 1,588 | 0 | 1,588 | 94 | 20 | 0 | 1,501 | 1,615 | 27 | 1 02 | 16 9 |
| T&D | 1c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 2,348 | 0 | 2,348 | 519 | 110 | 0 | 1,144 | 1,773 | -575 | 0 76 | 22 8 |
| T&D | 1d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 1,730 | 0 | 1,730 | 264 | 56 | 0 | 1,556 | 1,876 | 145 | 1 08 | 15 9 |
| T&D | 1e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 2,251 | 0 | 2,251 | 240 | 113 | 0 | 1,133 | 1,486 | -765 | 0 66 | 26 1 |
| T&D | 1f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 1,659 | 0 | 1,659 | 122 | 57 | 0 | 1,528 | 1,708 | 49 | 1 03 | 16 7 |
| T&D | 1g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 2,445 | 0 | 2,445 | 574 | 184 | 0 | 1,154 | 1,912 | -532 | 0 78 | 22 0 |
| T&D | 1h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 1,801 | 0 | 1,801 | 291 | 94 | 0 | 1,583 | 1,968 | -167 | 1 09 | 15 8 |
| T&D | 20a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 10,323 | 0 | 10,323 | 1,067 | 227 | 0 | 2,327 | 3,621 | -6,702 | 0 35 | 49 1 |
| T&D | 20b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 5,606 | 0 | 5,606 | 153 | 33 | 0 | 5 474 | 5,660 | 54 | 1 01 | 17 1 |
| T&D | 20c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 11,351 | 0 | 11,351 | 2,987 | 636 | 0 | 2,440 | 6 063 | -5,288 | 0 53 | 32 2 |
| T&D | 20d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 6,164 | 0 | 6,164 | 429 | 91 | 0 | 5,900 | 6,421 | 257 | 1 04 | 16 5 |
| T&D | 20e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10,837 | 0 | 10,837 | 1,390 | 662 | 0 | 2,383 | 4,436 | -6,401 | 0 41 | 42 1 |
| T&D | 20f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 5,885 | 0 | 5,885 | 200 | 95 | 0 | 5,687 | 5,982 | 97 | 1 02 | 16 9 |
| T&D | 20g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11,865 | 0 | 11,865 | 3,310 | 1,071 | 0 | 2,497 | 6,878 | -4,988 | 0 58 | 29 7 |
| T&D | 20h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 6,443 | 0 | 6,443 | 476 | 154 | 0 | 6,114 | 6,743 | 300 | 1 05 | 16 5 |
| T&D | 21a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 80,002 | 0 | 80,002 | 10,439 | 2,222 | 0 | 69,299 | 81,960 | 1,959 | 1 02 | 16 8 |
| T&D | 21b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 77,596 | 0 | 77,596 | 9,859 | 2,098 | 0 | 70,904 | 82,862 | 5,266 | 1 07 | 16 1 |
| T&D | 21c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 87,970 | 0 | 87,970 | 29,230 | 6,221 | 0 | 70,176 | 105,627 | 17,657 | 1 20 | 14 3 |
| T&D | 21d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 85,325 | 0 | 85,325 | 27,606 | 5,876 | 0 | 71,941 | 105,422 | 20,097 | 1 24 | 13 9 |
| T&D | 21e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 83,986 | 0 | 83,986 | 13,986 | 6,988 | 0 | 69,738 | 90,711 | 6,726 | 1 08 | 15 9 |
| T&D | 21f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 81,461 | 0 | 81,461 | 13,209 | 6,600 | 0 | 71,422 | 91,231 | 9,770 | 1 12 | 15 4 |
| T&D | 21g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 91,954 | 0 | 91,954 | 32,776 | 10,987 | 0 | 70,614 | 114,378 | 22,424 | 1 24 | 13 8 |
| T&D | 21h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 89,189 | 0 | 89,189 | 30,956 | 10,377 | 0 | 72,459 | 113,791 | 24,602 | 1 28 | 13 5 |
| T&D | 22a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 46,453 | 0 | 46,453 | 6,062 | 1,290 | 0 | 23,990 | 31,341 | -15,111 | 0 67 | 25 5 |
| T&D | 22b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 34,231 | 0 | 34,231 | 3,079 | 655 | 0 | 32,143 | 35,878 | 1,646 | 1 05 | 16 4 |
| T&D | 22c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 51,079 | 0 | 51,079 | 16,972 | 3,612 | 0 | 24,499 | 45,083 | -5,996 | 0 88 | 19 5 |
| T&D | 22d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 37,641 | 0 | 37,641 | 8,622 | 1,835 | 0 | 33,464 | 43,921 | 6,281 | 1 17 | 14 8 |
| T&D | 22e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 48,766 | 0 | 48,766 | 8,121 | 4,038 | 0 | 24,244 | 36,423 | 12,343 | 0 75 | 23 1 |
| T&D | 22f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 35,936 | 0 | 35,936 | 4,125 | 2,061 | 0 | 32,803 | 38,990 | 3,054 | 1 08 | 15 9 |
| T&D | 22g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 53,393 | 0 | 53,393 | 19,032 | 6,380 | 0 | 24,753 | 50,165 | 3,228 | 0 94 | 18 3 |
| T&D | 22h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 39,346 | 0 | 39,346 | 9,668 | 3,241 | 0 | 34,125 | 47,034 | 7,688 | 1 20 | 14 4 |
| T&D | 23a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15,484 | 0 | 15,484 | 2,021 | 430 | 0 | 3,490 | 5,941 | -9,543 | 0 38 | 44 9 |
| T&D | 23b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,408 | 0 | 8,408 | 290 | 62 | 0 | 8,211 | 8,563 | 155 | 1 02 | 16 9 |
| T&D | 23c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 17,026 | 0 | 17,026 | 5,657 | 1,204 | 0 | 3,660 | 10,522 | -6,505 | 0 62 | 27 9 |
| T&D | 23d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 9,246 | 0 | 9,246 | 813 | 173 | 0 | 8,851 | 9,837 | 591 | 1 06 | 16 2 |
| T&D | 23e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16,255 | 0 | 16,255 | 2,707 | 1,353 | 0 | 3,575 | 7,635 | -8,621 | 0 47 | 36 7 |
| T&D | 23f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,827 | 0 | 8,827 | 389 | 194 | 0 | 8,531 | 9,114 | 287 | 1 03 | 16 7 |
| T&D | 23g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 17,798 | 0 | 17,798 | 6,344 | 2,127 | 0 | 3,745 | 12,215 | -5,582 | 0 69 | 25 1 |
| T&D | 23h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,665 | 0 | 9,665 | 912 | 306 | 0 | 9,171 | 10,388 | 724 | 1 07 | 16 0 |
| T&D | 24a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7,742 | 0 | 7,742 | 800 | 170 | 0 | 6,706 | 7,677 | -65 | 0 99 | 17 4 |
| T&D | 24b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 7,509 | 0 | 7,509 | 756 | 161 | 0 | 6,862 | 7,778 | 269 | 1 04 | 16 6 |
| T&D | 24c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 8,513 | 0 | 8,513 | 2,240 | 477 | 0 | 6,791 | 9,508 | 995 | 1 12 | 15 4 |
| T&D | 24d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 8,257 | 0 | 8,257 | 2,116 | 450 | 0 | 6,962 | 9,528 | 1,271 | 1 15 | 14 9 |
| T&D | 24e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8,128 | 0 | 8,128 | 1,043 | 496 | 0 | 6,749 | 8,288 | 160 | 1 02 | 16 9 |
| T&D | 24f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 7,883 | 0 | 7,883 | 985 | 469 | 0 | 6,912 | 8,365 | 482 | 1 06 | 16 2 |
| T&D | 24g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8,899 | 0 | 8,899 | 2,483 | 803 | 0 | 6,834 | 10,119 | 1,221 | 1 14 | 15 1 |
| T&D | 24h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 8,631 | 0 | 8,631 | 2,345 | 758 | 0 | 7,012 | 10,115 | 1,484 | 1 17 | 14 7 |
| T&D | 25a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7,742 | 0 | 7,742 | 800 | 170 | 0 | 3,998 | 4,969 | -2,773 | 0 64 | 26 8 |
| T&D | 25b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 5,705 | 0 | 5,705 | 406 | 87 | 0 | 5,357 | 5,850 | 145 | 1 03 | 16 8 |
| T&D | 25c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 8,513 | 0 | 8,513 | 2,240 | 477 | 0 | 4,083 | 6,800 | -1,713 | 0 80 | 21 6 |
| T&D | 25d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 6,273 | 0 | 6,273 | 1,138 | 242 | 0 | 5,577 | 6,958 | -684 | 1 11 | 15 5 |
| T&D | 25e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 8,128 | 0 | 8,128 | 1,043 | 496 | 0 | 4,041 | 5,580 | -2,548 | 0 69 | 25 1 |
| T&D | 25f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 5,989 | 0 | 5,989 | 530 | 252 | 0 | 5,467 | 6,249 | -260 | 1 04 | 16 5 |
| T&D | 25g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8,899 | 0 | 8,899 | 2,483 | 803 | 0 | 4,126 | 7,411 | -1,488 | 0 83 | 20 7 |
| T&D | 25h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 6,558 | 0 | 6,558 | 1,261 | 408 | 0 | 5,687 | 7,357 | -799 | 1 12 | 15 4 |
| T&D | 26a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15,484 | 0 | 15,484 | 1,600 | 341 | 0 | 3,490 | 5,431 | -10,053 | 0 35 | 49 1 |
| T&D | 26b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,408 | 0 | 8,408 | 230 | 49 | 0 | 8,211 | 8,490 | 81 | 1 01 | 17 1 |
| T&D | 26c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 17,026 | 0 | 17,026 | 4,480 | 954 | 0 | 3,660 | 9,094 | -7,932 | 0 53 | 32 2 |
| T&D | 26d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,246 | 0 | 9,246 | 644 | 137 | 0 | 8,851 | 9,632 | 386 | 1 04 | 16 5 |
| T&D | 26e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16,255 | 0 | 16,255 | 2,085 | 993 | 0 | 3,575 | 6,653 | -9,602 | 0 41 | 42 1 |
| T&D | 26f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,827 | 0 | 8,827 | 300 | 143 | 0 | 8,531 | 8,973 | 146 | 1 02 | 16 9 |
| T&D | 26g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 17,798 | 0 | 17,798 | 4,966 | 1,606 | 0 | 3,745 | 10,316 | -7,481 | 0 58 | 29 7 |
| T&D | 26h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,665 | 0 | 9,665 | 714 | 231 | 0 | 9,171 | 10,115 | 451 | 1 05 | 16 5 |
| T&D | 27a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 46,453 | 0 | 46,453 | 4,800 | 1,022 | 0 | 23,990 | 29,812 | 16,641 | 0 64 | 26 8 |
| T&D | 27b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 34,231 | 0 | 34,231 | 2,439 | 519 | 0 | 32,143 | 35,101 | 869 | 1 03 | 16 8 |
| T&D | 27c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 51,079 | 0 | 51,079 | 13,441 | 2,861 | 0 | 24,499 | 40,801 | 10,279 | 0 80 | 21 6 |
| T&D | 27d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 37,641 | 0 | 37,641 | 6,828 | 1,453 | 0 | 33,464 | 41,746 | 4,105 | 1 11 | 15 5 |
| T&D | 27e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 48,766 | 0 | 48,766 | 6,256 | 2,978 | 0 | 24,244 | 33,479 | -15,287 | 0 69 | 25 1 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 27f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 35,936 | 0 | 35,936 | 3,178 | 1,513 | 0 | 32,903 | 37,495 | 1,559 | 1 04 | 16 5 |
| T&D | 27g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RI | 53,393 | 0 | 53,393 | 14,897 | 4,817 | 0 | 24,753 | 44,468 | 8,925 | 0 83 | 20 7 |
| T&D | 27h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RO | 39,346 | 0 | 39,346 | 7,568 | 2,447 | 0 | 34,125 | 44,140 | 4,794 | 1 12 | 15 4 |
| T&D | 28a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 15,484 | 0 | 15,484 | 1,600 | 341 | 0 | 3,490 | 5,431 | 10,053 | 0 35 | 49 1 |
| T&D | 28b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 8,408 | 0 | 8,408 | 230 | 49 | 0 | 8,211 | 8,490 | 81 | 1 01 | 17 1 |
| T&D | 28o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 17,026 | 0 | 17,026 | 4,489 | 954 | 0 | 3,660 | 9,094 | 7,912 | 0 53 | 32 2 |
| T&D | 28l | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 9,246 | 0 | 9,246 | 644 | 137 | 0 | 8,851 | 9,632 | 386 | 1 04 | 16 5 |
| T&D | 28o | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 16,255 | 0 | 16,255 | 2,085 | 993 | 0 | 3,575 | 6,653 | 9,602 | 0 41 | 42 1 |
| T&D | 28f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 8,827 | 0 | 8,827 | 300 | 143 | 0 | 8,531 | 8,973 | 146 | 1 02 | 16 9 |
| T&D | 28g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 17,798 | 0 | 17,798 | 4,966 | 1,696 | 0 | 3,745 | 10,316 | 7,481 | 0 58 | 29 7 |
| T&D | 28h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 9,665 | 0 | 9,665 | 714 | 231 | 0 | 9,171 | 10,115 | 451 | 1 05 | 16 5 |
| T&D | 29a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 38,679 | 0 | 38,679 | 4,502 | 958 | 0 | 33,426 | 38,886 | 207 | 1 01 | 17 1 |
| T&D | 29b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 37,516 | 0 | 37,516 | 4,252 | 905 | 0 | 34,201 | 39,358 | 1,842 | 1 05 | 16 4 |
| T&D | 29o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 42,626 | 0 | 42,626 | 12,696 | 2,683 | 0 | 33,869 | 49,149 | 6,523 | 1 15 | 14 9 |
| T&D | 29l | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 41,344 | 0 | 41,344 | 11,906 | 2,514 | 0 | 34,715 | 49,154 | 7,810 | 1 19 | 14 5 |
| T&D | 29e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · RI | 40,653 | 0 | 40,653 | 5,792 | 2,692 | 0 | 33,643 | 42,126 | 1,474 | 1 04 | 16 6 |
| T&D | 29f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 39,430 | 0 | 39,430 | 5,470 | 2,542 | 0 | 34,458 | 42,470 | 3,040 | 1 08 | 16 0 |
| T&D | 29g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 44,599 | 0 | 44,599 | 13,896 | 4,416 | 0 | 34,077 | 52,389 | 7,789 | 1 17 | 14 7 |
| T&D | 29h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 43,258 | 0 | 43,258 | 13,124 | 4,171 | 0 | 34,972 | 52,266 | 9,008 | 1 21 | 14 3 |
| T&D | 2a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 20,367 | 0 | 20,367 | 1,998 | 425 | 0 | 17,738 | 20,161 | 205 | 0 99 | 17 4 |
| T&D | 2b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 19,754 | 0 | 19,754 | 1,887 | 402 | 0 | 18,147 | 20,435 | 681 | 1 03 | 16 6 |
| T&D | 2o | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 22,281 | 0 | 22,281 | 5,594 | 1,191 | 0 | 17,949 | 24,733 | 2,453 | 1 11 | 15 5 |
| T&D | 2d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 21,611 | 0 | 21,611 | 5,283 | 1,124 | 0 | 18,396 | 24,803 | 3,192 | 1 15 | 15 0 |
| T&D | 2e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 21,324 | 0 | 21,324 | 2,468 | 1,057 | 0 | 17,843 | 21,369 | 45 | 1 00 | 17 2 |
| T&D | 2f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 20,681 | 0 | 20,683 | 2,331 | 999 | 0 | 18,271 | 21,601 | 918 | 1 04 | 16 5 |
| T&D | 2g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 23,238 | 0 | 23,238 | 6,065 | 1,823 | 0 | 18,054 | 25,941 | 2,703 | 1 12 | 15 4 |
| T&D | 2h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 22,539 | 0 | 22,539 | 5,728 | 1,722 | 0 | 18,520 | 25,969 | 3,430 | 1 15 | 14 9 |
| T&D | 30a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 58,019 | 0 | 58,019 | 6,753 | 1,437 | 0 | 29,899 | 38,090 | 19,929 | 0 66 | 26 2 |
| T&D | 30b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 42,755 | 0 | 42,755 | 3,431 | 730 | 0 | 40,082 | 44,243 | 1,489 | 1 03 | 16 6 |
| T&D | 30o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 63,939 | 0 | 63,939 | 18,909 | 4,024 | 0 | 30,550 | 53,484 | 10,455 | 0 84 | 20 6 |
| T&D | 30l | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 47,117 | 0 | 47,117 | 9,606 | 2,044 | 0 | 41,773 | 53,423 | 6,306 | 1 13 | 15 2 |
| T&D | 30e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 60,979 | 0 | 60,979 | 8,688 | 4,037 | 0 | 30,225 | 42,950 | 18,029 | 0 70 | 24 4 |
| T&D | 30f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 44,936 | 0 | 44,936 | 4,414 | 2,051 | 0 | 40,928 | 47,392 | 2,456 | 1 05 | 16 3 |
| T&D | 30g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 66,899 | 0 | 66,899 | 20,843 | 6,625 | 0 | 30,876 | 58,344 | 8,555 | 0 87 | 19 7 |
| T&D | 30h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RO | 49,299 | 0 | 49,299 | 10,589 | 3,365 | 0 | 42,618 | 56,572 | 7,274 | 1 15 | 15 0 |
| T&D | 31a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 16,116 | 0 | 16,116 | 1,876 | 399 | 0 | 3,628 | 5,903 | 10,213 | 0 37 | 47 0 |
| T&D | 31b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 8,752 | 0 | 8,752 | 270 | 57 | 0 | 8,541 | 8,868 | 116 | 1 01 | 17 0 |
| T&D | 31o | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 17,761 | 0 | 17,761 | 5,252 | 1,118 | 0 | 3,809 | 10,179 | 7,582 | 0 57 | 30 0 |
| T&D | 31d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 9,645 | 0 | 9,645 | 755 | 161 | 0 | 9,223 | 10,139 | 494 | 1 05 | 16 4 |
| T&D | 31e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 16,939 | 0 | 16,939 | 2,413 | 1,122 | 0 | 3,718 | 7,253 | 9,686 | 0 43 | 40 2 |
| T&D | 31f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 9,198 | 0 | 9,198 | 347 | 161 | 0 | 8,882 | 9,390 | 192 | 1 02 | 16 9 |
| T&D | 31g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RI | 18,583 | 0 | 18,583 | 5,790 | 1,840 | 0 | 3,899 | 11,529 | 7,054 | 0 62 | 27 8 |
| T&D | 31h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 10,091 | 0 | 10,091 | 832 | 265 | 0 | 9,564 | 10,661 | 570 | 1 06 | 16 3 |
| T&D | 32a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 19,340 | 0 | 19,340 | 2,685 | 571 | 0 | 16,713 | 19,969 | 630 | 1 03 | 16 7 |
| T&D | 32b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 18,758 | 0 | 18,758 | 2,536 | 540 | 0 | 17,101 | 20,176 | 1,418 | 1 08 | 16 0 |
| T&D | 32o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 21,313 | 0 | 21,313 | 7,518 | 1,600 | 0 | 16,930 | 26,048 | 4,735 | 1 22 | 14 1 |
| T&D | 32d | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 20,672 | 0 | 20,672 | 7,100 | 1,511 | 0 | 17,357 | 25,969 | 5,297 | 1 26 | 13 7 |
| T&D | 32e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · RI | 20,326 | 0 | 20,326 | 3,619 | 1,827 | 0 | 16,821 | 22,267 | 1,940 | 1 10 | 15 7 |
| T&D | 32f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 19,715 | 0 | 19,715 | 3,418 | 1,725 | 0 | 17,229 | 22,372 | 2,657 | 1 13 | 15 2 |
| T&D | 32g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RI | 22,300 | 0 | 22,300 | 8,452 | 2,835 | 0 | 17,058 | 28,345 | 6,046 | 1 27 | 13 5 |
| T&D | 32h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RO | 21,629 | 0 | 21,629 | 7,982 | 2,697 | 0 | 17,486 | 28,164 | 6,535 | 1 30 | 13 2 |
| T&D | 33a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 9,670 | 0 | 9,670 | 1,342 | 286 | 0 | 4,983 | 6,611 | 3,058 | 0 68 | 25 2 |
| T&D | 33b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 7,126 | 0 | 7,126 | 682 | 145 | 0 | 6,680 | 7,508 | 382 | 1 05 | 16 3 |
| T&D | 33o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 10,657 | 0 | 10,657 | 3,759 | 800 | 0 | 5,092 | 9,651 | 1,006 | 0 91 | 19 0 |
| T&D | 33d | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 7,853 | 0 | 7,853 | 1,910 | 406 | 0 | 6,962 | 9,278 | 1,425 | 1 18 | 14 6 |
| T&D | 33e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · RI | 10,163 | 0 | 10,163 | 1,809 | 913 | 0 | 5,037 | 7,760 | 2,403 | 0 76 | 22 6 |
| T&D | 33f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 7,489 | 0 | 7,489 | 919 | 464 | 0 | 6,821 | 8,204 | 715 | 1 10 | 15 7 |
| T&D | 33g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 11,150 | 0 | 11,150 | 4,226 | 1,428 | 0 | 5,146 | 10,799 | 350 | 0 97 | 17 8 |
| T&D | 33h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RO | 8,216 | 0 | 8,216 | 2,147 | 725 | 0 | 7,103 | 9,975 | 1,759 | 1 21 | 14 2 |
| T&D | 34a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 9,670 | 0 | 9,670 | 1,342 | 286 | 0 | 2,177 | 3,805 | 5,865 | 0 39 | 43 8 |
| T&D | 34b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 5,251 | 0 | 5,251 | 193 | 41 | 0 | 5,125 | 5,359 | 108 | 1 02 | 16 9 |
| T&D | 34o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 10,657 | 0 | 10,657 | 3,759 | 800 | 0 | 2,285 | 6,844 | 3,812 | 0 64 | 26 8 |
| T&D | 34d | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 5,787 | 0 | 5,787 | 540 | 115 | 0 | 5,534 | 6,189 | 402 | 1 07 | 16 1 |
| T&D | 34e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · RI | 10,163 | 0 | 10,163 | 1,809 | 913 | 0 | 2,231 | 4,954 | 5,210 | 0 49 | 35 3 |
| T&D | 34f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 5,519 | 0 | 5,519 | 260 | 131 | 0 | 5,329 | 5,721 | 202 | 1 04 | 16 6 |
| T&D | 34g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RI | 11,150 | 0 | 11,150 | 4,226 | 1,428 | 0 | 2,340 | 7,993 | 3,157 | 0 72 | 24 0 |
| T&D | 34h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) · RO | 6,055 | 0 | 6,055 | 608 | 205 | 0 | 5,739 | 6,551 | 497 | 1 08 | 15 9 |
| T&D | 35a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 6,447 | 0 | 6,447 | 750 | 160 | 0 | 5,571 | 6,481 | 34 | 1 01 | 17 1 |
| T&D | 35b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 6,253 | 0 | 6,253 | 709 | 151 | 0 | 5,700 | 6,560 | 307 | 1 05 | 16 4 |
| T&D | 35o | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 7,104 | 0 | 7,104 | 2,101 | 447 | 0 | 5,643 | 8,191 | 1,087 | 1 15 | 14 9 |
| T&D | 35d | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 6,891 | 0 | 6,891 | 1,984 | 422 | 0 | 5,786 | 8,192 | 1,302 | 1 19 | 14 5 |
| T&D | 35e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 6,775 | 0 | 6,775 | 965 | 449 | 0 | 5,607 | 7,021 | 246 | 1 04 | 16 6 |
| T&D | 35f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 6,572 | 0 | 6,572 | 912 | 424 | 0 | 5,743 | 7,078 | 507 | 1 08 | 16 0 |
| T&D | 35g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 7,433 | 0 | 7,433 | 2,316 | 736 | 0 | 5,679 | 8,731 | 1,298 | 1 17 | 14 7 |
| T&D | 35h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 7,210 | 0 | 7,210 | 2,187 | 695 | 0 | 5,829 | 8,711 | 1,501 | 1 21 | 14 3 |
| T&D | 36a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · RI | 9,670 | 0 | 9,670 | 1,126 | 240 | 0 | 2,177 | 3,542 | 6,128 | 0 37 | 47 0 |
| T&D | 36b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) · ROF | 5,251 | 0 | 5,251 | 162 | 34 | 0 | 5,125 | 5,321 | 70 | 1 01 | 17 0 |
| T&D | 36c | | Transformer | Amorphous Core (No Load Loss Reduction) · RI | 10,657 | 0 | 10,657 | 3,151 | 671 | 0 | 2,285 | 6,107 | 4,549 | 0 57 | 30 0 |
| T&D | 36d | | Transformer | Amorphous Core (No Load Loss Reduction) · ROF | 5,787 | 0 | 5,787 | 453 | 96 | 0 | 5,534 | 6,083 | 297 | 1 05 | 16 4 |
| T&D | 36e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · RI | 10,163 | 0 | 10,163 | 1,448 | 673 | 0 | 2,231 | 4,352 | 5,811 | 0 43 | 40 2 |
| T&D | 36f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) · ROF | 5,519 | 0 | 5,519 | 208 | 97 | 0 | 5,329 | 5,634 | 115 | 1 02 | 16 9 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 36g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 11,150 | 0 | 11,150 | 3,474 | 1,104 | 0 | 2,340 | 6,918 | -4,232 | 0 62 | 27 8 |
| T&D | 36h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 6,055 | 0 | 6,055 | 499 | 159 | 0 | 5,739 | 6,397 | 342 | 1 06 | 16 3 |
| T&D | 37a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 19,340 | 0 | 19,340 | 2,251 | 479 | 0 | 16,713 | 19,443 | 103 | 1 01 | 17.1 |
| T&D | 37b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 18,758 | 0 | 18,758 | 2,126 | 452 | 0 | 17,101 | 19,679 | 921 | 1 05 | 16 4 |
| T&D | 37c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 21,313 | 0 | 21,313 | 6,303 | 1,341 | 0 | 16,930 | 24,574 | 3,261 | 1 15 | 14 9 |
| T&D | 37d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 20,672 | 0 | 20,672 | 5,953 | 1,267 | 0 | 17,357 | 24,577 | 3,905 | 1 19 | 14.5 |
| T&D | 37e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 20,326 | 0 | 20,326 | 2,896 | 1,346 | 0 | 16,821 | 21,063 | 737 | 1 04 | 16 6 |
| T&D | 37f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 19,715 | 0 | 19,715 | 2,735 | 1,271 | 0 | 17,229 | 21,235 | 1,520 | 1 08 | 16 0 |
| T&D | 37g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 22,300 | 0 | 22,300 | 6,948 | 2,208 | 0 | 17,038 | 26,194 | 3,895 | 1 17 | 14.7 |
| T&D | 37h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 21,629 | 0 | 21,629 | 6,562 | 2,086 | 0 | 17,486 | 26,133 | 4,504 | 1 21 | 14.3 |
| T&D | 38a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 19,340 | 0 | 19,340 | 2,251 | 479 | 0 | 4,353 | 7,084 | -12,256 | 0.37 | 47 0 |
| T&D | 38b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,502 | 0 | 10,502 | 324 | 69 | 0 | 10,249 | 10,642 | 140 | 1.01 | 17.0 |
| T&D | 38c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 21,313 | 0 | 21,313 | 6,303 | 1,341 | 0 | 4,570 | 12,215 | 9,098 | 0.57 | 30 0 |
| T&D | 38d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,574 | 0 | 11,574 | 906 | 193 | 0 | 11,068 | 12,167 | 593 | 1 05 | 16 4 |
| T&D | 38e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 20,326 | 0 | 20,326 | 2,896 | 1,346 | 0 | 4,462 | 8,704 | -11,623 | 0 43 | 40 2 |
| T&D | 38f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 11,038 | 0 | 11,038 | 416 | 193 | 0 | 10,659 | 11,268 | 230 | 1.02 | 16 9 |
| T&D | 38g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 22,300 | 0 | 22,300 | 6,948 | 2,208 | 0 | 4,679 | 13,835 | 8,465 | 0 62 | 27.8 |
| T&D | 38h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 12,110 | 0 | 12,110 | 999 | 317 | 0 | 11,477 | 12,793 | 684 | 1 06 | 16.3 |
| T&D | 39a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 24,942 | 0 | 24,942 | 3,528 | 751 | 0 | 21,532 | 25,811 | 868 | 1 03 | 16 6 |
| T&D | 39b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 24,193 | 0 | 24,193 | 3,332 | 709 | 0 | 22,032 | 26,073 | 1,881 | 1 08 | 16 0 |
| T&D | 39c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 27,515 | 0 | 27,515 | 9,878 | 2,102 | 0 | 21,815 | 33,796 | 6,281 | 1 23 | 14 0 |
| T&D | 39d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 26,687 | 0 | 26,687 | 9,330 | 1,986 | 0 | 22,367 | 33,682 | 6,995 | 1.26 | 13 6 |
| T&D | 39e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 26,229 | 0 | 26,229 | 4,800 | 2,460 | 0 | 21,673 | 28,934 | 2,705 | 1 10 | 15.6 |
| T&D | 39f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 25,440 | 0 | 25,440 | 4,533 | 2,324 | 0 | 22,200 | 29,056 | 3,617 | 1.14 | 15 1 |
| T&D | 39g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 28,801 | 0 | 28,801 | 11,150 | 3,812 | 0 | 21,956 | 36,919 | 8,118 | 1 28 | 13 4 |
| T&D | 39h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 27,935 | 0 | 27,935 | 10,331 | 3,690 | 0 | 22,534 | 36,665 | 8,730 | 1 31 | 13.1 |
| T&D | 3a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 14,100 | 0 | 14,100 | 1,383 | 294 | 0 | 7,317 | 8,995 | 5,105 | 0 64 | 27 0 |
| T&D | 3b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,390 | 0 | 10,390 | 703 | 150 | 0 | 9,792 | 10,644 | 254 | 1 02 | 16 8 |
| T&D | 3c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15,425 | 0 | 15,425 | 3,873 | 824 | 0 | 7,463 | 12,160 | 3,265 | 0 79 | 21 8 |
| T&D | 3d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,367 | 0 | 11,367 | 1,967 | 419 | 0 | 10,171 | 12,557 | 1,190 | 1 10 | 15 6 |
| T&D | 3e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 14,763 | 0 | 14,763 | 1,709 | 732 | 0 | 7,390 | 9,831 | -4,931 | 0 67 | 25.9 |
| T&D | 3f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 10,879 | 0 | 10,879 | 868 | 372 | 0 | 9,981 | 11,221 | 343 | 1 03 | 16 7 |
| T&D | 3g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16,088 | 0 | 16,088 | 4,199 | 1,262 | 0 | 7,536 | 12,997 | -3,091 | 0 81 | 21.3 |
| T&D | 3h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 11,855 | 0 | 11,855 | 2,133 | 641 | 0 | 10,360 | 13,134 | 1,279 | 1 11 | 15.5 |
| T&D | 40a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7,126 | 0 | 7,126 | 1,908 | 215 | 0 | 3,669 | 4,892 | 2,235 | 0 69 | 25.1 |
| T&D | 40b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 5,252 | 0 | 5,252 | 512 | 109 | 0 | 4,920 | 5,541 | 289 | 1 06 | 16 3 |
| T&D | 40c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 7,861 | 0 | 7,861 | 2,822 | 601 | 0 | 3,750 | 7,173 | -688 | 0.91 | 18.9 |
| T&D | 40d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 5,793 | 0 | 5,793 | 1,434 | 305 | 0 | 5,130 | 6,869 | 1,076 | 1.19 | 14.5 |
| T&D | 40e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7,494 | 0 | 7,494 | 1,371 | 703 | 0 | 3,709 | 5,784 | -1,710 | 0.77 | 22.3 |
| T&D | 40f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 5,522 | 0 | 5,522 | 697 | 357 | 0 | 5,025 | 6,079 | 556 | 1 10 | 15.6 |
| T&D | 40g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8,229 | 0 | 8,229 | 3,186 | 1,089 | 0 | 3,790 | 8,065 | -164 | 0.98 | 17.6 |
| T&D | 40h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 6,064 | 0 | 6,064 | 1,618 | 553 | 0 | 5,235 | 7,406 | 1,342 | 1 22 | 14 1 |
| T&D | 41a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 14,253 | 0 | 14,253 | 2,016 | 429 | 0 | 3,206 | 5,651 | -8,601 | 0 40 | 43 4 |
| T&D | 41b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 7,740 | 0 | 7,740 | 290 | 62 | 0 | 7,551 | 7,903 | 163 | 1.02 | 16 9 |
| T&D | 41c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15,723 | 0 | 15,723 | 5,615 | 1,201 | 0 | 3,368 | 10,214 | -5,508 | 0 65 | 26 5 |
| T&D | 41d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 8,538 | 0 | 8,538 | 811 | 173 | 0 | 8,161 | 9,145 | 607 | 1.07 | 16.1 |
| T&D | 41e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 14,988 | 0 | 14,988 | 2,743 | 1,406 | 0 | 3,287 | 7,436 | -7,552 | 0.50 | 34.7 |
| T&D | 41f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 8,139 | 0 | 8,139 | 594 | 202 | 0 | 7,856 | 8,453 | 314 | 1.04 | 16 6 |
| T&D | 41g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16,458 | 0 | 16,458 | 6,372 | 2,178 | 0 | 3,449 | 11,999 | -4,459 | 0.73 | 23 6 |
| T&D | 41h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 8,937 | 0 | 8,937 | 916 | 313 | 0 | 8,466 | 9,695 | 758 | 1.08 | 15.9 |
| T&D | 42a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 139,715 | 0 | 139,715 | 15,470 | 3,293 | 0 | 120,537 | 139,300 | -415 | 1 00 | 17.3 |
| T&D | 42b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 135,514 | 0 | 135,514 | 14,611 | 3,110 | 0 | 123,340 | 141,060 | 5,546 | 1.04 | 16.5 |
| T&D | 42c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 154,210 | 0 | 154,210 | 43,317 | 9,219 | 0 | 122,132 | 174,668 | 20,458 | 1.13 | 15 2 |
| T&D | 42d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 149,574 | 0 | 149,574 | 40,910 | 8,707 | 0 | 125,225 | 174,843 | 25,269 | 1.17 | 14.7 |
| T&D | 42e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 146,963 | 0 | 146,963 | 20,737 | 10,371 | 0 | 121,335 | 152,442 | 5,479 | 1.04 | 16.6 |
| T&D | 42f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 142,544 | 0 | 142,544 | 19,585 | 9,794 | 0 | 124,283 | 153,662 | 11,118 | 1.08 | 16 0 |
| T&D | 42g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 161,458 | 0 | 161,458 | 48,583 | 16,297 | 0 | 122,929 | 187,810 | 26,352 | 1.16 | 14 6 |
| T&D | 42h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 156,603 | 0 | 156,603 | 45,884 | 15,392 | 0 | 126,168 | 187,444 | 30,841 | 1.20 | 14 4 |
| T&D | 43a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 30,209 | 0 | 30,209 | 9,345 | 712 | 0 | 15,544 | 19,601 | -10,608 | 0 65 | 26.5 |
| T&D | 43b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 22,261 | 0 | 22,261 | 1,699 | 362 | 0 | 20,846 | 22,907 | 646 | 1.03 | 16 7 |
| T&D | 43c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 33,343 | 0 | 33,343 | 9,366 | 1,993 | 0 | 15,889 | 27,248 | -6,095 | 0 82 | 21.1 |
| T&D | 43d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 24,571 | 0 | 24,571 | 4,758 | 1,013 | 0 | 21,741 | 27,512 | 2,941 | 1.12 | 15 4 |
| T&D | 43e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 31,776 | 0 | 31,776 | 4,484 | 2,242 | 0 | 15,717 | 22,442 | -9,333 | 0.71 | 24.4 |
| T&D | 43f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 23,416 | 0 | 23,416 | 2,278 | 1,139 | 0 | 21,294 | 24,711 | 1,295 | 1.06 | 16 3 |
| T&D | 43g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 34,910 | 0 | 34,910 | 10,504 | 3,524 | 0 | 16,061 | 30,090 | -4,820 | 0.86 | 20 0 |
| T&D | 43h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 25,725 | 0 | 25,725 | 5,336 | 1,790 | 0 | 22,189 | 29,315 | 3,590 | 1.14 | 15.1 |
| T&D | 44a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 64,193 | 0 | 64,193 | 7,108 | 1,513 | 0 | 14,436 | 23,057 | -41,137 | 0.36 | 47.9 |
| T&D | 44b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 34,859 | 0 | 34,859 | 1,022 | 217 | 0 | 34,006 | 35,245 | 386 | 1.01 | 17.0 |
| T&D | 44c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 70,853 | 0 | 70,853 | 19,902 | 4,236 | 0 | 15,169 | 39,307 | -31,546 | 0 55 | 31.0 |
| T&D | 44d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 38,476 | 0 | 38,476 | 2,861 | 609 | 0 | 36,769 | 40,239 | 1,763 | 1.05 | 16.5 |
| T&D | 44e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 67,523 | 0 | 67,523 | 9,528 | 4,765 | 0 | 14,802 | 29,095 | -38,429 | 0.43 | 40.0 |
| T&D | 44f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 36,667 | 0 | 36,667 | 1,370 | 685 | 0 | 35,387 | 37,442 | 774 | 1.02 | 16 9 |
| T&D | 44g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 74,183 | 0 | 74,183 | 22,322 | 7,488 | 0 | 15,535 | 45,345 | -28,839 | 0.61 | 28 2 |
| T&D | 44h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 40,284 | 0 | 40,284 | 3,209 | 1,076 | 0 | 38,150 | 42,436 | 2,151 | 1.05 | 16 3 |
| T&D | 45a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 22,656 | 0 | 22,656 | 9,336 | 710 | 0 | 19,547 | 23,592 | 936 | 1 04 | 16 5 |
| T&D | 45b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 21,975 | 0 | 21,975 | 3,151 | 671 | 0 | 20,001 | 23,822 | 1,847 | 1.08 | 15.9 |
| T&D | 45c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 25,007 | 0 | 25,007 | 9,341 | 1,988 | 0 | 19,805 | 31,134 | 6,127 | 1.24 | 13 8 |
| T&D | 45d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 24,255 | 0 | 24,255 | 8,822 | 1,878 | 0 | 20,307 | 31,006 | 6,751 | 1.28 | 13.5 |
| T&D | 45e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 23,832 | 0 | 23,832 | 4,508 | 2,285 | 0 | 19,676 | 26,468 | 2,636 | 1 11 | 15 5 |
| T&D | 45f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 23,115 | 0 | 23,115 | 4,257 | 2,158 | 0 | 20,154 | 26,569 | 3,454 | 1 15 | 15.0 |
| T&D | 45g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 26,182 | 0 | 26,182 | 10,512 | 3,563 | 0 | 19,955 | 34,009 | 7,827 | 1 30 | 13 3 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 45h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 25,395 | 0 | 25,395 | 9,928 | 3,365 | 0 | 20,460 | 33,753 | 8,357 | 1 33 | 13 0 |
| T&D | 46a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,328 | 0 | 11,328 | 1,668 | 355 | 0 | 5,829 | 7,852 | 3,476 | 0 69 | 24 8 |
| T&D | 46b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,348 | 0 | 8,348 | 847 | 180 | 0 | 7,817 | 8,845 | 497 | 1 06 | 16 3 |
| T&D | 46c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,504 | 0 | 12,504 | 4,670 | 994 | 0 | 5,958 | 11,623 | 881 | 0 93 | 18 5 |
| T&D | 46d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,214 | 0 | 9,214 | 2,373 | 505 | 0 | 8,153 | 11,030 | 1,817 | 1 20 | 14 4 |
| T&D | 46e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11,916 | 0 | 11,916 | 2,254 | 1,142 | 0 | 5,894 | 9,290 | 2,626 | 0 78 | 22 1 |
| T&D | 46f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,781 | 0 | 8,781 | 1,145 | 580 | 0 | 7,985 | 9,710 | 930 | 1 11 | 15 6 |
| T&D | 46g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,091 | 0 | 13,091 | 5,256 | 1,781 | 0 | 6,023 | 13,060 | 31 | 1 00 | 17 3 |
| T&D | 46h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,647 | 0 | 9,647 | 2,670 | 905 | 0 | 8,321 | 11,896 | 2,249 | 1 23 | 14 0 |
| T&D | 47a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 22,656 | 0 | 22,656 | 3,336 | 710 | 0 | 5,095 | 9,141 | 13,516 | 0 40 | 42 7 |
| T&D | 47b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 12,303 | 0 | 12,303 | 480 | 102 | 0 | 12,002 | 12,584 | 280 | 1 02 | 16 8 |
| T&D | 47c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 25,007 | 0 | 25,007 | 9,341 | 1,988 | 0 | 5,354 | 16,682 | 8,325 | 0 67 | 25 8 |
| T&D | 47d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 13,580 | 0 | 13,580 | 1,343 | 286 | 0 | 12,977 | 14,606 | 1,026 | 1 08 | 16 0 |
| T&D | 47e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 23,832 | 0 | 23,832 | 4,508 | 2,285 | 0 | 5,224 | 12,017 | 11,815 | 0 50 | 34 2 |
| T&D | 47f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 12,941 | 0 | 12,941 | 648 | 328 | 0 | 12,490 | 13,466 | 525 | 1 04 | 16 5 |
| T&D | 47g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 26,182 | 0 | 26,182 | 10,512 | 3,563 | 0 | 5,483 | 19,558 | 6,625 | 0 75 | 23 1 |
| T&D | 47h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 14,218 | 0 | 14,218 | 1,511 | 512 | 0 | 13,465 | 15,488 | 1,270 | 1 09 | 15 8 |
| T&D | 48a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 7,552 | 0 | 7,552 | 836 | 178 | 0 | 6,516 | 7,530 | -22 | 1 00 | 17 3 |
| T&D | 48b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 7,325 | 0 | 7,325 | 790 | 168 | 0 | 6,667 | 7,625 | 300 | 1 04 | 16 5 |
| T&D | 48c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 8,336 | 0 | 8,336 | 2,341 | 498 | 0 | 6,602 | 9,442 | 1,106 | 1 13 | 15 2 |
| T&D | 48d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 8,085 | 0 | 8,085 | 2,211 | 471 | 0 | 6,769 | 9,451 | 1,366 | 1 17 | 14 7 |
| T&D | 48e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 7,944 | 0 | 7,944 | 1,121 | 561 | 0 | 6,559 | 8,240 | 296 | 1 04 | 16 6 |
| T&D | 48f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 7,705 | 0 | 7,705 | 1,059 | 529 | 0 | 6,718 | 8,306 | 601 | 1 08 | 16 0 |
| T&D | 48g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 8,727 | 0 | 8,727 | 2,626 | 881 | 0 | 6,645 | 10,152 | 1,424 | 1 16 | 14 8 |
| T&D | 48h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 8,465 | 0 | 8,465 | 2,480 | 832 | 0 | 6,820 | 10,132 | 1,667 | 1 20 | 14 4 |
| T&D | 49a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,328 | 0 | 11,328 | 1,254 | 267 | 0 | 5,829 | 7,350 | 3,978 | 0 65 | 26 5 |
| T&D | 49b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,348 | 0 | 8,348 | 637 | 136 | 0 | 7,817 | 8,590 | 242 | 1 03 | 16 7 |
| T&D | 49c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,504 | 0 | 12,504 | 3,512 | 748 | 0 | 5,958 | 10,218 | 2,285 | 0 82 | 21 1 |
| T&D | 49d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,214 | 0 | 9,214 | 1,784 | 380 | 0 | 8,153 | 10,317 | 1,103 | 1 12 | 15 4 |
| T&D | 49e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11,916 | 0 | 11,916 | 1,681 | 841 | 0 | 5,894 | 8,416 | -3,500 | 0.71 | 24 4 |
| T&D | 49f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,781 | 0 | 8,781 | 854 | 427 | 0 | 7,985 | 9,266 | 486 | 1 06 | 16 3 |
| T&D | 49g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,091 | 0 | 13,091 | 3,959 | 1,321 | 0 | 6,023 | 11,284 | 1,808 | 0 86 | 20 0 |
| T&D | 49h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,647 | 0 | 9,647 | 2,001 | 671 | 0 | 8,321 | 10,993 | 1,346 | 1 14 | 15 1 |
| T&D | 4a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4,700 | 0 | 4,700 | 461 | 98 | 0 | 1,063 | 1,622 | 3,078 | 0 35 | 49 9 |
| T&D | 4b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 2,552 | 0 | 2,552 | 66 | 14 | 0 | 2,496 | 2,576 | 24 | 1 01 | 17.1 |
| T&D | 4c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 5,142 | 0 | 5,142 | 1,291 | 275 | 0 | 1,111 | 2,677 | 2,465 | 0 52 | 33 1 |
| T&D | 4d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 2,792 | 0 | 2,792 | 186 | 39 | 0 | 2,679 | 2,904 | 112 | 1 04 | 16 6 |
| T&D | 4e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4,921 | 0 | 4,921 | 570 | 244 | 0 | 1,087 | 1,901 | 3,020 | 0 39 | 44 6 |
| T&D | 4f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 2,672 | 0 | 2,672 | 82 | 35 | 0 | 2,587 | 2,704 | 32 | 1 01 | 17 0 |
| T&D | 4g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 5,363 | 0 | 5,363 | 1,400 | 421 | 0 | 1,136 | 2,956 | 2,407 | 0 55 | 31 2 |
| T&D | 4h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 2,912 | 0 | 2,912 | 201 | 60 | 0 | 2,771 | 3,032 | 120 | 1 04 | 16 5 |
| T&D | 50a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 26,433 | 0 | 26,433 | 3,702 | 788 | 0 | 22,804 | 27,294 | 862 | 1 03 | 16 7 |
| T&D | 50b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 25,638 | 0 | 25,638 | 3,496 | 744 | 0 | 23,335 | 27,575 | 1,937 | 1 08 | 16 0 |
| T&D | 50c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 29,175 | 0 | 29,175 | 10,366 | 2,206 | 0 | 23,106 | 35,678 | 6,503 | 1 22 | 14.1 |
| T&D | 50d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 28,298 | 0 | 28,298 | 9,790 | 2,084 | 0 | 23,691 | 35,565 | 7,267 | 1 26 | 13 7 |
| T&D | 50e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 27,804 | 0 | 27,804 | 5,095 | 2,660 | 0 | 22,955 | 30,710 | 2,907 | 1 10 | 15 6 |
| T&D | 50f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 26,968 | 0 | 26,968 | 4,812 | 2,512 | 0 | 23,513 | 30,837 | 3,869 | 1 14 | 15 1 |
| T&D | 50g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 30,546 | 0 | 30,546 | 11,759 | 4,078 | 0 | 23,257 | 39,094 | 8,548 | 1 28 | 13 5 |
| T&D | 50h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 29,628 | 0 | 29,628 | 11,105 | 3,852 | 0 | 23,870 | 38,827 | 9,199 | 1 31 | 13 1 |
| T&D | 51a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,328 | 0 | 11,328 | 1,587 | 338 | 0 | 5,829 | 7,753 | 3,575 | 0 68 | 25 2 |
| T&D | 51b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,348 | 0 | 8,348 | 806 | 172 | 0 | 7,817 | 8,795 | -447 | 1.05 | 16 3 |
| T&D | 51c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,504 | 0 | 12,504 | 4,442 | 945 | 0 | 5,958 | 11,346 | 1,157 | 0 91 | 19 0 |
| T&D | 51d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,214 | 0 | 9,214 | 2,257 | 480 | 0 | 8,153 | 10,890 | 1,676 | 1 18 | 14 6 |
| T&D | 51e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11,916 | 0 | 11,916 | 2,184 | 1,140 | 0 | 5,894 | 9,217 | 2,699 | 0 77 | 22 3 |
| T&D | 51f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,781 | 0 | 8,781 | 1,109 | 579 | 0 | 7,985 | 9,674 | 893 | 1 10 | 15 6 |
| T&D | 51g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,091 | 0 | 13,091 | 5,039 | 1,748 | 0 | 6,023 | 12,810 | 281 | 0 98 | 17 6 |
| T&D | 51h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,647 | 0 | 9,647 | 2,560 | 888 | 0 | 8,321 | 11,769 | 2,122 | 1 22 | 14 1 |
| T&D | 52a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 22,656 | 0 | 22,656 | 3,173 | 675 | 0 | 5,095 | 8,944 | 13,713 | 0 39 | 43 6 |
| T&D | 52b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 12,303 | 0 | 12,303 | 456 | 97 | 0 | 12,002 | 12,555 | 252 | 1 02 | 16 9 |
| T&D | 52c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 25,007 | 0 | 25,007 | 8,885 | 1,891 | 0 | 5,354 | 16,130 | -8,878 | 0 64 | 26 7 |
| T&D | 52d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 13,580 | 0 | 13,580 | 1,277 | 272 | 0 | 12,977 | 14,526 | 947 | 1 07 | 16 1 |
| T&D | 52e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 23,832 | 0 | 23,832 | 4,367 | 2,280 | 0 | 5,224 | 11,872 | 11,960 | 0 50 | 34 6 |
| T&D | 52f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 12,941 | 0 | 12,941 | 628 | 328 | 0 | 12,490 | 13,445 | 504 | 1 04 | 16 6 |
| T&D | 52g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 26,182 | 0 | 26,182 | 10,079 | 3,496 | 0 | 5,483 | 19,058 | 7,125 | 0 73 | 23 7 |
| T&D | 52h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 14,218 | 0 | 14,218 | 1,449 | 503 | 0 | 13,465 | 15,416 | 1,198 | 1 08 | 15 9 |
| T&D | 53a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 61,405 | 0 | 61,405 | 8,374 | 1,782 | 0 | 52,853 | 63,009 | 1,605 | 1 03 | 16 8 |
| T&D | 53b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 59,558 | 0 | 59,558 | 7,908 | 1,683 | 0 | 54,085 | 63,677 | 4,118 | 1 07 | 16 1 |
| T&D | 53c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 67,921 | 0 | 67,921 | 23,446 | 4,990 | 0 | 53,570 | 82,007 | 14,085 | 1 21 | 14 3 |
| T&D | 53d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 65,879 | 0 | 65,879 | 22,144 | 4,713 | 0 | 54,933 | 81,789 | 15,910 | 1 24 | 13 9 |
| T&D | 53e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 64,663 | 0 | 64,663 | 10,795 | 5,036 | 0 | 53,212 | 69,042 | 4,379 | 1 07 | 16 1 |
| T&D | 53f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 62,719 | 0 | 62,719 | 10,195 | 4,756 | 0 | 54,509 | 69,460 | 6,741 | 1 11 | 15 5 |
| T&D | 53g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 71,180 | 0 | 71,180 | 25,867 | 8,244 | 0 | 53,929 | 88,040 | 16,860 | 1 24 | 13 9 |
| T&D | 53h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 69,040 | 0 | 69,040 | 24,430 | 7,786 | 0 | 55,357 | 87,573 | 18,533 | 1 27 | 13 6 |
| T&D | 54a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 75,575 | 0 | 75,575 | 10,306 | 2,193 | 0 | 38,877 | 51,306 | 24,269 | 0 68 | 25 4 |
| T&D | 54b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 55,692 | 0 | 55,692 | 5,236 | 1,114 | 0 | 52,071 | 58,421 | 2,730 | 1 05 | 16 4 |
| T&D | 54c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 83,596 | 0 | 83,596 | 28,857 | 6,142 | 0 | 39,689 | 74,688 | 8,908 | 0 89 | 19 3 |
| T&D | 54d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 61,602 | 0 | 61,602 | 14,660 | 3,120 | 0 | 54,362 | 72,141 | 10,539 | 1 17 | 14 7 |
| T&D | 54e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 79,585 | 0 | 79,585 | 13,286 | 6,198 | 0 | 39,248 | 58,732 | 20,853 | 0 74 | 23 3 |
| T&D | 54f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 58,647 | 0 | 58,647 | 6,749 | 3,149 | 0 | 53,216 | 63,115 | 4,468 | 1 08 | 16 0 |
| T&D | 54g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 87,606 | 0 | 87,606 | 31,836 | 10,146 | 0 | 40,130 | 82,113 | 5,493 | 0 94 | 18 4 |
| T&D | 54h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 64,557 | 0 | 64,557 | 16,174 | 5,155 | 0 | 55,597 | 76 835 | 12,277 | 1 19 | 14 5 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 55a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 108,639 | 0 | 108,639 | 14,815 | 3,153 | 0 | 24,398 | 42,366 | 66,273 | 0.39 | 44.2 |
| T&D | 55b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 58,995 | 0 | 58,995 | 2,130 | 453 | 0 | 57,517 | 60,100 | 1,105 | 1.02 | 16.9 |
| T&D | 55c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 120,169 | 0 | 120,169 | 41,482 | 8,829 | 0 | 25,666 | 75,977 | -44,192 | 0.63 | 27.2 |
| T&D | 55d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 65,256 | 0 | 65,256 | 5,963 | 1,269 | 0 | 62,300 | 69,533 | 4,277 | 1.07 | 16.2 |
| T&D | 55e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 114,404 | 0 | 114,404 | 19,098 | 8,910 | 0 | 25,032 | 53,040 | 61,364 | 0.46 | 37.1 |
| T&D | 55f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 62,125 | 0 | 62,125 | 2,745 | 1,281 | 0 | 59,909 | 63,935 | 1,810 | 1.03 | 16.7 |
| T&D | 55g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 125,933 | 0 | 125,933 | 45,765 | 14,585 | 0 | 26,300 | 86,651 | 39,283 | 0.69 | 25.0 |
| T&D | 55h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 68,386 | 0 | 68,386 | 6,579 | 2,097 | 0 | 64,692 | 73,368 | 4,982 | 1.07 | 16.1 |
| T&D | 56a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 47,234 | 0 | 47,234 | 8,136 | 1,732 | 0 | 24,254 | 34,122 | 13,112 | 0.72 | 23.8 |
| T&D | 56b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 34,807 | 0 | 34,807 | 4,133 | 880 | 0 | 32,545 | 37,558 | 2,750 | 1.08 | 16.0 |
| T&D | 56c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 52,247 | 0 | 52,247 | 22,782 | 4,849 | 0 | 24,806 | 52,436 | 189 | 1.00 | 17.2 |
| T&D | 56d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 38,501 | 0 | 38,501 | 11,574 | 2,463 | 0 | 33,976 | 48,013 | 9,511 | 1.25 | 13.8 |
| T&D | 56e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 49,741 | 0 | 49,741 | 10,770 | 5,272 | 0 | 24,530 | 40,572 | 9,169 | 0.82 | 21.1 |
| T&D | 56f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 36,654 | 0 | 36,654 | 5,471 | 2,678 | 0 | 33,260 | 41,410 | 4,755 | 1.13 | 15.2 |
| T&D | 56g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 54,754 | 0 | 54,754 | 25,415 | 8,389 | 0 | 25,081 | 58,886 | 4,132 | 1.08 | 16.0 |
| T&D | 56h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 40,348 | 0 | 40,348 | 12,912 | 4,262 | 0 | 34,692 | 51,865 | 11,516 | 1.29 | 13.4 |
| T&D | 57a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 14,170 | 0 | 14,170 | 2,441 | 520 | 0 | 5,182 | 8,143 | 8,028 | 0.43 | 39.7 |
| T&D | 57b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 7,695 | 0 | 7,695 | 351 | 75 | 0 | 7,502 | 7,928 | 233 | 1.03 | 16.7 |
| T&D | 57c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15,674 | 0 | 15,674 | 6,835 | 1,455 | 0 | 3,348 | 11,637 | -4,007 | 0.74 | 23.2 |
| T&D | 57d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 8,512 | 0 | 8,512 | 983 | 209 | 0 | 8,126 | 9,318 | 806 | 1.09 | 15.7 |
| T&D | 57e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14,922 | 0 | 14,922 | 3,231 | 1,581 | 0 | 3,265 | 8,078 | -6,845 | 0.54 | 31.8 |
| T&D | 57f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 8,103 | 0 | 8,103 | 464 | 227 | 0 | 7,814 | 8,506 | 403 | 1.05 | 16.4 |
| T&D | 57g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16,426 | 0 | 16,426 | 7,625 | 2,517 | 0 | 3,430 | 13,572 | -2,854 | 0.83 | 29.8 |
| T&D | 57h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 8,920 | 0 | 8,920 | 1,096 | 362 | 0 | 8,438 | 9,896 | 976 | 1.11 | 15.5 |
| T&D | 58a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 14,170 | 0 | 14,170 | 2,441 | 520 | 0 | 7,276 | 10,237 | 3,934 | 0.72 | 23.8 |
| T&D | 58b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,442 | 0 | 10,442 | 1,240 | 264 | 0 | 9,763 | 11,267 | 825 | 1.08 | 16.0 |
| T&D | 58c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15,674 | 0 | 15,674 | 6,835 | 1,455 | 0 | 7,442 | 15,731 | 57 | 1.00 | 17.2 |
| T&D | 58d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,550 | 0 | 11,550 | 3,472 | 739 | 0 | 10,193 | 14,404 | 2,853 | 1.25 | 13.8 |
| T&D | 58e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14,922 | 0 | 14,922 | 3,231 | 1,581 | 0 | 7,359 | 12,171 | 2,751 | 0.82 | 21.1 |
| T&D | 58f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 10,996 | 0 | 10,996 | 1,641 | 803 | 0 | 9,978 | 12,423 | 1,427 | 1.13 | 15.2 |
| T&D | 58g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 16,426 | 0 | 16,426 | 7,625 | 2,517 | 0 | 7,524 | 17,666 | 1,240 | 1.08 | 16.0 |
| T&D | 58h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 12,105 | 0 | 12,105 | 3,873 | 1,278 | 0 | 10,407 | 15,559 | 3,455 | 1.29 | 13.4 |
| T&D | 59a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 66,473 | 0 | 66,473 | 9,628 | 2,049 | 0 | 57,123 | 68,800 | 2,327 | 1.04 | 16.6 |
| T&D | 59b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 64,474 | 0 | 64,474 | 9,093 | 1,935 | 0 | 58,456 | 69,485 | 5,011 | 1.08 | 16.0 |
| T&D | 59c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 73,638 | 0 | 73,638 | 26,958 | 5,738 | 0 | 57,911 | 90,607 | 16,969 | 1.23 | 14.0 |
| T&D | 59d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 71,424 | 0 | 71,424 | 25,461 | 5,419 | 0 | 39,388 | 90,268 | 18,844 | 1.26 | 13.6 |
| T&D | 59e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 70,055 | 0 | 70,055 | 12,565 | 5,997 | 0 | 57,517 | 76,079 | 6,023 | 1.09 | 15.9 |
| T&D | 59f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 67,949 | 0 | 67,949 | 11,867 | 5,664 | 0 | 58,922 | 76,453 | 8,504 | 1.13 | 15.3 |
| T&D | 59g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 77,221 | 0 | 77,221 | 29,895 | 9,685 | 0 | 58,305 | 97,886 | 20,665 | 1.27 | 13.6 |
| T&D | 59h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 74,899 | 0 | 74,899 | 28,235 | 9,147 | 0 | 59,854 | 97,236 | 22,337 | 1.30 | 13.3 |
| T&D | 5a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 3,133 | 0 | 3,133 | 307 | 65 | 0 | 1,626 | 1,999 | 1,134 | 0.64 | 27.0 |
| T&D | 5b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 2,309 | 0 | 2,309 | 156 | 33 | 0 | 2,176 | 2,365 | 56 | 1.02 | 16.8 |
| T&D | 5c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 3,428 | 0 | 3,428 | 861 | 183 | 0 | 1,659 | 2,702 | 726 | 0.79 | 21.8 |
| T&D | 5d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 2,526 | 0 | 2,526 | 437 | 93 | 0 | 2,260 | 2,790 | 264 | 1.10 | 15.6 |
| T&D | 5e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 3,281 | 0 | 3,281 | 380 | 163 | 0 | 1,642 | 2,185 | 1,096 | 0.67 | 25.9 |
| T&D | 5f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 2,417 | 0 | 2,417 | 193 | 83 | 0 | 2,218 | 2,494 | 76 | 1.03 | 16.7 |
| T&D | 5g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 3,575 | 0 | 3,575 | 933 | 280 | 0 | 1,675 | 2,888 | 687 | 0.81 | 21.3 |
| T&D | 5h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 2,635 | 0 | 2,635 | 474 | 142 | 0 | 2,302 | 2,919 | 284 | 1.11 | 15.5 |
| T&D | 60a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 33,236 | 0 | 33,236 | 4,814 | 1,025 | 0 | 17,041 | 22,880 | -10,356 | 0.69 | 25.0 |
| T&D | 60b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 24,492 | 0 | 24,492 | 2,446 | 521 | 0 | 22,875 | 25,841 | 1,349 | 1.06 | 16.3 |
| T&D | 60c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 36,819 | 0 | 36,819 | 13,479 | 2,869 | 0 | 17,436 | 33,784 | -3,035 | 0.92 | 18.8 |
| T&D | 60d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 27,132 | 0 | 27,132 | 6,848 | 1,457 | 0 | 23,898 | 32,203 | 5,071 | 1.19 | 14.5 |
| T&D | 60e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 35,028 | 0 | 35,028 | 6,283 | 2,998 | 0 | 17,239 | 26,519 | 8,508 | 0.76 | 22.7 |
| T&D | 60f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 25,812 | 0 | 25,812 | 3,192 | 1,523 | 0 | 23,386 | 28,101 | 2,289 | 1.09 | 15.8 |
| T&D | 60g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 38,610 | 0 | 38,610 | 14,948 | 4,843 | 0 | 17,633 | 37,423 | 1,187 | 0.97 | 17.8 |
| T&D | 60h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 28,452 | 0 | 28,452 | 7,594 | 2,460 | 0 | 24,409 | 34,463 | 6,011 | 1.21 | 14.2 |
| T&D | 61a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 60,933 | 0 | 60,933 | 8,826 | 1,878 | 0 | 13,671 | 24,375 | 36,558 | 0.40 | 43.0 |
| T&D | 61b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 33,089 | 0 | 33,089 | 1,269 | 270 | 0 | 32,247 | 33,786 | 697 | 1.02 | 16.9 |
| T&D | 61c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 67,502 | 0 | 67,502 | 24,712 | 5,260 | 0 | 14,394 | 44,365 | -23,136 | 0.66 | 26.2 |
| T&D | 61d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 36,656 | 0 | 36,656 | 3,553 | 756 | 0 | 34,972 | 39,281 | 2,625 | 1.07 | 16.1 |
| T&D | 61e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 64,217 | 0 | 64,217 | 11,518 | 5,497 | 0 | 14,033 | 31,047 | 33,170 | 0.48 | 35.6 |
| T&D | 61f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 34,872 | 0 | 34,872 | 1,656 | 790 | 0 | 33,610 | 36,056 | 1,183 | 1.03 | 16.7 |
| T&D | 61g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 70,786 | 0 | 70,786 | 27,404 | 8,878 | 0 | 14,755 | 51,037 | -19,748 | 0.72 | 23.9 |
| T&D | 61h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 38,439 | 0 | 38,439 | 3,940 | 1,276 | 0 | 36,334 | 41,550 | 3,111 | 1.08 | 15.9 |
| T&D | 62a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16,618 | 0 | 16,618 | 3,017 | 642 | 0 | 14,281 | 17,940 | 1,322 | 1.08 | 16.0 |
| T&D | 62b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 16,118 | 0 | 16,118 | 2,850 | 606 | 0 | 14,614 | 18,070 | 1,952 | 1.12 | 15.4 |
| T&D | 62c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18,410 | 0 | 18,410 | 8,448 | 1,798 | 0 | 14,478 | 24,724 | 6,315 | 1.34 | 12.8 |
| T&D | 62d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 17,856 | 0 | 17,856 | 7,979 | 1,698 | 0 | 14,847 | 24,524 | 6,668 | 1.37 | 12.5 |
| T&D | 62e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 17,514 | 0 | 17,514 | 3,919 | 1,854 | 0 | 14,379 | 20,153 | 2,639 | 1.15 | 15.0 |
| T&D | 62f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 16,987 | 0 | 16,987 | 3,701 | 1,751 | 0 | 14,731 | 20,183 | 3,196 | 1.19 | 14.5 |
| T&D | 62g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 19,305 | 0 | 19,305 | 9,350 | 3,010 | 0 | 14,576 | 26,937 | 7,631 | 1.40 | 12.3 |
| T&D | 62h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 18,725 | 0 | 18,725 | 8,831 | 2,843 | 0 | 14,964 | 26,637 | 7,912 | 1.42 | 12.1 |
| T&D | 63a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16,618 | 0 | 16,618 | 3,017 | 642 | 0 | 8,521 | 12,180 | 4,438 | 0.73 | 23.5 |
| T&D | 63b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 12,246 | 0 | 12,246 | 1,533 | 326 | 0 | 11,457 | 13,297 | 1,050 | 1.09 | 15.9 |
| T&D | 63c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18,410 | 0 | 18,410 | 8,448 | 1,798 | 0 | 8,718 | 18,964 | 555 | 1.03 | 16.7 |
| T&D | 63d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 13,566 | 0 | 13,566 | 4,292 | 913 | 0 | 11,949 | 17,154 | 3,588 | 1.26 | 13.6 |
| T&D | 63e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 17,514 | 0 | 17,514 | 3,919 | 1,854 | 0 | 8,619 | 14,393 | 3,121 | 0.82 | 21.0 |
| T&D | 63f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 12,906 | 0 | 12,906 | 1,991 | 942 | 0 | 11,693 | 14,626 | 1,720 | 1.13 | 15.2 |
| T&D | 63g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 19,305 | 0 | 19,305 | 9,350 | 3,010 | 0 | 8,816 | 21,177 | 1,871 | 1.10 | 15.7 |
| T&D | 63h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 14,226 | 0 | 14,226 | 4,750 | 1,529 | 0 | 12,205 | 18,484 | 4,258 | 1.30 | 13.3 |
| T&D | 64a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 16,618 | 0 | 16,618 | 3,017 | 642 | 0 | 3,729 | 7,388 | 9,230 | 0.44 | 38.7 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 64b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 9,024 | 0 | 9,024 | 434 | 92 | 0 | 8,795 | 9,321 | 296 | 1 03 | 16 7 |
| T&D | 64c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18,410 | 0 | 18,410 | 8,448 | 1,798 | 0 | 3,926 | 14,172 | -4,238 | 0 77 | 22 4 |
| T&D | 64d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,997 | 0 | 9,997 | 1,214 | 258 | 0 | 9,538 | 11,011 | 1,014 | 1 10 | 15 6 |
| T&D | 64e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 17,514 | 0 | 17,514 | 3,919 | 1,854 | 0 | 3,827 | 9,600 | 7,913 | 0 55 | 31 4 |
| T&D | 64f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 9,511 | 0 | 9,511 | 563 | 267 | 0 | 9,166 | 9,996 | 486 | 1 05 | 16 4 |
| T&D | 64g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 19,305 | 0 | 19,305 | 9,350 | 3,010 | 0 | 4,024 | 16,384 | 2,921 | 0 85 | 20 3 |
| T&D | 64h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 10,483 | 0 | 10,483 | 1,344 | 433 | 0 | 9,909 | 11,686 | 1,203 | 1 11 | 15 4 |
| T&D | 65a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,079 | 0 | 11,079 | 1,603 | 342 | 0 | 9,520 | 11,467 | 388 | 1 04 | 16 6 |
| T&D | 65b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,746 | 0 | 10,746 | 1,516 | 323 | 0 | 9,743 | 11,581 | 835 | 1 08 | 16 0 |
| T&D | 65c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 12,273 | 0 | 12,273 | 4,493 | 956 | 0 | 9,652 | 15,101 | 2,828 | 1 23 | 14 0 |
| T&D | 65d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,904 | 0 | 11,904 | 4,243 | 903 | 0 | 9,898 | 15,045 | 3,141 | 1 26 | 13 6 |
| T&D | 65e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 11,676 | 0 | 11,676 | 2,094 | 999 | 0 | 9,586 | 12,680 | 1,004 | 1 09 | 15 9 |
| T&D | 65f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 11,325 | 0 | 11,325 | 1,978 | 944 | 0 | 9,820 | 12,742 | 1,417 | 1 13 | 15 3 |
| T&D | 65g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 12,870 | 0 | 12,870 | 4,983 | 1,614 | 0 | 9,718 | 16,314 | 3,444 | 1 27 | 13 6 |
| T&D | 65h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 12,483 | 0 | 12,483 | 4,706 | 1,525 | 0 | 9,976 | 16,206 | 3,723 | 1 30 | 13 5 |
| T&D | 66a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16,618 | 0 | 16,618 | 3,207 | 683 | 0 | 3,729 | 7,618 | 9,000 | 0 46 | 37 6 |
| T&D | 66b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 9,024 | 0 | 9,024 | 461 | 98 | 0 | 8,795 | 9,354 | 330 | 1 04 | 16 6 |
| T&D | 66c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18,410 | 0 | 18,410 | 8,980 | 1,911 | 0 | 3,926 | 14,817 | 3,591 | 0 80 | 21 4 |
| T&D | 66d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,997 | 0 | 9,997 | 1,291 | 275 | 0 | 9,538 | 11,103 | 1,106 | 1 11 | 15 5 |
| T&D | 66e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 17,514 | 0 | 17,514 | 12,090 | 12,622 | 0 | 3,827 | 28,539 | 11,025 | 1 63 | 10 6 |
| T&D | 66f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 9,511 | 0 | 9,511 | 1,738 | 1,814 | 0 | 9,166 | 12,719 | 3,208 | 1 34 | 12 9 |
| T&D | 66g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 19,305 | 0 | 19,305 | 17,863 | 13,850 | 0 | 4,024 | 35,737 | 16,432 | 1 85 | 9 3 |
| T&D | 66h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 10,483 | 0 | 10,483 | 2,568 | 1,991 | 0 | 9,909 | 14,468 | 3,985 | 1 38 | 12 5 |
| T&D | 67a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 16,618 | 0 | 16,618 | 2,821 | 600 | 0 | 14,281 | 17,702 | 1,083 | 1 07 | 16 2 |
| T&D | 67b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 16,118 | 0 | 16,118 | 2,664 | 567 | 0 | 14,614 | 17,845 | 1,726 | 1 11 | 15 6 |
| T&D | 67c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 18,410 | 0 | 18,410 | 7,898 | 1,681 | 0 | 14,478 | 24,056 | 5,647 | 1 31 | 13 2 |
| T&D | 67d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 17,856 | 0 | 17,856 | 7,459 | 1,588 | 0 | 14,847 | 23,893 | 6,037 | 1 34 | 12 9 |
| T&D | 67e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 17,514 | 0 | 17,514 | 3,457 | 1,456 | 0 | 14,379 | 19,293 | 1,779 | 1 10 | 15 6 |
| T&D | 67f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 16,987 | 0 | 16,987 | 3,265 | 1,375 | 0 | 14,731 | 19,371 | 2,384 | 1 14 | 15 1 |
| T&D | 67g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 19,305 | 0 | 19,305 | 8,535 | 2,537 | 0 | 14,576 | 25,648 | 6,343 | 1 33 | 13 0 |
| T&D | 67h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 18,725 | 0 | 18,725 | 8,060 | 2,396 | 0 | 14,964 | 25,420 | 6,695 | 1 36 | 12 7 |
| T&D | 68a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 19,269 | 0 | 19,269 | 2,396 | 510 | 0 | 4,266 | 7,172 | 12,097 | 0 37 | 46 3 |
| T&D | 68b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,464 | 0 | 10,464 | 344 | 73 | 0 | 10,140 | 10,558 | 94 | 1 01 | 17 1 |
| T&D | 68c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 21,792 | 0 | 21,792 | 6,708 | 1,428 | 0 | 4,544 | 12,679 | 9,113 | 0 58 | 29.6 |
| T&D | 68d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 11,834 | 0 | 11,834 | 964 | 205 | 0 | 11,187 | 12,357 | 523 | 1 04 | 16 5 |
| T&D | 68e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 20,531 | 0 | 20,531 | 3,071 | 1,418 | 0 | 4,405 | 8,894 | 11,636 | 0 43 | 39.7 |
| T&D | 68f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 11,149 | 0 | 11,149 | 442 | 204 | 0 | 10,664 | 11,309 | 160 | 1 01 | 17 0 |
| T&D | 68g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 23,054 | 0 | 23,054 | 7,384 | 2,336 | 0 | 4,682 | 14,402 | 8,652 | 0 62 | 27 6 |
| T&D | 68h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 12,519 | 0 | 12,519 | 1,061 | 336 | 0 | 11,711 | 13,108 | 589 | 1 05 | 16 4 |
| T&D | 69a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 9,634 | 0 | 9,634 | 1,198 | 255 | 0 | 8,092 | 9,545 | -90 | 0 99 | 17 4 |
| T&D | 69b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 9,345 | 0 | 9,345 | 1,131 | 241 | 0 | 8,285 | 9,657 | 313 | 1 03 | 16 7 |
| T&D | 69c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10,896 | 0 | 10,896 | 3,354 | 714 | 0 | 8,231 | 12,299 | 1,403 | 1 13 | 15 3 |
| T&D | 69d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 10,568 | 0 | 10,568 | 3,168 | 674 | 0 | 8,449 | 12,291 | 1,723 | 1 16 | 14 8 |
| T&D | 69e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10,265 | 0 | 10,265 | 1,536 | 709 | 0 | 8,161 | 10,406 | 141 | 1 01 | 17 0 |
| T&D | 69f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 9,957 | 0 | 9,957 | 1,450 | 670 | 0 | 8,367 | 10,487 | 531 | 1 05 | 16 3 |
| T&D | 69g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 11,527 | 0 | 11,527 | 3,692 | 1,168 | 0 | 8,300 | 13,160 | 1,633 | 1 14 | 15 1 |
| T&D | 69h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 11,180 | 0 | 11,180 | 3,487 | 1,103 | 0 | 8,531 | 13,121 | 1,941 | 1 17 | 14.7 |
| T&D | 6a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 28,200 | 0 | 28,200 | 3,580 | 762 | 0 | 14,635 | 18,977 | 9,223 | 0 67 | 25 6 |
| T&D | 6b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 20,781 | 0 | 20,781 | 1,819 | 387 | 0 | 19,584 | 21,790 | 1,009 | 1 05 | 16 4 |
| T&D | 6c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 30,851 | 0 | 30,851 | 10,024 | 2,133 | 0 | 14,927 | 27,084 | -3,767 | 0 88 | 19 6 |
| T&D | 6d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 22,734 | 0 | 22,734 | 5,092 | 1,084 | 0 | 20,341 | 26,517 | 3,783 | 1 17 | 14.8 |
| T&D | 6e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 29,525 | 0 | 29,525 | 4,763 | 2,352 | 0 | 14,781 | 21,895 | -7,630 | 0 74 | 23.2 |
| T&D | 6f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 21,757 | 0 | 21,757 | 2,420 | 1,195 | 0 | 19,963 | 23,577 | 1,820 | 1 08 | 15 9 |
| T&D | 6g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 32,176 | 0 | 32,176 | 11,207 | 3,723 | 0 | 15,072 | 30,002 | -2,174 | 0 93 | 18 5 |
| T&D | 6h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 23,711 | 0 | 23,711 | 5,693 | 1,891 | 0 | 20,720 | 28,304 | 4,594 | 1 19 | 14 4 |
| T&D | 70a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 9,634 | 0 | 9,634 | 1,198 | 255 | 0 | 2,133 | 3,586 | 6,049 | 0 37 | 46 3 |
| T&D | 70b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 5,232 | 0 | 5,232 | 172 | 37 | 0 | 5,070 | 5,279 | 47 | 1 01 | 17 1 |
| T&D | 70c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 10,896 | 0 | 10,896 | 3,354 | 714 | 0 | 2,272 | 6,340 | 4,556 | 0 58 | 29 6 |
| T&D | 70d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 5,917 | 0 | 5,917 | 482 | 103 | 0 | 5,594 | 6,178 | 261 | 1 04 | 16 5 |
| T&D | 70e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 10,265 | 0 | 10,265 | 1,536 | 709 | 0 | 2,202 | 4,447 | 5,818 | 0 43 | 39 7 |
| T&D | 70f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 5,574 | 0 | 5,574 | 221 | 102 | 0 | 5,332 | 5,655 | 80 | 1 01 | 17 0 |
| T&D | 70g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 11,527 | 0 | 11,527 | 3,692 | 1,168 | 0 | 2,341 | 7,201 | 4,326 | 0 62 | 27 6 |
| T&D | 70h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 6,259 | 0 | 6,259 | 531 | 168 | 0 | 5,855 | 6,554 | 294 | 1 05 | 16 4 |
| T&D | 71a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 22,076 | 0 | 22,076 | 2,331 | 539 | 0 | 18,539 | 21,609 | -467 | 0 98 | 17 6 |
| T&D | 71b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 21,412 | 0 | 21,412 | 2,391 | 509 | 0 | 18,981 | 21,881 | 469 | 1 02 | 16 9 |
| T&D | 71c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 24,970 | 0 | 24,970 | 7,088 | 1,508 | 0 | 18,857 | 27,453 | 2,483 | 1 10 | 15 7 |
| T&D | 71d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 24,219 | 0 | 24,219 | 6,694 | 1,425 | 0 | 19,358 | 27,476 | 3,257 | 1 13 | 15 2 |
| T&D | 71e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 23,523 | 0 | 23,523 | 3,431 | 1,747 | 0 | 18,698 | 23,876 | 352 | 1 01 | 17 0 |
| T&D | 71f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 22,816 | 0 | 22,816 | 3,240 | 1,650 | 0 | 19,170 | 24,060 | 1,244 | 1 05 | 16 3 |
| T&D | 71g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 26,417 | 0 | 26,417 | 7,987 | 2,717 | 0 | 19,016 | 29,720 | 3,303 | 1 13 | 15 3 |
| T&D | 71h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 25,623 | 0 | 25,623 | 7,543 | 2,566 | 0 | 19,546 | 29,655 | 4,032 | 1 16 | 14 9 |
| T&D | 72a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,038 | 0 | 11,038 | 1,266 | 269 | 0 | 2,444 | 3,979 | 7,059 | 0 36 | 47 8 |
| T&D | 72b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 5,994 | 0 | 5,994 | 182 | 39 | 0 | 5,809 | 6,029 | 35 | 1 01 | 17 1 |
| T&D | 72c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 12,485 | 0 | 12,485 | 3,544 | 754 | 0 | 2,608 | 6,901 | 5,584 | 0 55 | 31 2 |
| T&D | 72d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 6,780 | 0 | 6,780 | 509 | 108 | 0 | 6,409 | 7,027 | 247 | 1 04 | 16 6 |
| T&D | 72e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 11,762 | 0 | 11,762 | 1,715 | 874 | 0 | 2,523 | 5,112 | 6,649 | 0 43 | 39 6 |
| T&D | 72f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 6,387 | 0 | 6,387 | 247 | 126 | 0 | 6,109 | 6,481 | 94 | 1 01 | 17 0 |
| T&D | 72g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 13,209 | 0 | 13,209 | 3,993 | 1,359 | 0 | 2,682 | 8,034 | 5,174 | 0 61 | 28 3 |
| T&D | 72h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 7,173 | 0 | 7,173 | 574 | 195 | 0 | 6,709 | 7,478 | 306 | 1 04 | 16 5 |
| T&D | 73a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 92,901 | 0 | 92,901 | 9,040 | 1,924 | 0 | 20,565 | 31,530 | 61,371 | 0 34 | 50 7 |
| T&D | 73b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 50,448 | 0 | 50,448 | 1,500 | 277 | 0 | 48,887 | 50,463 | 15 | 1 00 | 17 2 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 73e | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 105,087 | 0 | 105,087 | 25,313 | 5,387 | 0 | 21,906 | 52,606 | -52,480 | 0.50 | 34.4 |
| T&D | 73d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 57,066 | 0 | 57,066 | 3,639 | 774 | 0 | 53,942 | 58,356 | 1,290 | 1.02 | 16.8 |
| T&D | 73e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 98,994 | 0 | 98,994 | 12,446 | 6,501 | 0 | 21,236 | 40,182 | -58,812 | 0.41 | 42.4 |
| T&D | 73f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 53,757 | 0 | 53,757 | 1,789 | 935 | 0 | 51,414 | 54,138 | 381 | 1.01 | 17.1 |
| T&D | 73g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 111,179 | 0 | 111,179 | 28,718 | 9,964 | 0 | 22,576 | 61,259 | -49,921 | 0.55 | 31.3 |
| T&D | 73h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 60,374 | 0 | 60,374 | 4,128 | 1,432 | 0 | 56,470 | 62,031 | 1,657 | 1.03 | 16.8 |
| T&D | 74a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 11,613 | 0 | 11,613 | 1,130 | 241 | 0 | 9,751 | 11,122 | -491 | 0.96 | 18.0 |
| T&D | 74b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 11,263 | 0 | 11,263 | 1,067 | 227 | 0 | 9,984 | 11,279 | 15 | 1.00 | 17.2 |
| T&D | 74c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 13,136 | 0 | 13,136 | 3,164 | 673 | 0 | 9,919 | 13,756 | 621 | 1.05 | 16.4 |
| T&D | 74d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 12,741 | 0 | 12,741 | 2,988 | 636 | 0 | 10,182 | 13,807 | 1,066 | 1.08 | 15.9 |
| T&D | 74e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 12,374 | 0 | 12,374 | 1,556 | 813 | 0 | 9,835 | 12,203 | -171 | 0.99 | 17.5 |
| T&D | 74f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 12,002 | 0 | 12,002 | 1,469 | 767 | 0 | 10,083 | 12,320 | 318 | 1.03 | 16.8 |
| T&D | 74g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 13,897 | 0 | 13,897 | 3,590 | 1,246 | 0 | 10,003 | 14,838 | 941 | 1.07 | 16.1 |
| T&D | 74h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 13,480 | 0 | 13,480 | 3,390 | 1,176 | 0 | 10,281 | 14,848 | 1,369 | 1.10 | 15.6 |
| T&D | 75a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 34,838 | 0 | 34,838 | 4,292 | 913 | 0 | 7,712 | 12,917 | -21,921 | 0.37 | 46.4 |
| T&D | 75b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 18,918 | 0 | 18,918 | 617 | 131 | 0 | 18,333 | 19,081 | 163 | 1.01 | 17.1 |
| T&D | 75c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 39,407 | 0 | 39,407 | 12,017 | 2,558 | 0 | 8,215 | 22,790 | -16,618 | 0.58 | 29.8 |
| T&D | 75d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 21,400 | 0 | 21,400 | 1,728 | 368 | 0 | 20,228 | 22,324 | 924 | 1.04 | 16.5 |
| T&D | 75e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 37,123 | 0 | 37,123 | 6,855 | 4,359 | 0 | 7,963 | 19,178 | -17,945 | 0.52 | 33.3 |
| T&D | 75f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 20,159 | 0 | 20,159 | 986 | 627 | 0 | 19,280 | 20,893 | 734 | 1.04 | 16.6 |
| T&D | 75g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 41,692 | 0 | 41,692 | 14,581 | 6,003 | 0 | 8,466 | 29,050 | -12,642 | 0.70 | 24.7 |
| T&D | 75h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 22,640 | 0 | 22,640 | 2,096 | 863 | 0 | 21,176 | 24,135 | 1,495 | 1.07 | 16.2 |
| T&D | 76a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 40,110 | 0 | 40,110 | 5,967 | 1,270 | 0 | 8,878 | 16,115 | -23,996 | 0.40 | 42.9 |
| T&D | 76b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 21,781 | 0 | 21,781 | 858 | 183 | 0 | 21,106 | 22,146 | 365 | 1.02 | 16.9 |
| T&D | 76c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 45,378 | 0 | 45,378 | 16,707 | 3,556 | 0 | 9,458 | 29,720 | -15,658 | 0.65 | 26.3 |
| T&D | 76d | | Transformer | Amorphous Core (No Load Loss Reduction) ROF | 24,642 | 0 | 24,642 | 2,402 | 511 | 0 | 23,292 | 26,204 | 1,563 | 1.06 | 16.2 |
| T&D | 76e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 42,744 | 0 | 42,744 | 7,898 | 3,866 | 0 | 9,168 | 20,932 | -21,812 | 0.49 | 35.2 |
| T&D | 76f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 23,212 | 0 | 23,212 | 1,135 | 556 | 0 | 22,199 | 23,890 | 678 | 1.03 | 16.7 |
| T&D | 76g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 48,012 | 0 | 48,012 | 18,638 | 6,152 | 0 | 9,748 | 34,537 | -13,475 | 0.72 | 23.9 |
| T&D | 76h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 26,072 | 0 | 26,072 | 2,679 | 884 | 0 | 24,384 | 27,948 | 1,876 | 1.07 | 16.1 |
| T&D | 77a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 13,370 | 0 | 13,370 | 1,989 | 423 | 0 | 6,713 | 9,125 | -4,245 | 0.68 | 25.2 |
| T&D | 77b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 9,853 | 0 | 9,853 | 1,010 | 215 | 0 | 9,060 | 10,285 | 433 | 1.04 | 16.5 |
| T&D | 77c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 15,126 | 0 | 15,126 | 5,569 | 1,185 | 0 | 6,906 | 13,661 | -1,465 | 0.90 | 19.1 |
| T&D | 77d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,147 | 0 | 11,147 | 2,829 | 602 | 0 | 9,561 | 12,993 | 1,846 | 1.17 | 14.8 |
| T&D | 77e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 14,248 | 0 | 14,248 | 2,633 | 1,289 | 0 | 6,810 | 10,731 | -3,517 | 0.75 | 22.9 |
| T&D | 77f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 10,500 | 0 | 10,500 | 1,337 | 655 | 0 | 9,311 | 11,303 | 803 | 1.08 | 16.0 |
| T&D | 77g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 16,004 | 0 | 16,004 | 6,213 | 2,051 | 0 | 7,003 | 15,266 | -738 | 0.95 | 18.1 |
| T&D | 77h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 11,794 | 0 | 11,794 | 3,156 | 1,042 | 0 | 9,812 | 14,010 | 2,216 | 1.19 | 14.5 |
| T&D | 78a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 61,272 | 0 | 61,272 | 9,492 | 2,020 | 0 | 13,561 | 25,074 | -36,198 | 0.41 | 42.1 |
| T&D | 78b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 33,273 | 0 | 33,273 | 1,365 | 290 | 0 | 32,240 | 33,895 | 622 | 1.02 | 16.9 |
| T&D | 78c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 69,329 | 0 | 69,329 | 26,579 | 5,657 | 0 | 14,448 | 46,683 | -22,646 | 0.67 | 25.6 |
| T&D | 78d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 37,648 | 0 | 37,648 | 3,821 | 813 | 0 | 35,583 | 40,217 | 2,569 | 1.07 | 16.1 |
| T&D | 78e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 65,301 | 0 | 65,301 | 12,951 | 6,669 | 0 | 14,004 | 33,624 | -31,677 | 0.51 | 33.4 |
| T&D | 78f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 35,460 | 0 | 35,460 | 1,862 | 959 | 0 | 33,912 | 36,732 | 1,272 | 1.04 | 16.6 |
| T&D | 78g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 73,357 | 0 | 73,357 | 30,037 | 10,305 | 0 | 14,891 | 55,233 | -18,124 | 0.75 | 22.9 |
| T&D | 78h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 39,836 | 0 | 39,836 | 4,318 | 1,481 | 0 | 37,254 | 43,054 | 3,218 | 1.08 | 15.9 |
| T&D | 79a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15,318 | 0 | 15,318 | 1,693 | 360 | 0 | 3,350 | 5,443 | -9,875 | 0.36 | 48.5 |
| T&D | 79b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 8,318 | 0 | 8,318 | 243 | 52 | 0 | 8,060 | 8,355 | 37 | 1.00 | 17.1 |
| T&D | 79c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 17,332 | 0 | 17,332 | 4,740 | 1,009 | 0 | 3,612 | 9,361 | -7,972 | 0.54 | 31.9 |
| T&D | 79d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 9,412 | 0 | 9,412 | 681 | 145 | 0 | 8,896 | 9,722 | 310 | 1.03 | 16.7 |
| T&D | 79e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 16,325 | 0 | 16,325 | 2,545 | 1,505 | 0 | 3,501 | 7,551 | -8,774 | 0.46 | 37.2 |
| T&D | 79f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 8,865 | 0 | 8,865 | 366 | 216 | 0 | 8,478 | 9,060 | 195 | 1.02 | 16.9 |
| T&D | 79g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 18,339 | 0 | 18,339 | 5,592 | 2,154 | 0 | 3,723 | 11,468 | -6,871 | 0.63 | 27.5 |
| T&D | 79h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 9,959 | 0 | 9,959 | 804 | 310 | 0 | 9,314 | 10,427 | 468 | 1.05 | 16.4 |
| T&D | 7a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 18,800 | 0 | 18,800 | 2,387 | 508 | 0 | 16,374 | 19,268 | 468 | 1.02 | 16.8 |
| T&D | 7b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 18,235 | 0 | 18,235 | 2,254 | 480 | 0 | 16,751 | 19,485 | 1,250 | 1.07 | 16.1 |
| T&D | 7c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 20,567 | 0 | 20,567 | 6,683 | 1,422 | 0 | 16,568 | 24,673 | 4,106 | 1.20 | 14.4 |
| T&D | 7d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 19,949 | 0 | 19,949 | 6,311 | 1,343 | 0 | 16,981 | 24,635 | 4,687 | 1.23 | 13.9 |
| T&D | 7e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 19,684 | 0 | 19,684 | 3,175 | 1,568 | 0 | 16,471 | 21,214 | 1,530 | 1.08 | 16.0 |
| T&D | 7f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 19,092 | 0 | 19,092 | 2,999 | 1,481 | 0 | 16,866 | 21,345 | 2,253 | 1.12 | 15.4 |
| T&D | 7g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 21,451 | 0 | 21,451 | 7,471 | 2,482 | 0 | 16,663 | 26,618 | 5,168 | 1.24 | 13.9 |
| T&D | 7h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 20,806 | 0 | 20,806 | 7,056 | 2,344 | 0 | 17,095 | 26,496 | 5,690 | 1.27 | 13.5 |
| T&D | 80a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 30,636 | 0 | 30,636 | 4,746 | 1,010 | 0 | 6,781 | 12,537 | -18,099 | 0.41 | 42.1 |
| T&D | 80b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 16,636 | 0 | 16,636 | 682 | 145 | 0 | 16,120 | 16,948 | 311 | 1.02 | 16.9 |
| T&D | 80c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 34,664 | 0 | 34,664 | 13,289 | 2,828 | 0 | 7,224 | 23,342 | -11,323 | 0.67 | 25.6 |
| T&D | 80d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 18,824 | 0 | 18,824 | 1,910 | 407 | 0 | 17,791 | 20,108 | 1,284 | 1.07 | 16.1 |
| T&D | 80e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 32,650 | 0 | 32,650 | 6,475 | 3,334 | 0 | 7,002 | 16,812 | -15,838 | 0.51 | 33.4 |
| T&D | 80f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 17,730 | 0 | 17,730 | 931 | 479 | 0 | 16,956 | 18,366 | 636 | 1.04 | 16.6 |
| T&D | 80g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 36,679 | 0 | 36,679 | 15,019 | 5,153 | 0 | 7,445 | 27,617 | -9,062 | 0.75 | 22.9 |
| T&D | 80h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 19,918 | 0 | 19,918 | 2,159 | 741 | 0 | 18,627 | 21,527 | 1,609 | 1.08 | 15.9 |
| T&D | 81a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 15,318 | 0 | 15,318 | 2,373 | 505 | 0 | 12,859 | 15,737 | 419 | 1.03 | 16.8 |
| T&D | 81b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 14,857 | 0 | 14,857 | 2,241 | 477 | 0 | 13,166 | 15,884 | 1,027 | 1.07 | 16.1 |
| T&D | 81c | | Transformer | Amorphous Core (No Load Loss Reduction) RI | 17,332 | 0 | 17,332 | 6,645 | 1,414 | 0 | 13,080 | 21,139 | 3,807 | 1.22 | 14.1 |
| T&D | 81d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 16,811 | 0 | 16,811 | 6,276 | 1,336 | 0 | 13,428 | 21,039 | 4,228 | 1.25 | 13.8 |
| T&D | 81e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 16,325 | 0 | 16,325 | 3,238 | 1,667 | 0 | 12,969 | 17,874 | 1,549 | 1.09 | 15.7 |
| T&D | 81f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 15,834 | 0 | 15,834 | 3,058 | 1,575 | 0 | 13,297 | 17,929 | 2,095 | 1.13 | 15.2 |
| T&D | 81g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 18,339 | 0 | 18,339 | 7,509 | 2,576 | 0 | 13,191 | 23,277 | 4,937 | 1.27 | 13.6 |
| T&D | 81h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RO | 17,788 | 0 | 17,788 | 7,092 | 2,433 | 0 | 13,559 | 23,084 | 5,296 | 1.30 | 13.3 |
| T&D | 82a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 19,503 | 0 | 19,503 | 5,616 | 770 | 0 | 4,316 | 8,702 | -10,801 | 0.45 | 38.6 |
| T&D | 82b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 10,591 | 0 | 10,591 | 529 | 111 | 0 | 10,261 | 10,892 | 301 | 1.03 | 16.7 |
| T&D | 82c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 22,073 | 0 | 22,073 | 10,125 | 2,155 | 0 | 4,598 | 16,879 | -5,194 | 0.76 | 22.5 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 82d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 11,986 | 0 | 11,986 | 1,456 | 310 | 0 | 11,327 | 13,093 | 1,107 | 1 09 | 15 8 |
| T&D | 82e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 20,788 | 0 | 20,788 | 5,000 | 2,629 | 0 | 4,457 | 12,086 | 8,702 | 0 58 | 29 6 |
| T&D | 82f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) ROF | 11,288 | 0 | 11,288 | 719 | 378 | 0 | 10,794 | 11,891 | 603 | 1 05 | 16 3 |
| T&D | 82g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 23,358 | 0 | 23,358 | 11,509 | 4,014 | 0 | 4,740 | 20,263 | 3,095 | 0 87 | 19 9 |
| T&D | 82h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 12,684 | 0 | 12,684 | 1,654 | 577 | 0 | 11,861 | 14,092 | 1,408 | 1 11 | 15 5 |
| T&D | 83a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 78,010 | 0 | 78,010 | 14,465 | 3,079 | 0 | 65,466 | 83,009 | 4,999 | 1 06 | 16 2 |
| T&D | 83b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 75,665 | 0 | 75,665 | 13,661 | 2,908 | 0 | 67,031 | 83,600 | 7,935 | 1 10 | 15 6 |
| T&D | 83c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 88,290 | 0 | 88,290 | 40,501 | 8,620 | 0 | 66,597 | 115,718 | 27,428 | 1 31 | 13 1 |
| T&D | 83d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 85,636 | 0 | 85,636 | 38,251 | 8,141 | 0 | 68,368 | 114,760 | 29,125 | 1 34 | 12 9 |
| T&D | 83e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 83,150 | 0 | 83,150 | 19,998 | 10,516 | 0 | 66,032 | 96,546 | 13,396 | 1 16 | 14 8 |
| T&D | 83f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 80,650 | 0 | 80,650 | 18,887 | 9,932 | 0 | 67,700 | 96,519 | 15,868 | 1 20 | 14 4 |
| T&D | 83g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 93,430 | 0 | 93,430 | 46,034 | 16,057 | 0 | 67,163 | 129,254 | 35,824 | 1 38 | 12 4 |
| T&D | 83h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 90,621 | 0 | 90,621 | 43,477 | 15,165 | 0 | 69,037 | 127,679 | 37,058 | 1 41 | 12 2 |
| T&D | 84a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 97,513 | 0 | 97,513 | 18,081 | 3,848 | 0 | 21,579 | 43,508 | 54,005 | 0 45 | 38 6 |
| T&D | 84b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 52,953 | 0 | 52,953 | 2,599 | 553 | 0 | 51,306 | 54,458 | 1,506 | 1 03 | 16 7 |
| T&D | 84c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 110,363 | 0 | 110,363 | 50,626 | 10,775 | 0 | 22,992 | 84,393 | 25,969 | 0 76 | 22 5 |
| T&D | 84d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 59,931 | 0 | 59,931 | 7,278 | 1,549 | 0 | 56,637 | 65,464 | -5,533 | 1 09 | 15 8 |
| T&D | 84e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 103,938 | 0 | 103,938 | 24,998 | 13,145 | 0 | 22,286 | 60,428 | -43,510 | 0 58 | 29 6 |
| T&D | 84f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 56,442 | 0 | 56,442 | 3,594 | 1,890 | 0 | 53,971 | 59,455 | 3,013 | 1 05 | 16 3 |
| T&D | 84g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 116,788 | 0 | 116,788 | 57,543 | 20,072 | 0 | 23,699 | 101,314 | 15,474 | 0 87 | 19 9 |
| T&D | 84h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 63,420 | 0 | 63,420 | 8,272 | 2,885 | 0 | 59,303 | 70,460 | 7,041 | 1 11 | 15 5 |
| T&D | 85a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 25,136 | 0 | 25,136 | 4,068 | 866 | 0 | 12,590 | 17,524 | 7,612 | 0 70 | 24 7 |
| T&D | 85b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 18,523 | 0 | 18,523 | 2,067 | 440 | 0 | 17,002 | 19,509 | 985 | 1 05 | 16 4 |
| T&D | 85c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 28,507 | 0 | 28,507 | 11,391 | 2,424 | 0 | 12,961 | 26,776 | 1,731 | 0 94 | 18 3 |
| T&D | 85d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 21,007 | 0 | 21,007 | 5,787 | 1,232 | 0 | 17,964 | 24,983 | 3,976 | 1.19 | 14.5 |
| T&D | 85e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) RI | 26,822 | 0 | 26,822 | 6,090 | 3,583 | 0 | 12,776 | 22,449 | -4,373 | 0 84 | 20 6 |
| T&D | 85f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 19,765 | 0 | 19,765 | 3,094 | 1,820 | 0 | 17,483 | 22,397 | 2,632 | 1 13 | 15 2 |
| T&D | 85g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 30,192 | 0 | 30,192 | 13,413 | 5,142 | 0 | 13,146 | 31,701 | 1,509 | 1.05 | 16 4 |
| T&D | 85h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 22,249 | 0 | 22,249 | 6,814 | 2,612 | 0 | 18,446 | 27,872 | 5,623 | 1.25 | 13 7 |
| T&D | 86a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 25,136 | 0 | 25,136 | 4,068 | 866 | 0 | 5,555 | 10,489 | 14,647 | 0.42 | 41.3 |
| T&D | 86b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) ROF | 13,650 | 0 | 13,650 | 585 | 124 | 0 | 13,218 | 13,927 | 277 | 1.02 | 16 9 |
| T&D | 86c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 28,507 | 0 | 28,507 | 11,391 | 2,424 | 0 | 5,926 | 19,741 | 8,766 | 0 69 | 24 9 |
| T&D | 86d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 15,480 | 0 | 15,480 | 1,638 | 349 | 0 | 14,616 | 16,602 | 1,122 | 1 07 | 16 1 |
| T&D | 86e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 26,822 | 0 | 26,822 | 6,090 | 3,583 | 0 | 5,740 | 15,414 | 11,408 | 0.57 | 30 0 |
| T&D | 86f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 14,565 | 0 | 14,565 | 875 | 515 | 0 | 13,917 | 15,308 | 743 | 1 05 | 16 4 |
| T&D | 86g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 30,192 | 0 | 30,192 | 13,413 | 5,142 | 0 | 6,111 | 24,666 | 5,526 | 0 82 | 21.1 |
| T&D | 86h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 16,395 | 0 | 16,395 | 1,928 | 739 | 0 | 15,315 | 17,983 | 1,587 | 1.10 | 15 7 |
| T&D | 87a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) RI | 547,742 | 0 | 547,742 | 131,085 | 27,899 | 0 | 271,586 | 430,571 | -117,172 | 0 79 | 21.9 |
| T&D | 87b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 403,636 | 0 | 403,636 | 66,594 | 14,173 | 0 | 367,724 | 448,491 | 44,855 | 1.11 | 15.5 |
| T&D | 87c | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 587,523 | 0 | 587,523 | 198,393 | 118,363 | 0 | 275,963 | 592,718 | 5,195 | 1.01 | 17.1 |
| T&D | 87f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 432,951 | 0 | 432,951 | 100,787 | 60,130 | 0 | 379,082 | 540,000 | 107,049 | 1.25 | 13 8 |
| T&D | 8a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 21,933 | 0 | 21,933 | 2,152 | 458 | 0 | 19,103 | 21,712 | -221 | 0.99 | 17.4 |
| T&D | 8b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 21,274 | 0 | 21,274 | 2,032 | 432 | 0 | 19,543 | 22,007 | 733 | 1 03 | 16 6 |
| T&D | 8c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 23,995 | 0 | 23,995 | 6,024 | 1,282 | 0 | 19,329 | 26,636 | 2,641 | 1.11 | 15 5 |
| T&D | 8d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 23,273 | 0 | 23,273 | 5,690 | 1,211 | 0 | 19,811 | 26,711 | 3,438 | 1.15 | 15 0 |
| T&D | 8e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 22,964 | 0 | 22,964 | 2,658 | 1,139 | 0 | 19,216 | 23,013 | 49 | 1 00 | 17 2 |
| T&D | 8f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 22,274 | 0 | 22,274 | 2,510 | 1,075 | 0 | 19,677 | 23,263 | 989 | 1 04 | 16 5 |
| T&D | 8g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 25,026 | 0 | 25,026 | 6,531 | 1,963 | 0 | 19,443 | 27,937 | 2,911 | 1.12 | 15.4 |
| T&D | 8h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 24,273 | 0 | 24,273 | 6,168 | 1,854 | 0 | 19,945 | 27,967 | 3,694 | 1.15 | 14 9 |
| T&D | 9a | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - RI | 4,700 | 0 | 4,700 | 461 | 98 | 0 | 4,093 | 4,653 | -47 | 0.99 | 17.4 |
| T&D | 9b | | Transformer | Improved Silicon Steel (No Load Loss Reduction) - ROF | 4,559 | 0 | 4,559 | 435 | 93 | 0 | 4,188 | 4,716 | 157 | 1.03 | 16 6 |
| T&D | 9c | | Transformer | Amorphous Core (No Load Loss Reduction) - RI | 5,142 | 0 | 5,142 | 1,291 | 275 | 0 | 4,142 | 5,708 | 566 | 1.11 | 15 5 |
| T&D | 9d | | Transformer | Amorphous Core (No Load Loss Reduction) - ROF | 4,987 | 0 | 4,987 | 1,219 | 259 | 0 | 4,245 | 5,724 | 737 | 1.15 | 15 0 |
| T&D | 9e | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - RI | 4,921 | 0 | 4,921 | 570 | 244 | 0 | 4,118 | 4,931 | 10 | 1.00 | 17 2 |
| T&D | 9f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 4,773 | 0 | 4,773 | 538 | 230 | 0 | 4,216 | 4,985 | 212 | 1 04 | 16 5 |
| T&D | 9g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 5,363 | 0 | 5,363 | 1,400 | 421 | 0 | 4,166 | 5,986 | 624 | 1.12 | 15 4 |
| T&D | 9h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RO | 5,201 | 0 | 5,201 | 1,322 | 397 | 0 | 4,274 | 5,993 | 792 | 1.15 | 14 9 |
| T&D | | Substation | Sub. Transformers | Conservation Voltage Reduction - RI | 1,000 | 0 | 1,000 | 672,326 | 295,297 | 0 | 0 | 967,624 | 966,624 | 967 62 | 0 0 |
| T&D | A | Substation | Capacitor Bank | Power Factor Correction to Unity - RI | 31,590 | 0 | 31,590 | 16,932 | 390,511 | -109 | 0 | 407,334 | 375,744 | 12 89 | 1.3 |
| Vehicles | C-CNG 1 | | Sedan compact/Midsize | CNG Conversion - RI | 32,000 | 0 | 32,000 | 128,397 | NA | 167,115 | NA | 295,511 | 263,511 | 9 23 | 1.9 |
| Vehicles | C-CNG-1 | | Sedan compact/Midsize | CNG Conversion - ROF | 28,321 | 0 | 28,321 | 103,353 | NA | 131,129 | NA | 234,482 | 206,160 | 8 28 | 2 1 |
| Vehicles | C-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - RI | 216,000 | 0 | 216,000 | 1,899,806 | NA | 1,468,387 | NA | 3,368,193 | 3,152,193 | 15.59 | 1 1 |
| Vehicles | C-CNG-2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - ROF | 185,422 | 0 | 185,422 | 1,441,086 | NA | 1,078,994 | NA | 2,520,080 | 2,334,658 | 13.59 | 1 3 |
| Vehicles | C-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - RI | 18,000 | 0 | 18,000 | 138,578 | NA | 104,729 | NA | 243,307 | 225,307 | 13.52 | 1.3 |
| Vehicles | C-CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - ROF | 15,452 | 0 | 15,452 | 105,118 | NA | 76,956 | NA | 182,074 | 166,622 | 11 78 | 1 5 |
| Vehicles | C-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 54,000 | 0 | 54,000 | 84,885 | NA | 185,324 | NA | 270,209 | 216,209 | 5 00 | 3 4 |
| Vehicles | C-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 46,355 | 0 | 46,355 | 64,389 | NA | 136,179 | NA | 200,568 | 154,212 | 4 33 | 4 0 |
| Vehicles | C-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 6,000 | 0 | 6,000 | 24,896 | NA | 18,292 | NA | 43,188 | 37,188 | 7 20 | 2 4 |
| Vehicles | C-CNG-5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 4,996 | 0 | 4,996 | 17,719 | NA | 12,557 | NA | 30,276 | 25,281 | 6 06 | 2 8 |
| Vehicles | C-CNG 6 | | Van multipurpose | CNG Conversion - RI | 96,000 | 0 | 96,000 | 558,773 | NA | 827,777 | NA | 1,386,550 | 1,290,550 | 14 44 | 1 2 |
| Vehicles | C-CNG 6 | | Van multipurpose | CNG Conversion - ROF | 82,410 | 0 | 82,410 | 423,854 | NA | 608,263 | NA | 1,032,117 | 949,708 | 12 52 | 1 4 |
| Vehicles | C-CNG-7 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 3,000 | 0 | 3,000 | 2,011 | NA | 8,482 | NA | 10,493 | 7,493 | 3 50 | 4 9 |
| Vehicles | C-CNG-7 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 2,655 | 0 | 2,655 | 1,653 | NA | 6,656 | NA | 8,309 | 5,654 | 3 13 | 5.5 |
| Vehicles | C-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 15,000 | 0 | 15,000 | 39,959 | NA | 45,422 | NA | 85,381 | 70,381 | 5 69 | 3 0 |
| Vehicles | C-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 12,489 | 0 | 12,489 | 29,345 | NA | 31,181 | NA | 60,526 | 48,036 | 4 85 | 3 6 |
| Vehicles | G-CNG 1 | | Sedan Compact/Midsize | CNG Conversion - RI | 116,000 | 0 | 116,000 | 465,438 | NA | 605,791 | NA | 1,071,229 | 955,229 | 9 23 | 1 9 |
| Vehicles | G-CNG-1 | | Sedan Compact/Midsize | CNG Conversion - ROF | 112,512 | 0 | 112,512 | 441,766 | NA | 571,670 | NA | 1,013,437 | 900,924 | 9 01 | 1 9 |
| Vehicles | G-CNG 2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - RI | 30,000 | 0 | 30,000 | 263,862 | NA | 205,943 | NA | 467,805 | 437,805 | 15 59 | 1 1 |
| Vehicles | G CNG 2 | | Pickup compact/4dr, under 8510 GVW | CNG Conversion - ROF | 27,374 | 0 | 27,374 | 224,882 | NA | 170,508 | NA | 395,390 | 368,016 | 14 44 | 1 2 |
| Vehicles | G-CNG 3 | | Truck light weight under 8,000 GVW | CNG Conversion - RI | 63,000 | 0 | 63,000 | 485,024 | NA | 366,551 | NA | 851,575 | 788,575 | 13 52 | 1 3 |
| Vehicles | G CNG-3 | | Truck light weight under 8,000 GVW | CNG Conversion - ROF | 57,486 | 0 | 57,486 | 413,373 | NA | 306,458 | NA | 719,831 | 662,345 | 12 52 | 1 4 |

# Table 3.6b. All Non-Building EROs: Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vehicles | G-CNG-4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - RI | 144,000 | 0 | 144,000 | 226,459 | NA | 494,415 | NA | 720,875 | 576,875 | 5 01 | 3 4 |
| Vehicles | G-CNG 4 | | Truck medium weight over 8,001, under 17,000 | CNG Conversion - ROF | 127,446 | 0 | 127,446 | 182,288 | NA | 387,950 | NA | 570,238 | 442,792 | 4 47 | 3 8 |
| Vehicles | G-CNG 5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 33,000 | 0 | 33,000 | 136,927 | NA | 57,489 | NA | 194,416 | 161,416 | 5 89 | 2 9 |
| Vehicles | G-CNG 5 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 29,206 | 0 | 29,206 | 110,219 | NA | 45,110 | NA | 155,329 | 126,123 | 5 32 | 3 2 |
| Vehicles | G-CNG-6 | | Van multipurpose | CNG Conversion - RI | 177,000 | 0 | 177,000 | 1,050,238 | NA | 1,526,214 | NA | 2,576,452 | 2,379,452 | 14 44 | 1 2 |
| Vehicles | G-CNG 6 | | Van multipurpose | CNG Conversion - ROF | 171,678 | 0 | 171,678 | 977,841 | NA | 1,440,252 | NA | 2,418,093 | 2,246,415 | 14 09 | 1 2 |
| Vehicles | G-CNG-7 | | Bus multipurpose | CNG Conversion - RI | 30,000 | 0 | 30,000 | 421,650 | NA | 88,516 | NA | 510,166 | 480,166 | 17 01 | 1.0 |
| Vehicles | G-CNG-7 | | Bus multipurpose | CNG Conversion - ROF | 25,753 | 0 | 25,753 | 319,840 | NA | 65,043 | NA | 384,883 | 359,130 | 14 95 | 1.2 |
| Vehicles | G-CNG-8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - RI | 42,000 | 0 | 42,000 | 89,508 | NA | 290,414 | NA | 379,922 | 337,922 | 9 05 | 1 9 |
| Vehicles | G-CNG 8 | | Truck heavy weight over 17,001 GVW | CNG Conversion - ROF | 37,172 | 0 | 37,172 | 73,594 | NA | 227,877 | NA | 301,471 | 264,299 | 8 11 | 2.1 |
| Vehicles | G CNG-9 | | Ambulance patient Transport | CNG Conversion - RI | 9,000 | 0 | 9,000 | 12,283 | NA | 16,930 | NA | 29,213 | 20,213 | 3 25 | 5.3 |
| Vehicles | G-CNG-9 | | Ambulance patient Transport | CNG Conversion - ROF | 7,494 | 0 | 7,494 | 9,020 | NA | 11,622 | NA | 20,642 | 13,149 | 2 75 | 6.3 |
| Vehicles | Option 1 | | | Refueling Station - Option 1 | 1,080,000 | 0 | 1,080,000 | -362,742 | -25,561 | NA | NA | 388,305 | 1,468,305 | -0 36 | NA |
| Vehicles | Option 2 | | | Refueling Station - Option 2 | 963,000 | 0 | 963,000 | -320,273 | -25,561 | NA | NA | 345,835 | 1,308,835 | -0 36 | NA |
| Wells | 1 | | Well Pumps | Add New 500 kgal. Tank - RI | 210,500 | 0 | 210,500 | 442,299 | 275,857 | -4,305 | 51,131 | 764,981 | 554,481 | 3 63 | 4 7 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | DINING HALLS-05 | DINING HALLS | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R 38 | 1 | 1 | 1017 | 83 | 368,956 | 101 00 | 0 2 |
| Hot Water | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 197 | 0 | 197 | 0 | 20,374 | 89 30 | 0 2 |
| Hot Water | CLUBS-03 | CLUBS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 369 | 0 | 369 | 0 | 38,070 | 75 90 | 0 3 |
| Lights | SECURITY-03 | SECURITY | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 499 | 17 | 633 | 28 | 330,336 | 59 90 | 0 3 |
| Hot Water | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Electric Central Boiler | Electric Boiler: Wrap Tank w/ Insulation, LFSHs, Aerators | 14 | 1 | 14 | 1 | 6,150 | 52 70 | 0 3 |
| Lights | SECURITY-02 | SECURITY | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 576 | 20 | 555 | 20 | 304,156 | 48 00 | 0 4 |
| Lights | SECURITY-01 | SECURITY | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 4 | 0 | 3 | 1 | 2,803 | 42 60 | 0 4 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 4 | 0 | 5 | 0 | 3,415 | 42 30 | 0 4 |
| Lights | COMMISSARIES | COMMISSARIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 11 | 0 | 14 | 1 | 7,548 | 40 60 | 0 4 |
| Hot Water | WAREHOUSE-08 | WAREHOUSE | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 7 | 0 | 7 | 0 | 442 | 40 50 | 0 3 |
| Hot Water | MILITARY OTHER-05 | MILITARY OTHER | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 120 | 0 | 120 | 0 | 12,205 | 39 20 | 0 5 |
| Hot Water | EXCHANGE FACILITIES-06 | EXCHANGE FACILITIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 45 | 0 | 45 | 0 | 1,969 | 38 80 | 0 2 |
| Hot Water | ADMINISTRATION-08 | ADMINISTRATION | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 79 | 0 | 79 | 0 | 47,518 | 35 60 | 0 6 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 30 | 2 | 37 | 2 | 20,910 | 34 30 | 0 5 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 10 | 1 | 13 | 1 | 8,016 | 30 10 | 0 6 |
| Lights | SHOPS-03 | SHOPS | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 23 | 2 | 23 | 2 | 14,394 | 28 00 | 0 6 |
| Lights | MWR-03 | MORALE-WELFARE RECREATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 0 | 1 | 0 | 753 | 27 50 | 0 7 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 63 | 4 | 93 | 4 | 45,027 | 26 90 | 0 7 |
| Roof | SHOPS-04 | SHOPS | Roof Insulation R Value 5 00 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 7038 | 0 | 799,303 | 26 80 | 0 8 |
| Hot Water | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elec Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 39 | 4 | 39 | 4 | 4,750 | 25 10 | 0 1 |
| Lights | WAREHOUSE-12 | WAREHOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 125 | 11 | 154 | 18 | 111,684 | 25 00 | 0 7 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 0 | 1 | 0 | 941 | 24 30 | 0 7 |
| Roof | SECURITY-01 | SECURITY | Roof Insulation R-Value 8 69 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 8 | 1 | 5,275 | 24 10 | 0 8 |
| Lights | RECREATION-02 | RECREATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 5 | 0 | 0 | 0 | 3,050 | 23 70 | 0 7 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 9 | 1 | 6 | 1 | 5,518 | 23 60 | 0 8 |
| Roof | RECREATION-02 | RECREATION | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 4164 | 88 | 868,002 | 23 40 | 0 8 |
| Hot Water | DINING HALLS-06 | DINING HALLS | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 186 | 0 | 186 | 0 | 51,093 | 23 20 | 0 9 |
| Lights | CHAPEL-01 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 30 | 3 | 37 | 4 | 24,042 | 21 30 | 0 8 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 639 | 58 | 803 | 55 | 512,894 | 20 50 | 0 9 |
| Lights | WAREHOUSE-02 | WAREHOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 128 | 11 | 129 | 11 | 87,602 | 19 50 | 0 9 |
| Lights | MILITARY OTHER-04 | MILITARY OTHER | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 30 | 3 | 27 | 3 | 20,971 | 19 50 | 0 9 |
| Lights | WAREHOUSE-01 | WAREHOUSE | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 284 | 24 | 274 | 24 | 193,870 | 19 40 | 0 9 |
| Hot Water | BARRACKS-07 | BARRACKS | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R 30 | 768 | 0 | 768 | 0 | 364,573 | 19 30 | 1 1 |
| Roof | HANGER | HANGAR | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 1060 | 0 | 118,577 | 19 00 | 1 1 |
| Roof | WAREHOUSE-06 | WAREHOUSE | Electric SHW Heater | Wrap Old Elec Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 1 | 1 | 746 | 0 | 87,926 | 19 00 | 1 1 |
| Hot Water | ADMINISTRATION-09 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 38 | 4 | 38 | 4 | 7,146 | 18 10 | 0 3 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 11 | 1 | 7 | 1 | 7,088 | 18 00 | 1 0 |
| Hot Water | BARRACKS-02 | BARRACKS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 2000 | 0 | 2000 | 0 | 162,771 | 17 70 | 1 0 |
| Hot Water | FH-DUPLEX-03 | DUPLEX | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 10311 | 0 | 10311 | 0 | 309,710 | 17 50 | 0 4 |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 37 | 3 | 34 | 1 | 24,690 | 17 10 | 1 0 |
| Lights | RECREATION-03 | RECREATION | Hot Water (Generated) Steam Central Hxer | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 112 | 14 | 112 | 14 | 57,132 | 16 90 | 1 1 |
| Hot Water | BARRACKS-04 | BARRACKS | MV8: MERC 1000 PEND | HS19: HPS 400 PEND | 127 | 0 | 127 | 0 | 33,667 | 16 10 | 0 8 |
| Lights | SHOPS-04 | SHOPS | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 169 | 13 | 204 | 13 | 98,855 | 16 00 | 1 1 |
| Lights | FH-DUPLEX-03 | DUPLEX | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 103 | 5 | 229 | 6 | 78,875 | 15 70 | 1 2 |
| Lights | CHAPEL-02 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 137 | 12 | 137 | 12 | 79,788 | 15 60 | 1 2 |
| Lights | FH-DUPLEX-01 | DUPLEX | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 282 | 12 | 192 | 12 | 203,631 | 14 80 | 1 2 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | Electric SHW Heater | Wrap Old Elec Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 31 | 2 | 80 | 2 | 25,715 | 14 20 | 1 3 |
| Hot Water | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHs, Aerators | 5 | 0 | 5 | 0 | 651 | 14 20 | 0 4 |
| Hot Water | RECREATION-04 | RECREATION | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 76 | 0 | 76 | 0 | 7,379 | 14 10 | 1 5 |
| Lights | SHOPS-04 | SHOPS | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R-30 | 8 | 1 | 11 | 1 | 6,528 | 14 00 | 1 3 |
| Roof | WAREHOUSE-12 | WAREHOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 1 | 433 | 28 | 154,241 | 13 50 | 1 4 |
| Lights | FH-3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 432 | 19 | 437 | 35 | 277,242 | 13 30 | 1 3 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R-19 | 5 | 0 | 7 | 1 | 3,796 | 13 30 | 1 4 |
| Roof | BARRACKS-04 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHs, Aerators | 1 | 1 | 3522 | 6 | 345,751 | 13 10 | 1 5 |
| Hot Water | MWR-05 | MORALE-WELFARE-RECREATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 121 | 0 | 121 | 0 | 5,997 | 12 90 | 0 8 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2 | 0 | 2 | 0 | 1,371 | 12 90 | 1 4 |
| Lights | COMMISSARIES | COMMISSARIES | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 6 | 0 | 8 | 0 | 3,921 | 12 70 | 1 4 |
| Lights | FH-3 OR MORE-02 | MULTI-FAMILY 3 OR MORE UNIT | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 731 | 32 | 622 | 34 | 440,282 | 12 50 | 1 4 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 17 | 1 | 22 | 1 | 12,573 | 12 20 | 1 5 |
| Lights | SHOPS-03 | SHOPS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 6 | 0 | 5 | 0 | 3,404 | 12 10 | 1 5 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 17 | 1 | 24 | 1 | 12,535 | 11 90 | 1 5 |
| Lights | CLINIC-02 | CLINIC | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 3 | 0 | 1 | 0 | 3,636 | 11 90 | 1 5 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 10 | 1 | 15 | 1 | 7,277 | 11 80 | 1 5 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 4 | 0 | 3 | 0 | 2,938 | 11 80 | 1 5 |
| Lights | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FEXT | 170 | 8 | 117 | 8 | 95,225 | 11 70 | 1 5 |
| Lights | COMMISSARIES | COMMISSARIES | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FEXT | 5 | 0 | 6 | 0 | 2,405 | 11 40 | 1 6 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL1 FL 2X4 4F40T12 STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 2 | 0 | 5 | 0 | 1,592 | 11 40 | 1 6 |
| Lights | SECURITY-03 | SECURITY | IN6: INC 2-60 CEIL | FL182. CFL 2 13 + BLST UNIT | 141 | 5 | 167 | 7 | 68,239 | 11 30 | 1 6 |
| Lights | MWR-06 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 11 00 | Attic Ceiling: Increase insulation by R 38 | 7 | 1 | 8 | 1 | 5,839 | 11 30 | 1 6 |
| Roof | CHAPEL-01 | CHAPEL | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 1 | 108 | 9 | 36,350 | 11 20 | 1 7 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | IN6: INC 2-60 CEIL | FL182: CFL 2 13 + BLST UNIT | 2 | 0 | 2 | 0 | 1,083 | 11 20 | 1 6 |
| Lights | SHOPS-05 | SHOPS | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 12 | 1 | 10 | 1 | 7,364 | 11 10 | 1 6 |
| Lights | STORAGE-01 | STORAGE | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 298 | 34 | 305 | 34 | 148,420 | 11 00 | 1 6 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1 | 0 | 1 | 0 | 455 | 11 00 | 1 6 |
| Lights | STORAGE-02 | STORAGE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1370 | 158 | 1357 | 158 | 678,056 | 10 90 | 1 6 |
| Lights | DINING HALLS-04 | DINING HALLS | IN6: INC 2-60 CEIL | FL182. CFL 2-13 + BLST UNIT | 16 | 1 | 18 | 1 | 10,673 | 10 90 | 1 6 |
| Lights | MWR-07 | MORALE-WELFARE RECREATION | Roof Insulation R-Value 11 00 | Attic Ceiling: Increase Insulation by R 8 | 11 | 1 | 10 | 1 | 8,537 | 10 90 | 1 6 |
| Roof | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1 | 1 | 512 | 0 | 52,505 | 10 80 | 1 9 |
| Lights | CLUBS-02 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 12 | 1 | 16 | 1 | 8,007 | 10 80 | 1 7 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | | | 31 | 2 | 80 | 2 | 24,584 | 10 70 | 1 7 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hot Water | MWR-04 | MORALE-WELFARE-RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 98 | 0 | 98 | 0 | 7,624 | 10.70 | 1.6 |
| Roof | MWR-04 | MORALE-WELFARE RECREATION | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 555 | 0 | 55,383 | 10.50 | 2.0 |
| Lights | COMMISSARIES | COMMISSARIES | EX2: EXIT - INC (2x15) | EX6: EXIT - LED | 8 | 0 | 10 | 0 | 11,656 | 10.50 | 1.7 |
| Lights | FH 3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 157 | 7 | 58 | 7 | 76,942 | 10.30 | 1.7 |
| Lights | MWR-02 | MORALE-WELFARE-RECREATION | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 5 | 0 | 6 | 0 | 3,535 | 10.20 | 1.8 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + BLST UNIT | 4 | 0 | 3 | 0 | 2,491 | 10.10 | 1.8 |
| Lights | DINING HALLS-04 | DINING HALLS | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 24 | 1 | 26 | 2 | 14,170 | 9.90 | 1.8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 5 | 0 | 7 | 1 | 3,616 | 9.90 | 1.8 |
| Hot Water | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 1 | 0 | 1 | 0 | 158 | 9.90 | 0.6 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 38 | 2 | 11 | 2 | 17,513 | 9.80 | 1.8 |
| Lights | HOSPITAL | HOSPITAL | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 479 | 17 | 492 | 18 | 195,225 | 9.70 | 1.9 |
| Lights | CLUBS-03 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 17 | 1 | 14 | 2 | 10,967 | 9.70 | 1.8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 3 | 0 | 4 | 0 | 1,999 | 9.30 | 1.9 |
| Lights | CLINIC-02 | CLINIC | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 7 | 0 | 5 | 0 | 3,840 | 9.20 | 1.9 |
| Hot Water | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 4 | 0 | 4 | 0 | 469 | 9.20 | 0.6 |
| Lights | SHOPS-04 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 3 | 0 | 6 | 0 | 2,817 | 9.10 | 2.0 |
| Lights | SECURITY-02 | SECURITY | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 162 | 6 | 149 | 6 | 61,156 | 9.00 | 2.0 |
| Lights | SHOPS-03 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 12 | 1 | 11 | 1 | 6,423 | 9.00 | 2.0 |
| Roof | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R 38 | 1 | 1 | 65 | 6 | 32,564 | 8.90 | 2.0 |
| Lights | SHOPS-04 | SHOPS | IN12: INC 2-100 CEIL | HS12: HPS 50 PEND | 7 | 1 | 10 | 1 | 5,357 | 8.90 | 2.0 |
| Hot Water | BARRACKS-05 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 41 | 0 | 41 | 0 | 3,754 | 8.80 | 2.4 |
| Hot Water | BARRACKS-04 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSIIs, Aerators | 329 | 0 | 329 | 0 | 30,483 | 8.70 | 2.4 |
| Hot Water | FH DUPLEX-01 | DUPLEX | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 6234 | 0 | 6234 | 0 | 126,398 | 8.40 | 0.5 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 7 | 0 | 11 | 0 | 4,065 | 8.40 | 2.2 |
| Roof | BARRACKS-03 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 723 | 0 | 70,533 | 8.30 | 2.5 |
| Lights | RECREATION-02 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 40 | 2 | 22 | 3 | 24,021 | 8.30 | 2.2 |
| Lights | SHOPS-05 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 6 | 0 | 5 | 0 | 3,418 | 8.20 | 2.2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1 | 0 | 1 | 0 | 429 | 8.20 | 2.2 |
| Lights | ELECTRONICS-03 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 94 | 3 | 105 | 3 | 38,473 | 8.10 | 2.2 |
| Lights | SHOPS-06 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 3 | 0 | 2 | 0 | 1,792 | 8.10 | 2.2 |
| Lights | BARRACKS-07 | BARRACKS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 216 | 8 | 280 | 8 | 106,053 | 7.90 | 2.3 |
| Lights | HOSPITAL | HOSPITAL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 250 | 9 | 250 | 9 | 100,366 | 7.90 | 2.3 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 2 | 0 | 6 | 0 | 1,598 | 7.80 | 2.4 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 7 | 1 | 5 | 1 | 3,761 | 7.60 | 2.4 |
| Roof | DINING HALLS-04 | DINING HALLS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 234 | 25 | 84,736 | 7.50 | 2.5 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 74 | 5 | 104 | 5 | 41,711 | 7.50 | 2.4 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 10 | 1 | 14 | 1 | 6,978 | 7.50 | 2.4 |
| Hot Water | MWR-06 | MORALE-WELFARE-RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 59 | 0 | 59 | 0 | 5,332 | 7.50 | 2.8 |
| Hot Water | DINING HALLS-01 | DINING HALLS | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 44 | 2 | 44 | 2 | 4,361 | 7.50 | 0.7 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 1 | 0 | 4 | 0 | 949 | 7.50 | 2.5 |
| Lights | SHOPS-03 | SHOPS | MH36: MH 250 HE PEND | LS4: LPS 90 PEND | 462 | 33 | 469 | 33 | 236,026 | 7.40 | 2.4 |
| Hot Water | BARRACKS-06 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSIIs, Aerators | 314 | 0 | 314 | 0 | 28,395 | 7.40 | 2.8 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 21 | 1 | 25 | 1 | 11,626 | 7.40 | 2.4 |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 5 | 0 | 2,615 | 7.40 | 2.4 |
| Hot Water | WAREHOUSE-06 | WAREHOUSE | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 5 | 0 | 5 | 0 | 546 | 7.40 | 0.7 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL158: FL 1X8 4F96T12HO STD2 REF | LS6: LPS 180 PEND | 231 | 20 | 211 | 20 | 117,613 | 7.30 | 2.5 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN30: INC 300 PEND | LS2: LPS 35 PEND | 159 | 14 | 142 | 14 | 83,779 | 7.30 | 2.5 |
| Roof | DINING HALLS-06 | DINING HALLS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-38 | 1 | 1 | 550 | 6 | 82,321 | 7.10 | 2.7 |
| Lights | SHOPS-04 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 118 | 9 | 151 | 9 | 64,750 | 7.10 | 2.6 |
| Lights | CLINIC-01 | CLINIC | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 45 | 3 | 50 | 3 | 25,146 | 7.10 | 2.6 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 14 | 1 | 12 | 1 | 7,506 | 7.10 | 2.5 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 11 | 1 | 7 | 1 | 5,407 | 7.10 | 2.5 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL158: FL 1X8 4F96T12HO STD2 REF | LS6: LPS 180 PEND | 37 | 3 | 29 | 3 | 17,914 | 7.00 | 2.6 |
| Lights | SECURITY-03 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | 1 | 32 | 1 | 15,610 | 7.00 | 2.6 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 26 | 2 | 22 | 2 | 11,746 | 7.00 | 2.6 |
| Hot Water | BARRACKS-03 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSIIs, Aerators | 204 | 0 | 204 | 0 | 9,427 | 7.00 | 1.5 |
| Lights | MWR-05 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 10 | 0 | 5,218 | 7.00 | 2.6 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 10 | 0 | 5,197 | 7.00 | 2.6 |
| Lights | CLINIC-01 | CLINIC | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 86 | 6 | 99 | 6 | 47,187 | 6.90 | 2.6 |
| Lights | CLUBS-03 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 15 | 1 | 8,127 | 6.90 | 2.6 |
| Roof | CLINIC-02 | CLINIC | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R 19 | 1 | 1 | 71 | 0 | 6,563 | 6.90 | 3.0 |
| Lights | MWR-07 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 10 | 0 | 10 | 1 | 6,083 | 6.90 | 2.6 |
| Lights | DINING HALLS-04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 8 | 0 | 5,138 | 6.90 | 2.6 |
| Lights | WAREHOUSE-11 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 5 | 0 | 2,590 | 6.90 | 2.6 |
| Lights | WAREHOUSE-12 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 5 | 0 | 2,581 | 6.90 | 2.6 |
| Roof | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R 30 | 1 | 1 | 7623 | 0 | 913,862 | 6.80 | 2.9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | 1 | 26 | 1 | 15,075 | 6.80 | 2.6 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21 | 1 | 21 | 1 | 12,768 | 6.80 | 2.6 |
| Lights | RECREATION-04 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 9 | 0 | 5,040 | 6.80 | 2.6 |
| Lights | ADMINISTRATION-09 | ADMINISTRATION | EX1: EXIT - INC (2x20) | FL51: FL 2X4 2F32T8 ELC2 | 153 | 5 | 185 | 9 | 90,435 | 6.70 | 2.7 |
| Lights | COMMISSARIES | COMMISSARIES | FL3: FL 2X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 6 | 0 | 8 | 0 | 3,145 | 6.70 | 2.7 |
| Lights | MWR-05 | MORALE-WELFARE-RECREATION | FL4: FL 1X4 2F40T12 STD2 | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 2 | 0 | 7 | 0 | 2,048 | 6.70 | 2.8 |
| Hot Water | HOSPITAL | HOSPITAL | Other Fuels Central Boiler | EX6: EXIT - LED | 567 | 0 | 567 | 0 | 31,984 | 6.60 | 2.0 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 26 | 1 | 30 | 1 | 14,950 | 6.60 | 2.7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | LS5: LPS 135 PEND | 8 | 0 | 11 | 0 | 4,902 | 6.60 | 2.7 |
| Lights | SHOPS-03 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | EX6: EXIT - LED | 68 | 5 | 66 | 5 | 30,163 | 6.50 | 2.8 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | EX1: EXIT - INC (2x20) | FL178: CFL 9 + BLST UNIT | 50 | 2 | 42 | 3 | 28,923 | 6.50 | 2.7 |
| Lights | SHOPS-03 | SHOPS | IN1: INC 40 CEIL | EX6: EXIT - LED | 13 | 1 | 12 | 1 | 6,948 | 6.50 | 2.7 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 12 | 0 | 4,815 | 6.50 | 2.8 |
| Lights | CHAPEL-01 | CHAPEL | EX1: EXIT - INC (2x20) | | 8 | 0 | 6 | 0 | 4,766 | 6.50 | 2.7 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | MWR 06 | MORALE-WELFARE RECREATION | EX1: EXIT INC (2x20) | EX6 EXIT - LED | 7 | 0 | 5 | 0 | 3,732 | 6 50 | 2 7 |
| Lights | COMMISSARIES | COMMISSARIES | FL81: FL 1X8 4F96T12 STD2 | FL130: FL 1X8 4F96T12ES ELC2 RFF | 12 | 1 | 15 | 1 | 5,614 | 6 40 | 2 9 |
| Lights | MWR 05a | MORALE WELFARE RECREATION | EX1. EXIT INC (2x20) | EX6: EXIT LED | 8 | 0 | 6 | 0 | 4,697 | 6 40 | 2 8 |
| Lights | CLINIC-02 | CLINIC | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 1 | 0 | 0 | 0 | 476 | 6 40 | 2 8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL6 FL 2X2 2F40T12U STD2 | FL54 FL 2X2 2F32T8U ELC2 | 0 | 0 | 0 | 0 | 180 | 6 40 | 2 8 |
| Lights | SHOPS-04 | SHOPS | FL4. FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 FLC2 | 6 | 0 | 9 | 0 | 4,251 | 6 50 | 2 9 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 4 | 0 | 7 | 0 | 2,328 | 6 50 | 2 9 |
| Lights | DINING HALLS-05 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 2 | 0 | 2 | 0 | 1,020 | 6 50 | 2 8 |
| Lights | SHOPS-05 | SHOPS | IN29. INC 200 PEND | HS12: HPS 50 PEND | 85 | 7 | 78 | 7 | 44,165 | 6 20 | 2 9 |
| Lights | MWR-02 | MORALE WELFARE-RECREATION | EX1: EXIT INC (2x20) | EX6: EXIT LED | 67 | 2 | 69 | 2 | 36,653 | 6 20 | 2 9 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 67 | 2 | 85 | 2 | 36,529 | 6 20 | 2 9 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 63 | 2 | 66 | 2 | 34,183 | 6 20 | 2 9 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 53 | 2 | 77 | 2 | 33,450 | 6 20 | 2 9 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN6 INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 24 | 1 | 31 | 1 | 15,134 | 6 20 | 2 9 |
| Lights | CLINIC-01 | CLINIC | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 9 | 0 | 10 | 0 | 5,136 | 6 20 | 2 9 |
| Lights | CLUBS-02 | CLUBS | EX1: EXIT INC (2x20) | EX6 EXIT LED | 8 | 0 | 8 | 0 | 4,536 | 6 20 | 2 9 |
| Lights | CLUBS-01 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 3 | 0 | 6 | 0 | 1,666 | 6 20 | 2 9 |
| Lights | SHOPS-05 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5 LPS 135 PEND | 578 | 46 | 573 | 46 | 268,376 | 6 10 | 3 0 |
| Lights | SHOPS-07 | SHOPS | EX1. EXIT INC (2x20) | EX6 EXIT LED | 33 | 1 | 16 | 1 | 17,764 | 6 10 | 2 9 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 6 | 0 | 5 | 0 | 3,368 | 6 10 | 2 9 |
| Lights | DINING HALLS-06 | DINING HALLS | EX1: EXIT INC (2x20) | EX6. EXIT LED | 6 | 0 | 8 | 0 | 3,021 | 6 10 | 2 9 |
| Hot Water | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric SHW Heater | 0.76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 5 | 7 | 5 | 3 | 1,425 | 6 10 | 0 2 |
| Wall | DINING HALLS-04 | DINING HALLS | Wall Insulation R-Value 0 00 | Interior Masonary Surface Increase Insulation by R 10 9 | 1 | 1 | 205 | 23 | 67,005 | 6 00 | 3 1 |
| Lights | BARRACKS-04 | BARRACKS | EX1: EXIT INC (2x20) | EX6: EXIT LED | 53 | 2 | 66 | 2 | 27,623 | 6 00 | 3 0 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,561 | 6 00 | 3 0 |
| Lights | ELECTRONICS-03 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 4 | 0 | 2,191 | 6 00 | 3 0 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | FL2: FL 2X4 3F40T12 STD1,2 | FL236. FL 2X4 3F32T8 ELC3 | 1 | 0 | 1 | 0 | 798 | 6 00 | 3 0 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN11: INC 100 CEIL | FL189. CFL 2 15 CEIL FIXT | 2 | 0 | 1 | 0 | 670 | 6 00 | 3 0 |
| Lights | SHOPS-03 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 212 | 17 | 214 | 17 | 109,811 | 5 90 | 3 1 |
| Lights | BARRACKS-07 | BARRACKS | EX1: EXIT INC (2x20) | EX6. EXIT LED | 204 | 7 | 273 | 7 | 104,108 | 5 90 | 3 0 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 134 | 9 | 163 | 14 | 77,596 | 5 90 | 3 1 |
| Lights | COMMISSARIES | COMMISSARIES | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 84 | 4 | 108 | 6 | 45,775 | 5 90 | 3 0 |
| Lights | BARRACKS-07 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 92 | 4 | 122 | 4 | 42,401 | 5 90 | 3 0 |
| Lights | HOSPITAL | HOSPITAL | EX1 EXIT INC (2x20) | EX6: EXIT LED | 63 | 2 | 59 | 2 | 32,336 | 5 90 | 3 0 |
| Lights | BARRACKS-06 | BARRACKS | EX1: EXIT INC (2x20) | EX6: EXIT LED | 18 | 1 | 23 | 1 | 9,280 | 5 90 | 3 0 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 650 | 45 | 750 | 73 | 371,308 | 5 80 | 3 1 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | EX1: EXIT INC (2x20) | EX6. EXIT LED | 209 | 7 | 212 | 7 | 103,892 | 5 80 | 3 1 |
| Wall | MWR-05 | MORALE-WELFARE-RECREATION | Wall Insulation R-Value 5.32 | Interior Masonary Surface. Increase Insulation by R 10 9 | 1 | 1 | 194 | 16 | 56,177 | 5 80 | 3 2 |
| Lights | STORAGE-01 | STORAGE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 96 | 3 | 98 | 3 | 48,364 | 5 80 | 3 1 |
| Lights | DINING HALLS-01 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 17 | 1 | 16 | 1 | 8,400 | 5 80 | 3 1 |
| Lights | MILITARY OTHER-05 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 17 | 1 | 17 | 1 | 8,395 | 5 80 | 3 1 |
| Lights | ELECTRONICS-02 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,252 | 5 80 | 3 1 |
| Lights | BARRACKS-02 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 384 | 15 | 335 | 15 | 169,131 | 5 70 | 3 1 |
| Lights | WAREHOUSE-01 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 163 | 5 | 158 | 5 | 80,746 | 5 70 | 3 1 |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 159 | 5 | 141 | 5 | 77,253 | 5 70 | 3 1 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 76 | 5 | 81 | 5 | 38,082 | 5 70 | 3 2 |
| Lights | SHOPS-02 | SHOPS | EX1: EXIT INC (2x20) | EX6. EXIT - LED | 71 | 2 | 63 | 3 | 35,215 | 5 70 | 3 1 |
| Lights | SHOPS-03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 71 | 2 | 61 | 2 | 34,905 | 5 70 | 3 1 |
| Lights | DINING HALLS-03 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 59 | 2 | 54 | 2 | 28,911 | 5 70 | 3 1 |
| Lights | WAREHOUSE-02 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 29 | 1 | 29 | 1 | 14,435 | 5 70 | 3 1 |
| Lights | WAREHOUSE-10 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,207 | 5 70 | 3 1 |
| Lights | WAREHOUSE 09 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 12 | 0 | 6,198 | 5 70 | 3 1 |
| Lights | RECREATION-01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 13 | 0 | 6,190 | 5 70 | 3 1 |
| Lights | RECREATION-01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 13 | 0 | 13 | 0 | 6,190 | 5 70 | 3 1 |
| Lights | WAREHOUSE-03 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6. EXIT LED | 13 | 0 | 11 | 0 | 6,118 | 5 70 | 3 1 |
| Lights | WAREHOUSE-04 | WAREHOUSE | EX1: EXIT INC (2x20) | EX6: EXIT LED | 8 | 0 | 8 | 0 | 4,137 | 5 70 | 3 1 |
| Lights | RECREATION-03 | RECREATION | EX1 EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 8 | 0 | 4,129 | 5 70 | 3 1 |
| Lights | CLINIC-01 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 7 | 0 | 8 | 0 | 3,518 | 5 70 | 3 2 |
| Lights | CLUBS-01 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 3 | 0 | 3 | 0 | 1,619 | 5 70 | 3 1 |
| Hot Water | ELECTRONICS-01 | ELECTRONICS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1 | 0 | 1 | 0 | 697 | 5 70 | 3 2 |
| Lights | ELECTRONICS-03 | ELECTRONICS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 8 | 0 | 8 | 0 | 153 | 5 70 | 0 8 |
| Lights | WAREHOUSE-07 | WAREHOUSE | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 697 | 60 | 627 | 60 | 351,785 | 5 60 | 3 2 |
| Lights | BARRACKS-02 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 268 | 9 | 222 | 9 | 128,861 | 5 60 | 3 2 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN11. INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 187 | 16 | 166 | 16 | 92,485 | 5 60 | 3 2 |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | EX1: EXIT INC (2x20) | EX6: EXIT LED | 151 | 5 | 127 | 5 | 72,083 | 5 60 | 3 2 |
| Lights | WAREHOUSE-05 | WAREHOUSE | EX1: EXIT INC (2x20) | EX6. EXIT - LED | 113 | 4 | 96 | 4 | 54,180 | 5 60 | 3 2 |
| Lights | SECURITY-02 | SECURITY | EX1: EXIT INC (2x20) | EX6: EXIT LED | 50 | 2 | 45 | 2 | 24,325 | 5 60 | 3 2 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 50 | 2 | 39 | 2 | 23,868 | 5 60 | 3 2 |
| Lights | SHOPS-05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 42 | 1 | 34 | 1 | 19,915 | 5 60 | 3 2 |
| Lights | CLINIC-01 | CLINIC | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 14 | 1 | 15 | 1 | 7,223 | 5 60 | 3 2 |
| Hot Water | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Electric SHW Heater | 0 76 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 9 | 6 | -9 | 4 | 6,855 | 5 60 | 1 0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 8 | 0 | 7 | 0 | 4,000 | 5 60 | 3 2 |
| Lights | WAREHOUSE-06 | WAREHOUSE | EX1 EXIT - INC (2x20) | EX6 EXIT LED | 8 | 0 | 7 | 0 | 3,995 | 5 60 | 3 2 |
| Lights | CHAPEL-02 | CHAPEL | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 8 | 0 | 7 | 0 | 3,985 | 5 60 | 3 2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | EX1. EXIT - INC (2x20) | EX6 EXIT - LED | 4 | 0 | 3 | 0 | 1,987 | 5 60 | 3 2 |
| Hot Water | MWR-02 | MORALE WELFARE RECREATION | Electric SHW Heater | Wrap Old Elo Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 8 | 1 | 8 | 1 | 839 | 5 60 | 0 8 |
| Lights | MWR-07 | MORALE-WELFARE RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 248 | 19 | 295 | 29 | 157,010 | 5 50 | 3 3 |
| Lights | MWR 06 | MORALE-WELFARE RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 163 | 12 | 186 | 18 | 103,973 | 5 50 | 3 3 |
| Hot Water | FH 3 OR MORE-03 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 3618 | 0 | 3618 | 0 | 94,395 | 5 50 | 1 2 |
| Lights | WAREHOUSE-08 | WAREHOUSE | IN11 INC 100 CEIL | FL189 CFL 2-15 CEIL FIXT | 113 | 10 | 91 | 10 | 55,452 | 5 50 | 3 3 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | BARRACKS-03 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 50 | 2 | 32 | 2 | 23,368 | 5.50 | 3.2 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 17 | 1 | 11 | 1 | 7,822 | 5.50 | 3.2 |
| Lights | LABS-01 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13 | 0 | 9 | 0 | 5,860 | 5.50 | 3.2 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 9 | 0 | 7 | 0 | 4,165 | 5.50 | 3.2 |
| Lights | SHOPS-06 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 6 | 0 | 3,919 | 5.50 | 3.2 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 1 | 0 | 5 | 0 | 1,077 | 5.50 | 1.4 |
| Hot Water | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 5 | 0 | 5 | 0 | 123 | 5.50 | 1.0 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 527 | 18 | 368 | 18 | 243,847 | 5.40 | 3.3 |
| Wall | HANGER | HANGAR | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 13 | 1 | 1 | 1006 | 0 | 89,300 | 5.40 | 3.8 |
| Lights | CLINIC-02 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 126 | 4 | 74 | 4 | 57,148 | 5.40 | 3.3 |
| Lights | WAREHOUSE-12 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 35 | 3 | 42 | 5 | 24,250 | 5.40 | 3.3 |
| Lights | BARRACKS-03 | BARRACKS | IN15: INC 60 TABLE LAMP | FL181: CFL 13 + BLST UNIT | 38 | 1 | 24 | 1 | 15,793 | 5.40 | 3.3 |
| Lights | RECREATION-04 | RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 12 | 1 | 15 | 1 | 7,011 | 5.40 | 3.3 |
| Lights | BARRACKS-01 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 12 | 0 | 9 | 0 | 5,006 | 5.40 | 3.3 |
| Lights | DINING HALLS-04 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 4 | 0 | 1,984 | 5.40 | 3.4 |
| Roof | WAREHOUSE-07 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 1232 | 0 | 128,155 | 5.30 | 3.8 |
| Lights | SHOPS-07 | SHOPS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 73 | 6 | 88 | 6 | 42,681 | 5.30 | 3.4 |
| Roof | MWR-05 | MORALE WELFARE-RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 129 | 13 | 38,701 | 5.30 | 3.5 |
| Lights | DINING HALLS-05 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 8 | 0 | 9 | 1 | 3,833 | 5.30 | 3.4 |
| Lights | LABS-02 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 2 | 0 | 1,896 | 5.30 | 3.3 |
| Lights | MWR-04 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 42 | 1 | 19 | 1 | 18,152 | 5.20 | 3.4 |
| Lights | RECREATION-04 | RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 23 | 1 | 23 | 2 | 12,699 | 5.20 | 3.5 |
| Lights | BARRACKS-01 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 4 | 0 | 3,662 | 5.20 | 3.4 |
| Lights | MWR-07 | MORALE-WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 3 | 0 | 4 | 0 | 1,914 | 5.20 | 3.5 |
| Lights | HANGER | HANGAR | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 2 | 0 | 1,812 | 5.20 | 3.4 |
| Lights | BARRACKS-05 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2 | 0 | 1 | 0 | 742 | 5.20 | 3.4 |
| Lights | MILITARY OTHER-05 | MILITARY OTHER | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 47 | 2 | 48 | 2 | 19,190 | 5.10 | 3.5 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21 | 1 | 9 | 1 | 8,987 | 5.10 | 3.4 |
| Lights | RECREATION-02 | RECREATION | FL79: FL 2X4 4F40T12ES STD2 | FL232: FL 2X4 3F40T12 ELC3 | 6 | 0 | 1 | 0 | 3,043 | 5.10 | 3.4 |
| Lights | BARRACKS-03 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 2 | 0 | 2 | 0 | 886 | 5.10 | 3.5 |
| Heating | MWR-07 | MORALE-WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | 0 | 6 | 0 | 529 | 5.10 | 4.1 |
| Hot Water | MILITARY OTHER-03 | MILITARY OTHER | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 0 | 0 | 0 | 0 | 48 | 5.10 | 1.1 |
| Lights | FH-DUPLEX-05 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 827 | 37 | 1146 | 47 | 521,036 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 33 | 4 | 33 | 4 | 21,227 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 33 | 4 | 33 | 4 | 21,227 | 5.00 | 3.6 |
| Lights | DINING HALLS-06 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 23 | 1 | 38 | 1 | 11,085 | 5.00 | 3.6 |
| Lights | RECREATION-02 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4 | 0 | 1 | 0 | 1,751 | 5.00 | 3.4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 880 | 58 | 833 | 58 | 388,869 | 4.90 | 3.7 |
| Lights | CLUBS-02 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 63 | 3 | 88 | 5 | 35,976 | 4.90 | 3.7 |
| Lights | COMMISSARIES | COMMISSARIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 72 | 3 | 95 | 5 | 34,536 | 4.90 | 3.7 |
| Lights | WAREHOUSE-07 | WAREHOUSE | IN29: INC 200 PEND | HS12: HPS 50 PEND | 42 | 4 | 41 | 4 | 23,368 | 4.90 | 3.7 |
| Lights | SHOPS-03 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 63 | 4 | 62 | 4 | 29,027 | 4.80 | 3.7 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 30 | 2 | 34 | 4 | 21,402 | 4.80 | 3.8 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 21 | 1 | 18 | 1 | 8,940 | 4.80 | 3.7 |
| Roof | LABS-02 | LABS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 93 | 0 | 8,009 | 4.80 | 4.3 |
| Lights | CLINIC-02 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 18 | 1 | 14 | 1 | 7,950 | 4.80 | 3.8 |
| Lights | WAREHOUSE-07 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 1 | 0 | 3,286 | 4.80 | 3.6 |
| Lights | MWR-06 | MORALE-WELFARE-RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 2 | 0 | 2 | 0 | 1,167 | 4.80 | 3.7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL6: FL 2X2 2F40T12U STD2 | FL54: FL 2X2 2F32T8U ELC2 | 2 | 0 | 3 | 0 | 953 | 4.80 | 3.8 |
| Heating | BARRACKS-03 | BARRACKS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 17 | 0 | 17 | 0 | 724 | 4.80 | 2.3 |
| Lights | SHOPS-05 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 231 | 18 | 233 | 18 | 116,238 | 4.70 | 3.8 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 60 | 3 | 81 | 3 | 34,587 | 4.70 | 3.8 |
| Lights | BARRACKS-02 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 99 | 4 | 61 | 4 | 33,252 | 4.70 | 3.8 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 27 | 1 | 34 | 1 | 15,920 | 4.70 | 3.8 |
| Lights | SHOPS-04 | SHOPS | MV5: MERC 250 PEND | LS4: LPS 90 PEND | 26 | 2 | 53 | 2 | 13,751 | 4.70 | 3.9 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 18 | 1 | 20 | 1 | 10,320 | 4.70 | 3.8 |
| Lights | SHOPS-03 | SHOPS | IN28: INC 150 PEND | HS11: HPS 35 PEND | 15 | 1 | 13 | 1 | 7,256 | 4.70 | 3.8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 11 | 1 | 14 | 1 | 5,875 | 4.70 | 3.9 |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8 | 0 | 5 | 0 | 3,264 | 4.70 | 3.7 |
| Lights | FH-3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 691 | 30 | 598 | 55 | 392,096 | 4.60 | 3.9 |
| Lights | FH-DUPLEX-01 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 450 | 20 | 295 | 20 | 257,258 | 4.60 | 3.8 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 70 | 5 | 100 | 5 | 35,536 | 4.60 | 4.0 |
| Hot Water | FH-DUPLEX-02 | DUPLEX | Other Fuels SHW Heater | 0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 1132 | 0 | 1132 | 0 | 20,386 | 4.60 | 1.0 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 34 | 2 | 40 | 4 | 18,435 | 4.60 | 3.9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237: FL 2X4 3F32T8 ELC3 REF | 31 | 2 | 36 | 3 | 17,195 | 4.60 | 3.9 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 17 | 1 | 22 | 1 | 7,928 | 4.60 | 3.9 |
| Lights | SHOPS-07 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 5 | 0 | 5 | 0 | 2,358 | 4.60 | 3.9 |
| Roof | CLUBS-03 | CLUBS | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-38 | 1 | 1 | 278 | 36 | 108,814 | 4.50 | 4.1 |
| Roof | CLUBS-02 | CLUBS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 136 | 20 | 54,331 | 4.50 | 4.1 |
| Wall | CHAPEL-01 | CHAPEL | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1 | 1 | 69 | 5 | 17,848 | 4.50 | 4.2 |
| Roof | WAREHOUSE-08 | WAREHOUSE | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 188 | 0 | 17,230 | 4.50 | 4.5 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 16 | 1 | 19 | 1 | 8,928 | 4.50 | 4.0 |
| Lights | BARRACKS-01 | BARRACKS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 3 | 0 | 1 | 0 | 1,002 | 4.50 | 3.9 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN29: INC 200 PEND | HS12: HPS 50 PEND | 108 | 9 | 94 | 9 | 52,066 | 4.40 | 4.1 |
| Lights | CLUBS-03 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 89 | 5 | 101 | 8 | 49,586 | 4.40 | 4.0 |
| Lights | FH-DUPLEX-01 | DUPLEX | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 61 | 3 | 58 | 3 | 31,627 | 4.40 | 4.1 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN1: INC 40 CEIL | FL178 CFL 9 + BLST UNIT | 4 | 0 | 12 | 0 | 2,859 | 4.40 | 4.2 |
| Lights | MWR-05a | MORALE-WELFARE-RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 1 | 0 | 0 | 0 | 328 | 4.40 | 4.1 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 182 | 16 | 232 | 16 | 103,462 | 4.30 | 4.2 |
| Lights | FH-3 OR MORE-02 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189: CFL 2-15 CFIL FIXT | 158 | 7 | 106 | 7 | 80,231 | 4.30 | 4.1 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Roof Insulation R-Value 8 69 | Attic Ceiling Increase insulation by R-30 | 1 | 1 | 210 | 0 | 31,705 | 4 30 | 4 5 |
| Roof | ADMINISTRATION-07a | ADMINISTRATION | Roof Insulation R-Value 8.90 | Suspended Ceiling. Increase insulation by R 38 | 1 | 1 | 91 | 10 | 30,648 | 4 30 | 4 5 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 49 | 4 | 43 | 4 | 19,687 | 4 30 | 4 2 |
| Lights | ELECTRONICS-02 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 34 | 2 | 35 | 2 | 14,146 | 4 30 | 4 2 |
| Lights | RECREATION-04 | RECREATION | FL79 FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 17 | 1 | 15 | 1 | 8,845 | 4 30 | 4 2 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | FL4. FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 18 | 1 | 19 | 2 | 8,770 | 4 30 | 4 2 |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 9 | 1 | 10 | 1 | 5,576 | 4 30 | 4 2 |
| Lights | WAREHOUSE-08 | WAREHOUSE | IN29. INC 200 PEND | HS12 HPS 50 PEND | 7 | 1 | 6 | 1 | 3,208 | 4 30 | 4 2 |
| Hot Water | ADMINISTRATION-03 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 126 | 0 | 126 | 0 | 2,217 | 4 30 | 1 1 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 3 | 0 | 3 | 0 | 1,722 | 4 30 | 4 1 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 1 | 0 | 0 | 0 | 275 | 4 30 | 4 2 |
| Lights | FH-3 OR MORE-02 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1169 | 52 | 774 | 54 | 584,026 | 4 20 | 4 2 |
| Roof | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 8 69 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 345 | 0 | 87,453 | 4 20 | 4 3 |
| Roof | SHOPS-03 | SHOPS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 954 | 0 | 79,720 | 4 20 | 4 9 |
| Lights | LABS-01 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 58 | 4 | 49 | 4 | 22,946 | 4 20 | 4 3 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 33 | 3 | 28 | 3 | 14,116 | 4 20 | 4 3 |
| Lights | LABS-02 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 29 | 2 | 23 | 2 | 11,493 | 4 20 | 4 3 |
| Lights | MILITARY OTHER-04 | MILITARY OTHER | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 9 | 1 | 8 | 1 | 4,258 | 4 20 | 4 3 |
| Hot Water | BARRACKS-01 | BARRACKS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins Pipe, LFSHs, Aerators | 19 | 0 | 19 | 0 | 324 | 4 20 | 1 1 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 308 | 14 | 259 | 14 | 151,270 | 4 10 | 4 3 |
| Lights | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 273 | 12 | 172 | 12 | 131,917 | 4 10 | 4 3 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 226 | 15 | 227 | 15 | 100,866 | 4 10 | 4 4 |
| Lights | WAREHOUSE-01 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 80 | 7 | 79 | 7 | 39,066 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 59 | 4 | 48 | 4 | 24,359 | 4 10 | 4 4 |
| Lights | WAREHOUSE-02 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 36 | 3 | 36 | 3 | 17,506 | 4 10 | 4 4 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 35 | 3 | 25 | 3 | 15,693 | 4 10 | 4 4 |
| Lights | CLUBS-01 | CLUBS | FL79. FL 2X4 4F40T12ES STD2 | FL232. FL 2X4 3F40T12 ELC3 | 13 | 1 | 16 | 1 | 5,926 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 5 | 0 | 4 | 0 | 2,296 | 4 10 | 4 4 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 2 | 0 | 1 | 0 | 717 | 4 10 | 4 4 |
| Roof | WAREHOUSE-05 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 1154 | 0 | 98,407 | 4 00 | 5 2 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 200 | 17 | 191 | 17 | 97,060 | 4 00 | 4 5 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237: FL 2X4 3F32T8 ELC3 REF | 205 | 14 | 211 | 14 | 91,159 | 4 00 | 4 5 |
| Lights | FH-3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 34 | 1 | 33 | 1 | 15,468 | 4 00 | 4 5 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 20 | 2 | 17 | 2 | 9,417 | 4 00 | 4 5 |
| Lights | CLINIC-02 | CLINIC | FL79: FL 2X4 4F40T12ES-STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 14 | 1 | 11 | 1 | 6,151 | 4 00 | 4 5 |
| Lights | SHOPS-06 | SHOPS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 166 | 13 | 160 | 13 | 79,275 | 3 90 | 4 7 |
| Lights | BARRACKS-07 | BARRACKS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 22 | 1 | 38 | 1 | 8,262 | 3 90 | 4 6 |
| Roof | MWR-05a | MORALE-WELFARE RECREATION | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-38 | 1 | 1 | 27 | 2 | 7,438 | 3 90 | 4 8 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 13 | 1 | 18 | 1 | 7,031 | 3 90 | 4 7 |
| Lights | CLUBS-02 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 12 | 1 | 16 | 1 | 5,422 | 3 90 | 4 7 |
| Lights | SHOPS-03 | SHOPS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 11 | 1 | 10 | 1 | 4,581 | 3 90 | 4 6 |
| Lights | DINING HALLS-05 | DINING HALLS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 8 | 0 | 9 | 1 | 4,040 | 3 90 | 4 6 |
| Lights | CHAPEL-01 | CHAPEL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 6 | 0 | 7 | 1 | 3,331 | 3 90 | 4 6 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237: FL 2X4 3F32T8 ELC3 REF | 5 | 0 | 4 | 0 | 2,063 | 3 90 | 4 6 |
| Hot Water | CHAPEL-02 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 18 | 0 | 18 | 0 | 304 | 3 90 | 1 2 |
| Lights | ADMINISTRATION-09 | ADMINISTRATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 3517 | 244 | 4175 | 385 | 1,804,162 | 3 80 | 4 8 |
| Lights | FH-3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 250 | 11 | 126 | 11 | 108,909 | 3 80 | 4 7 |
| Lights | SHOPS-05 | SHOPS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 256 | 18 | 262 | 18 | 94,171 | 3 80 | 4 8 |
| Lights | SHOPS-07 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 77 | 6 | 92 | 6 | 45,057 | 3 80 | 4 7 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 38 | 3 | 51 | 3 | 19,169 | 3 80 | 4 7 |
| Wall | SHOPS-04 | SHOPS | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-6 5 | 1 | 1 | 810 | 0 | 53,650 | 3 70 | 5 9 |
| Roof | ADMINISTRATION-03 | ADMINISTRATION | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R-11 | 1 | 1 | 625 | 0 | 53,462 | 3 70 | 5 5 |
| Lights | FH-3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 93 | 4 | 84 | 8 | 37,909 | 3 70 | 4 9 |
| Roof | WAREHOUSE-09 | WAREHOUSE | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 161 | 0 | 14,177 | 3 70 | 5 5 |
| Lights | DINING HALLS-06 | DINING HALLS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 23 | 1 | 38 | 1 | 11,704 | 3 70 | 4 8 |
| Lights | CLINIC-02 | CLINIC | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 21 | 1 | 19 | 1 | 9,876 | 3 70 | 4 8 |
| Lights | CLUBS-03 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 16 | 1 | 18 | 1 | 7,916 | 3 70 | 4 9 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 7 | 0 | 9 | 1 | 4,065 | 3 70 | 4 8 |
| Lights | RECREATION-04 | RECREATION | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 4 | 0 | 1,618 | 3 70 | 4 9 |
| Hot Water | MWR-04 | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 16 | 0 | 16 | 0 | 262 | 3 70 | 1 3 |
| Hot Water | ADMINISTRATION-06 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 10 | 0 | 10 | 0 | 176 | 3 70 | 1 3 |
| Hot Water | ADMINISTRATION-04 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 6 | 0 | 6 | 0 | 103 | 3 70 | 1 3 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | FL3. FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 166 | 12 | 189 | 12 | 67,420 | 3 60 | 5 0 |
| Heating | BARRACKS-04 | BARRACKS | Hot Water (Generated) Fan Coil | New Conventional Individual Building LPG Boiler | -132 | 0 | 133 | 0 | 29,390 | 3 60 | 3 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX7. EXIT - SELF LUMINOUS | 10 | 0 | 15 | 0 | 4,557 | 3 60 | 5 0 |
| Lights | WAREHOUSE-03 | WAREHOUSE | FL4 FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 8 | 1 | 7 | 1 | 3,960 | 3 60 | 4 9 |
| Lights | MWR-04 | MORALE-WELFARE-RECREATION | FL4 FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 3 | 0 | 1,634 | 3 60 | 4 9 |
| Lights | DINING HALLS-05 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 4 | 0 | 1,324 | 3 60 | 5 0 |
| Hot Water | ADMINISTRATION-01 | ADMINISTRATION | Electric SHW Heater | 0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 1 | 0 | 1 | 0 | 586 | 3 60 | 1 5 |
| Hot Water | RECREATION-02 | RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 18 | 0 | 18 | 0 | 298 | 3 60 | 1 3 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 969 | 67 | 1326 | 75 | 450,751 | 3 50 | 5 1 |
| Roof | COMMISSARIES | COMMISSARIES | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R 38 | 1 | 1 | 311 | 72 | 178,949 | 3 50 | 5 1 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL4. FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 63 | 5 | 51 | 5 | 30,951 | 3 50 | 5 1 |
| Lights | MWR-02 | MORALE-WELFARE RECREATION | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 41 | 3 | 48 | 3 | 22,664 | 3 50 | 5 1 |
| Roof | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 202 | 0 | 16 864 | 3 50 | 5 9 |
| Lights | WAREHOUSE 11 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3 LPS 55 PEND | 13 | 1 | 18 | 1 | 6,949 | 3 50 | 5 2 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL79: FL 2X4 4F40T12ES STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 14 | 1 | 14 | 1 | 6,387 | 3 50 | 5 1 |
| Lights | SHOPS-03 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 12 | 1 | 11 | 1 | 5,315 | 3 50 | 5 1 |
| Lights | SCHOOL-TRAINING-01 | SCHOOLS and/or TRAINING | FL1. FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 11 | 1 | 9 | 0 | 4,614 | 3 50 | 5 1 |
| Lights | COMMISSARIES | COMMISSARIES | FL5 FL 1X4 1F40T12 STD1 | FL29 FL 1X4 1F40T12 ELC1 | 6 | 0 | 8 | 0 | 2,784 | 3 50 | 5 2 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | SHOPS-03 | SHOPS | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 6 | 0 | 5 | 0 | 2,664 | 3.50 | 5.1 |
| Hot Water | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 55 | 0 | 55 | 0 | 900 | 3.50 | 1.3 |
| Hot Water | MILITARY OTHER-01 | MILITARY OTHER | Electric SHW Heater | Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM) | -1 | 0 | -1 | 0 | 253 | 3.50 | 1.6 |
| Hot Water | SHOPS-02 | SHOPS | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 2 | 0 | 2 | 0 | 97 | 3.50 | 0.8 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 33 | 2 | 31 | 2 | 12,388 | 3.40 | 5.3 |
| Lights | SHOPS-04 | SHOPS | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 19 | 1 | 19 | 1 | 8,381 | 3.40 | 5.3 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 15 | 1 | 13 | 1 | 5,348 | 3.40 | 5.3 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 9 | 0 | 10 | 0 | 4,446 | 3.40 | 5.3 |
| Lights | COMMISSARIES | COMMISSARIES | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 2 | 0 | 2 | 0 | 527 | 3.40 | 5.3 |
| Heating | CHAPEL-02 | CHAPEL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 7 | 0 | 7 | 0 | 345 | 3.40 | 3.9 |
| Hot Water | MWR-05a | MORALE-WELFARE-RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 6 | 0 | 6 | 0 | 104 | 3.40 | 1.3 |
| Hot Water | ADMINISTRATION-06a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 6 | 0 | 6 | 0 | 100 | 3.40 | 1.3 |
| Hot Water | LABS-02 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators | 2 | 0 | 2 | 0 | 26 | 3.40 | 1.4 |
| Roof | ADMINISTRATION-05 | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 1198 | 0 | 93,066 | 3.30 | 6.2 |
| Wall | WAREHOUSE-12 | WAREHOUSE | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-13 | 1 | 1 | 84 | 19 | 30,547 | 3.30 | 5.6 |
| Hot Water | FH 3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 1874 | 0 | 1874 | 0 | 30,079 | 3.30 | 1.4 |
| Wall | WAREHOUSE-06 | WAREHOUSE | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 1 | 1 | 397 | 0 | 28,550 | 3.30 | 6.4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 20 | 2 | 26 | 2 | 10,708 | 3.30 | 5.4 |
| Lights | DINING HALLS-06 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 10 | 0 | 14 | 1 | 3,559 | 3.30 | 5.5 |
| Roof | ADMINISTRATION-03a | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 21 | 0 | 1,693 | 3.30 | 6.2 |
| Hot Water | SHOPS-05 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 40 | 0 | 40 | 0 | 649 | 3.30 | 1.4 |
| Hot Water | LABS-01 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSHs, Aerators | 3 | 0 | 3 | 0 | 45 | 3.30 | 1.4 |
| Hot Water | CLUBS-01 | CLUBS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp. | 1 | 0 | 1 | 0 | 16 | 3.30 | 1.4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 152 | 10 | 184 | 10 | 74,494 | 3.20 | 5.6 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL6: FL 2X2 2F40T12U STD2 | FL54 FL 2X2 2F32T8U ELC2 | 55 | 5 | 58 | 5 | 25,964 | 3.20 | 5.7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29 FL 1X4 1F40T12 ELC1 | 50 | 3 | 62 | 3 | 24,603 | 3.20 | 5.6 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL80: FL 2X4 3F40T12ES STD1,2 | FL57: FL 2X4 2F32T8 ELC2 REF | 22 | 2 | 16 | 2 | 10,959 | 3.20 | 5.6 |
| Lights | RECREATION-02 | RECREATION | FL81: FL 2X4 2F40T12ES STD2 | FL105. FL 2X4 2F40T12ES ELC2 | 11 | 1 | 6 | 1 | 5,087 | 3.20 | 5.6 |
| Hot Water | DINING HALLS-03 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 202 | 0 | 202 | 0 | 3,206 | 3.20 | 1.4 |
| Hot Water | DINING HALLS-04 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 186 | 0 | 186 | 0 | 2,954 | 3.20 | 1.4 |
| Hot Water | WAREHOUSE-07 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 10 | 0 | 10 | 0 | 160 | 3.20 | 1.4 |
| Hot Water | CHAPEL-01 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 9 | 0 | 9 | 0 | 146 | 3.20 | 1.4 |
| Hot Water | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 2 | 0 | 2 | 0 | 36 | 3.20 | 1.4 |
| Lights | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 37 | 2 | -5 | 2 | 11,679 | 3.10 | 5.6 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 23 | 2 | 26 | 3 | 11,138 | 3.10 | 5.8 |
| Lights | BARRACKS-07 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 15 | 1 | 25 | 1 | 4,885 | 3.10 | 5.9 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 4 | 0 | 2 | 0 | 1,833 | 3.10 | 5.7 |
| Hot Water | SECURITY-02 | SECURITY | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 2 | 1 | 2 | 1 | 1,250 | 3.10 | 1.8 |
| Hot Water | WAREHOUSE-05 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 60 | 0 | 60 | 0 | 931 | 3.10 | 1.5 |
| Lights | CLINIC-02 | CLINIC | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 2 | 0 | 911 | 3.10 | 5.8 |
| Hot Water | WAREHOUSE-12 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 6 | 0 | 6 | 0 | 91 | 3.10 | 1.5 |
| Hot Water | WAREHOUSE-08 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp. | 6 | 0 | 6 | 0 | 90 | 3.10 | 1.5 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 170 | 24 | 173 | 24 | 63,922 | 3.00 | 5.9 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 15 | 1 | 18 | 2 | 7,113 | 3.00 | 6.0 |
| Lights | FH-DUPLEX-02 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 7 | 0 | 15 | 0 | 3,967 | 3.00 | 6.1 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 3 | 0 | 1,807 | 3.00 | 6.0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL80: FL 2X4 3F40T12ES STD1,2 | FL57: FL 2X4 2F32T8 ELC2 REF | 4 | 0 | 3 | 0 | 1,622 | 3.00 | 6.0 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 3 | 0 | 1,574 | 3.00 | 5.9 |
| Hot Water | SHOPS-04 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 14 | 0 | 14 | 0 | 214 | 3.00 | 1.6 |
| Heating | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 2 | 0 | 2 | 0 | 153 | 3.00 | 7.0 |
| Roof | FH-DUPLEX-01 | DUPLEX | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-30 | 1 | 1 | 2973 | 13 | 491,496 | 2.90 | 6.6 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 243 | 38 | 247 | 38 | 94,241 | 2.90 | 6.1 |
| Lights | FH-DUPLEX-03 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 40 | 2 | 55 | 2 | 20,904 | 2.90 | 6.1 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 41 | 3 | 57 | 3 | 17,714 | 2.90 | 6.2 |
| Lights | HANGER | HANGAR | HS17: HPS 250 PEND | LS5: LPS 135 PEND | 30 | 3 | 26 | 3 | 11,600 | 2.90 | 6.2 |
| Lights | SHOPS-07 | SHOPS | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 11 | 1 | 14 | 1 | 5,988 | 2.90 | 6.3 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 12 | 1 | 11 | 1 | 5,413 | 2.90 | 6.1 |
| Lights | CLINIC-01 | CLINIC | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 4 | 0 | 4 | 0 | 1,768 | 2.90 | 6.1 |
| Hot Water | CLINIC-02 | CLINIC | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 28 | 0 | 28 | 0 | 421 | 2.90 | 1.6 |
| Heating | MWR-06 | MORALE-WELFARE-RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 3 | 0 | 3 | 0 | 204 | 2.90 | 7.1 |
| Roof | BARRACKS-07 | BARRACKS | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 1135 | 1 | 99,867 | 2.80 | 6.9 |
| Cooling | HOSPITAL | HOSPITAL | Electric Conv Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling) | 373 | 62 | 373 | 62 | 75,110 | 2.80 | 3.1 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 75 | 6 | 61 | 6 | 32,842 | 2.80 | 6.3 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 63 | 4 | 70 | 5 | 26,459 | 2.80 | 6.4 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 50 | 3 | 55 | 4 | 20,893 | 2.80 | 6.4 |
| Wall | ADMINISTRATION-04 | ADMINISTRATION | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1 | 1 | 75 | 6 | 16,717 | 2.80 | 6.6 |
| Roof | ADMINISTRATION-04 | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-38 | 1 | 1 | 52 | 6 | 15,017 | 2.80 | 6.7 |
| Lights | CHAPEL-02 | CHAPEL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 26 | 2 | 24 | 2 | 9,719 | 2.80 | 6.4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 4 | 0 | 7 | 0 | 2,013 | 2.80 | 6.4 |
| Lights | RECREATION-02 | RECREATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 0 | 0 | 1,714 | 2.80 | 6.2 |
| Lights | RECREATION-04 | RECREATION | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 1 | 0 | 1 | 0 | 336 | 2.80 | 6.3 |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 44 | 4 | 41 | 4 | 22,751 | 2.70 | 6.5 |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 34 | 3 | 31 | 3 | 17,741 | 2.70 | 6.5 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 25 | 2 | 21 | 2 | 12,535 | 2.70 | 6.6 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 17 | 1 | 21 | 1 | 6,977 | 2.70 | 6.6 |
| Lights | BARRACKS-04 | BARRACKS | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 4 | 0 | 5 | 0 | 1,079 | 2.70 | 6.6 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 1 | 0 | 1 | 0 | 521 | 2.70 | 6.5 |
| Heating | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels Conv Boiler | Add Automatic Electric Damper | 4 | 0 | 4 | 0 | 289 | 2.70 | 7.8 |
| Heating | RECREATION-04 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 3 | 0 | 3 | 0 | 215 | 2.70 | 7.9 |
| Hot Water | ADMINISTRATION-01 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 19 | 0 | 19 | 0 | 169 | 2.70 | 1.0 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Wall | FH-DUPLEX-01 | DUPLEX | Wall Insulation R-Value 0.00 | Blow in Insulation. Increase Insulation by R 6 5 | 1 | 1 | 2424 | 13 | 361,427 | 2 60 | 7 3 |
| Lights | BARRACKS-02 | BARRACKS | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 252 | 10 | 222 | 10 | 65,396 | 2 60 | 6 9 |
| Lights | BARRACKS-02 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 252 | 10 | 222 | 10 | 65,395 | 2 60 | 6 9 |
| Hot Water | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 1730 | 0 | 1730 | 0 | 24,718 | 2 60 | 1 8 |
| Hot Water | SHOPS-03 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 362 | 0 | 362 | 0 | 5,116 | 2 60 | 1 8 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 8 | 1 | 6 | 1 | 4,045 | 2 60 | 6 8 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 1 | 0 | 1 | 0 | 369 | 2 60 | 6 9 |
| Lights | BARRACKS-06 | BARRACKS | FL4 FL 1X4 2F40T12 STD2 | FL28 FL 1X4 2F40T12 ELC2 | 1 | 0 | 1 | 0 | 270 | 2 60 | 7 0 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3. LPS 55 PEND | 356 | 31 | 324 | 31 | 113,015 | 2 50 | 7 3 |
| Roof | ADMINISTRATION-07 | ADMINISTRATION | Roof Insulation R-Value 8 90 | Suspended Ceiling Increase insulation by R 30 | 1 | 1 | 248 | 1 | 45,331 | 2 50 | 7 4 |
| Lights | WAREHOUSE-10 | WAREHOUSE | FL62 FL 1X8 2F96T12 STD2 | LS3. LPS 55 PEND | 36 | 3 | 36 | 3 | 11,749 | 2 50 | 7 2 |
| Lights | WAREHOUSE-09 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 30 | 3 | 28 | 3 | 9,719 | 2 50 | 7 2 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 16 | 1 | 17 | 1 | 6,591 | 2 50 | 7 2 |
| Roof | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 9 | 2 | 1,240 | 2 50 | 7 4 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 35 | 3 | 34 | 3 | 13,336 | 2 40 | 7 5 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL62 FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 25 | 2 | 26 | 2 | 7,625 | 2 40 | 7 4 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 15 | 1 | 14 | 1 | 5,673 | 2 40 | 7 4 |
| Roof | CLUBS-01 | CLUBS | Roof Insulation R-Value 8.90 | Suspended Ceiling. Increase Insulation by R 8 | 1 | 1 | 45 | 0 | 3,170 | 2 40 | 8 6 |
| Lights | BARRACKS-01 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 8 | 0 | 5 | 0 | 1,818 | 2 40 | 7 4 |
| Lights | BARRACKS-01 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 8 | 0 | 5 | 0 | 1,818 | 2 40 | 7 4 |
| Lights | CLUBS-01 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 3 | 0 | 6 | 0 | 1,055 | 2 40 | 7 6 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL4. FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 1 | 0 | 1 | 0 | 301 | 2 40 | 7 5 |
| Hot Water | MWR-07 | MORALE-WELFARE-RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSHs, Aerators | 8 | 0 | 8 | 0 | - 44 | 2 40 | 0 8 |
| Wall | RECREATION-02 | RECREATION | Wall Insulation R-Value 7.00 | Blow-in Insulation: Increase Insulation by R-2.4 | 1 | 1 | 179 | 9 | 27,337 | 2 30 | 8 2 |
| Roof | MWR-03 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-30 | 1 | 1 | 71 | 7 | 16,272 | 2 30 | 8 0 |
| Lights | FH-DUPLEX-03 | DUPLEX | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 21 | 1 | 35 | 1 | 11,450 | 2 30 | 7 8 |
| Hot Water | WAREHOUSE-09 | WAREHOUSE | Electric SHW Heater | 0.76 LPG WH (COM), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 0 | 0 | 0 | 0 | 42 | 2 30 | 1 6 |
| Hot Water | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 668 | 0 | 668 | 0 | 11,795 | 2 20 | 2 9 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 6 | 1 | 4 | 1 | 2,126 | 2 20 | 8 1 |
| Roof | SHOPS-02 | SHOPS | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 299 | 11 | 38,405 | 2 10 | 8 9 |
| Roof | RECREATION-04 | RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-30 | 1 | 1 | 109 | 12 | 25,023 | 2 10 | 8 8 |
| Roof | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.90 | Suspended Ceiling Increase Insulation by R 8 | 1 | 1 | 81 | 0 | 11,764 | 2 10 | 8 8 |
| Lights | WAREHOUSE-06 | WAREHOUSE | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 13 | 1 | 11 | 1 | 5,495 | 2 10 | 8 5 |
| Lights | BARRACKS-05 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 0 | 0 | 0 | 0 | 22 | 2 10 | 8 4 |
| Wall | BARRACKS-04 | BARRACKS | Wall Insulation R-Value 7.00 | Blow in Insulation. Increase Insulation by R-2.4 | 1 | 1 | 592 | 1 | 31,507 | 2 00 | 9.6 |
| Wall | CLUBS-02 | CLUBS | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R-10.9 | 1 | 1 | 103 | 15 | 25,692 | 2 00 | 9 4 |
| Hot Water | FH-3 OR MORE-02 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | 0.85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 7917 | 0 | 7917 | 0 | 19,267 | 2 00 | 0.5 |
| Roof | MILITARY OTHER-01 | MILITARY OTHER | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R-11 | 1 | 1 | 89 | 0 | 5,048 | 2 00 | 10 1 |
| Lights | BARRACKS-06 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 14 | 1 | 19 | 1 | 3,500 | 2 00 | 9.0 |
| Heating | MWR-04 | MORALE-WELFARE-RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 7 | 0 | 7 | 0 | 298 | 2 00 | 8 7 |
| Lights | BARRACKS-04 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 41 | 2 | 48 | 2 | 9,456 | 1 90 | 9.3 |
| Wall | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Wall Insulation R-Value 8.79 | Blow-in Insulation: Increase Insulation by R 6 5 | 1 | 1 | 16 | 3 | 4,362 | 1 90 | 9 7 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 8 | 0 | 7 | 0 | 2,803 | 1 90 | 9 6 |
| Lights | CLUBS-03 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | FL123: FL 1X8 1F96T12ES EEF1 | 5 | 0 | 4 | 0 | 2,132 | 1 90 | 9 5 |
| Lights | CLUBS-02 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | FL123: FL 1X8 1F96T12ES EEF1 | 3 | 0 | 4 | 0 | 1,477 | 1 90 | 9 2 |
| Roof | MILITARY OTHER-04 | MILITARY OTHER | Roof Insulation R-Value 7.15 | Attic Ceiling. Increase insulation by R-19 | 1 | 1 | 17 | 0 | 937 | 1 90 | 10 7 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | 179 | 1 90 | 9 1 |
| Lights | COMMISSARIES | COMMISSARIES | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 49 | 2 | 63 | 3 | 12,217 | 1 80 | 10 0 |
| Roof | DINING HALLS-03 | DINING HALLS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 117 | 0 | 5,739 | 1 80 | 11 4 |
| Lights | COMMISSARIES | COMMISSARIES | HS15: HPS 150 PEND | LS4: LPS 90 PEND | 21 | 1 | 28 | 1 | 5,116 | 1 80 | 10 1 |
| Roof | SECURITY-03 | SECURITY | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 1 | 1 | 10 | 2 | 3,128 | 1 80 | 9 9 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 0 | 0 | 0 | 0 | 133 | 1 80 | 10 1 |
| Hot Water | ADMINISTRATION-07a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp. | 9 | 0 | 9 | 0 | 87 | 1 80 | 2 6 |
| Lights | BARRACKS-02 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 117 | 4 | 78 | 4 | 20,386 | 1 70 | 10 5 |
| Roof | ADMINISTRATION-01 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 64 | 0 | 3,012 | 1 70 | 11 9 |
| Wall | ELECTRONICS-03 | ELECTRONICS | Wall Insulation R-Value 0.00 | Interior Masonary Surface. Increase Insulation by R-4.3 | 1 | 1 | 46 | 0 | 2,977 | 1 70 | 11 5 |
| Wall | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R 6 5 | 1 | 1 | 22 | 5 | 2,295 | 1 70 | 10 5 |
| Lights | BARRACKS-05 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 1 | 0 | 1 | 0 | 227 | 1 70 | 10 4 |
| Wall | CHAPEL-02 | CHAPEL | Wall Insulation R-Value 5.32 | Interior Masonary Surface: Increase Insulation by R-4.3 | 1 | 1 | 134 | 0 | 5,511 | 1.60 | 12.9 |
| Lights | SHOPS-04 | SHOPS | FL63: FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 16 | 1 | 18 | 1 | 4,497 | 1.60 | 11 1 |
| Lights | BARRACKS-01 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 4 | 0 | 2 | 0 | 589 | 1 60 | 10 8 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | FL74: FL 1X8 2F96T12 ELC2 | 204 | 32 | 208 | 32 | 36,978 | 1 50 | 12 2 |
| Roof | BARRACKS-02 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 1 | 1 | 887 | 0 | 36,568 | 1 50 | 13 4 |
| Roof | ADMINISTRATION-08 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-19 | 1 | 1 | 133 | 6 | 15,128 | 1 50 | 12.1 |
| Lights | DINING HALLS-03 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 52 | 3 | 59 | 3 | 10,250 | 1 50 | 12 1 |
| Wall | ADMINISTRATION-02 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6 5 | 1 | 1 | 80 | 8 | 8,409 | 1 50 | 12 9 |
| Lights | RECREATION-04 | RECREATION | HS14: HPS 100 PEND | LS3: LPS 55 PEND | 12 | 1 | 13 | 1 | 2,605 | 1 50 | 11 9 |
| Roof | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling. Increase Insulation by R-8 | 1 | 1 | 60 | 0 | 2,154 | 1.50 | 14 0 |
| Roof | MILITARY OTHER-03 | MILITARY OTHER | Roof Insulation R Value 20.05 | Suspended Ceiling Increase insulation by R 30 | 1 | 1 | 7 | 1 | 1,904 | 1.50 | 12 3 |
| Wall | SECURITY-01 | SECURITY | Wall Insulation R Value 5.32 | Interior Masonary Surface Increase Insulation by R-10 9 | 1 | 1 | 11 | 0 | 1,876 | 1 50 | 12 1 |
| Roof | ADMINISTRATION-06 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 47 | 0 | 1,704 | 1 50 | 13 9 |
| Roof | SHOPS-06 | SHOPS | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase Insulation by R 8 | 1 | 1 | 32 | 0 | 1,225 | 1 50 | 13 5 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 4 | 1 | 5 | 1 | 979 | 1 50 | 12 1 |
| Roof | ELECTRONICS-03 | ELECTRONICS | Roof Insulation R-Value 20 05 | Suspended Ceiling. Increase Insulation by R 8 | 1 | 1 | 14 | 0 | 952 | 1 50 | 12 4 |
| Lights | MWR-06 | MORALE-WELFARE RECREATION | FL63. FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 1 | 0 | 1 | 0 | 468 | 1 50 | 12 0 |
| Roof | ADMINISTRATION-09 | ADMINISTRATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 182 | 42 | 31,962 | 1 40 | 13 4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL63: FL 1X8 1F96T12 STD1 | FL126. FL 1X8 1F96T12ES EEF1 REF | 113 | 8 | 115 | 8 | 20,233 | 1 40 | 13 1 |
| Roof | SHOPS-05 | SHOPS | Roof Insulation R-Value 0.00 | Suspended Ceiling. Increase insulation by R 19 | 1 | 1 | 474 | 0 | 15,526 | 1 40 | 14 5 |
| Lights | SHOPS-05 | SHOPS | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 28 | 2 | 25 | 2 | 5,497 | 1 40 | 12 6 |
| Lights | BARRACKS-07 | BARRACKS | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 26 | 1 | 41 | 1 | 3,545 | 1 40 | 12 7 |

# Table 3.7a. Building EROs Constituting the Minimum Life-Cycle Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Retrofit Energy Savings (MBtu) | Retrofit Demand Savings (kW) | Energy Savings due to Interactive Effects (MBtu) | Demand Savings due to Interactive Effects (kW) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | DINING HALLS-01 | DINING HALLS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 18 | 1 | 18 | 1 | 3,196 | 1.40 | 12.4 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 17 | 1 | 18 | 2 | 3,066 | 1.40 | 13.3 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 6 | 1 | 6 | 1 | 1,200 | 1.40 | 13.0 |
| Lights | MWR-07 | MORALE-WELFARE-RECREATION | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 4 | 0 | 7 | 1 | 949 | 1.40 | 13.3 |
| Roof | BARRACKS-01 | BARRACKS | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R 11 | 1 | 1 | 29 | 0 | 926 | 1.40 | 14.9 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 3 | 0 | 2 | 0 | 451 | 1.40 | 13.2 |
| Heating | RECREATION-02 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | 0 | 6 | 0 | 86 | 1.40 | 8.0 |
| Wall | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 1 | 1 | 1811 | 0 | 67,286 | 1.30 | 14.8 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 324 | 46 | 330 | 46 | 32,525 | 1.30 | 14.0 |
| Cooling | ADMINISTRATION-07 | ADMINISTRATION | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 257 | 19 | 317 | 19 | 23,441 | 1.30 | 7.7 |
| Roof | STORAGE-02 | STORAGE | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase Insulation by R 8 | 1 | 1 | 341 | 0 | 15,355 | 1.30 | 14.7 |
| Wall | HOSPITAL | HOSPITAL | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R-4.3 | 1 | 1 | 351 | 0 | 11,228 | 1.30 | 15.6 |
| Cooling | CLINIC-01 | CLINIC | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 63 | 18 | 61 | 18 | 8,617 | 1.30 | 8.8 |
| Wall | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 1 | 1 | 223 | 0 | 5,440 | 1.30 | 16.1 |
| Heating | HOSPITAL | HOSPITAL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | 0 | 6 | 0 | 89 | 1.30 | 9.3 |
| Heating | CLUBS-03 | CLUBS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 1 | 0 | 1 | 0 | 30 | 1.30 | 16.5 |
| Hot Water | MILITARY OTHER-04 | MILITARY OTHER | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 3 | 0 | 3 | 0 | 12 | 1.30 | 3.6 |
| Roof | FH-DUPLEX-03 | DUPLEX | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 1416 | 53 | 68,504 | 1.20 | 15.5 |
| Roof | FH-3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 487 | 0 | 8,910 | 1.20 | 17.2 |
| Wall | CLINIC-02 | CLINIC | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 1 | 1 | 285 | 0 | 5,049 | 1.20 | 17.4 |
| Lights | BARRACKS-02 | BARRACKS | FL94: FL 1X4 2F40T12ES EEF2 | FL106: FL 1X4 2F40T12ES ELC2 | 38 | 1 | 29 | 1 | 3,500 | 1.20 | 14.5 |
| Roof | ADMINISTRATION-02 | ADMINISTRATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R 19 | 1 | 1 | 44 | 5 | 3,011 | 1.20 | 15.3 |
| Roof | MWR-07 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 42 | 4 | 2,454 | 1.20 | 15.7 |
| Wall | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R 4.3 | 1 | 1 | 123 | 0 | 1,812 | 1.20 | 18.0 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 1 | 0 | 0 | 0 | 116 | 1.20 | 14.4 |
| Lights | BARRACKS-01 | BARRACKS | FL94: FL 1X4 2F40T12ES EEF2 | FL106: FL 1X4 2F40T12ES ELC2 | 1 | 0 | 1 | 0 | 88 | 1.20 | 15.0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 0 | 0 | 0 | 0 | 17 | 1.20 | 14.7 |
| Hot Water | MWR-03 | MORALE-WELFARE-RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 7 | 0 | 7 | 0 | 16 | 1.20 | 3.2 |
| Roof | FH-3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 470 | 46 | 20,672 | 1.10 | 16.3 |
| Wall | BARRACKS-02 | BARRACKS | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R 6.5 | 1 | 1 | 1059 | 0 | 7,666 | 1.10 | 19.3 |
| Roof | CHAPEL-02 | CHAPEL | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 1 | 1 | 62 | 0 | 656 | 1.10 | 18.8 |
| Roof | MWR-06 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 1 | 1 | 15 | 2 | 519 | 1.10 | 17.3 |
| Cooling | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric Package Unit | Split System Residential AC Unit (1.5 to 5 4167 tons cooling) | 93 | 19 | 88 | 18 | 394 | 1.10 | 0.9 |
| Roof | CLINIC-01 | CLINIC | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 19 | 1 | 1 | 10 | 0 | 158 | 1.10 | 17.6 |
| Cooling | MWR-02 | MORALE-WELFARE-RECREATION | Electric Air Cool Heat Pump | Air to Air Heat Pump with Supplementary Electric Heat Coil | 123 | 26 | 123 | 26 | 934 | 1.00 | 4.4 |
| Wall | WAREHOUSE-09 | WAREHOUSE | Wall Insulation R-Value 8.79 | Blow-in Insulation: Increase Insulation by R-2.4 | 1 | 1 | 193 | 0 | 919 | 1.00 | 20.1 |
| Roof | WAREHOUSE-01 | WAREHOUSE | Roof Insulation R-Value 0.00 | Attic Ceiling: Increase Insulation by R-8 | 1 | 1 | 69 | 0 | 319 | 1.00 | 19.3 |
| Wall | ADMINISTRATION-06 | ADMINISTRATION | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R-4.3 | 1 | 1 | 161 | 0 | 125 | 1.00 | 20.9 |
| Roof | MWR-02 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-11 | 1 | 1 | 15 | 0 | 116 | 1.00 | 17.8 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 253 | 250 ton chiller | Reset chilled and condenser water temps - RI | 334 | 450 | 334 | 450 | 201,183 | 6,707 11 | 0 0 |
| AC | 2 | Bldg 263 | 554 ton chiller | Reset chilled and condenser water temps - RI | 298 | 499 | 298 | 499 | 197,519 | 6,584 96 | 0 0 |
| AC | 3 | Bldg 273 | 200 ton chiller | Reset chilled and condenser water temps. - RI | 303 | 180 | 303 | 180 | 139,087 | 4,637 24 | 0 0 |
| T&D | | Substation | Sub Transformers | Conservation Voltage Reduction - RI | 2,094 | 2,128 | 2,094 | 2,128 | 966,624 | 967 62 | 0 0 |
| HVAC | 6 | MtrPool | Programmable T-Stat | Night Setback - RI | 3,439 | 46 | 3,439 | 46 | 419,976 | 132 64 | 0 1 |
| Lighting | OS-8b | Hightny | T8 Lighting | T8 + Occupancy Controls - RI | 2,062 | NA | 2,062 | NA | 1,082,188 | 94 36 | 0 2 |
| Envelope | MT-12 | | Leaky | Weatherization - RI | 1,241 | 904 | 1,241 | 904 | 648,218 | 73 29 | 0 2 |
| HVAC | 4 | Comcatn | Programmable T-Stat | Night Setback - RI | 964 | 24 | 964 | 24 | 136,424 | 66 68 | 0 3 |
| HVAC | 3 | Clinic | Programmable T-Stat | Night Setback - RI | 645 | 28 | 645 | 28 | 112,544 | 55 18 | 0 3 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback - RI | 7,583 | 101 | 7,583 | 101 | 909,248 | 46 28 | 0 4 |
| Envelope | | Masonite Siding: post 1950 | | Weatherization - RI | 755 | 496 | 755 | 496 | 331,363 | 46 17 | 0 4 |
| Lighting | OS-7b | Hallwy | T8 Lighting | T8 + Occupancy Controls - RI | 915 | NA | 915 | NA | 469,897 | 41 89 | 0 4 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback - RI | 275 | 5 | 275 | 5 | 35,968 | 35 63 | 0 5 |
| Envelope | | Metal Siding | | Weatherization - RI | 1,024 | 672 | 1,024 | 672 | 445,841 | 33 69 | 0 5 |
| Lighting | OS-4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 615 | NA | 615 | NA | 315,071 | 32 26 | 0 5 |
| Envelope | Other | U Shaped Bldgs. Other | | Weatherization - RI | 382 | 251 | 382 | 251 | 166,045 | 32 15 | 0 5 |
| Envelope | | Masonite Siding: pre 1950 | | Weatherization - RI | 1,827 | 1,200 | 1,827 | 1,200 | 794,401 | 32 01 | 0 5 |
| Lighting | OS-3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 248 | NA | 248 | NA | 126,608 | 31 63 | 0 5 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Weatherization - RI | 557 | 366 | 557 | 366 | 241,072 | 27 99 | 0 6 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 555 | 20 | 555 | 20 | 91,366 | 24 99 | 0 7 |
| Envelope | Barracks | U Shaped Bldgs Barracks | | Weatherization - RI | 1,432 | 940 | 1,432 | 940 | 614,151 | 22 55 | 0 8 |
| Envelope | | Wood Siding | | Weatherization - RI | 87 | 57 | 87 | 57 | 37,033 | 21 45 | 0 8 |
| HVAC | 8 | Traing | Programmable T-Stat | Night Setback - RI | 413 | 44 | 413 | 44 | 114,454 | 20 45 | 0 8 |
| Envelope | Misc -pre 1980 | Concrete Block: Misc -pre 1980 | | Weatherization - RI | 217 | 142 | 217 | 142 | 92,117 | 19 11 | 0 9 |
| Envelope | | WHS | | Weatherization - RI | 104 | 68 | 104 | 68 | 44,122 | 18 79 | 0 9 |
| Envelope | Shop | SHOP | | Weatherization - RI | 199 | 131 | 199 | 131 | 84,456 | 18 67 | 0 9 |
| Envelope | Barracks | Concrete Block: Barracks | | Weatherization - RI | 409 | 269 | 409 | 269 | 173,276 | 17 70 | 1 0 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization - RI | 1,203 | 790 | 1,203 | 790 | 508,458 | 17 14 | 1 0 |
| Lighting | OS-MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 147 | NA | 147 | NA | 72,991 | 16 83 | 1 0 |
| Lighting | OS-2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 1,100 | NA | 1,100 | NA | 554,005 | 16 68 | 1 0 |
| Envelope | Family Housing | 1963 | | Weatherization - RI | 1,971 | 1,295 | 1,971 | 1,295 | 830,164 | 16 20 | 1 1 |
| Envelope | Dining | DINING, MSIC | | Weatherization - RI | 203 | 133 | 203 | 133 | 85,324 | 15 77 | 1 1 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization - RI | 62 | 41 | 62 | 41 | 26,113 | 15 46 | 1 1 |
| DHW & A/C | 13 | 00166 | CHILLER-air cooled | Install Desuperheater - RI | 2,178 | 630 | 2,178 | 630 | 365,486 | 14.84 | 1 2 |
| Envelope | Misc -post 1980 | Concrete Block: Misc -post 1980 | | Weatherization - RI | 299 | 197 | 299 | 197 | 124,741 | 13 97 | 1 2 |
| Envelope | Family Housing | 1961 | | Weatherization - RI | 1,803 | 1,184 | 1,803 | 1,184 | 749,345 | 13 50 | 1 3 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - RI | 56 | 22 | 56 | 22 | 15,977 | 12 96 | 1 3 |
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - RI | 28 | 11 | 28 | 11 | 7,988 | 12 96 | 1 3 |
| T&D | A | Substation | Capacitor Bank | Power Factor Correction to Unity - RI | 53 | 1,476 | 53 | 1,476 | 375,744 | 12 89 | 1 3 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater - RI | 110 | 18 | 110 | 18 | 15,732 | 11 59 | 1 5 |
| Motors | MTR-485 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 13 | 5 | 13 | 5 | 3,981 | 11 37 | 1 5 |
| Motors | PMTR-71 | POOL-OT - 00328 | PMPMTR | EEM - RI | 7 | 3 | 7 | 3 | 1,991 | 11 37 | 1 5 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater - RI | 190 | 58 | 190 | 58 | 32,023 | 11 33 | 1 5 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Weatherization - RI | 68 | 44 | 68 | 44 | 27,627 | 11 11 | 1 5 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 218 | 76 | 218 | 76 | 36,469 | 10 52 | 1 6 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 243 | 92 | 243 | 92 | 42,194 | 10 39 | 1 7 |
| Lighting | DLC-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 198 | NA | 198 | NA | 107,946 | 10 07 | 1 7 |
| Motors | PMTR-42 | HOSPITL - 00166 | PMPMTR | EEM - RI | 33 | 13 | 33 | 13 | 8,882 | 9 67 | 1 8 |
| Envelope | Training | TRAINING | | Weatherization - RI | 82 | 54 | 82 | 54 | 32,873 | 9 06 | 1 9 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 159 | 72 | 159 | 72 | 29,597 | 9 03 | 1 9 |
| Envelope | Brk'Adm | BRK/ADM MISC | | Weatherization - RI | 47 | 31 | 47 | 31 | 18,563 | 9 01 | 1 9 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 277 | 51 | 277 | 51 | 36,498 | 8 93 | 1 9 |
| HVAC | 7 | Shop-Elc | Programmable T-Stat | Night Setback - RI | 52 | 4 | 52 | 4 | 10,946 | 8 90 | 1 9 |
| Motors | MTR-35c | REC - 00905 | COMPMTR | VSD & EEM - RI | 153 | 19 | 153 | 19 | 42,432 | 8 48 | 2 0 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater - RI | 99 | 45 | 99 | 45 | 17,765 | 7 87 | 2 2 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 85 | 32 | 85 | 32 | 14,074 | 7 79 | 2 2 |
| Motors | PMTR-72 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7 69 | 2 2 |
| Motors | PMTR-73 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7 69 | 2 2 |
| Motors | PMTR-70 | POOL-OT - 00328 | PMPMTR | EEM - RI | 4 | 2 | 4 | 2 | 1,251 | 7 69 | 2 2 |
| DHW & A/C | 31 | 00905 | CHILLER-air cooled | Install Desuperheater - RI | 155 | 72 | 155 | 72 | 23,881 | 7 48 | 2 3 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 75 | 27 | 75 | 27 | 11,980 | 7 47 | 2 3 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 75 | 27 | 75 | 27 | 11,980 | 7 47 | 2 3 |
| Envelope | Family Housing | 1983 | | Weatherization - RI | 746 | 490 | 746 | 490 | 289,719 | 7 43 | 2 3 |
| Motors | PMTR-94 | PUMP - 00044 | PMPMTR | EEM - RI | 97 | 39 | 97 | 39 | 21,124 | 7 37 | 2 3 |
| Motors | PMTR-93 | PUMP - 00044 | PMPMTR | EEM - RI | 97 | 39 | 97 | 39 | 21,124 | 7 37 | 2 3 |
| Envelope | MT-9 | | Single pane window | Shade Screens - SW side - RI | 37 | 69 | 37 | 69 | 32,627 | 7 33 | 2 4 |
| Envelope | | Metal Siding | | Window Screen - SW side - RI | 77 | 142 | 77 | 142 | 67,187 | 7 33 | 2 4 |
| Envelope | | Concrete Block: Misc -post 1980 | | Window Screen - SW side - RI | 10 | 19 | 10 | 19 | 9,214 | 7 33 | 2 4 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SW side - RI | 109 | 202 | 109 | 202 | 95,684 | 7 33 | 2 4 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screen - SW side - RI | 30 | 55 | 30 | 55 | 25,898 | 7 33 | 2 4 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings ($994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | | U Shaped Bldgs: Other | | Window Screen - SW side - RI | 28 | 53 | 28 | 53 | 24,955 | 7 33 | 2 4 |
| Envelope | | BRK'ADM MISC | | Window Screen - SW side - RI | 16 | 30 | 16 | 30 | 14,078 | 7 33 | 2 4 |
| Envelope | | Wood Siding | | Window Screen - SW side - RI | 13 | 25 | 13 | 25 | 11,708 | 7 33 | 2 4 |
| Envelope | | TRAINING | | Window Screen - SW side - RI | 10 | 18 | 10 | 18 | 8,568 | 7 33 | 2 4 |
| Envelope | | WHS | | Window Screen - SW side - RI | 6 | 11 | 6 | 11 | 5,402 | 7 33 | 2 4 |
| Envelope | | Concrete Block: Barracks | | Window Screen - SW side - RI | 39 | 72 | 39 | 72 | 34,111 | 7.33 | 2 4 |
| Envelope | | MOTORPOOL | | Window Screen - SW side - RI | 30 | 56 | 30 | 56 | 26,403 | 7.33 | 2 4 |
| Envelope | | SHOP | | Window Screen - SW side - RI | 29 | 55 | 29 | 55 | 25,862 | 7 33 | 2 4 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - SW side - RI | 199 | 369 | 199 | 369 | 174,765 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screen - RI | 164 | 303 | 164 | 303 | 143,521 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screen - RI | 153 | 284 | 153 | 284 | 134,112 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screen - RI | 115 | 213 | 115 | 213 | 100,856 | 7 33 | 2 4 |
| Envelope | | DINING MSIC | | Window Screen - SW side - RI | 18 | 33 | 18 | 33 | 15,734 | 7 33 | 2 4 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screen - SW side - RI | 17 | 31 | 17 | 31 | 14,676 | 7 33 | 2 4 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screen - SW side - RI | 12 | 22 | 12 | 22 | 10,564 | 7.33 | 2 4 |
| Envelope | | SECURITY | | Window Screen - SW side - RI | 1 | 3 | 1 | 3 | 1,254 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen - RI | 151 | 279 | 151 | 279 | 132,108 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen - RI | 100 | 185 | 100 | 185 | 87,588 | 7.33 | 2 4 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SW side - RI | 44 | 81 | 44 | 81 | 38,348 | 7 33 | 2 4 |
| Envelope | | MWR | | Window Screen - SW side - RI | 7 | 13 | 7 | 13 | 6,120 | 7.33 | 2 4 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - RI | 76 | 13 | 76 | 13 | 10,631 | 7 25 | 2 4 |
| Envelope | Family Housing | 1984 | | Weatherization - RI | 554 | 364 | 554 | 364 | 214,222 | 7 21 | 2 4 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - RI | 8 | 8 | 8 | 8 | 3,550 | 7 16 | 2 4 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | EEM - RI | 3 | 3 | 3 | 3 | 1,183 | 7 16 | 2 4 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - RI | 297 | 57 | 297 | 57 | 37,429 | 7 12 | 2 4 |
| Motors | MTR-34c | REC - 00905 | COMPMTR | VSD & EEM - RI | 132 | 16 | 132 | 16 | 35,113 | 7 04 | 2 4 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 12 | 12 | 12 | 12 | 4,597 | 6 79 | 2 5 |
| Lighting | OS-6b | Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 307 | NA | 307 | NA | 138,582 | 6 68 | 2 6 |
| Motors | PMTR-88 | PUMP - 00044 | PMPMTR | EEM - RI | 31 | 12 | 31 | 12 | 7,257 | 6 43 | 2 7 |
| Lighting | OS-5b | Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 50 | NA | 50 | NA | 22,149 | 6 40 | 2 7 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 158 | 180 | 158 | 180 | 43,471 | 6 38 | 2 7 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - RI | 60 | 27 | 60 | 27 | 9,877 | 6 33 | 2 7 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 60 | 27 | 60 | 27 | 9,877 | 6 33 | 2.7 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - RI | 15 | 20 | 15 | 20 | 3,926 | 6 17 | 2 8 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - RI | 4 | 6 | 4 | 6 | 2,120 | 6 12 | 2 8 |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM - RI | 7 | 10 | 7 | 10 | 3,177 | 6 12 | 2 8 |
| Motors | MTR-475 | PLT-BLDG - 00253 | Fan Motor | EEM - RI | 4 | 6 | 4 | 6 | 2,118 | 6 12 | 2 8 |
| Motors | PMTR-117 | REC - 00905 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 1,059 | 6 12 | 2 8 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 1,059 | 6 12 | 2 8 |
| Vehicles | Conversion | Vehicles | | CNG Vehicles | 14,638 | -180 | 14,638 | -180 | 10,091,649 | 5 93 | 2 9 |
| Motors | PMTR-120 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 106 | 42 | 106 | 42 | 23,238 | 5 88 | 2 9 |
| Motors | PMTR-121 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 53 | 21 | 53 | 21 | 11,619 | 5 88 | 2 9 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - RI | 117 | 23 | 117 | 23 | 14,722 | 5 81 | 3 0 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM - RI | 54 | 56 | 54 | 56 | 15,897 | 5 79 | 3 0 |
| Motors | PMTR-6c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 53 | 9 | 53 | 9 | 22,062 | 5 74 | 3 0 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - RI | 86 | 17 | 86 | 17 | 10,811 | 5 70 | 3 0 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 47 | 18 | 47 | 18 | 6,950 | 5 68 | 3 0 |
| Motors | PMTR-86 | PUMP - 00324 | PMPMTR | EEM - RI | 20 | 21 | 20 | 21 | 5,949 | 5 66 | 3 0 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater - RI | 76 | 86 | 76 | 86 | 19,850 | 5 65 | 3 0 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM - RI | 11 | 16 | 11 | 16 | 4,888 | 5 62 | 3 1 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 1,769 | 5 61 | 3 1 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5 61 | 3 1 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5 61 | 3 1 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5 61 | 3 1 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5 61 | 3 1 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - RI | 2 | 3 | 2 | 3 | 885 | 5 61 | 3 1 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - RI | 11 | 16 | 11 | 16 | 5,308 | 5.61 | 3 1 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - RI | 33 | 0 | 33 | 0 | 7,624 | 5 48 | 3 1 |
| Motors | MTR-6 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 22 | 17 | 22 | 17 | 5,907 | 5 42 | 3 2 |
| Motors | PMTR-106 | PUMP - 00636 | PMPMTR | EEM - RI | 49 | 56 | 49 | 56 | 14,628 | 5.41 | 3 2 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - RI | 8 | 0 | 8 | 0 | 1,828 | 5 35 | 3 2 |
| Envelope | MT-11a | | None | Crawl Space Insulation: R-19 - RI | 1,002 | 1,039 | 1,002 | 1,039 | 542,721 | 5 35 | 3 2 |
| Motors | PMTR-89 | PUMP - 00044 | PMPMTR | EEM - RI | 26 | 11 | 26 | 11 | 5,634 | 5 22 | 3 3 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 4,245 | 5 16 | 3 3 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater - RI | 34 | 41 | 34 | 41 | 9,912 | 5 13 | 3 4 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 768 | 5 11 | 3 4 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - RI | 51 | 8 | 51 | 8 | 6,239 | 5 05 | 3 4 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 40 | 18 | 40 | 18 | 5,933 | 4 99 | 3 4 |
| DHW & A C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater - RI | 40 | 36 | 40 | 36 | 8,823 | 4 98 | 3 5 |
| Motors | PMTR-122 | WHS-CLD - 00862 | PMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 1,508 | 4 93 | 3 5 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-81 | PUMP - 00044 | PMPMTR | EEM - RI | 14 | 16 | 14 | 16 | 4,141 | 4 92 | 3 5 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM - RI | 4 | 4 | 4 | 4 | 1,426 | 4 81 | 3 6 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4 81 | 3 6 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4 81 | 3 6 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4 81 | 3 6 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4 81 | 3 6 |
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 713 | 4 81 | 3 6 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR-103 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR-102 | PUMP - 00700 | PMPMTR | EEM - RI | 51 | 20 | 51 | 20 | 9,679 | 4 81 | 3 6 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - RI | 40 | 72 | 40 | 72 | 13,496 | 4 66 | 3 7 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - RI | 105 | 16 | 105 | 16 | 13,882 | 4 63 | 3 7 |
| Motors | MTR-202 | BRK/ADM - 00261 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-197 | BRK/ADM - 00251 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-195 | BRK/ADM - 00250 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-196 | BRK/ADM - 00250 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-192 | BRK/ADM - 00104 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-214 | BRK/ADM - 00416 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-191 | BRK/ADM - 00103 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-231 | BRK/ADM - 00512 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-190 | BRK/ADM - 00102 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,492 | 4 62 | 3 7 |
| Motors | MTR-212 | BRK/ADM - 00413 | EVAP | EEM - RI | 6 | 6 | 6 | 6 | 2,995 | 4 62 | 3 7 |
| Motors | MTR-194 | BRK/ADM - 00249 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 749 | 4 62 | 3 7 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - RI | 3 | 3 | 3 | 3 | 1,496 | 4 61 | 3 7 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 748 | 4 61 | 3 7 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - RI | 8 | 8 | 8 | 8 | 3,738 | 4 61 | 3 7 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - RI | 10 | 10 | 10 | 10 | 4,485 | 4 61 | 3 7 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-210 | BRK/ADM - 00267 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-206 | BRK/ADM - 00264 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | MTR-211 | BRK/ADM - 00412 | EVAP | EEM - RI | 2 | 2 | 2 | 2 | 747 | 4 61 | 3 7 |
| Motors | PMTR-5e | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 36 | 35 | 36 | 35 | 16,435 | 4 61 | 3 7 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - RI | 26 | 4 | 26 | 4 | 9,792 | 4 31 | 4 0 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM - RI | 42 | 8 | 42 | 8 | 4,999 | 4 25 | 4 1 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - RI | 72 | 72 | 72 | 72 | 17,228 | 4 22 | 4 1 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater - RI | 16 | 21 | 16 | 21 | 3,847 | 4 21 | 4 1 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - RI | 28 | 43 | 28 | 43 | 7,902 | 4 15 | 4 2 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - RI | 52 | 56 | 52 | 56 | 12,387 | 4 11 | 4 2 |
| Motors | MTR-428 | ADMIN - 00988 | Fan Motor | EEM - RI | 51 | 56 | 51 | 56 | 12,170 | 4 05 | 4 2 |
| Motors | PMTR-40 | HOSPITL - 00166 | PMPMTR | EEM - RI | 34 | 14 | 34 | 14 | 6,930 | 4 05 | 4 2 |
| Motors | PMTR-39 | HOSPITL - 00166 | PMPMTR | EEM - RI | 14 | 5 | 14 | 5 | 2,772 | 4 05 | 4 2 |
| Motors | PMTR-41 | HOSPITL - 00166 | PMPMTR | EEM - RI | 14 | 5 | 14 | 5 | 2,772 | 4 05 | 4 2 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - RI | 7 | 3 | 7 | 3 | 1,386 | 4 05 | 4 2 |
| Lighting | DLC-1b | Small Office | T8 Lighting | T8 + Daylighting Controls - RI | 2 | 1 | 2 | 1 | 586 | 4 05 | 4 3 |
| Motors | PMTR-114 | PUMP - 00663 | PMPMTR | EEM - RI | 268 | NA | 268 | NA | 135,586 | 4 01 | 4 3 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM - RI | 103 | 119 | 103 | 119 | 25,521 | 3 96 | 4 3 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM - RI | 4 | 6 | 4 | 6 | 1,211 | 3 92 | 4 4 |
| Motors | PMTR-108 | PUMP - 00652 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 605 | 3 92 | 4 4 |
| | | | | | 29 | 56 | 29 | 56 | 9,492 | 3 86 | 4 5 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (kBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (kBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-258 | DGR - 00909 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 591 | 3.86 | 4.5 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,768 | 3.85 | 4.5 |
| Motors | MTR-259 | DGR - 00909 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,175 | 3.84 | 4.5 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 544 | 3.83 | 4.5 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 544 | 3.83 | 4.5 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - RI | 6 | 16 | 6 | 16 | 3,265 | 3.83 | 4.5 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side - RI | 26 | 46 | 26 | 46 | 17,362 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - NW Side - RI | 59 | 107 | 59 | 107 | 40,117 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Barracks | | Window Screen - NW Side - RI | 20 | 36 | 20 | 36 | 13,513 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Other | | Window Screen - NW Side - RI | 8 | 15 | 8 | 15 | 5,728 | 3.83 | 4.5 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - NW Side - RI | 8 | 14 | 8 | 14 | 5,102 | 3.83 | 4.5 |
| Envelope | | TRAINING | | Window Screen - NW Side - RI | 2 | 3 | 2 | 3 | 1,140 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screen - RI | 113 | 204 | 113 | 204 | 76,372 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screen - RI | 105 | 190 | 105 | 190 | 71,365 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screen - RI | 103 | 186 | 103 | 186 | 69,803 | 3.83 | 4.5 |
| Envelope | | Metal Siding | | Window Screen - NW Side - RI | 55 | 99 | 55 | 99 | 37,110 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screen - NW Side - RI | 8 | 15 | 8 | 15 | 5,622 | 3.83 | 4.5 |
| Envelope | | SHOP | | Window Screen - NW Side - RI | 5 | 9 | 5 | 9 | 3,440 | 3.83 | 4.5 |
| Envelope | | DINING, MSIC | | Window Screen - NW Side - RI | 3 | 6 | 3 | 6 | 2,093 | 3.83 | 4.5 |
| Envelope | | BRK/ADM MISC | | Window Screen - NW Side - RI | 3 | 5 | 3 | 5 | 1,873 | 3.83 | 4.5 |
| Envelope | | Wood Siding | | Window Screen - NW Side - RI | 2 | 4 | 2 | 4 | 1,558 | 3.83 | 4.5 |
| Envelope | | MWR | | Window Screen - NW Side - RI | 1 | 2 | 1 | 2 | 814 | 3.83 | 4.5 |
| Envelope | | WHS | | Window Screen - NW Side - RI | 1 | 2 | 1 | 2 | 719 | 3.83 | 4.5 |
| Envelope | | SECURITY | | Window Screen - RI | 0 | 0 | 0 | 0 | 167 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screen - NW Side - RI | 79 | 143 | 79 | 143 | 53,668 | 3.83 | 4.5 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - NW Side - RI | 20 | 36 | 20 | 36 | 13,495 | 3.83 | 4.5 |
| Envelope | | MOTORPOOL | | Window Screen - NW Side - RI | 5 | 9 | 5 | 9 | 3,512 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screen - RI | 3 | 5 | 3 | 5 | 1,952 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screen - NW Side - RI | 69 | 124 | 69 | 124 | 46,608 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc -post 1980 | | Window Screen - NW Side - RI | 7 | 13 | 7 | 13 | 4,903 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC post 1964 | | EEM - RI | 5 | 9 | 5 | 9 | 3,445 | 3.83 | 4.5 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-132 | ADMIN - 00444 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,513 | 3.83 | 4.5 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,756 | 3.83 | 4.5 |
| Motors | MTR-347 | SECURTY - 00326 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-130 | ADMIN - 00443 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-131 | ADMIN - 00443 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 585 | 3.83 | 4.5 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - RI | 8 | 7 | 8 | 7 | 2,111 | 3.82 | 4.5 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM - RI | 6 | 5 | 6 | 5 | 1,583 | 3.82 | 4.5 |
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - RI | 9 | 13 | 9 | 13 | 4,669 | 3.82 | 4.5 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,751 | 3.82 | 4.5 |
| Motors | MTR-304 | MTRPOOL - 00680 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,751 | 3.82 | 4.5 |
| Motors | MTR-306 | MTRPOOL - 00681 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-254 | DGR - 00308 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,167 | 3.82 | 4.5 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-256 | DGR - 00404 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 584 | 3.82 | 4.5 |
| Motors | MTR-336 | PLT-BLDG - 00253 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-335 | PLT-BLDG - 00253 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-354 | SHOP - 00367 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 582 | 3.81 | 4.5 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM - RI | 6 | 8 | 6 | 8 | 2,900 | 3.80 | 4.5 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-361 | SHOP-ELC - 00581 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-357 | SHOP - 00384 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-382 | WHS - 00342 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 2,320 | 3.80 | 4.5 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-384 | WHS - 00352 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-386 | WHS - 00364 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-175 | ADMIN - 00583 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-97 | 01315 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-362 | SHOP-ELC - 00616 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-294 | MTRPOOL - 00621 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-381 | WHS - 00342 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-296 | MTRPOOL - 00623 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-383 | WHS - 00344 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-380 | WHS - 00333 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-350 | SHOP - 00356 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-376 | WHS - 00318 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-116 | ADMIN - 00408 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-317 | MTRPOOL - 00850 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-286 | MTRPOOL - 00605 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | PMTR-28 | DGR - 00430 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-320 | MTRPOOL - 00941 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-291 | MTRPOOL - 00612 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-292 | MTRPOOL - 00614 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-280 | MTRPOOL - 00600 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,160 | 3.80 | 4.5 |
| Motors | MTR-310 | MTRPOOL - 00837 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-309 | MTRPOOL - 00832 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-311 | MTRPOOL - 00840 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-342 | PUMP - 00838 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-360 | SHOP-ELC - 00581 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-363 | SHOP-WPN - 07602 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-371 | WHS - 00234 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-370 | WHS - 00024 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-374 | WHS - 00318 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-375 | WHS - 00318 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-270 | DINING - 00560 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-308 | MTRPOOL - 00832 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-300 | MTRPOOL - 00646 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-352 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-353 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-267 | DINING - 00449 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-255 | DOR - 00404 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-356 | SHOP - 00384 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-298 | MTRPOOL - 00639 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-313 | MTRPOOL - 00840 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-173 | ADMIN - 00579 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-174 | ADMIN - 00580 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-112 | ADMIN - 00320 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-182 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-177 | ADMIN - 00604 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-297 | MTRPOOL - 00626 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-284 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-285 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-295 | MTRPOOL - 00621 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-314 | MTRPOOL - 00847 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-288 | MTRPOOL - 00608 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-289 | MTRPOOL - 00608 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-293 | MTRPOOL - 00620 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-299 | MTRPOOL - 00642 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-316 | MTRPOOL - 00850 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-271 | FUELDSP - 00836 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-315 | MTRPOOL - 00847 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-302 | MTRPOOL - 00650 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 580 | 3.80 | 4.5 |
| | | | | | 7 | 10 | 7 | 10 | 3,481 | 3.80 | 4.5 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,481 | 3 80 | 4 5 |
| Motors | MTR-257 | DOR - 00430 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,481 | 3 80 | 4 5 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-312 | MTRPOOL - 00840 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-307 | MTRPOOL - 00830 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM - RI | 3 | 5 | 3 | 5 | 1,740 | 3 80 | 4 5 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,154 | 3 79 | 4 5 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - RI | 7 | 10 | 7 | 10 | 3,462 | 3 79 | 4 5 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 577 | 3 79 | 4 5 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - RI | 256 | 39 | 256 | 39 | 25,525 | 3 78 | 4 6 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 1,151 | 3 78 | 4 6 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 575 | 3 78 | 4 6 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - RI | 42 | 8 | 42 | 8 | 5,849 | 3 76 | 4 6 |
| Motors | PMTR-84 | PUMP - 18005 | PMPMTR | EEM - RI | 78 | 90 | 78 | 90 | 18,636 | 3 75 | 4 6 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - RI | 1 | 2 | 1 | 2 | 514 | 3 75 | 4 6 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - RI | 1 | 2 | 1 | 2 | 514 | 3 75 | 4 6 |
| Lighting | OS-MT-5b | MT Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 30 | NA | 30 | NA | 11,615 | 3 72 | 4 6 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater - RI | 22 | 27 | 22 | 27 | 5,013 | 3 71 | 4 6 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - RI | 333 | 52 | 333 | 52 | 32,996 | 3 70 | 4 7 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - RI | 333 | 52 | 333 | 52 | 32,996 | 3 70 | 4 7 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - RI | 161 | 0 | 161 | 0 | 30,899 | 3 69 | 4 7 |
| DHW & A/C | 30 | 00857 | Chiller-air cooled | Install Desuperheater - RI | 12 | 72 | 12 | 72 | 9,712 | 3 64 | 4 7 |
| Wells | 1 | | Well Pumps | Add New 500 kgal. Tank - RI | 0 | 1,097 | 0 | 1,097 | 554,481 | 3 63 | 4 7 |
| Motors | PMTR-67 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 7 | 7 | 7 | 7 | 2,090 | 3 63 | 4 7 |
| Motors | PMTR-91 | PUMP - 00042 | PMPMTR | EEM - RI | 12 | 11 | 12 | 11 | 2,762 | 3 61 | 4 8 |
| Motors | PMTR-90 | PUMP - 00044 | PMPMTR | EEM - RI | 12 | 11 | 12 | 11 | 2,762 | 3 61 | 4 8 |
| Motors | MTR-183 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 499 | 3 60 | 4.8 |
| Central Chillers | 2 | | Existing Chillers | Connect B/253 & B/263, Add TES - RI | 1,099 | 2,110 | 1,099 | 2,110 | 893,186 | 3 52 | 4 9 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - RI | 2 | 2 | 2 | 2 | 470 | 3 51 | 4 9 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM - RI | 6 | 7 | 6 | 7 | 1,881 | 3 51 | 4 9 |
| Motors | MTR-17 | CLUB - 00202 | COMPMTR | EEM - RI | 6 | 7 | 6 | 7 | 1,881 | 3 51 | 4 9 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - RI | 3 | 4 | 3 | 4 | 940 | 3 51 | 4 9 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 11 | 54 | 11 | 54 | 7,338 | 3 49 | 4 9 |
| Motors | MTR-42 | CLUB - 00202 | CONDMTR | EEM - RI | 2 | 2 | 2 | 2 | 465 | 3 49 | 4 9 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 950 | 3 47 | 5 0 |
| Motors | MTR-301 | MTRPOOL - 00646 | EVAP | EEM - RI | 2 | 3 | 2 | 3 | 950 | 3 47 | 5 0 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3 47 | 5 0 |
| Motors | MTR-181 | ADMIN - 00988 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3 47 | 5 0 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 475 | 3 47 | 5 0 |
| DHW & A/C | 28 | 00488 | PKG A/C | Install Desuperheater - RI | 10 | 72 | 10 | 72 | 8,986 | 3 44 | 5 0 |
| Motors | MTR-456 | MTRPOOL - 00857 | Fan Motor | EEM - RI | 11 | 11 | 11 | 11 | 3,103 | 3 43 | 5.0 |
| Motors | PMTR-83 | PUMP - 18005 | PMPMTR | EEM - RI | 66 | 90 | 66 | 90 | 15,910 | 3 35 | 5 1 |
| Motors | MTR-37 | WHS-CLD - 00862 | COMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 437 | 3 34 | 5 2 |
| Motors | PMTR-17c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 58 | 11 | 58 | 11 | 17,717 | 3 32 | 5 2 |
| Motors | PMTR-16c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 58 | 11 | 58 | 11 | 17,717 | 3 32 | 5 2 |
| Motors | PMTR-15c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 29 | 5 | 29 | 5 | 8,859 | 3 32 | 5 2 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 3,572 | 3 32 | 5 2 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 432 | 3 31 | 5 2 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - RI | 2 | 5 | 2 | 5 | 887 | 3 31 | 5 2 |
| Motors | PMTR-7c | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 27 | 4 | 27 | 4 | 8,900 | 3 31 | 5 2 |
| DHW & A/C | 1 | 00013 | CHILLER-air cooled | Install Desuperheater - RI | 6 | 63 | 6 | 63 | 7,635 | 3 30 | 5 2 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM - RI | 1 | 2 | 1 | 2 | 425 | 3 27 | 5 3 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - RI | 50 | 72 | 50 | 72 | 12,077 | 3 26 | 5 3 |
| DHW & A/C | 32 | 00905 | PKG UNIT | Install Desuperheater - RI | 29 | 14 | 29 | 14 | 2,890 | 3 22 | 5 3 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 8 | 8 | 8 | 8 | 2,257 | 3 20 | 5 4 |
| Motors | PMTR-69 | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 8 | 8 | 8 | 8 | 2,257 | 3 20 | 5 4 |
| Envelope | MWR | MWR | | Weatherization - RI | 10 | 6 | 10 | 6 | 2,960 | 3 17 | 5 4 |
| Motors | MTR-526 | Fam Housing | Heat System Fan | EEM - RI | 1,739 | 1,467 | 1,739 | 1,467 | 662,338 | 3 16 | 5 4 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - RI | 250 | 40 | 250 | 40 | 23,281 | 3 15 | 5 5 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - RI | 34 | 39 | 34 | 39 | 7,036 | 3 12 | 5 5 |
| Motors | PMTR-92 | PUMP - 00044 | PMPMTR | EEM - RI | 33 | 39 | 33 | 39 | 6,970 | 3 10 | 5 6 |
| Controls | MT-1 | | Thermostat | Night Setback - RI | 1,508 | 2,186 | 1,508 | 2,186 | 314,125 | 3 09 | 5 6 |
| Motors | PMTR-99 | PUMP - 00324 | PMPMTR | EEM - RI | 10 | 11 | 10 | 11 | 2,171 | 3 05 | 5 6 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 920 | 3 03 | 5 7 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 232 | 0 | 232 | 0 | 37,921 | 2 98 | 5 8 |
| Motors | PMTR-60c | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 33 | 12 | 33 | 12 | 10,980 | 2 81 | 6 1 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - RI | 222 | 40 | 222 | 40 | 19,582 | 2.81 | 6.1 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 20 | 9 | 20 | 9 | 1,990 | 2.78 | 6.2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 5 | 0 | 5 | 0 | 924 | 2.78 | 6.2 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 2,955 | 2.74 | 6.3 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 32 | 6 | 32 | 6 | 2,955 | 2.74 | 6.3 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - RI | 0 | 3 | 0 | 3 | 323 | 2.68 | 6.4 |
| Motors | MTR-449 | GROCERY - 00920 | Fan Motor | EEM - RI | 8 | 11 | 8 | 11 | 2,101 | 2.65 | 6.5 |
| Motors | MTR-9 | MTRPOOL - 00873 | AIRCOMP | EEM - RI | 4 | 14 | 4 | 14 | 1,730 | 2.64 | 6.5 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - RI | 4 | 14 | 4 | 14 | 1,730 | 2.64 | 6.5 |
| Motors | PMTR-80 | PUMP - 05590 | PMPMTR | EEM - RI | 52 | 119 | 52 | 119 | 13,826 | 2.60 | 6.6 |
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - RI | 31 | 27 | 31 | 27 | 5,308 | 2.60 | 6.6 |
| DHW & A/C | 36 | 01313 | PKG UNIT | Install Desuperheater - RI | 9 | 22 | 9 | 22 | 2,570 | 2.57 | 6.7 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - RI | 29 | 5 | 29 | 5 | 4,018 | 2.57 | 6.7 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 34 | 5 | 34 | 5 | 3,984 | 2.56 | 6.7 |
| Envelope | w/ SB win only | Concrete Block: w/ SB win only | | Weatherization - RI | 24 | 16 | 24 | 16 | 6,474 | 2.54 | 6.8 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 4 | 3 | 4 | 3 | 693 | 2.53 | 6.8 |
| Motors | MTR-447 | GROCERY - 00920 | Fan Motor | EEM - RI | 7 | 11 | 7 | 11 | 1,970 | 2.47 | 7.0 |
| Motors | MTR-436a | CLINIC - 00171 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 985 | 2.47 | 7.0 |
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 985 | 2.47 | 7.0 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM - RI | 3 | 4 | 3 | 4 | 750 | 2.47 | 7.0 |
| Motors | MTR-477 | PUMP - 00324 | Fan Motor | EEM - RI | 3 | 4 | 3 | 4 | 750 | 2.47 | 7.0 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM - RI | 3 | 3 | 3 | 3 | 664 | 2.46 | 7.0 |
| Motors | PMTR-59c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 39 | 11 | 39 | 11 | 11,266 | 2.46 | 7.0 |
| Motors | MTR-524a | DGR - 00308 | VENTLTR | EEM - RI | 3 | 4 | 3 | 4 | 735 | 2.44 | 7.1 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM - RI | 9 | 14 | 9 | 14 | 2,333 | 2.41 | 7.2 |
| DHW & A/C | 34 | 00983 | PKG A/C | Install Desuperheater - RI | 7 | 27 | 7 | 27 | 2,604 | 2.41 | 7.2 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - RI | 38 | 90 | 38 | 90 | 9,474 | 2.40 | 7.2 |
| Motors | PMTR-4c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 9 | 3 | 9 | 3 | 2,630 | 2.39 | 7.2 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - RI | 8 | 5 | 8 | 5 | 1,464 | 2.39 | 7.2 |
| Motors | PMTR-105 | PUMP - 00652 | PMPMTR | EEM - RI | 3 | 4 | 3 | 4 | 623 | 2.37 | 7.3 |
| DHW & A/C | 29 | 00826 | PKG UNIT | Install Desuperheater - RI | 12 | 15 | 12 | 15 | 1,883 | 2.37 | 7.3 |
| HVAC | MT-3 | | Heat pump | 2-speed compressor - RI | 1,132 | 1,418 | 1,132 | 1,418 | 328,228 | 2.36 | 7.3 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - RI | 43 | 6 | 43 | 6 | 4,055 | 2.33 | 7.4 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 254 | 2.32 | 7.4 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM - RI | 9 | 11 | 9 | 11 | 1,755 | 2.31 | 7.4 |
| Motors | MTR-20 | GROCERY - 00920 | COMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 877 | 2.31 | 7.4 |
| Motors | MTR-18 | GROCERY - 00920 | COMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 877 | 2.31 | 7.4 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 251 | 2.31 | 7.5 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EEM - RI | 60 | 68 | 60 | 68 | 11,354 | 2.30 | 7.5 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - RI | 1 | 1 | 1 | 1 | 240 | 2.29 | 7.5 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,923 | 2.28 | 7.5 |
| Motors | MTR-49 | WHS-CLD - 00862 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 240 | 2.28 | 7.5 |
| Motors | MTR-43 | GROCERY - 00920 | CONDMTR | EEM - RI | 9 | 9 | 9 | 9 | 1,678 | 2.26 | 7.6 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM - RI | 8 | 22 | 8 | 22 | 2,645 | 2.25 | 7.6 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM - RI | 8 | 22 | 8 | 22 | 2,645 | 2.25 | 7.6 |
| Envelope | MT-5 | | Black EDPM | Reflective roof - RI | 566 | 684 | 566 | 684 | 277,647 | 2.24 | 7.7 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM - RI | 38 | 119 | 38 | 119 | 9,759 | 2.13 | 8.1 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 4 | 12 | 4 | 12 | 1,874 | 2.13 | 8.1 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater - RI | 6 | 23 | 6 | 23 | 1,907 | 2.13 | 8.1 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 6 | 23 | 6 | 23 | 1,907 | 2.13 | 8.1 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - RI | 45 | 6 | 45 | 6 | 3,407 | 2.11 | 8.1 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,402 | 2.11 | 8.2 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - RI | 42 | 6 | 42 | 6 | 3,402 | 2.11 | 8.2 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-87 | HOSPITL - 00166 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-89 | HOTEL - 00901 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - RI | 1 | 1 | 1 | 1 | 205 | 2.10 | 8.2 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 462 | 68 | 462 | 68 | 30,142 | 2.10 | 8.2 |
| Motors | PMTR-107 | PUMP - 00636 | PMPMTR | EEM - RI | 6 | 56 | 6 | 56 | 3,619 | 2.09 | 8.2 |
| Lighting | OS-MT-4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 51 | NA | 51 | NA | 14,477 | 2.04 | 8.5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 5 | 22 | 5 | 22 | 1,666 | 2.02 | 8.5 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 5 | 22 | 5 | 22 | 1,666 | 2.02 | 8.5 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 67 | 8 | 67 | 8 | 4,630 | 2.01 | 8.6 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EEM - RI | 5 | 17 | 5 | 17 | 1,393 | 2.00 | 8.6 |
| Motors | PMTR-79 | PUMP - 05590 | PMPMTR | EEM - RI | 30 | 119 | 30 | 119 | 8,516 | 1.99 | 8.7 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 126 | 17 | 126 | 17 | 9,037 | 1.98 | 8.7 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | MT-8 | | Single pane window | Shade Screens - SE side - RI | 37 | 22 | 37 | 22 | 5,021 | 1.97 | 8.7 |
| Envelope | | Metal Siding | | Window Screen - SE side - RI | 76 | 46 | 76 | 46 | 10,339 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Barracks | | Window Screen - SE side - RI | 29 | 17 | 29 | 17 | 3,905 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc -post 1980 | | Window Screen - SE side - RI | 10 | 6 | 10 | 6 | 1,418 | 1.97 | 8.7 |
| Envelope | | MOTORPOOL | | Window Screen - SE side - RI | 7 | 5 | 7 | 5 | 1,016 | 1.97 | 8.7 |
| Envelope | | TRAINING | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 330 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screen - RI | 405 | 246 | 405 | 246 | 55,215 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screen - RI | 378 | 230 | 378 | 230 | 51,595 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screen - RI | 370 | 225 | 370 | 225 | 50,445 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screen - RI | 284 | 173 | 284 | 173 | 38,801 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 247 | 150 | 247 | 150 | 33,697 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - SE side - RI | 197 | 120 | 197 | 120 | 26,894 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SE side - RI | 34 | 21 | 34 | 21 | 4,629 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs. Other | | Window Screen - SE side - RI | 28 | 17 | 28 | 17 | 3,840 | 1.97 | 8.7 |
| Envelope | | Concrete Block w. SE win only | | Window Screen - SE side - RI | 18 | 11 | 18 | 11 | 2,487 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screen - SE side - RI | 12 | 7 | 12 | 7 | 1,626 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SE side - RI | 11 | 7 | 11 | 7 | 1,531 | 1.97 | 8.7 |
| Envelope | | SHOP | | Window Screen - SE side - RI | 7 | 4 | 7 | 4 | 995 | 1.97 | 8.7 |
| Envelope | | DINING MSIC | | Window Screen - SE side - RI | 4 | 3 | 4 | 3 | 605 | 1.97 | 8.7 |
| Envelope | | ADMIN. MISC pre 1964 | | Window Screen - SE side - RI | 4 | 3 | 4 | 3 | 565 | 1.97 | 8.7 |
| Envelope | | BRK/ADM MISC | | Window Screen - SE side - RI | 4 | 2 | 4 | 2 | 542 | 1.97 | 8.7 |
| Envelope | | Wood Siding | | Window Screen - SE side - RI | 3 | 2 | 3 | 2 | 450 | 1.97 | 8.7 |
| Envelope | | MWR | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 235 | 1.97 | 8.7 |
| Envelope | | WHS | | Window Screen - SE side - RI | 2 | 1 | 2 | 1 | 208 | 1.97 | 8.7 |
| Envelope | | SECURTY | | Window Screen - SE side - RI | 0 | 0 | 0 | 0 | 48 | 1.97 | 8.7 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screen - SE side - RI | 7 | 4 | 7 | 4 | 996 | 1.97 | 8.7 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 82 | 11 | 82 | 11 | 5,827 | 1.95 | 8.8 |
| Motors | PMTR-52a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 1 | 4 | 1 | 4 | 615 | 1.92 | 9.0 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 12 | 6 | 1,108 | 1.92 | 9.0 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - RI | 77 | 10 | 77 | 10 | 4,797 | 1.89 | 9.1 |
| Heating | 39 | SHOP-HVY - BD005 | Unit Heaters | Radiant Heat - ROF | 0 | 0 | 19 | 10 | 1,778 | 1.89 | 9.1 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - RI | 8 | 11 | 8 | 11 | 1,588 | 1.87 | 9.2 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 4 | 5 | 4 | 5 | 794 | 1.87 | 9.2 |
| Motors | MTR-453c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 151 | 9 | 151 | 9 | 17,118 | 1.87 | 9.2 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - RI | 2 | 3 | 2 | 3 | 394 | 1.87 | 9.2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - RI | 38 | 6 | 38 | 6 | 2,654 | 1.87 | 9.2 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM - RI | 2 | 3 | 2 | 3 | 392 | 1.86 | 9.2 |
| T&D | 66g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 56 | 104 | 56 | 104 | 16,432 | 1.85 | 9.3 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - RI | 470 | 80 | 470 | 80 | 25,646 | 1.79 | 9.6 |
| Motors | MTR-527 | Fam Housing | Cool System Fan | EEM - RI | 748 | 1,467 | 748 | 1,467 | 230,320 | 1.75 | 9.8 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,559 | 1.75 | 9.8 |
| Motors | MTR-60 | BRK/ADM - 00110 | COOL | EEM - RI | 9 | 18 | 9 | 18 | 2,816 | 1.75 | 9.8 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-56 | BRK/ADM - 00105 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-61 | BRK/ADM - 00111 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-57 | BRK/ADM - 00106 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM - RI | 7 | 14 | 7 | 14 | 2,253 | 1.75 | 9.8 |
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 141 | 1.75 | 9.8 |
| Fam Hsg HVAC | 2b | | | High Eff, Grnd Source HP - RI | 76,678 | 15,226 | 76,678 | 15,226 | 5,244,863 | 1.74 | 9.9 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 335 | 1.74 | 9.9 |
| Motors | MTR-451c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 282 | 11 | 282 | 11 | 28,576 | 1.74 | 9.9 |
| Motors | MTR-79 | BRK/ADM - 00275 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 958 | 1.73 | 9.9 |
| Motors | MTR-63 | BRK/ADM - 00226 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 958 | 1.73 | 9.9 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 137 | 1.73 | 9.9 |
| Motors | MTR-78 | BRK/ADM - 00275 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,267 | 1.73 | 9.9 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - RI | 34 | 67 | 34 | 67 | 10,267 | 1.73 | 9.9 |
| Motors | MTR-76 | BRK/ADM - 00273 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | MTR-64 | BRK/ADM - 00226 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | MTR-80 | BRK/ADM - 00275 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 274 | 1.73 | 9.9 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - RI | 13 | 39 | 13 | 39 | 2,410 | 1.73 | 10.0 |
| Motors | MTR-452c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 190 | 7 | 190 | 7 | 18,999 | 1.72 | 10.0 |
| Motors | MTR-29 | MTRPOOL - 00857 | COMPMTR | EEM - RI | 15 | 11 | 15 | 11 | 1,831 | 1.72 | 10.0 |
| Motors | MTR-44 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 14 | 18 | 14 | 18 | 1,900 | 1.71 | 10.1 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - RI | 3 | 6 | 3 | 6 | 906 | 1.69 | 10.2 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 129 | 1.69 | 10.2 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1 69 | 10.2 |
| Motors | MTR-67 | BRK/ADM - 00262 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1 69 | 10.2 |
| Motors | MTR-73 | BRK/ADM - 00267 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1 69 | 10.2 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - RI | 32 | 64 | 32 | 64 | 9,190 | 1 69 | 10 2 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 367 | 11 | 367 | 11 | 35,397 | 1 69 | 10 2 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - RI | 4 | 11 | 4 | 11 | 842 | 1 63 | 10 6 |
| Motors | PMTR-34 | GROCERY - 00920 | power vents | EEM - RI | 3 | 8 | 3 | 8 | 639 | 1 62 | 10 6 |
| Motors | PMTR-55a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 5 | 15 | 5 | 15 | 1,582 | 1 62 | 10 6 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 5 | 15 | 5 | 15 | 1,582 | 1 62 | 10 6 |
| DHW & A/C | 27 | 00323 | PKG UNIT | Install Desuperheater - RI | 8 | 9 | 8 | 9 | 683 | 1 61 | 10 7 |
| Motors | PMTR-74 | PUMP - 00042 | PMPMTR | EEM - RI | 5 | 5 | 5 | 5 | 551 | 1 61 | 10 7 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | EEM - RI | 2 | 3 | 2 | 3 | 276 | 1 61 | 10 7 |
| DHW & A/C | 37 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 5 | 14 | 5 | 14 | 801 | 1 60 | 10 8 |
| DHW & A/C | 43 | 01322 | PKG UNIT | Install Desuperheater - RI | 5 | 14 | 5 | 14 | 801 | 1 60 | 10.8 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - RI | 4 | 6 | 4 | 6 | 729 | 1 57 | 11.0 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 0 | 1 | 0 | 1 | 107 | 1 56 | 11.0 |
| Motors | MTR-94 | MTRPOOL - 00680 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 101 | 1.54 | 11.2 |
| Motors | PMTR-61c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - RI | 14 | 4 | 14 | 4 | 2,066 | 1 53 | 11.3 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 97 | 1 52 | 11 3 |
| Motors | PMTR-38 | HOSPITL - 00166 | PMPMTR | EEM - RI | 6 | 2 | 6 | 2 | 434 | 1.51 | 11.4 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 93 | 1.50 | 11.5 |
| Motors | MTR-95 | MTRPOOL - 00857 | COOL | EEM - RI | 0 | 1 | 0 | 1 | 93 | 1 50 | 11.5 |
| Motors | MTR-432a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 222 | 1.49 | 11.6 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 222 | 1.49 | 11.6 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM - RI | 3 | 11 | 3 | 11 | 623 | 1 49 | 11 6 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 218 | 1 48 | 11.6 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 218 | 1 48 | 11 6 |
| Motors | MTR-8 | MTRPOOL - 00646 | AIRCOMP | EEM - RI | 1 | 4 | 1 | 4 | 235 | 1.47 | 11.7 |
| Motors | MTR-96 | WHS - 20001 | COOL | EEM - RI | 1 | 4 | 1 | 4 | 354 | 1.47 | 11.7 |
| Motors | MTR-455c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 81 | 3 | 81 | 3 | 5,955 | 1.47 | 11.7 |
| Motors | MTR-282 | MTRPOOL - 00600 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 206 | 1 45 | 11.8 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 232 | 1 45 | 11.9 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1.45 | 11 9 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1.45 | 11.9 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 229 | 1 45 | 11.9 |
| Motors | MTR-83 | DINING - 00222 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 161 | 1.43 | 12 0 |
| Motors | MTR-84 | DINING - 00222 | COOL | EEM - RI | 1 | 2 | 1 | 2 | 161 | 1.43 | 12 0 |
| Motors | PMTR-29 | DOR - 00308 | PMPMTR | EEM - RI | 1 | 4 | 1 | 4 | 219 | 1.43 | 12.1 |
| T&D | 62h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 31 | 24 | 7,912 | 1 42 | 12 1 |
| T&D | 83h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 150 | 126 | 37,058 | 1 41 | 12 2 |
| T&D | 67h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 28 | 20 | 6,695 | 1.36 | 12.7 |
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1.35 | 12.8 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1 35 | 12.8 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,895 | 1 35 | 12 8 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1 35 | 12.8 |
| Motors | MTR-502 | BRK/ADM - 00250 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1.35 | 12 8 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 1,045 | 1 35 | 12 8 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1 35 | 12.8 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12.8 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1.35 | 12 8 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - RI | 4 | 4 | 4 | 4 | 261 | 1 35 | 12 8 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12 8 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12.8 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12.8 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12 8 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12 8 |
| Motors | MTR-500 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12.8 |
| Motors | MTR-501 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12 8 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1.35 | 12 8 |
| Motors | MTR-517 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-512 | BRK/ADM - 00251 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-497 | BRK/ADM - 00249 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |
| Motors | MTR-521 | MTRPOOL - 00681 | HEAT | EEM - RI | 1 | 1 | 1 | 1 | 65 | 1 35 | 12 8 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-50a | WHS-CLD - 00862 | CONDMTR | EEM - RI | 5 | 4 | 5 | 4 | 344 | 1 34 | 12 9 |
| T&D | 45h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 34 | 28 | 8,357 | 1 33 | 13 0 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - RI | 31 | 26 | 31 | 26 | 1,765 | 1 33 | 13 0 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM - RI | 21 | 18 | 21 | 18 | 1,217 | 1 33 | 13 0 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1 33 | 13 0 |
| Motors | MTR-490 | BRK/ADM - 00108 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1 33 | 13 0 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1 33 | 13 0 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1 33 | 13 0 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - RI | 17 | 14 | 17 | 14 | 974 | 1 33 | 13 0 |
| T&D | 39h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 36 | 30 | 8,730 | 1 31 | 13 1 |
| T&D | 50h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 38 | 32 | 9,199 | 1 31 | 13 1 |
| T&D | 32h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 28 | 23 | 6,535 | 1 30 | 13.2 |
| T&D | 63h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 31 | 24 | 4,258 | 1 30 | 13 3 |
| T&D | 59h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 98 | 77 | 22,337 | 1 30 | 13 3 |
| T&D | 65h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 13 | 3,723 | 1 30 | 13 3 |
| T&D | 81h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 24 | 20 | 5,296 | 1 30 | 13 3 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-33 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM - RI | 1 | 1 | 1 | 1 | 56 | 1 30 | 13 3 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - RI | 2 | 1 | 2 | 1 | 130 | 1 29 | 13 4 |
| T&D | 56h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 83 | 66 | 11,516 | 1 29 | 13 4 |
| T&D | 58h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 25 | 20 | 3,455 | 1 29 | 13.4 |
| T&D | 21h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 107 | 87 | 24,602 | 1 28 | 13 5 |
| T&D | 7h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 24 | 20 | 5,690 | 1 27 | 13 5 |
| T&D | 53h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 85 | 65 | 18,533 | 1 27 | 13 6 |
| T&D | 85h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 44 | 40 | 5,623 | 1 25 | 13.7 |
| T&D | 14h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 12 | 3,226 | 1.25 | 13.8 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 165 | 1 25 | 13 8 |
| T&D | 87f | | Transformer | Imprvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 630 | 897 | 107,049 | 1 25 | 13 8 |
| T&D | 46h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 17 | 14 | 2,249 | 1 23 | 14 0 |
| Motors | PMTR-3c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 15 | 4 | 15 | 4 | 1,112 | 1 23 | 14 0 |
| T&D | 40h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 10 | 9 | 1,342 | 1 22 | 14.1 |
| T&D | 51h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 14 | 2,122 | 1 22 | 14 1 |
| T&D | 33h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 11 | 1,759 | 1 21 | 14 2 |
| T&D | 60h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 49 | 38 | 6,011 | 1 21 | 14 2 |
| T&D | 29h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 45 | 35 | 9,008 | 1 21 | 14 3 |
| T&D | 37h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 23 | 18 | 4,504 | 1 21 | 14 3 |
| T&D | 35h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 6 | 1,501 | 1 21 | 14 3 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - RI | 1 | 3 | 1 | 3 | 93 | 1 20 | 14 3 |
| T&D | 42h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 159 | 129 | 30,841 | 1 20 | 14 4 |
| T&D | 48h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 9 | 7 | 1,667 | 1 20 | 14 4 |
| T&D | 22h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 62 | 50 | 7,688 | 1 20 | 14 4 |
| T&D | 6h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 37 | 29 | 4,594 | 1 19 | 14 4 |
| T&D | 54h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 104 | 81 | 12,277 | 1 19 | 14 5 |
| T&D | 77h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 20 | 16 | 2,216 | 1 19 | 14 5 |
| T&D | 13h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 37 | 29 | 4,341 | 1 18 | 14 6 |
| T&D | 69h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 12 | 9 | 1,941 | 1 17 | 14 7 |
| T&D | 18h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 11 | 8 | 1,979 | 1 17 | 14 7 |
| T&D | 24h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 6 | 1,484 | 1 17 | 14 7 |
| T&D | 71h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 26 | 21 | 4,032 | 1 16 | 14 9 |
| T&D | 8h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 21 | 16 | 3,694 | 1 15 | 14 9 |
| T&D | 2h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 20 | 15 | 3,430 | 1 15 | 14 9 |
| T&D | 9h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 792 | 1 15 | 14 9 |
| T&D | 12h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 25 | 19 | 4,289 | 1 15 | 14 9 |
| T&D | 16h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 21 | 16 | 3,629 | 1 15 | 14 9 |
| T&D | 30h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 68 | 53 | 7,274 | 1 15 | 15 0 |
| T&D | 43h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 34 | 28 | 3,590 | 1 14 | 15 1 |
| T&D | 49h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 13 | 10 | 1,346 | 1 14 | 15 1 |
| T&D | 27h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 49 | 38 | 4,794 | 1 12 | 15 4 |
| T&D | 19h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 13 | 1,598 | 1 12 | 15 4 |
| T&D | 25h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 8 | 6 | 799 | 1 12 | 15 4 |

# Table 3.7b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 17h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 36 | 27 | 3,408 | 1 11 | 15 4 |
| T&D | 64h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 31 | 24 | 1,203 | 1 11 | 15 4 |
| T&D | 84h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 188 | 158 | 7,041 | 1 11 | 15 5 |
| T&D | 82h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 38 | 32 | 1,408 | 1 11 | 15 5 |
| T&D | 57h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 25 | 20 | 976 | 1 11 | 15 5 |
| T&D | 3h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 10 | 1,279 | 1 11 | 15 5 |
| T&D | 5h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 3 | 2 | 284 | 1 11 | 15.5 |
| T&D | 11h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 12 | 1,421 | 1 11 | 15 5 |
| T&D | 74h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 12 | 10 | 1,369 | 1 10 | 15.6 |
| Motors | MTR-111 | ADMIN - 00281 | EVAP | EEM - RI | 1 | 2 | 1 | 2 | 50 | 1 10 | 15.7 |
| T&D | 86h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 44 | 40 | 1,587 | 1 10 | 15 7 |
| T&D | 1h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 2 | 1 | 167 | 1 09 | 15 8 |
| T&D | 47h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 34 | 28 | 1,270 | 1 09 | 15 8 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 1 | 3 | 1 | 3 | 59 | 1 09 | 15 8 |
| T&D | 41h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 21 | 17 | 758 | 1 08 | 15 9 |
| T&D | 52h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 33 | 28 | 1,198 | 1 08 | 15 9 |
| T&D | 34h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 14 | 11 | 497 | 1 08 | 15 9 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - RI | 2 | 11 | 2 | 11 | 109 | 1.08 | 15 9 |
| T&D | 61h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 90 | 70 | 3,111 | 1 08 | 15 9 |
| T&D | 78h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 98 | 81 | 3,218 | 1 08 | 15 9 |
| T&D | 80h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 49 | 41 | 1,609 | 1 08 | 15 9 |
| T&D | 23h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 21 | 17 | 724 | 1 07 | 16.0 |
| T&D | 55h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 150 | 116 | 4,982 | 1 07 | 16.1 |
| T&D | 76h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 61 | 49 | 1,876 | 1.07 | 16.1 |
| Motors | MTR-274 | GROCERY - 00920 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | 93 | 1.07 | 16 1 |
| T&D | 15h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 15 | 12 | 490 | 1 07 | 16.1 |
| T&D | 75h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 47 | 47 | 1,495 | 1.07 | 16 2 |
| T&D | 38h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 23 | 18 | 684 | 1 06 | 16.3 |
| T&D | 31h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 19 | 15 | 570 | 1.06 | 16.3 |
| T&D | 36h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 11 | 9 | 342 | 1 06 | 16.3 |
| T&D | 44h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 73 | 59 | 2,151 | 1 05 | 16.3 |
| Motors | MTR-273 | GROCERY - 00920 | EVAP | EEM - RI | 3 | 4 | 3 | 4 | 69 | 1 05 | 16 4 |
| T&D | 68h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 24 | 19 | 589 | 1.05 | 16.4 |
| T&D | 70h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 12 | 9 | 294 | 1.05 | 16 4 |
| T&D | 79h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 18 | 17 | 468 | 1 05 | 16 4 |
| T&D | 26h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 13 | 451 | 1 05 | 16 5 |
| T&D | 28h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 16 | 13 | 451 | 1 05 | 16.5 |
| T&D | 20h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 11 | 8 | 300 | 1 05 | 16.5 |
| T&D | 72h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 13 | 11 | 306 | 1 04 | 16.5 |
| T&D | 4h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 5 | 3 | 120 | 1 04 | 16.5 |
| T&D | 10h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 29 | 22 | 751 | 1 04 | 16.5 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1 03 | 16 7 |
| Motors | MTR-465a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1 03 | 16 7 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1 03 | 16 7 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1.03 | 16.7 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1 03 | 16.7 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - RI | 2 | 2 | 2 | 2 | 15 | 1 03 | 16 7 |
| T&D | 73h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 0 | 0 | 94 | 78 | 1,657 | 1 03 | 16.8 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual OAM Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | DINING HALLS 05 | DINING HALLS | Roof Insulation R Value 0 00 | Attic Ceiling: Increase insulation by R 38 | 3,655 | NA | 3,655 | 372,611 | 0 | 372,611 | 368,956 | 101 90 | 0 2 | 3,655 |
| Hot Water | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LPSHs, Aerators | 231 | NA | 231 | 20,605 | 0 | 20,605 | 20,374 | 89 30 | 0 2 | 231 |
| Hot Water | CLUBS 03 | CLUBS | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LPSHs, Aerators | 508 | NA | 508 | 38,578 | 0 | 38,578 | 38,070 | 75 90 | 0 3 | 508 |
| Lights | SECURITY 03 | SECURITY | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 5,607 | NA | 5,607 | 259,449 | 76,493 | 335,942 | 330,336 | 59 90 | 0 3 | 5 607 |
| Hot Water | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Electric Central Boiler | Electric Boiler: Wrap Tank w/ Insulation, LPSHs Aerators | 119 | NA | 119 | 6,268 | 0 | 6,268 | 6,150 | 52 70 | 0 3 | 119 |
| Lights | SECURITY 02 | SECURITY | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 6,467 | NA | 6,467 | 222,393 | 88,229 | 310,622 | 304,156 | 48 00 | 0 4 | 6 467 |
| Lights | SECURITY 01 | SECURITY | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 67 | NA | 67 | 2,265 | 605 | 2,870 | 2,803 | 42 60 | 0 4 | 67 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 83 | NA | 83 | 2,879 | 618 | 3,497 | 3,413 | 42 30 | 0 4 | 83 |
| Lights | COMMISSARIES | COMMISSARIES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 191 | NA | 191 | 6,031 | 1,708 | 7,739 | 7,548 | 40 60 | 0 4 | 191 |
| Hot Water | WAREHOUSES 08 | WAREHOUSES | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LPSHs, Aerators | 11 | NA | 11 | 454 | 0 | 454 | 442 | 40 50 | 0 3 | 11 |
| Hot Water | MILITARY OTHER 05 | MILITARY OTHER | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 320 | NA | 320 | 12,525 | 0 | 12,525 | 12,205 | 39 20 | 0 5 | 320 |
| Hot Water | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 52 | NA | 52 | 2,021 | 0 | 2,021 | 1,969 | 38 80 | 0 2 | 52 |
| Hot Water | ADMINISTRATION 08 | ADMINISTRATION | Hot Water (Generated) Steam Central Heat | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 1,375 | NA | 1,375 | 48,893 | 0 | 48,893 | 47,518 | 35 60 | 0 6 | 1 375 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 628 | NA | 628 | 16,845 | 4,693 | 21,538 | 20,910 | 34 30 | 0 5 | 628 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 276 | NA | 276 | 6,728 | 1,564 | 8,292 | 8,016 | 30 10 | 0 6 | 276 |
| Lights | SHOPS 03 | SHOPS | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 533 | NA | 533 | 11,353 | 3,574 | 14,927 | 14,394 | 28 00 | 0 6 | 533 |
| Lights | MWR 03 | MORALE WELFARE RECREATION | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 28 | NA | 28 | 644 | 140 | 784 | 755 | 27 50 | 0 7 | 28 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 1,735 | NA | 1,735 | 36,131 | 10,631 | 46,762 | 45,027 | 26 00 | 0 7 | 1 735 |
| Roof | SHOPS 04 | SHOPS | Roof Insulation R Value 5 00 | Attic Ceiling: Increase insulation by R 19 | 31,037 | NA | 31,037 | 830,340 | 0 | 830,340 | 799,303 | 26 80 | 0 8 | 31,037 |
| Hot Water | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp | 197 | NA | 197 | 4,947 | 0 | 4,947 | 4,750 | 25 10 | 0 1 | 197 |
| Lights | WAREHOUSES 12 | WAREHOUSES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 4,652 | NA | 4,652 | 94,691 | 21,645 | 116,336 | 111,684 | 25 00 | 0 7 | 4,652 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 40 | NA | 40 | 734 | 248 | 982 | 941 | 24 30 | 0 7 | 40 |
| Roof | SECURITY 01 | SECURITY | Roof Insulation R Value 8 69 | Attic Ceiling: Increase insulation by R 19 | 228 | NA | 228 | 5,504 | 0 | 5,504 | 5,275 | 24 10 | 0 8 | 228 |
| Lights | RECREATION 02 | RECREATION | INS: INC 75 CEIL | PL175 CPL 27 INTEGRAL UNIT | 134 | NA | 134 | 2,360 | 824 | 3,184 | 3,050 | 23 70 | 0 7 | 134 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | INS: INC 75 CEIL | PL175 CPL 27 INTEGRAL UNIT | 244 | NA | 244 | 4,318 | 1,445 | 5,763 | 5,518 | 23 60 | 0 8 | 244 |
| Roof | RECREATION 02 | RECREATION | Roof Insulation R Value 0.00 | Suspended Ceiling: Increase insulation by R 30 | 38,692 | NA | 38,692 | 906,694 | 0 | 906,694 | 868,002 | 23 40 | 0 8 | 38,692 |
| Hot Water | DINING HALLS 06 | DINING HALLS | Hot Water (Generated) Steam Central Heat | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 2,305 | NA | 2,305 | 53,399 | 0 | 53,399 | 51,093 | 23 20 | 0 9 | 2 305 |
| Lights | CHAPEL 01 | CHAPEL | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 1,185 | NA | 1,185 | 20 384 | 4,843 | 25,227 | 24,042 | 21 30 | 0 8 | 1,185 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 26,337 | NA | 26,337 | 435,164 | 104,067 | 539,231 | 512,894 | 20 50 | 0 9 | 26,337 |
| Lights | WAREHOUSES 02 | WAREHOUSES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 4,748 | NA | 4,748 | 70,259 | 22,092 | 92,351 | 87,602 | 19 50 | 0 9 | 4,748 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 1,134 | NA | 1,134 | 16,830 | 5,275 | 22,105 | 20,971 | 19 50 | 0 9 | 1 134 |
| Lights | WAREHOUSES 01 | WAREHOUSES | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 10,564 | NA | 10,564 | 155,278 | 49,156 | 204,434 | 193,870 | 19 40 | 0 9 | 10,564 |
| Hot Water | BARRACKS 07 | BARRACKS | Hot Water (Generated) Steam Central Heat | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 19,960 | NA | 19,960 | 384,533 | 0 | 384,533 | 364,573 | 19 30 | 1 1 | 19 960 |
| Roof | HANGER | HANGAR | Roof Insulation R Value 0 00 | Attic Ceiling: Increase insulation by R-30 | 6,571 | NA | 6,571 | 125,148 | 0 | 125,148 | 118,577 | 19 00 | 1 1 | 6,571 |
| Roof | WAREHOUSES 06 | WAREHOUSES | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R 19 | 4,873 | NA | 4,873 | 92,799 | 0 | 92,799 | 87,926 | 19 00 | 1 1 | 4,873 |
| Hot Water | ADMINISTRATION 09 | ADMINISTRATION | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 418 | NA | 418 | 7,564 | 0 | 7,564 | 7,146 | 18 10 | 0 3 | 418 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | INS: INC 75 CEIL | PL175. CPL 27 INTEGRAL UNIT | 416 | NA | 416 | 5,659 | 1,845 | 7,504 | 7,088 | 18 00 | 1 0 | 416 |
| Hot Water | BARRACKS 02 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 9,749 | NA | 9,749 | 172,520 | 0 | 172,520 | 162,771 | 17 70 | 1 0 | 11,389 |
| Hot Water | PH DUPLEX 03 | DUPLEX | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp | 18,797 | NA | 18,797 | 328,507 | 0 | 328,507 | 309,710 | 17 50 | 0 4 | 18,797 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 1,533 | NA | 1,533 | 20,166 | 6,056 | 26,222 | 24,690 | 17 10 | 1 0 | 1,533 |
| Lights | RECREATION 03 | RECREATION | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 3,584 | NA | 3,584 | 42,026 | 18,691 | 60,717 | 57,132 | 16 90 | 1 1 | 3,584 |
| Hot Water | BARRACKS 04 | BARRACKS | Hot Water (Generated) Steam Central Heat | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 2,227 | NA | 2,227 | 35,894 | 0 | 35,894 | 33,667 | 16 10 | 0 8 | 3,418 |
| Lights | SHOPS 04 | SHOPS | MVR, MERC 1000 PEND | H819. HPS 400 PEND | 6,612 | NA | 6,612 | 102,961 | 2,506 | 105,467 | 98,855 | 16 00 | 1 1 | 6,612 |
| Lights | PH DUPLEX 03 | DUPLEX | INS: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 5,378 | NA | 5,378 | 67,011 | 17,242 | 84,253 | 78,875 | 15 70 | 1 2 | 5,378 |
| Lights | CHAPEL 02 | CHAPEL | INS. INC 75 CEIL | PL175. CPL 27 INTEGRAL UNIT | 5,482 | NA | 5,482 | 62,869 | 22,401 | 85,270 | 79,788 | 15 60 | 1 2 | 5,482 |
| Lights | PH DUPLEX 01 | DUPLEX | INS. INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 14,710 | NA | 14,710 | 171,180 | 47,161 | 218,341 | 203,631 | 14 80 | 1 2 | 14,710 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 1,945 | NA | 1,945 | 22,622 | 5,039 | 27,661 | 25,715 | 14 20 | 1 3 | 1,945 |
| Hot Water | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 49 | NA | 49 | 701 | 0 | 701 | 651 | 14 30 | 0 4 | 49 |
| Hot Water | RECREATION 04 | RECREATION | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 562 | NA | 562 | 7,941 | 0 | 7,941 | 7,379 | 14 10 | 1 5 | 562 |
| Lights | SHOPS 04 | SHOPS | IN6: INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 501 | NA | 501 | 5,709 | 1,320 | 7,029 | 6,528 | 14 00 | 1 3 | 501 |
| Roof | WAREHOUSES 12 | WAREHOUSES | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R 30 | 12,314 | NA | 12,314 | 166,555 | 0 | 166,555 | 154,241 | 13 50 | 1 4 | 12,314 |
| Lights | PH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 22,576 | NA | 22,576 | 227,440 | 72,378 | 299,818 | 277,242 | 13 30 | 1 3 | 22,576 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 309 | NA | 309 | 3,360 | 745 | 4,105 | 3,796 | 13 30 | 1 4 | 309 |
| Roof | BARRACKS 04 | BARRACKS | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 19 | 28,540 | NA | 28,540 | 374,291 | 0 | 374,291 | 345,751 | 13 10 | 1 5 | 28,540 |
| Hot Water | MWR 05 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combo. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 503 | NA | 503 | 6,500 | 0 | 6,500 | 5,997 | 12 90 | 0 8 | 876 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | IN8: INC 75 CEIL | PL175. CPL 27 INTEGRAL UNIT | 115 | NA | 115 | 1,116 | 370 | 1,486 | 1,371 | 12 90 | 1 4 | 115 |
| Lights | COMMISSARIES | COMMISSARIES | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 336 | NA | 336 | 3,514 | 743 | 4,257 | 3,921 | 12 70 | 1 4 | 336 |
| Lights | PH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 38,187 | NA | 38,187 | 356,042 | 122,427 | 478,469 | 440,282 | 12 50 | 1 4 | 38,187 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182: CPL 2 13 + DLST UNIT | 1,120 | NA | 1,120 | 10,991 | 2,702 | 13,693 | 12,573 | 12 20 | 1 5 | 1,120 |
| Lights | SHOPS 03 | SHOPS | IN6. INC 2 60 CEIL | PL182: CPL 2-13 + DLST UNIT | 307 | NA | 307 | 2,795 | 916 | 3,711 | 3,404 | 12 10 | 1 5 | 307 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 1,145 | NA | 1,145 | 10,917 | 2 763 | 13,680 | 12,535 | 11 90 | 1 5 | 1,145 |
| Lights | CLINIC 02 | CLINIC | IN6: INC 2 60 CEIL | PL182 CPL 2 13 + DLST UNIT | 151 | NA | 151 | 1,315 | 472 | 1,787 | 1,636 | 11 90 | 1 5 | 151 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN6. INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 674 | NA | 674 | 6,282 | 1,669 | 7,951 | 7,277 | 11 80 | 1 5 | 674 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182 CPL 2 13 + DLST UNIT | 272 | NA | 272 | 2,553 | 657 | 3,210 | 2,938 | 11 80 | 1 5 | 272 |
| Lights | PH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 8,905 | NA | 8,905 | 75,580 | 28,551 | 104,131 | 95,225 | 11 70 | 1 5 | 8,905 |
| Lights | COMMISSARIES | COMMISSARIES | IN11: INC 100 CEIL | PL189. CPL 2 15 CEIL PDT | 232 | NA | 232 | 2,416 | 221 | 2,637 | 2,405 | 11 40 | 1 6 | 232 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN11. INC 100 CEIL | PL189. CPL 2 15 CEIL PDT | 152 | NA | 152 | 1,593 | 152 | 1,745 | 1,592 | 11 40 | 1 6 | 152 |
| Lights | SECURITY 03 | SECURITY | FL1: FL 2X4 4P40T12 STD2 | PL237: FL 2X4 3P32T8 ELC) REF | 6,594 | NA | 6,594 | 68,556 | 6,277 | 74,833 | 68,239 | 11 30 | 1 6 | 6,594 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | IN6: INC 2 60 CEIL | PL182: CPL 2-13 + DLST UNIT | 567 | NA | 567 | 5,274 | 1,132 | 6,406 | 5,839 | 11 30 | 1 6 | 567 |
| Roof | CHAPEL 01 | CHAPEL | Roof Insulation R-Value 11 00 | Attic Ceiling. Increase insulation by R 38 | 3,576 | NA | 3,576 | 39,906 | 0 | 39,906 | 36,330 | 11 20 | 1 7 | 3,576 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | IN8. INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 106 | NA | 106 | 848 | 341 | 1,189 | 1,083 | 11 20 | 1 6 | 106 |
| Lights | SHOPS 05 | SHOPS | IN6. INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 726 | NA | 726 | 6,177 | 1,913 | 8,090 | 7,364 | 11 10 | 1 6 | 726 |
| Lights | STORAGE 01 | STORAGE | IN8: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 14,900 | NA | 14,900 | 113,019 | 50,301 | 163,320 | 148,420 | 11 00 | 1 6 | 14,900 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN6: INC 2 60 CEIL | PL182: CPL 2 13 + DLST UNIT | 45 | NA | 45 | 383 | 118 | 501 | 455 | 11 00 | 1 6 | 45 |
| Lights | STORAGE 02 | STORAGE | IN8: INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 68,373 | NA | 68,373 | 515 612 | 230,818 | 746,430 | 678,056 | 10 90 | 1 6 | 68,373 |
| Lights | DINING HALLS 04 | DINING HALLS | IN5. INC 60 CEIL | PL181. CPL 13 + DLST UNIT | 1,073 | NA | 1,073 | 9,593 | 2,153 | 11,746 | 10,673 | 10 90 | 1 6 | 1 073 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | IN6 INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 860 | NA | 860 | 7,680 | 1,717 | 9,397 | 8,537 | 10 90 | 1 6 | 860 |
| Roof | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 11 00 | Attic Ceiling. Increase insulation by R 8 | 5,333 | NA | 5,333 | 57,838 | 0 | 57,838 | 52,505 | 10 80 | 1 9 | 5,333 |
| Lights | CLUBS 02 | CLUBS | IN5. INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 814 | NA | 814 | 7,150 | 1,671 | 8,821 | 8,007 | 10 80 | 1 7 | 814 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 2,547 | NA | 2,547 | 22 622 | 4,510 | 27,132 | 24,584 | 10 70 | 1 7 | 2,547 |
| Hot Water | MWR 04 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combo. Boiler, Wrap Tank w/insulation LPSHs Aerators | 788 | NA | 788 | 8,412 | 0 | 8,412 | 7,624 | 10 70 | 1 6 | 920 |
| Roof | MWR 04 | MORALE WELFARE RECREATION | Roof Insulation R Value 20 05 | Suspended Ceiling Increase insulation by R 8 | 5,864 | NA | 5,864 | 61,347 | 0 | 61,347 | 55,483 | 10 50 | 2 0 | 5,864 |
| Lights | COMMISSARIES | COMMISSARIES | EX2 EXIT INC (2x15) | EX4 EXIT LED | 1,233 | NA | 1,233 | 3,854 | 9,035 | 12,889 | 11,656 | 10 50 | 1 7 | 1,233 |
| Lights | PH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN8 INC 75 CEIL | PL175: CPL 27 INTEGRAL UNIT | 8,177 | NA | 8,177 | 58,004 | 26,215 | 84,219 | 76,042 | 10 30 | 1 7 | 8 177 |
| Lights | MWR 02 | MORALE WELFARE RECREATION | IN6. INC 2 60 CEIL | PL182. CPL 2 13 + DLST UNIT | 385 | NA | 385 | 3,161 | 770 | 3,931 | 3,545 | 10 20 | 1 8 | 385 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN6 INC 2 60 CEIL | PL182: CPL 2 13 + DLST UNIT | 274 | NA | 274 | 2,066 | 678 | 2,744 | 2,491 | 10 10 | 1 8 | 274 |
| Lights | DINING HALLS 04 | DINING HALLS | IN11. INC 100 CEIL | PL189. CPL 2 15 CEIL PDT | 1,592 | NA | 1,592 | 14,004 | 1,759 | 15,763 | 14,170 | 9 90 | 1 8 | 1,592 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN5 INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 404 | NA | 404 | 3,360 | 641 | 4,001 | 3,616 | 9 90 | 1 8 | 404 |
| Hot Water | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs Aer , Lower Tank Temp | 18 | NA | 18 | 176 | 0 | 176 | 158 | 9 90 | 0 6 | 18 |
| Lights | PH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN8 INC 75 CEIL | PL175 CPL 27 INTEGRAL UNIT | 2,001 | NA | 2 001 | 13,098 | 6 417 | 19,515 | 17,513 | 9 80 | 1 8 | 2,001 |
| Lights | HOSPITAL | HOSPITAL | FL1 FL 2X4 4P40T12 STD2 | PL237. FL 2X4 3P32T8 ELC) REF | 22,447 | NA | 22,447 | 196,304 | 21,368 | 217,672 | 195,225 | 9 70 | 1 9 | 22 447 |
| Lights | CLUBS 03 | CLUBS | IN5 INC 60 CEIL | PL181 CPL 13 + DLST UNIT | 1,266 | NA | 1,266 | 9,871 | 2,362 | 12,233 | 10,967 | 9 70 | 1 8 | 1 266 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | IN1 INC 40 CEIL | PL178. CPL 9 + DLST UNIT | 240 | NA | 240 | 1,967 | 272 | 2,239 | 1,999 | 9 30 | 1 9 | 240 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non-Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | CLINIC 02 | CLINIC | INS: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 469 | NA | 469 | 3,295 | 1,013 | 4,308 | 3,840 | 9.20 | 1.9 | 469 |
| Hot Water | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 57 | NA | 57 | 526 | 0 | 526 | 469 | 9.20 | 0.6 | 57 |
| Lights | SHOPS 04 | SHOPS | FL2: FL 2X4 3P40T12 STD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 349 | NA | 349 | 2,894 | 272 | 3,166 | 2,817 | 9 10 | 2.0 | 349 |
| Lights | SECURITY 02 | SECURITY | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REF | 7,605 | NA | 7,605 | 61,522 | 7,240 | 68,762 | 61,156 | 9.00 | 2.0 | 7,605 |
| Lights | SHOPS 03 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 804 | NA | 804 | 5,579 | 1,648 | 7,227 | 6,423 | 9.00 | 2.0 | 804 |
| Roof | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-38 | 4,114 | NA | 4,114 | 36,678 | 0 | 36,678 | 32,564 | 8 90 | 2.0 | 4,114 |
| Lights | SHOPS 04 | SHOPS | IN12: INC 2-100 CEIL | HH12: HPH 50 PEND | 676 | NA | 676 | 4,888 | 1,145 | 6,033 | 5,357 | 8.90 | 2 0 | 676 |
| Hot Water | BARRACKS 05 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Combin. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 482 | NA | 482 | 4,236 | 0 | 4,236 | 3,754 | 8.80 | 2 4 | 482 |
| Hot Water | BARRACKS 04 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 3,940 | NA | 3,940 | 34,423 | 0 | 34,423 | 30,483 | 8.70 | 2.4 | 3,940 |
| Hot Water | PH DUPLEX 01 | DUPLEX | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 17,038 | NA | 17,038 | 143,436 | 0 | 143,436 | 126,398 | 8.40 | 2.4 | 17,038 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 550 | NA | 550 | 4,054 | 560 | 4,614 | 4,065 | 8.40 | 2.2 | 550 |
| Roof | BARRACKS 03 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 8 | 9,600 | NA | 9,600 | 80,133 | 0 | 80,133 | 70,533 | 8 30 | 2.5 | 9,600 |
| Lights | RECREATION 02 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 3,307 | NA | 3,307 | 21,449 | 5,879 | 27,328 | 24,021 | 8.30 | 2.2 | 3,307 |
| Lights | SHOPS 05 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 475 | NA | 475 | 3,039 | 855 | 3,894 | 3,418 | 8.20 | 2.2 | 475 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 59 | NA | 59 | 383 | 105 | 488 | 429 | 8.20 | 2.2 | 59 |
| Lights | ELECTRONICS 03 | ELECTRONICS | FL1: FL 2X4 4P40T12 STD2 | FL237: FL 2X4 3P32T8 ELC3 REF | 5,426 | NA | 5,426 | 40,085 | 3,813 | 43,898 | 38,473 | 8 10 | 2.2 | 5,426 |
| Lights | SHOPS 06 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 251 | NA | 251 | 1,592 | 451 | 2,043 | 1,792 | 8 10 | 2.2 | 251 |
| Lights | BARRACKS 07 | BARRACKS | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + DLST UNIT | 15,453 | NA | 15,453 | 88,954 | 32,552 | 121,506 | 106,053 | 7.90 | 2.3 | 15,453 |
| Lights | HOSPITAL | HOSPITAL | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 14,592 | NA | 14,592 | 102,014 | 13,144 | 115,158 | 100,566 | 7.90 | 2.3 | 14,592 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | FL2: FL 2X4 3P40T12 STD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 235 | NA | 235 | 1,683 | 150 | 1,833 | 1,598 | 7.80 | 2.4 | 235 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 574 | NA | 574 | 3,369 | 966 | 4,335 | 3,761 | 7 60 | 2.4 | 574 |
| Roof | DINING HALLS 04 | DINING HALLS | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 13,024 | NA | 13,024 | 97,760 | 0 | 97,760 | 84,736 | 7.50 | 2.5 | 13,024 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN11: INC 100 CEIL | FL189, CFL 2 15 CEIL FIXT | 6,381 | NA | 6,381 | 42,658 | 5,435 | 48,093 | 41,711 | 7.50 | 2 4 | 6,381 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | FL3: FL 2X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 1,074 | NA | 1,074 | 7,307 | 745 | 8,052 | 6,978 | 7.50 | 2.4 | 1,074 |
| Hot Water | MWR 06 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Combin. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 821 | NA | 821 | 6,153 | 0 | 6,153 | 5,332 | 7.50 | 2.8 | 821 |
| Hot Water | DINING HALLS 01 | DINING HALLS | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp. | 676 | NA | 676 | 5,037 | 0 | 5,037 | 4,361 | 7.50 | 0.7 | 676 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | FL81: FL 2X4 2P40T12S8 STD2 | FL105: PL 2X4 2P40T12S8 ELC2 | 147 | NA | 147 | 979 | 117 | 1,096 | 949 | 7.50 | 2.5 | 147 |
| Lights | SHOPS 03 | SHOPS | MH36: MH 250 HB PEND | LP4: LPS 90 PEND | 36,770 | NA | 36,770 | 234,913 | 37,882 | 272,795 | 236,026 | 7.40 | 2 4 | 36,770 |
| Hot Water | BARRACKS 06 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 4,450 | NA | 4,450 | 32,845 | 0 | 32,845 | 28,395 | 7.40 | 2.8 | 4,450 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178: CFL 9 + DLST UNIT | 1,823 | NA | 1,823 | 11,382 | 2,067 | 13,449 | 11,626 | 7.40 | 2.4 | 1,823 |
| Lights | MILITARY OTHER 03 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 411 | NA | 411 | 2,171 | 854 | 3,025 | 2,615 | 7.40 | 2.4 | 411 |
| Hot Water | WAREHOUSE 06 | WAREHOUSE | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp. | 86 | NA | 86 | 632 | 0 | 632 | 546 | 7.40 | 0.7 | 86 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL158: FL 1X8 4P96T12HO 8TD2 REF | LH6: LPS 180 PEND | 18,527 | NA | 18,527 | 129,097 | 7,043 | 136,140 | 117,613 | 7.30 | 2.5 | 18,527 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN30: INC 300 PEND | LH2: LPS 35 PEND | 13,195 | NA | 13,195 | 86,359 | 10,616 | 96,975 | 83,779 | 7.30 | 2.5 | 13,195 |
| Roof | DINING HALLS 06 | DINING HALLS | Roof Insulation R Value 0.00 | Suspended Ceiling: Increase insulation by R 38 | 13,508 | NA | 13,508 | 95,829 | 0 | 95,829 | 82,321 | 7.10 | 2.7 | 13,508 |
| Lights | SHOPS 04 | SHOPS | FL41: FL 1X8 4P96T12 8TD2 | LH5: LPS 135 PEND | 10,682 | NA | 10,682 | 73,415 | 2,018 | 75,433 | 64,750 | 7.10 | 2.6 | 10,682 |
| Lights | CLINIC 01 | CLINIC | FL2: FL 2X4 3P40T12 8TD1,2 | FL236: FL 2X4 3P32T8 ELC3 | 4,135 | NA | 4,135 | 26,582 | 2,698 | 29,280 | 25,146 | 7 10 | 2.6 | 4,135 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 1,238 | NA | 1,238 | 6,866 | 1,877 | 8,743 | 7,506 | 7.10 | 2.5 | 1,238 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 892 | NA | 892 | 5,413 | 885 | 6,298 | 5,407 | 7.10 | 2.5 | 892 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL158: FL 1X8 4P96T12HO 8TD2 REF | LH6: LPS 180 PEND | 3,005 | NA | 3,005 | 19,777 | 1,142 | 20,919 | 17,914 | 7.00 | 2.6 | 3,005 |
| Lights | SECURITY 03 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,618 | NA | 2,618 | 12,783 | 5,446 | 18,229 | 15,610 | 7 00 | 2.6 | 2,618 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 1,949 | NA | 1,949 | 11,708 | 1,987 | 13,695 | 11,746 | 7.00 | 2.6 | 1,949 |
| Hot Water | BARRACKS 03 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LPSHs, Aerators | 1,563 | NA | 1,563 | 10,991 | 0 | 10,991 | 9,427 | 7 00 | 1.5 | 1,563 |
| Lights | MWR 05 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,276 | 1,815 | 6,091 | 5,218 | 7.00 | 2.6 | 873 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | FL237: FL 2X4 3P32T8 ELC3 REF | 7,966 | NA | 7,966 | 50,674 | 4,480 | 55,154 | 47,187 | 6 90 | 2.6 | 7,966 |
| Lights | CLINIC 01 | CLINIC | FL1: FL 2X4 4P40T12 8TD2 | EX6: EXIT - LED | 1,367 | NA | 1,367 | 6,451 | 2,843 | 9,494 | 8,127 | 6.90 | 2.6 | 1,367 |
| Lights | CLUBS 03 | CLUBS | EX1: EXIT - INC (2x20) | Suspended Ceiling: Increase insulation by R-19 | 1,114 | NA | 1,114 | 7,677 | 0 | 7,677 | 6,563 | 6.90 | 3 0 | 1,114 |
| Roof | CLINIC 02 | CLINIC | Roof Insulation R Value 0 00 | EX6: EXIT - LED | 1,033 | NA | 1,033 | 4,967 | 2,149 | 7,116 | 6,083 | 6.90 | 2.6 | 1,033 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,195 | 1,815 | 6,010 | 5,138 | 6.90 | 2.6 | 873 |
| Lights | DINING HALLS 04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 2,119 | 908 | 3,027 | 2,590 | 6.90 | 2.6 | 873 |
| Lights | WAREHOUSE 11 | WAREHOUSE | EX1: EXIT - INC (2x20) | Attic Ceiling: Increase insulation by R 30 | 436 | NA | 436 | 2,100 | 908 | 3,007 | 2,581 | 6.90 | 2.6 | 436 |
| Lights | WAREHOUSE 12 | WAREHOUSE | Roof Insulation R-Value 0 00 | EX6: EXIT - LED | 158,833 | NA | 158,833 | 1,072,696 | 0 | 1,072,696 | 913,862 | 6.80 | 2.9 | 436 |
| Roof | PH DETACHED 01 | SINGLE FAMILY DETACHED HOUSI | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,618 | NA | 2,618 | 12,248 | 5,446 | 17,694 | 15,075 | 6.80 | 2.6 | 158,833 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,210 | NA | 2,210 | 10,382 | 4,596 | 14,978 | 12,768 | 6.80 | 2.6 | 2,618 |
| Lights | MWR 03 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 4,097 | 1,815 | 5,912 | 5,040 | 6.80 | 2.6 | 2,210 |
| Lights | RECREATION 04 | RECREATION | FL3: FL 2X4 2P40T12 8TD2 | FL51: FL 2X4 2P32T8 ELC2 | 15,968 | NA | 15,968 | 73,193 | 33,208 | 106,400 | 90,435 | 6.70 | 2.7 | 873 |
| Lights | ADMINISTRATION 09 | ADMINISTRATION | FL4: FL 1X4 2P40T12 8TD2 | FL52: FL 1X4 2P32T8 ELC2 | 550 | NA | 550 | 3,325 | 370 | 3,695 | 3,145 | 6 70 | 2.7 | 15,968 |
| Lights | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG Pulse Combin. Boiler, Wrap Tank w/insulation, LPSHs, Aerators | 361 | NA | 361 | 2,119 | 290 | 2,409 | 2,048 | 6 70 | 2.8 | 550 |
| Lights | MWR 05 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,716 | NA | 5,716 | 37,700 | 0 | 37,700 | 31,984 | 6.60 | 2.0 | 361 |
| Hot Water | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 2,693 | NA | 2,693 | 12,043 | 5,600 | 17,643 | 14,950 | 6.60 | 2.7 | 8,305 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | FL41: FL 1X8 4P96T12 8TD2 | L85: LPS 135 PEND | 873 | NA | 873 | 3,960 | 1,815 | 5,775 | 4,902 | 6 60 | 2.7 | 2,693 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,457 | NA | 5,457 | 34,099 | 1,521 | 35,620 | 30,163 | 6.50 | 2.8 | 873 |
| Lights | SHOPS 03 | SHOPS | IN1: INC 40 CEIL | FL178: CFL 9 + DLST UNIT | 5,237 | NA | 5,237 | 23,269 | 10,891 | 34,160 | 28,923 | 6.50 | 2.7 | 5,457 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,256 | NA | 1,256 | 6,281 | 1,924 | 8,205 | 6,948 | 6 50 | 2.7 | 5,237 |
| Lights | SHOPS 03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,872 | 1,815 | 5,687 | 4,815 | 6.50 | 2.8 | 1,256 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,824 | 1,815 | 5,639 | 4,766 | 6.50 | 2.7 | 873 |
| Lights | CHAPEL 01 | CHAPEL | FL41: FL 1X8 4P96T12 8TD2 | FL130: PL 1X8 4P96T12S8 ELC2 REF | 681 | NA | 681 | 2,996 | 1,417 | 4,413 | 3,732 | 6 50 | 2.7 | 873 |
| Hot Water | MWR 06 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,044 | NA | 1,044 | 6,568 | 90 | 6,658 | 5,614 | 6.40 | 2.9 | 681 |
| Lights | COMMISSARIES | COMMISSARIES | IN1: INC 40 CEIL | FL178: CFL 9 + DLST UNIT | 873 | NA | 873 | 3,754 | 1,815 | 5,569 | 4,697 | 6 40 | 2.8 | 1,044 |
| Hot Water | MWR 05a | MORALE WELFARE RECREATION | FL6: FL 2X2 2P40T12U 8TD2 | FL54: FL 2X2 2P32T8U ELC2 | 88 | NA | 88 | 421 | 143 | 564 | 476 | 6 40 | 2.8 | 873 |
| Lights | CLINIC 02 | CLINIC | FL4: FL 1X4 2P40T12 8TD2 | FL52: FL 1X4 2P32T8 ELC2 | 33 | NA | 33 | 195 | 18 | 213 | 180 | 6 40 | 2.8 | 88 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | FL1: FL 2X4 4P40T12 8TD2 | FL237: FL 2X4 3P32T8 ELC3 REF | 805 | NA | 805 | 4,479 | 577 | 5,056 | 4,251 | 6.30 | 2.9 | 33 |
| Lights | SHOPS 04 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 435 | NA | 435 | 2,539 | 225 | 2,764 | 2,328 | 6.30 | 2.9 | 805 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN29: INC 200 PEND | HH12: HPH 50 PEND | 192 | NA | 192 | 812 | 399 | 1,211 | 1,020 | 6.30 | 2.8 | 435 |
| Lights | DINING HALLS 05 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 8,489 | NA | 8,489 | 45,508 | 7,346 | 52,854 | 44,165 | 6.20 | 2.9 | 192 |
| Lights | SHOPS 05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 6,983 | NA | 6,983 | 29,114 | 14,522 | 43,636 | 36,653 | 6.20 | 2.9 | 8,489 |
| Lights | MWR 02 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 6,983 | NA | 6,983 | 28,990 | 14,522 | 43,512 | 36,529 | 6.20 | 2.9 | 6,983 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | IN6: INC 2 60 CEIL | FL182: CFL 2 13 + DLST UNIT | 6,546 | NA | 6,546 | 27,115 | 13,414 | 40,529 | 33,983 | 6.20 | 2.9 | 6,983 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | IN6: INC 2 60 CFIL | FL182: CFL 2 13 + DLST UNIT | 6,412 | NA | 6,412 | 28,498 | 11,364 | 39,862 | 33,450 | 6.20 | 2.9 | 6,546 |
| Lights | PH DETACHED 02 | SINGLE FAMILY DETACHED HOUSI | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 2,900 | NA | 2,900 | 12,894 | 5,139 | 18,033 | 15,134 | 6.20 | 2.9 | 6,412 |
| Lights | PH DUPLEX 02 | DUPLEX | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 979 | NA | 979 | 4,079 | 2,036 | 6,115 | 5,136 | 6.20 | 2.9 | 2,900 |
| Lights | CLINIC 01 | CLINIC | IN5: INC 60 CEIL | FL181: CFL 13 + DLST UNIT | 879 | NA | 879 | 3,587 | 1,828 | 5,415 | 4,536 | 6.20 | 2.9 | 979 |
| Lights | CLUBS 02 | CLUBS | FL41: FL 1X8 4P96T12 8TD2 | L85: LPS 135 PEND | 718 | NA | 718 | 1,522 | 462 | 1,984 | 1,666 | 6.20 | 2.9 | 879 |
| Lights | CLUBS 01 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 52,490 | NA | 52,490 | 310,949 | 9,916 | 320,865 | 268,376 | 6 10 | 3.0 | 718 |
| Lights | SHOPS 05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 3,491 | NA | 3,491 | 13,994 | 7,261 | 21,255 | 17,764 | 6 10 | 2.9 | 52,490 |
| Lights | SHOPS 07 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 655 | NA | 655 | 2,641 | 1,362 | 4,023 | 3,368 | 6.10 | 2.9 | 3,491 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | Electric SHW Heater | 0.76 LPG WH (REH), Ins Pipe, LPSHs Aerators, Lower Tank Temp | 592 | NA | 592 | 2,381 | 1,232 | 3,613 | 3,021 | 6 10 | 2.9 | 655 |
| Lights | DINING HALLS 06 | DINING HALLS | Wall Insulation R Value 0.00 | Interior Masonary Surface: Increase insulation by R 10.9 | 279 | NA | 279 | 1,704 | 0 | 1,704 | 1,425 | 6.10 | 2.9 | 592 |
| Hot Water | QUEST HOUSES 02 | MILITARY MOBILE HOMES | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 13,468 | NA | 13,468 | 80,473 | 0 | 80,473 | 67,005 | 6 00 | 3.1 | 2445 |
| Wall | DINING HALLS 04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 5,572 | NA | 5,572 | 21,407 | 11,588 | 33,195 | 27,623 | 6 00 | 3.0 | 13,468 |
| Lights | BARRACKS 04 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 1,309 | NA | 1,309 | 5 148 | 2,723 | 7,871 | 6,561 | 6.00 | 3 0 | 5,572 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | | | 436 | NA | 436 | 1,720 | 908 | 2,628 | 2,191 | 6 00 | 3.0 | 1,309 |
| Lights | ELECTRONICS 03 | ELECTRONICS | | | | | | | | | | | | 436 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | MWR 03 | MORALE WELFARE RECREATION | PL2 PL 2X4 3P40T12 STD1,2 | PL236: PL 2X4 3P32T8 ELC3 | 160 | NA | 160 | 823 | 134 | 957 | 798 | 6 00 | 3 0 | 160 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | IN11: INC 100 CEIL | PL189: CPL 2 15 CEIL PDT | 135 | NA | 135 | 690 | 115 | 805 | 670 | 6 00 | 3 0 | 135 |
| Lights | SHOPS 05 | SHOPS | PL2 PL 2X4 3P40T12 STD1,2 | PL236: PL 2X4 3P32T8 ELC3 | 22,601 | NA | 22,601 | 114,774 | 17,636 | 132,412 | 109,811 | 5 90 | 3 1 | 22,601 |
| Lights | BARRACKS 07 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21,230 | NA | 21,230 | 81,185 | 44,153 | 125,338 | 104,108 | 5 90 | 3 0 | 21,230 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 15,959 | NA | 15,959 | 89,837 | 3,718 | 93,555 | 77,596 | 5 90 | 3 1 | 15,959 |
| Lights | COMMISSARIES | COMMISSARIES | PL79: PL 2X4 4P40T12E8 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 9,274 | NA | 9,274 | 47,971 | 7,078 | 55,049 | 45,775 | 5 90 | 3 0 | 9,274 |
| Lights | BARRACKS 07 | BARRACKS | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 8,672 | NA | 8,672 | 38,817 | 12,256 | 51,073 | 42 401 | 5 90 | 3 0 | 8 672 |
| Lights | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,546 | NA | 6,546 | 25,268 | 13,614 | 38,882 | 32 336 | 5 90 | 3 0 | 6,546 |
| Lights | BARRACKS 06 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,901 | NA | 1,901 | 7,227 | 3,954 | 11,181 | 9,280 | 5 90 | 3 0 | 1,901 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 77,591 | NA | 77,591 | 430,821 | 18,078 | 448,899 | 371,308 | 5 80 | 3 1 | 77,591 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 21,820 | NA | 21,820 | 80,332 | 45,381 | 125,713 | 103,892 | 5 80 | 3 1 | 21,820 |
| Wall | MWR 05 | MORALE/WELFARE RECREATION | Wall Insulation R-Value 5 32 | Interior Masonary Surface - Increase Insulation by R 10 9 | 11,818 | NA | 11,818 | 67,995 | 0 | 67,995 | 56 177 | 5 80 | 3 2 | 11,818 |
| Lights | STORAGE 01 | STORAGE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 10,037 | NA | 10,037 | 37,536 | 20,875 | 58,401 | 48,364 | 5 80 | 3 1 | 10,037 |
| Lights | DINING HALLS 01 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,746 | NA | 1,746 | 6,515 | 3,630 | 10,145 | 8,400 | 5 80 | 3 1 | 1,746 |
| Lights | MILITARY OTHER 05 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,746 | NA | 1,746 | 6,511 | 3,630 | 10,141 | 8,395 | 5 80 | 3 1 | 1,746 |
| Lights | ELECTRONICS 02 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,839 | 2,723 | 7,562 | 6,252 | 5 80 | 3 1 | 1,309 |
| Lights | BARRACKS 02 | BARRACKS | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 36,057 | NA | 36,057 | 154,232 | 50,957 | 205,189 | 169,131 | 5 70 | 3 1 | 36,057 |
| Lights | WAREHOUSE 01 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 17,020 | NA | 17,020 | 62,369 | 35,397 | 97,766 | 80,746 | 5 70 | 3 1 | 17,020 |
| Lights | MILITARY OTHER 01 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 16,584 | NA | 16,584 | 59,347 | 34,489 | 93,836 | 77,253 | 5 70 | 3 1 | 16,584 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | PL3: PL 2X4 2P40T12 STD2 | PL51: PL 2X4 2P32T8 ELC2 | 8,150 | NA | 8,150 | 40,579 | 5,653 | 46,232 | 38,082 | 5 70 | 3 2 | 8,150 |
| Lights | SHOPS 02 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 7,419 | NA | 7,419 | 27,204 | 15,429 | 42,633 | 35,215 | 5 70 | 3 1 | 7,419 |
| Lights | SHOPS 03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 7,419 | NA | 7,419 | 26,894 | 15,429 | 42,323 | 34 905 | 5 70 | 3 1 | 7,419 |
| Lights | DINING HALLS 03 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 6,110 | NA | 6,110 | 22,314 | 12,707 | 35,021 | 28,911 | 5 70 | 3 1 | 6,110 |
| Lights | WAREHOUSE 02 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 3,055 | NA | 3,055 | 11,156 | 6,353 | 17,489 | 14,435 | 5 70 | 3 1 | 3,055 |
| Lights | WAREHOUSE 10 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,794 | 2,723 | 7,517 | 6,207 | 5 70 | 3 1 | 1,309 |
| Lights | WAREHOUSE 09 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,784 | 2,723 | 7,507 | 6,198 | 5 70 | 3 1 | 1,309 |
| Lights | RECREATION 01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,777 | 2,723 | 7,500 | 6,190 | 5 70 | 3 1 | 1,309 |
| Lights | RECREATION 01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,777 | 2,723 | 7,500 | 6,190 | 5 70 | 3 1 | 1,309 |
| Lights | WAREHOUSE 03 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,705 | 2,723 | 7,428 | 6,118 | 5 70 | 3 1 | 1,309 |
| Lights | WAREHOUSE 04 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,195 | 1,815 | 5,010 | 4,137 | 5 70 | 3 1 | 873 |
| Lights | RECREATION 03 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,186 | 1,815 | 5,001 | 4,129 | 5 70 | 3 1 | 873 |
| Lights | CLINIC 01 | CLINIC | PL3: PL 2X4 2P40T12 STD2 | PL51: PL 2X4 2P32T8 ELC2 | 748 | NA | 748 | 3,814 | 452 | 4,266 | 3,518 | 5 70 | 3 2 | 748 |
| Lights | CLUBS 01 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 344 | NA | 344 | 1,248 | 715 | 1,963 | 1,619 | 5 70 | 3 1 | 344 |
| Lights | ELECTRONICS 01 | ELECTRONICS | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 149 | NA | 149 | 644 | 202 | 846 | 697 | 5 70 | 3 2 | 149 |
| Hot Water | ELECTRONICS 03 | ELECTRONICS | Other Fuels BHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Acc , Lower Tank Temp | 33 | NA | 33 | 186 | 0 | 186 | 153 | 5 70 | 0 8 | 33 |
| Lights | WAREHOUSE 07 | WAREHOUSE | IN11: INC 100 CEIL | PL189: CPL 2 15 CEIL PDT | 75,767 | NA | 75,767 | 383,336 | 44,216 | 427,552 | 351,785 | 5 60 | 3 2 | 75,767 |
| Lights | BARRACKS 02 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 27,930 | NA | 27,930 | 98,704 | 58,087 | 156,791 | 128,861 | 5 60 | 3 2 | 27,930 |
| Lights | WAREHOUSE 05 | WAREHOUSE | IN11: INC 100 CEIL | PL189: CPL 2 15 CEIL PDT | 20,278 | NA | 20,278 | 100,929 | 11,834 | 112,763 | 92,485 | 5 60 | 3 2 | 20,278 |
| Lights | MILITARY OTHER 02 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 15,711 | NA | 15,711 | 55,119 | 32,674 | 87,793 | 72 083 | 5 60 | 3 2 | 15,711 |
| Lights | WAREHOUSE 05 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 11,783 | NA | 11,783 | 41,457 | 24,506 | 65,963 | 54,180 | 5 60 | 3 2 | 11,783 |
| Lights | SECURITY 02 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 18,670 | 10,891 | 29,561 | 24,325 | 5 60 | 3 2 | 5,237 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 18,214 | 10,891 | 29,105 | 23,868 | 5 60 | 3 2 | 5,237 |
| Lights | SHOPS 05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4,364 | NA | 4,364 | 15,203 | 9,076 | 24,279 | 19,915 | 5 60 | 3 2 | 4,364 |
| Lights | CLINIC 01 | CLINIC | PL4: PL 1X4 2P32T8 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 1,559 | NA | 1,559 | 7,840 | 942 | 8,782 | 7,223 | 5 60 | 3 2 | 1,559 |
| Hot Water | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | Electric BHW Heater | 0 76 LPG WH (RES), Ins Pipe, LPSHs, Aerators Lower Tank Temp | 1,493 | NA | 1,493 | 8,349 | 0 | 8,349 | 6,855 | 5 60 | 1 0 | 2,347 |
| Lights | WAREHOUSE 08 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,058 | 1,815 | 4,873 | 4,000 | 5 60 | 3 2 | 873 |
| Lights | WAREHOUSE 06 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,053 | 1,815 | 4,868 | 3,995 | 5 60 | 3 2 | 873 |
| Lights | CHAPEL 02 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 3,042 | 1,815 | 4,857 | 3,985 | 5 60 | 3 2 | 873 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,515 | 908 | 2,423 | 1,987 | 5 60 | 3 2 | 436 |
| Hot Water | MWR 02 | MORALE WELFARE RECREATION | Electric BHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Acc , Lower Tank Temp | 183 | NA | 183 | 1,022 | 0 | 1,022 | 839 | 5 60 | 0 8 | 183 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 35,259 | NA | 35,259 | 171,655 | 20,614 | 192,269 | 157,010 | 5 50 | 3 3 | 35,259 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 23,243 | NA | 23,243 | 113,827 | 13,589 | 127,216 | 103,973 | 5 50 | 3 3 | 23,243 |
| Hot Water | PH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels BHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs Acc , Lower Tank Temp | 20,856 | NA | 20,856 | 115,251 | 0 | 115,251 | 94,395 | 5 50 | 1 2 | 20,856 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN11: INC 100 CEIL | PL189: CPL 2-15 CEIL PDT | 12,290 | NA | 12,290 | 60,570 | 7,172 | 67,742 | 55 452 | 5 50 | 3 3 | 12,290 |
| Lights | BARRACKS 03 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 5,237 | NA | 5,237 | 17,713 | 10,891 | 28,604 | 23,368 | 5 50 | 3 2 | 5,237 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,746 | NA | 1,746 | 5,938 | 3,630 | 9,568 | 7,822 | 5 50 | 3 2 | 1,746 |
| Lights | LABS 01 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,309 | NA | 1,309 | 4,447 | 2,723 | 7,170 | 5,860 | 5 50 | 3 2 | 1,309 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 918 | NA | 918 | 3,174 | 1,909 | 5,083 | 4,165 | 5 50 | 3 2 | 918 |
| Lights | SHOPS 06 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,976 | 1,815 | 4,791 | 3,919 | 5 50 | 3 2 | 873 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL63: PL 1X8 2P96T12 STD2 | PL131: PL 1X8 2P96T12E8 ELC2 REP | 241 | NA | 241 | 1,258 | 61 | 1,319 | 1,077 | 5 50 | 3 4 | 241 |
| Hot Water | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels BHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs Acc , Lower Tank Temp | 27 | NA | 27 | 150 | 0 | 150 | 123 | 5 50 | 1 0 | 27 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 54,987 | NA | 54,987 | 180,475 | 114,359 | 294,834 | 243,847 | 5 40 | 3 3 | 54,987 |
| Wall | HANGER | HANGAR | Wall Insulation R-Value 0 00 | Blow-in Insulation - Increase Insulation by R 13 | 20,331 | NA | 20,331 | 109,631 | 0 | 109,631 | 89,300 | 5 40 | 3 8 | 20,331 |
| Lights | CLINIC 02 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 13,092 | NA | 13,092 | 43,012 | 27,228 | 70,240 | 57,148 | 5 40 | 3 3 | 13,092 |
| Lights | WAREHOUSE 12 | WAREHOUSE | PL1: PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 5,488 | NA | 5,488 | 26,524 | 3,213 | 29,737 | 24,250 | 5 40 | 3 3 | 5,488 |
| Lights | BARRACKS 03 | BARRACKS | IN15: INC 60 TABLE LAMP | PL181: CPL 13 + DLST UNIT | 3,568 | NA | 3,568 | 14,319 | 5,042 | 19,361 | 15,793 | 5 40 | 3 3 | 3,568 |
| Lights | RECREATION 04 | RECREATION | PL3: PL 2X4 2P40T12 STD2 | PL51: PL 2X4 2P32T8 ELC2 | 1,577 | NA | 1,577 | 7,477 | 1,111 | 8,588 | 7,011 | 5 40 | 3 3 | 1,577 |
| Lights | BARRACKS 01 | BARRACKS | IN5: INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 1,135 | NA | 1,135 | 4,537 | 1,605 | 6,142 | 5,006 | 5 40 | 3 3 | 1,135 |
| Lights | DINING HALLS 04 | DINING HALLS | PL4: PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 456 | NA | 456 | 2,172 | 268 | 2,440 | 1,984 | 5 40 | 3 4 | 456 |
| Roof | WAREHOUSE 07 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 30,037 | NA | 30,037 | 158,192 | 0 | 158,192 | 128,155 | 5 30 | 3 8 | 30,037 |
| Lights | SHOPS 07 | SHOPS | PL3: PL 2X4 2P40T12 STD2 | PL51: PL 2X4 2P32T8 ELC2 | 9,843 | NA | 9,843 | 45,469 | 7,056 | 52,525 | 42,681 | 5 30 | 3 4 | 9,843 |
| Roof | MWR 05 | MORALE WELFARE RECREATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 30 | 9,025 | NA | 9,025 | 47,726 | 0 | 47,726 | 38,701 | 5 30 | 3 5 | 9,025 |
| Lights | DINING HALLS 05 | DINING HALLS | PL4: PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 890 | NA | 890 | 4,201 | 523 | 4,724 | 3,833 | 5 30 | 3 4 | 890 |
| Lights | LABS 02 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,425 | 908 | 2,333 | 1,896 | 5 30 | 3 3 | 436 |
| Lights | MWR 04 | MORALE WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 4,364 | NA | 4,364 | 13,440 | 9,076 | 22,516 | 18,152 | 5 20 | 3 4 | 4,364 |
| Lights | RECREATION 04 | RECREATION | PL4: PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 3,041 | NA | 3,041 | 13,597 | 2,143 | 15,740 | 12 699 | 5 20 | 3 5 | 3,041 |
| Lights | BARRACKS 01 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,719 | 1,815 | 4,534 | 3,662 | 5 20 | 3 4 | 873 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | PL4: PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 461 | NA | 461 | 2,004 | 371 | 2,375 | 1,914 | 5 20 | 3 5 | 461 |
| Lights | HANGER | HANGAR | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 436 | NA | 436 | 1,340 | 908 | 2,248 | 1,812 | 5 20 | 3 4 | 436 |
| Lights | BARRACKS 05 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 176 | NA | 176 | 552 | 366 | 918 | 742 | 5 20 | 3 4 | 176 |
| Lights | MILITARY OTHER 05 | MILITARY OTHER | PL4: PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 4,649 | NA | 4,649 | 20,382 | 3,457 | 23,839 | 19,190 | 5 10 | 3 5 | 4,649 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | EX1 EXIT INC (2x20) | EX6: EXIT - LED | 2,182 | NA | 2,182 | 6,631 | 4,538 | 11,169 | 8 987 | 5 10 | 3 4 | 2,182 |
| Lights | RECREATION 02 | RECREATION | PL79: PL 2X4 4P40T12E8 STD2 | PL232 PL 2X4 3P40T12 ELC3 | 737 | NA | 737 | 2,858 | 882 | 3,740 | 3 043 | 5 10 | 3 4 | 737 |
| Lights | BARRACKS 03 | BARRACKS | IN11: INC 100 CEIL | PL189: CPL 2 15 CEIL PDT | 214 | NA | 214 | 935 | 166 | 1,101 | 886 | 5 10 | 3 5 | 214 |
| Heating | MWR 07 | MORALE WELFARE RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 130 | NA | 130 | 659 | 0 | 659 | 529 | 5 10 | 4 1 | 130 |
| Hot Water | MILITARY OTHER 03 | MILITARY OTHER | Electric BHW Heater | Wrap Old Elc Tank, Ins Pipe, LPSHs, Acc Lower Tank Temp | 12 | NA | 12 | 60 | 0 | 60 | 48 | 5 10 | 1 1 | 12 |
| Lights | PH DUPLEX 03 | DUPLEX | IN5 INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 130,459 | NA | 130,459 | 474,983 | 176,512 | 651,515 | 521,056 | 5 00 | 3 6 | 130 460 |
| Lights | RECREATION 01 | RECREATION | IN5 INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 5,349 | NA | 5,349 | 19 739 | 6,836 | 26,575 | 21,227 | 5 00 | 3 6 | 5,349 |
| Lights | RECREATION 01 | RECREATION | IN5 INC 60 CEIL | PL181: CPL 13 + DLST UNIT | 5,349 | NA | 5,349 | 19,739 | 6,836 | 26,575 | 21,227 | 5 00 | 3 6 | 5,349 |
| Lights | DINING HALLS 06 | DINING HALLS | PL4 PL 1X4 2P40T12 STD2 | PL52: PL 1X4 2P32T8 ELC2 | 2,747 | NA | 2,747 | 12,219 | 1,614 | 13,833 | 11,085 | 5 00 | 3 6 | 2,747 |
| Lights | RECREATION 02 | RECREATION | EX1 EXIT INC (2x20) | EX6: EXIT - LED | 434 | NA | 434 | 1,283 | 902 | 2,185 | 1 751 | 5 00 | 3 4 | 434 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | PL1 PL 2X4 4P40T12 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 100,504 | NA | 100,504 | 437,189 | 52,184 | 489,373 | 388,869 | 4 90 | 3 7 | 100,504 |
| Lights | CLUBS 02 | CLUBS | PL79 PL 2X4 4P40T12E8 STD2 | PL237: PL 2X4 3P32T8 ELC3 REP | 9,254 | NA | 9,254 | 39 495 | 5 735 | 45,230 | 35 976 | 4 90 | 3 7 | 9,254 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | COMMISSARIES | COMMISSARIES | FL62. FL 1X8 2F96T12 8TD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 8,800 | NA | 8,800 | 41,969 | 1,367 | 43,336 | 34,536 | 4.90 | 3.7 | 8,800 |
| Lights | WAREHOUSES 07 | WAREHOUSES | IN29: INC 200 PEND | H812: HPS 50 PEND | 5,999 | NA | 5,999 | 25,834 | 3,533 | 29,367 | 23,368 | 4.90 | 3.7 | 5,999 |
| Lights | SHOPS 03 | SHOPS | PL4: PL 1X4 2P40T12 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 7,571 | NA | 7,571 | 31,971 | 4,626 | 36,597 | 29,027 | 4.80 | 3.7 | 7,571 |
| Lights | MWR 03 | MORALE,WELFARE RECREATION | PL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 5,666 | NA | 5,666 | 22,490 | 4,578 | 27,068 | 21,402 | 4.80 | 3.8 | 5,666 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 2,345 | NA | 2,345 | 10,067 | 1,218 | 11,285 | 8,940 | 4.80 | 3.7 | 2,345 |
| Roof | LABS 02 | LABS | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 19 | 2,112 | NA | 2,112 | 10,122 | 0 | 10,122 | 8,009 | 4.80 | 4.3 | 2,112 |
| Lights | CLINIC 02 | CLINIC | FL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 2,101 | NA | 2,101 | 8,782 | 1,269 | 10,051 | 7,950 | 4.80 | 3.8 | 2,101 |
| Lights | WAREHOUSES 07 | WAREHOUSES | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,344 | 1,815 | 4,159 | 3,286 | 4.80 | 3.6 | 873 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | PL4: PL 1X4 2P40T12 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 304 | NA | 304 | 1,227 | 244 | 1,471 | 1,167 | 4.80 | 3.7 | 304 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | PL6: PL 2X2 2P40T12U 8TD2 | PL54: PL 2X2 2P32T8U ELC2 | 251 | NA | 251 | 1,066 | 138 | 1,204 | 953 | 4.80 | 3.8 | 251 |
| Heating | BARRACKS 03 | BARRACKS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 192 | NA | 192 | 916 | 0 | 916 | 724 | 4.80 | 2.3 | 192 |
| Lights | SHOPS 05 | SHOPS | PL4: PL 1X4 2P40T12 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 31,141 | NA | 31,141 | 125,056 | 22,323 | 147,379 | 116,238 | 4.70 | 3.8 | 31,141 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 9,446 | NA | 9,446 | 31,252 | 12,781 | 44,033 | 34,587 | 4.70 | 3.8 | 9,446 |
| Lights | BARRACKS 02 | BARRACKS | IN11: INC 100 CEIL | PL189: CFL 2-15 CEIL FIXT | 8,982 | NA | 8,982 | 35,286 | 6,949 | 42,235 | 33,252 | 4.70 | 3.8 | 8,982 |
| Lights | FH DUPLEX 02 | DUPLEX | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 4,272 | NA | 4,272 | 14,412 | 5,780 | 20,192 | 15,920 | 4.70 | 3.8 | 4,272 |
| Lights | SHOPS 04 | SHOPS | MN3: MERC 250 PEND | L84: LPS 90 PEND | 3,722 | NA | 3,722 | 17,811 | 339 | 17,472 | 13,751 | 4.70 | 3.9 | 3,722 |
| Lights | QUEST HOUSES 02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 2,801 | NA | 2,801 | 9,351 | 3,790 | 13,121 | 10,320 | 4.70 | 3.8 | 2,801 |
| Lights | SHOPS 05 | SHOPS | IN28: INC 150 PEND | H811: HPS 35 PEND | 1,959 | NA | 1,959 | 7,820 | 1,394 | 9,214 | 7,256 | 4.70 | 3.8 | 1,959 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | PL4: PL 1X4 2P40T12 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 1,589 | NA | 1,589 | 7,253 | 211 | 7,464 | 5,875 | 4.70 | 3.9 | 1,589 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 873 | NA | 873 | 2,322 | 1,815 | 4,137 | 3,264 | 4.70 | 3.7 | 873 |
| Lights | FH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 108,968 | NA | 108,968 | 353,613 | 147,451 | 501,064 | 392,096 | 4.60 | 3.9 | 108,968 |
| Lights | FH DUPLEX 01 | DUPLEX | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 71,003 | NA | 71,003 | 234,747 | 93,514 | 328,261 | 257,258 | 4.60 | 3.8 | 71,003 |
| Hot Water | FH DUPLEX 02 | DUPLEX | Other Fuels 81W Heater | PL52: PL 1X4 2P32T8 ELC2 | 10,009 | NA | 10,009 | 39,605 | 5,941 | 45,546 | 35,536 | 4.60 | 4.0 | 10,009 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL3: PL 2X4 2P40T12 8TD2 | 0.85 LPG WH (RED), Ins. Pipe, LPS81e, Aerators, Lower Tank Temp | 5,654 | NA | 5,654 | 26,040 | 0 | 26,040 | 20,386 | 4.60 | 3.0 | 10,507 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | PL13: PL 2X4 4P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 5,099 | NA | 5,099 | 22,856 | 678 | 23,534 | 18,435 | 4.60 | 3.9 | 5,099 |
| Lights | ADMINISTRATION 06a | ADMINISTRATION | FL3: PL 2X4 2P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 4,788 | NA | 4,788 | 20,739 | 1,243 | 21,982 | 17,195 | 4.60 | 3.9 | 4,788 |
| Lights | SHOPS 07 | SHOPS | PL4: PL 1X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 2,206 | NA | 2,206 | 8,587 | 1,547 | 10,134 | 7,928 | 4.60 | 3.9 | 2,206 |
| Roof | CLUBS 03 | CLUBS | Roof Insulation R Value 8 90 | PL52: PL 1X4 2P32T8 ELC2 | 656 | NA | 656 | 2,544 | 470 | 3,014 | 2,358 | 4.60 | 3.9 | 656 |
| Roof | CLUBS 02 | CLUBS | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase insulation by R 38 | 31,173 | NA | 31,173 | 139,987 | 0 | 139,987 | 108,814 | 4.50 | 4.1 | 31,173 |
| Wall | CHAPEL 01 | CHAPEL | Wall Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R 30 | 15,681 | NA | 15,681 | 70,012 | 0 | 70,012 | 54,331 | 4.50 | 4.1 | 15,681 |
| Roof | WAREHOUSES 08 | WAREHOUSES | Roof Insulation R Value 20 05 | Blow in insulation: Increase insulation by R 6.5 | 5,158 | NA | 5,158 | 23,006 | 0 | 23,006 | 17,848 | 4.50 | 4.2 | 5,158 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | Suspended Ceiling: Increase insulation by R 8 | 4,872 | NA | 4,872 | 22,102 | 0 | 22,102 | 17,230 | 4.50 | 4.5 | 4,872 |
| Lights | BARRACKS 01 | BARRACKS | IN11: INC 100 CEIL | PL181: CFL 13 + BLST UNIT | 2,578 | NA | 2,578 | 8,111 | 3,395 | 11,506 | 8,928 | 4.50 | 4.0 | 2,578 |
| Lights | WAREHOUSES 05 | WAREHOUSES | IN29: INC 200 PEND | PL189: CFL 2 15 CEIL FIXT | 283 | NA | 283 | 1,066 | 219 | 1,285 | 1,002 | 4.50 | 3.9 | 283 |
| Lights | CLUBS 03 | CLUBS | PL79: PL 2X4 4P40T12E8 8TD2 | H812: HPS 50 PEND | 15,395 | NA | 15,395 | 58,394 | 9,066 | 67,460 | 52,066 | 4.40 | 4.1 | 15,395 |
| Lights | FH DUPLEX 01 | DUPLEX | IN11: INC 100 CEIL | PL237: PL 2X4 3P32T8 ELC3 REF | 14,398 | NA | 14,398 | 54,181 | 9,802 | 63,983 | 49,586 | 4.40 | 4.0 | 14,398 |
| Lights | FH DUPLEX 02 | DUPLEX | IN1: INC 40 CEIL | PL189 CFL 2 15 CEIL FIXT | 9,293 | NA | 9,293 | 31,585 | 9,334 | 40,919 | 31,627 | 4.40 | 4.1 | 9,293 |
| Lights | MWR 05a | MORALE WELFARE RECREATION | PL4: PL 1X4 2P40T12 8TD2 | PL178: CFL 9 + BLST UNIT | 847 | NA | 847 | 2,774 | 933 | 3,707 | 2,859 | 4.40 | 4.2 | 847 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | PL1: PL 2X4 4P40T12 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 97 | NA | 97 | 347 | 78 | 425 | 328 | 4.40 | 4.1 | 97 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | PL237: PL 2X4 3P32T8 ELC3 REF | 31,331 | NA | 31,331 | 119,978 | 14,815 | 134,793 | 103,462 | 4.30 | 4.2 | 31,331 |
| Roof | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Roof Insulation R Value 8 69 | PL189 CFL 2-15 CEIL FIXT | 24,123 | NA | 24,123 | 80,122 | 24,232 | 104,354 | 80,231 | 4.30 | 4.1 | 24,123 |
| Roof | ADMINISTRATION 07a | ADMINISTRATION | Roof Insulation R Value 8.90 | Attic Ceiling: Increase insulation by R 30 | 9,734 | NA | 9,734 | 41,440 | 0 | 41,440 | 31,705 | 4.30 | 4.5 | 9,734 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | PL1: PL 2X4 4P40T12 8TD2 | Suspended Ceiling: Increase insulation by R 38 | 9,330 | NA | 9,330 | 39,978 | 0 | 39,978 | 30,648 | 4.30 | 4.3 | 9,330 |
| Lights | ELECTRONICS 02 | ELECTRONICS | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 6,040 | NA | 6,040 | 24,267 | 1,460 | 25,727 | 19,687 | 4.30 | 4.2 | 6,040 |
| Lights | RECREATION 04 | RECREATION | PL79: PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 4,240 | NA | 4,240 | 17,361 | 1,025 | 18,386 | 14,146 | 4.30 | 4.2 | 4,240 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | PL4: PL 1X4 2P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 2,714 | NA | 2,714 | 9,712 | 1,848 | 11,560 | 8,845 | 4.30 | 4.2 | 2,714 |
| Lights | MILITARY OTHER 03 | MILITARY OTHER | PL79 PL 2X4 4P40T12E8 8TD2 | PL52: PL 1X4 2P32T8 ELC2 | 2,621 | NA | 2,621 | 11,042 | 349 | 11,391 | 8,770 | 4.30 | 4.2 | 2,621 |
| Lights | WAREHOUSES 08 | WAREHOUSES | IN29: INC 200 PEND | PL237: PL 2X4 3P32T8 ELC3 REF | 1,666 | NA | 1,666 | 6,755 | 487 | 7,242 | 5,576 | 4.30 | 4.2 | 1,666 |
| Hot Water | ADMINISTRATION 03 | ADMINISTRATION | Other Fuels 81W Heater | H812: HPS 50 PEND | 973 | NA | 973 | 3,608 | 573 | 4,181 | 3,208 | 4.30 | 4.2 | 973 |
| Lights | WAREHOUSES 07 | WAREHOUSES | FL2: PL 2X4 3P40T12 8TD1,2 | Wrap Old LPG Tank, Ins. Pipe, LPS81e, Aer., Lower Tank Temp | 675 | NA | 675 | 2,893 | 0 | 2,893 | 2,217 | 4.30 | 3.1 | 675 |
| Lights | WAREHOUSES 08 | WAREHOUSES | FL2. PL 2X4 3P40T12 8TD1,2 | PL236. PL 2X4 3P32T8 ELC3 | 517 | NA | 517 | 1,804 | 434 | 2,238 | 1,722 | 4.30 | 4.1 | 517 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | PL236: PL 2X4 3P32T8 ELC3 | 84 | NA | 84 | 288 | 70 | 358 | 275 | 4.30 | 4.2 | 84 |
| Roof | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Roof Insulation R Value 8.69 | PL181: CFL 13 + BLST UNIT | 184,318 | NA | 184,318 | 518,933 | 249,411 | 768,344 | 584,026 | 4.20 | 4.2 | 184,318 |
| Roof | SHOPS 03 | SHOPS | Roof Insulation R Value 20 05 | Attic Ceiling: Increase insulation by R 38 | 26,977 | NA | 26,977 | 114,430 | 0 | 114,430 | 87,453 | 4.20 | 4.3 | 26,977 |
| Lights | LABS 01 | LABS | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 8 | 24,881 | NA | 24,881 | 104,601 | 0 | 104,601 | 79,720 | 4.20 | 4.9 | 24,881 |
| Lights | WAREHOUSES 05 | WAREHOUSES | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 7,125 | NA | 7,125 | 28,349 | 1,723 | 30,072 | 22,946 | 4.20 | 4.3 | 7,125 |
| Lights | LABS 02 | LABS | PL1: PL 2X4 4P40T12 8TD2 | L85: LPS 135 PEND | 4,347 | NA | 4,347 | 17,706 | 757 | 18,463 | 14,116 | 4.20 | 4.3 | 4,347 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 3,582 | NA | 3,582 | 14,209 | 866 | 15,075 | 11,493 | 4.20 | 4.3 | 3,582 |
| Hot Water | BARRACKS 01 | BARRACKS | Other Fuels 81W Heater | PL237: PL 2X4 3P32T8 ELC3 REF | 1,334 | NA | 1,334 | 4,811 | 781 | 5,592 | 4,258 | 4.20 | 4.3 | 1,334 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | Wrap Old LPG Tank w/ Ins , Ins Pipe, LPS81e, Aerators | 102 | NA | 102 | 426 | 0 | 426 | 324 | 4.20 | 3.1 | 102 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 48,552 | NA | 48,552 | 134,123 | 65,698 | 199,821 | 151,270 | 4.10 | 4.3 | 48,552 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL3: PL 2X4 2P40T12 8TD2 | PL181: CFL 13 + BLST UNIT | 42,984 | NA | 42,984 | 118,379 | 54,612 | 174,991 | 131,907 | 4.10 | 4.3 | 42,984 |
| Lights | WAREHOUSES 01 | WAREHOUSES | PL1: PL 2X4 4P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 32,112 | NA | 32,112 | 113,918 | 19,060 | 132,978 | 100,866 | 4.10 | 4.4 | 32,112 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | FL3: PL 2X4 2P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 12,462 | NA | 12,462 | 41,231 | 7,227 | 51,222 | 38,666 | 4.10 | 4.4 | 12,462 |
| Lights | WAREHOUSES 02 | WAREHOUSES | PL1: PL 2X4 4P40T12 8TD2 | PL51. PL 2X4 2P32T8 ELC2 | 7,819 | NA | 7,819 | 26,693 | 5,485 | 32,178 | 24,359 | 4.10 | 4.4 | 7,819 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | FL3: PL 2X4 2P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 5,601 | NA | 5,601 | 19,827 | 3,280 | 23,107 | 17,506 | 4.10 | 4.4 | 5,601 |
| Lights | CLUBS 01 | CLUBS | FL3: PL 2X4 2P40T12 8TD2 | PL51. PL 2X4 2P32T8 ELC2 | 5,107 | NA | 5,107 | 17,700 | 3,012 | 20,712 | 15,605 | 4.10 | 4.4 | 5,107 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | PL13: PL 2X4 4P40T12E8 8TD2 | PL232: PL 2X4 3P40T12 ELC3 | 1,908 | NA | 1,908 | 5,304 | 2,530 | 7,834 | 5,926 | 4.10 | 4.4 | 1,908 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL3: PL 2X4 2P40T12 8TD2 | PL51: PL 2X4 2P32T8 ELC2 | 749 | NA | 749 | 2,600 | 445 | 3,045 | 2,296 | 4.10 | 4.4 | 749 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | PL4: PL 1X4 2P40T12 8TD2 | PL52. PL 1X4 2P32T8 ELC2 | 234 | NA | 234 | 812 | 139 | 951 | 717 | 4.10 | 4.4 | 234 |
| Roof | WAREHOUSES 05 | WAREHOUSES | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 8 | 33,033 | NA | 33,033 | 131,440 | 0 | 131,440 | 98,407 | 4.00 | 5.2 | 33,033 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 32,209 | NA | 32,209 | 113,594 | 15,674 | 129,268 | 97,060 | 4.00 | 4.5 | 32,209 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | PL13: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 30,151 | NA | 30,151 | 104,355 | 16,955 | 121,310 | 91,159 | 4.00 | 4.5 | 30,151 |
| Lights | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | PL189: CFL 2 15 CEIL FIXT | 5,165 | NA | 5,165 | 15,445 | 5,189 | 20,634 | 15,468 | 4.00 | 4.5 | 5,165 |
| Lights | WAREHOUSES 05 | WAREHOUSES | PL1: PL 2X4 4P40T12 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 3,159 | NA | 3,159 | 10,726 | 1,850 | 12,576 | 9,417 | 4.00 | 4.5 | 3,159 |
| Lights | CLINIC 02 | CLINIC | PL79: PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 2,045 | NA | 2,045 | 6,907 | 1,288 | 8,195 | 6,151 | 4.00 | 4.5 | 2,045 |
| Lights | SHOPS 06 | SHOPS | PL79: PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 27,643 | NA | 27,643 | 88,049 | 18,869 | 106,918 | 79,275 | 3.90 | 4.7 | 27,643 |
| Lights | BARRACKS 07 | BARRACKS | PL1: PL 2X4 4P40T12 8TD2 | PL237 PL 2X4 3P32T8 ELC3 REF | 2,852 | NA | 2,852 | 10,445 | 669 | 11,114 | 8,262 | 3.90 | 4.6 | 2,852 |
| Roof | MWR 05a | MORALE WELFARE RECREATION | Roof Insulation R Value 11 00 | Attic Ceiling: Increase insulation by R 38 | 2,582 | NA | 2,582 | 10,020 | 0 | 10,020 | 7,438 | 3.90 | 4.8 | 2,582 |
| Lights | COMMISSARIES | COMMISSARIES | PL5: PL 1X4 1P40T12 8TD1 | PL52 PL 1X4 1P40T12 ELC1 | 2,462 | NA | 2,462 | 8,004 | 1,489 | 9,493 | 7,031 | 3.90 | 4.7 | 2,462 |
| Lights | CLUBS 02 | CLUBS | PL62. PL 1X8 2F96T12 8TD2 | PL131: PL 1X8 2F96T12E8 ELC2 REF | 1,882 | NA | 1,882 | 6,838 | 466 | 7,304 | 5,422 | 3.90 | 4.7 | 1,882 |
| Lights | SHOPS 03 | SHOPS | PL79. PL 2X4 4P40T12E8 8TD2 | PL237. PL 2X4 3P32T8 ELC3 REF | 1,586 | NA | 1,586 | 5,174 | 994 | 6,168 | 4,581 | 3.90 | 4.6 | 1,586 |
| Lights | DINING HALLS 05 | DINING HALLS | PL82: PL 1X4 2P40T12E8 8TD2 | PL106. PL 1X4 2P40T12E8 ELC2 | 1,394 | NA | 1,394 | 4,267 | 1,167 | 5,434 | 4,040 | 3.90 | 4.6 | 1,394 |
| Lights | CHAPEL 01 | CHAPEL | PL4: PL 1X4 2P40T12 8TD2 | PL52. PL 1X4 2P32T8 ELC2 | 1,156 | NA | 1,156 | 3,688 | 799 | 4,487 | 3,331 | 3.90 | 4.6 | 1,156 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | PL13. PL 2X4 4P40T12 8EP2 | PL237. PL 2X4 3P32T8 ELC3 REF | 703 | NA | 703 | 2,371 | 396 | 2,767 | 2,063 | 3.90 | 4.6 | 703 |
| Hot Water | CHAPEL 02 | CHAPEL | Other Fuels 81W Heater | Wrap Old LPG Tank, Ins Pipe, LPS81e Aer., Lower Tank Temp. | 106 | NA | 106 | 409 | 0 | 409 | 304 | 3.90 | 3.2 | 106 |
| Lights | ADMINISTRATION 09 | ADMINISTRATION | PL79. PL 2X4 4P40T12E8 8TD2 | PL237: PL 2X4 3P32T8 ELC3 REF | 647,643 | NA | 647,643 | 2,547,804 | 184,020 | 2,451,824 | 1,804,182 | 3.80 | 4.8 | 647,643 |
| Lights | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN5 INC 60 CEIL | PL181: CFL 13 + BLST UNIT | 39,467 | NA | 39,467 | 96,396 | 51,980 | 148,376 | 108,909 | 3.80 | 4.7 | 39,467 |
| Lights | SHOPS 03 | SHOPS | PL62. PL 1X8 2F96T12 8TD2 | L83 LPS 55 PEND | 33,641 | NA | 33,641 | 130,321 | 2,509 | 127,812 | 94,171 | 3.80 | 4.8 | 33,641 |
| Lights | SHOPS 07 | SHOPS | PL82 PL 1X4 2P40T12E8 8TD2 | PL106. PL 1X4 2P40T12E8 ELC2 | 16,027 | NA | 16,027 | 47,598 | 13,486 | 61,084 | 45,057 | 3.80 | 4.7 | 16,027 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | PL79. PL 2X4 4P40T12E8 8TD2 | PL237. PL 2X4 3P32T8 ELC3 REF | 6,748 | NA | 6,748 | 22,085 | 3,831 | 25,916 | 19,169 | 3.80 | 4.7 | 6,748 |
| Wall | SHOPS 04 | SHOPS | Wall Insulation R Value 0 00 | Blow in insulation Increase insulation by R 6.5 | 20,147 | NA | 20,147 | 73,797 | 0 | 73,797 | 53,650 | 3.70 | 3.9 | 20,147 |
| Roof | ADMINISTRATION 03 | ADMINISTRATION | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 11 | 19,934 | NA | 19,934 | 73,396 | 0 | 73,396 | 53,462 | 3.70 | 5.5 | 19,934 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | First Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | PH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | INI1: INC 100 CEIL | PL189: CFL 2-15 CEIL FIXT | 14,261 | NA | 14,261 | 37,844 | 14,326 | 52,170 | 37,909 | 3.70 | 4.9 | 14,261 |
| Roof | WAREHOUSE 09 | WAREHOUSE | Roof Insulation R Value 20 05 | Bnspraded Ceilng: Increase Insulation by R 8 | 5,268 | NA | 5,268 | 19,445 | 0 | 19,445 | 14,177 | 3.70 | 5.5 | 5,268 |
| Lights | DINING HALLS 06 | DINING HALLS | FLE2. FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 4,301 | NA | 4,301 | 12,404 | 3,601 | 16,005 | 11,704 | 3.70 | 4.8 | 4,301 |
| Lights | CLINIC 02 | CLINIC | FLE2. FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,651 | NA | 3,651 | 10,395 | 3,132 | 13,527 | 9,876 | 3.70 | 4.8 | 3,651 |
| Lights | CLUBS 03 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 2,927 | NA | 2,927 | 10,297 | 547 | 10,844 | 7,916 | 3.70 | 4.9 | 2,927 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | FL5: FL 1X4 1P40T12 STD1 | PL29: FL 1X4 1P40T12 ELC1 | 1,480 | NA | 1,480 | 4,652 | 893 | 5,545 | 4,065 | 3.70 | 4.8 | 1,480 |
| Lights | RECREATION 04 | RECREATION | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 601 | NA | 601 | 2,107 | 112 | 2,219 | 1,618 | 3.70 | 4.9 | 601 |
| Hot Water | MWR 04 | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 99 | NA | 99 | 361 | 0 | 361 | 262 | 3.70 | 1.3 | 99 |
| Hot Water | ADMINISTRATION 06 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 65 | NA | 65 | 241 | 0 | 241 | 176 | 3.70 | 1.3 | 65 |
| Hot Water | ADMINISTRATION 04 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 39 | NA | 39 | 141 | 0 | 141 | 103 | 3.70 | 1.3 | 39 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | PL51: FL 2X4 2P32T8 ELC2 | 25,601 | NA | 25,601 | 89,146 | 3,874 | 93,020 | 67,420 | 3.60 | 5.0 | 25,601 |
| Heating | BARRACKS 04 | BARRACKS | Hot Water (Generated) Pas Coal | New Conventional Individual Building LPG Boiler | 11,149 | NA | 11,149 | 40,539 | 0 | 40,539 | 29,390 | 3.60 | 3.4 | 17,112 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 1,756 | NA | 1,756 | 6,499 | 1,815 | 8,314 | 6,557 | 3.60 | 5.0 | 1,209 |
| Lights | WAREHOUSE 03 | WAREHOUSE | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 1,500 | NA | 1,500 | 5,246 | 1,214 | 5,460 | 3,960 | 3.60 | 4.9 | 1,500 |
| Lights | MWR 04 | MORALE WELFARE RECREATION | PL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 621 | NA | 621 | 1,735 | 499 | 2,234 | 1,614 | 3.60 | 4.9 | 621 |
| Lights | DINING HALLS 05 | DINING HALLS | FL62. FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 503 | NA | 503 | 1,702 | 124 | 1,826 | 1,324 | 3.60 | 5.0 | 503 |
| Hot Water | ADMINISTRATION 01 | ADMINISTRATION | Electric SHW Heater | 0 76 LPG WH (COM), Ins Pipe, LPSHs, Aerators, Lower Tank Temp | 222 | NA | 222 | 808 | 0 | 808 | 586 | 3.60 | 1.5 | 349 |
| Hot Water | RECREATION 02 | RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs Aer , Lower Tank Temp | 114 | NA | 114 | 412 | 0 | 412 | 298 | 3.60 | 1.3 | 114 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | FL79. FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REF | 178,528 | NA | 178,528 | 578,554 | 50,725 | 629,279 | 450,751 | 3.50 | 5.1 | 178,528 |
| Roof | COMMISSARIES | COMMISSARIES | Roof Insulation R Value 8 90 | Bnspraded Ceilng: Increase Insulation by R 38 | 70,277 | NA | 70,277 | 249,226 | 0 | 249,226 | 178,949 | 3.50 | 5.1 | 70,277 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 12,236 | NA | 12,236 | 43,282 | 9,904 | 43,186 | 30,951 | 3.50 | 5.1 | 12,236 |
| Lights | MWR 02 | MORALE WELFARE-RECREATION | FL79: FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REF | 8,963 | NA | 8,963 | 25,957 | 5,670 | 31,627 | 22,664 | 3.50 | 5.1 | 8,963 |
| Roof | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Roof Insulation R Value 20 05 | Bnspraded Ceilng: Increase Insulation by R 8 | 6,828 | NA | 6,828 | 23,692 | 0 | 23,692 | 16,864 | 3.50 | 5.9 | 6,828 |
| Lights | WAREHOUSE-11 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | L83: LPS 55 PEND | 2,804 | NA | 2,804 | 9,903 | 150 | 9,753 | 6,949 | 3.50 | 5.2 | 2,804 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | PL79: FL 2X4 4P40T12E8 STD2 | PL237: FL 2X4 3P32T8 ELC3 REF | 2,547 | NA | 2,547 | 7,488 | 1,446 | 8,934 | 6,387 | 3.50 | 5.1 | 2,547 |
| Lights | BHOPS 03 | BHOPS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 2,144 | NA | 2,144 | 5,609 | 1,850 | 7,459 | 5,315 | 3.50 | 5.1 | 2,144 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4P40T12 STD2 | PL237: FL 2X4 3P32T8 ELC3 REF | 1,823 | NA | 1,823 | 5,575 | 862 | 6,437 | 4,614 | 3.50 | 5.1 | 1,823 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1P40T12 STD1 | PL29: FL 1X4 1P40T12 ELC1 | 1,119 | NA | 1,119 | 3,226 | 677 | 3,903 | 2,784 | 3.50 | 5.2 | 1,119 |
| Lights | BHOPS 03 | BHOPS | FL81: FL 2X4 2P40T12E8 STD2 | PL105: FL 2X4 2P40T12E8 ELC2 | 1,072 | NA | 1,072 | 2,811 | 925 | 3,736 | 2,664 | 3.50 | 5.1 | 1,072 |
| Hot Water | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 358 | NA | 358 | 1,258 | 0 | 1,258 | 900 | 3.50 | 1.3 | 358 |
| Hot Water | MILITARY OTHER 01 | MILITARY OTHER | Electric SHW Heater | Replace Existing Water Heater w/ a 0.76 LPG Water Heater (COM) | 102 | NA | 102 | 355 | 0 | 355 | 253 | 3.50 | 1.6 | 161 |
| Hot Water | BHOPS 02 | BHOPS | Electric SHW Heater | Wrap Old Elc Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 39 | NA | 39 | 136 | 0 | 136 | 97 | 3.50 | 0.8 | 39 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL3: FL 2X4 2P40T12 STD2 | PL51: FL 2X4 2P32T8 ELC2 | 5,119 | NA | 5,119 | 16,732 | 775 | 17,507 | 12,388 | 3.40 | 3.3 | 5,119 |
| Lights | BHOPS 04 | BHOPS | EX1: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 3,513 | NA | 3,513 | 8,263 | 3,430 | 11,893 | 8,381 | 3.40 | 3.3 | 2,418 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 2,240 | NA | 2,240 | 7,249 | 339 | 7,588 | 5,348 | 3.40 | 3.3 | 2,240 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | IN1: INC 40 CEIL | PL178: CFL 9 + DLST UNIT | 1,874 | NA | 1,874 | 4,257 | 2,063 | 6,320 | 4,446 | 3.40 | 5.3 | 1,874 |
| Lights | COMMISSARIES | COMMISSARIES | PL81: FL 2X4 2P40T12E8 STD2 | PL105: FL 2X4 2P40T12E8 ELC2 | 224 | NA | 224 | 556 | 194 | 750 | 527 | 3.40 | 5.3 | 224 |
| Heating | CHAPEL 02 | CHAPEL | Other Fuels Coav Boiler | Add Automatic Electric Damper | 144 | NA | 144 | 488 | 0 | 488 | 345 | 3.40 | 3.9 | 144 |
| Hot Water | MWR 05a | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 43 | NA | 43 | 147 | 0 | 147 | 104 | 3.40 | 1.3 | 43 |
| Hot Water | ADMINISTRATION 06a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 41 | NA | 41 | 141 | 0 | 141 | 100 | 3.40 | 1.3 | 41 |
| Hot Water | LABS 02 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LPSHs, Aerators | 11 | NA | 11 | 36 | 0 | 36 | 26 | 3.40 | 1.4 | 11 |
| Roof | ADMINISTRATION 05 | ADMINISTRATION | Roof Insulation R-Value 0 00 | Bnspraded Ceilng: Increase insulation by R 19 | 40,100 | NA | 40,100 | 133,166 | 0 | 133,166 | 93,066 | 3.30 | 6.2 | 40,100 |
| Wall | WAREHOUSE 12 | WAREHOUSE | Wall Insulation R Value 0 00 | Blow in Insulation: Increase insulation by R 13 | 13,356 | NA | 13,356 | 43,884 | 0 | 43,884 | 30,547 | 3.30 | 5.6 | 13,356 |
| Hot Water | FH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp, | 13,034 | NA | 13,034 | 43,113 | 0 | 43,113 | 30,079 | 3.30 | 1.4 | 13,034 |
| Wall | WAREHOUSE 06 | WAREHOUSE | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase Insulation by R 6.5 | 12,613 | NA | 12,613 | 41,163 | 0 | 41,163 | 28,550 | 3.30 | 6.4 | 12,613 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 4,559 | NA | 4,559 | 11,630 | 3,638 | 15,268 | 10,708 | 3.30 | 5.4 | 4,559 |
| Lights | DINING HALLS 06 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 1,550 | NA | 1,550 | 4,725 | 384 | 5,109 | 3,559 | 3.30 | 5.5 | 1,550 |
| Roof | ADMINISTRATION 03a | ADMINISTRATION | Roof Insulation R-Value 0 00 | Bnspraded Ceilng: Increase Insulation by R 8 | 735 | NA | 735 | 2,428 | 0 | 2,428 | 1,693 | 3.30 | 6.2 | 735 |
| Hot Water | BHOPS 05 | BHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 281 | NA | 281 | 930 | 0 | 930 | 649 | 3.30 | 1.4 | 281 |
| Hot Water | LABS 01 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LPSHs, Aerators | 20 | NA | 20 | 65 | 0 | 65 | 45 | 3.30 | 1.4 | 20 |
| Hot Water | CLUBS 01 | CLUBS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp | 7 | NA | 7 | 23 | 0 | 23 | 16 | 3.30 | 1.4 | 7 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL82. FL 1X4 2P40T12E8 STD2 | PL106 FL 1X4 2P40T12E8 ELC2 | 33,272 | NA | 33,272 | 81,220 | 26,547 | 107,767 | 74,494 | 3.20 | 5.6 | 33,272 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL6: FL 2X2 2P40T12U STD2 | PL54: FL 2X2 2P32T8U ELC2 | 11,853 | NA | 11,853 | 31,653 | 6,163 | 37,816 | 25,964 | 3.20 | 5.7 | 11,853 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | FL5: FL 1X4 1P40T12 STD1 | PL29. FL 1X4 1P40T12 ELC1 | 11,229 | NA | 11,229 | 29,114 | 6,778 | 35,892 | 24,663 | 3.20 | 5.4 | 11,229 |
| Lights | WAREHOUSE 07 | WAREHOUSE | PL80: FL 2X4 3P32T8 STD1.2 | PL57: FL 2X4 2P32T8 ELC2 REF | 5,031 | NA | 5,031 | 13,764 | 3,226 | 15,990 | 10,959 | 3.20 | 5.6 | 5,031 |
| Lights | RECREATION 02 | RECREATION | PL81: FL 2X4 2P40T12E8 STD2 | PL105 FL 2X4 2P40T12E8 ELC2 | 2,361 | NA | 2,361 | 5,565 | 1,884 | 7,449 | 5,087 | 3.20 | 5.4 | 2,361 |
| Hot Water | DINING HALLS 03 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 1,439 | NA | 1,439 | 4,645 | 0 | 4,645 | 3,206 | 3.20 | 1.4 | 1,439 |
| Hot Water | DINING HALLS 04 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 1,328 | NA | 1,328 | 4,283 | 0 | 4,283 | 2,954 | 3.20 | 1.4 | 1,328 |
| Hot Water | WAREHOUSE 07 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 72 | NA | 72 | 231 | 0 | 231 | 160 | 3.20 | 1.4 | 72 |
| Hot Water | CHAPEL 01 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer., Lower Tank Temp | 66 | NA | 66 | 211 | 0 | 211 | 146 | 3.20 | 1.4 | 66 |
| Hot Water | ADMINISTRATION 03a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 16 | NA | 16 | 52 | 0 | 52 | 36 | 3.20 | 1.4 | 16 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | PL189. CFL 2-15 CEIL FIXT | 5,626 | NA | 5,626 | 11,654 | 5,651 | 17,305 | 11,679 | 3.10 | 5.6 | 5,626 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | FL82. FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 5,283 | NA | 5,283 | 15,201 | 1,220 | 16,421 | 11,138 | 3.10 | 5.8 | 5,283 |
| Lights | BARRACKS 0" | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 2,367 | NA | 2,367 | 6,904 | 347 | 7,251 | 4,885 | 3.10 | 5.9 | 2,367 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL3: FL 2X4 2P40T12 STD2 | PL51: FL 2X4 2P32T8 ELC2 | 857 | NA | 857 | 2,101 | 589 | 2,690 | 1,833 | 3.10 | 5.7 | 857 |
| Hot Water | SECURITY 02 | SECURITY | Electric SHW Heater | 0 76 LPG WH (COM), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp | 608 | NA | 608 | 1,859 | 0 | 1,859 | 1,250 | 3.10 | 1.8 | 956 |
| Hot Water | WAREHOUSE 05 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 439 | NA | 439 | 1,370 | 0 | 1,370 | 931 | 3.10 | 1.5 | 439 |
| Lights | CLINIC 02 | CLINIC | FL62: FL 1X8 2F96T12 STD2 | PL131: FL 1X8 2F96T12E8 ELC2 REF | 431 | NA | 431 | 1,243 | 99 | 1,342 | 911 | 3.10 | 5.8 | 431 |
| Hot Water | WAREHOUSE 12 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 43 | NA | 43 | 134 | 0 | 134 | 91 | 3.10 | 1.5 | 43 |
| Hot Water | WAREHOUSE 08 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 43 | NA | 43 | 132 | 0 | 132 | 90 | 3.10 | 1.5 | 43 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | PL181 CFL 13 + DLST UNIT | 31,510 | NA | 31,510 | 61,012 | 34,420 | 95,432 | 63,922 | 3.00 | 5.9 | 31,510 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,506 | NA | 3,506 | 9,809 | 810 | 10,619 | 7,113 | 3.00 | 6.0 | 3,506 |
| Lights | FH DUPLEX 02 | DUPLEX | FL4: FL 1X4 2P40T12 STD2 | PL52. FL 1X4 2P32T8 ELC2 | 1,999 | NA | 1,999 | 4,482 | 1,483 | 5,965 | 3,967 | 3.00 | 6.1 | 1,999 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | FL82. FL 1X4 2P40T12E8 STD2 | PL106 FL 1X4 2P40T12E8 ELC2 | 908 | NA | 908 | 1,990 | 725 | 2,715 | 1,807 | 3.00 | 6.0 | 908 |
| Lights | WAREHOUSE 06 | WAREHOUSE | PL80: FL 2X4 3P32T8 STD1.2 | PL57: FL 2X4 2P32T8 ELC2 REF | 816 | NA | 816 | 1,915 | 523 | 2,438 | 1,622 | 3.00 | 6.0 | 816 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | PL82 FL 1X4 2P40T12E8 STD2 | PL106. FL 1X4 2P40T12E8 ELC2 | 776 | NA | 776 | 1,731 | 619 | 2,350 | 1,574 | 3.00 | 5.9 | 776 |
| Hot Water | BHOPS 04 | BHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp | 109 | NA | 109 | 323 | 0 | 323 | 214 | 3.00 | 1.6 | 109 |
| Heating | ADMINISTRATION 03a | ADMINISTRATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 76 | NA | 76 | 229 | 0 | 229 | 153 | 3.00 | 7.0 | 76 |
| Roof | FH DUPLEX 01 | DUPLEX | Roof Insulation R Value 11 00 | Attic Ceilng: Increase insulation by R 30 | 262,367 | NA | 262,367 | 753,863 | 0 | 753,863 | 491,496 | 2.90 | 6.6 | 262,367 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | PL181. CFL 13 + DLST UNIT | 49,179 | NA | 49,179 | 89,846 | 53,574 | 143,420 | 94,241 | 2.90 | 6.1 | 49,179 |
| Lights | FH DUPLEX 03 | DUPLEX | FL4. FL 1X4 2P40T12 STD2 | PL52: FL 1X4 2P32T8 ELC2 | 10,877 | NA | 10,877 | 23,708 | 8,074 | 31,782 | 20,904 | 2.90 | 6.1 | 10,877 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | PL81. FL 2X4 2P40T12E8 STD2 | PL105 FL 2X4 2P40T12E8 ELC2 | 9,330 | NA | 9,330 | 24,889 | 2,155 | 27,044 | 17,714 | 2.90 | 6.2 | 9,330 |
| Lights | HANGER | HANGAR | IH17: HPS 250 PEND | L85: LPS 135 PEND | 5,972 | NA | 5,972 | 18,191 | 818 | 17,573 | 11,600 | 2.90 | 6.2 | 5,972 |
| Lights | SHOPS 0" | BHOPS | FL5: FL 1X4 1P40T12 STD1 | PL29. FL 1X4 1P40T12 ELC1 | 3,205 | NA | 3,205 | 7,244 | 1,950 | 9,194 | 5,988 | 2.90 | 6.3 | 3,205 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | PL81: FL 2X4 2P40T12E8 STD2 | PL105 FL 2X4 2P40T12E8 ELC2 | 2,793 | NA | 2,793 | 7,561 | 645 | 8,206 | 5,413 | 2.90 | 6.1 | 2,793 |
| Lights | CLINIC 01 | CLINIC | FL5. FL 1X4 1P40T12 STD1 | PL29. FL 1X4 1P40T12 ELC1 | 914 | NA | 914 | 2,123 | 559 | 2,682 | 1,768 | 2.90 | 6.1 | 914 |
| Hot Water | CLINIC 02 | CLINIC | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins Pipe, LPSHs, Aerators | 223 | NA | 223 | 644 | 0 | 644 | 421 | 2.90 | 1.6 | 223 |
| Heating | MWR 06 | MORALE WELFARE RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 105 | NA | 105 | 308 | 0 | 308 | 204 | 2.90 | 7.1 | 105 |
| Roof | BARRACKS 0" | BARRACKS | Roof Insulation R Value 8 90 | Bnspraded Ceilng: Increase insulation by R 19 | 54,371 | NA | 54,371 | 154,238 | 0 | 154,238 | 99,867 | 2.80 | 6.9 | 54,371 |
| Cooling | HOSPITAL | HOSPITAL | Electric Coav Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling) | 41,206 | NA | 41,206 | 116,316 | 0 | 116,316 | 75,110 | 2.80 | 3.1 | 71,572 |
| Lights | WAREHOUSE 05 | WAREHOUSE | PL79 FL 2X4 4P40T12E8 STD2 | PL237 FL 2X4 3P32T8 ELC3 REF | 17,903 | NA | 17,903 | 39,424 | 11,322 | 50,746 | 32,842 | 2.80 | 6.3 | 17,904 |
| Lights | ADMINISTRATION 0" | ADMINISTRATION | PL82 FL 1X4 2P40T12E8 STD2 | PL106 FL 1X4 2P40T12E8 ELC2 | 14,419 | NA | 14,419 | 37,547 | 3,330 | 40,877 | 26,459 | 2.80 | 6.4 | 14,419 |
| Lights | ADMINISTRATION 0" | ADMINISTRATION | PL81: FL 2X4 2P40T12E8 STD2 | PL105 FL 2X4 2P40T12E8 ELC2 | 11,456 | NA | 11,456 | 29,726 | 2,653 | 32,379 | 20,893 | 2.80 | 6.4 | 11,456 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy & Demand Savings (1994 $) | Present Value of Non Annual O&M Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period | Post Cost (1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wall | ADMINISTRATION 04 | ADMINISTRATION | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase Insulation by R 4.5 | 9,235 | NA | 9,235 | 25,952 | 0 | 25,952 | 16,717 | 2.80 | 6 6 | 9,235 |
| Roof | ADMINISTRATION 04 | ADMINISTRATION | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R 38 | 8,466 | NA | 8,466 | 23,482 | 0 | 23,482 | 15,017 | 2.80 | 6 7 | 8 466 |
| Lights | CHAPEL 02 | CHAPEL | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 5,347 | NA | 5,347 | 11,369 | 3,697 | 15,066 | 9,719 | 2.80 | 6 4 | 5,347 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | FL3: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 1,103 | NA | 1,103 | 2,483 | 634 | 3,117 | 2,013 | 2.80 | 6 4 | 1,103 |
| Lights | RECREATION 02 | RECREATION | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 945 | NA | 945 | 1,905 | 754 | 2,659 | 1,714 | 2.80 | 6 2 | 945 |
| Lights | RECREATION 04 | RECREATION | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 183 | NA | 183 | 412 | 107 | 519 | 336 | 2.80 | 6 3 | 183 |
| Lights | MILITARY OTHER 02 | MILITARY OTHER | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 13,098 | NA | 13,098 | 24,010 | 11,839 | 35,849 | 22,751 | 2.70 | 6 5 | 13,098 |
| Lights | MILITARY OTHER 01 | MILITARY OTHER | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 10,266 | NA | 10,266 | 18,728 | 9,279 | 28,007 | 17,741 | 2.70 | 6 5 | 10,266 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 7,471 | NA | 7,471 | 13,253 | 6,753 | 20,006 | 12,535 | 2.70 | 6 6 | 7,471 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | FL82: FL 1X4 2P40T12E8 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 3,998 | NA | 3,998 | 10,052 | 924 | 10,976 | 6,977 | 2.70 | 6 6 | 3,998 |
| Lights | BARRACKS 04 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL29: FL 1X4 1P40T12 ELC1 | 621 | NA | 621 | 1,609 | 91 | 1,700 | 1,079 | 2.70 | 6 6 | 621 |
| Lights | MWR 03 | MORALE WELFARE RECREATION | FL5: FL 1X4 1P40T12 STD1 | Add Automatic Electric Damper | 301 | NA | 301 | 589 | 233 | 822 | 521 | 2.70 | 6 5 | 301 |
| Heating | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Other Fuels Coav Boiler | Add Automatic Electric Damper | 171 | NA | 171 | 461 | 0 | 461 | 289 | 2.70 | 7 8 | 171 |
| Heating | RECREATION 04 | RECREATION | Other Fuels Coav Boiler | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp. | 130 | NA | 130 | 345 | 0 | 345 | 215 | 2.70 | 7 9 | 130 |
| Hot Water | ADMINISTRATION 01 | ADMINISTRATION | Other Fuels Coav Boiler | Blow-in Insulation: Increase Insulation by R 4.5 | 99 | NA | 99 | 268 | 0 | 268 | 169 | 2.70 | 1 0 | 99 |
| Wall | FH DUPLEX 01 | DUPLEX | Other Fuels SHW Heater | FL52: FL 1X4 2P32T8 ELC2 | 227,405 | NA | 227,405 | 591,832 | 0 | 591,832 | 364,427 | 2 60 | 7 3 | 227,405 |
| Lights | BARRACKS 02 | BARRACKS | Wall Insulation R Value 0.00 | FL51: FL 2X4 2P32T8 ELC2 | 40,652 | NA | 40,652 | 100,080 | 5,967 | 106,047 | 65,396 | 2 60 | 6 9 | 40,652 |
| Lights | BARRACKS 02 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer , Lower Tank Temp. | 40,652 | NA | 40,652 | 100,080 | 5,967 | 106,047 | 65,395 | 2 60 | 6 9 | 40,652 |
| Hot Water | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | FL3: FL 2X4 2P40T12 STD2 | Wrap Old LPG Tank, Ins Pipe, LPSHs, Aer., Lower Tank Temp. | 15,098 | NA | 15,098 | 39,816 | 0 | 39,816 | 24,718 | 2 60 | 6 8 | 15,098 |
| Hot Water | BHOPS 03 | BHOPS | Other Fuels SHW Heater | FL105: FL 2X4 2P40T12E8 ELC2 | 3,223 | NA | 3,223 | 8,338 | 0 | 8,338 | 5,116 | 2 60 | 1 8 | 3,223 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FLE1: FL 2X4 2P40T12E8 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 2,490 | NA | 2,490 | 4,285 | 2,251 | 6,536 | 4,045 | 2 60 | 6 8 | 2,490 |
| Lights | QUEST HOUSES 02 | MILITARY MOBILE HOMES | FL4: FL 1X4 2P40T12 STD2 | FL28: FL 1X4 2P40T12 ELC2 | 234 | NA | 234 | 429 | 173 | 602 | 369 | 2 60 | 6 9 | 234 |
| Lights | BARRACKS 06 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | L83: LPS 55 PEND | 173 | NA | 173 | 400 | 42 | 442 | 270 | 2 60 | 7 0 | 173 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL62: FL 1X2 2P96T12 STD2 | Suspended Ceiling: Increase insulation by R 30 | 75,680 | NA | 75,680 | 192,744 | 4,049 | 188,695 | 113,015 | 2 50 | 7 3 | 75,680 |
| Roof | ADMINISTRATION 07 | ADMINISTRATION | Roof Insulation R Value 8.90 | L83: LPS 55 PEND | 30,033 | NA | 30,033 | 75,364 | 0 | 75,364 | 45,331 | 2 50 | 7 4 | 30,033 |
| Lights | WAREHOUSE 10 | WAREHOUSE | FL62: FL 1X2 2P96T12 STD2 | L83: LPS 55 PEND | 7,614 | NA | 7,614 | 19,770 | 407 | 19,363 | 11,749 | 2 50 | 7 2 | 7,614 |
| Lights | WAREHOUSE 09 | WAREHOUSE | FL62: FL 1X2 2P96T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 6,331 | NA | 6,331 | 16,389 | 339 | 16,050 | 9,719 | 2 50 | 7 2 | 6,331 |
| Lights | FH DETACHED 02 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2P40T12 STD2 | Attic Ceiling: Increase insulation by R 19 | 4,419 | NA | 4,419 | 7,730 | 3,280 | 11,010 | 6,591 | 2 50 | 7 2 | 4,419 |
| Roof | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 11.00 | FL131: FL 1X8 2P96T12E8 ELC2 REP | 850 | NA | 850 | 2,090 | 0 | 2,090 | 1,240 | 2 50 | 7 2 | 850 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL62: FL 1X8 2P96T12 STD2 | FL131: FL 1X8 2P96T12E8 ELC2 REP | 9,599 | NA | 9,599 | 19,857 | 3,078 | 22,935 | 13,336 | 2 40 | 7 5 | 9,599 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL62: FL 1X8 2P96T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 5,264 | NA | 5,264 | 12,916 | -27 | 12,889 | 7,625 | 2 40 | 7 4 | 5,264 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2P40T12 STD2 | Suspended Ceiling: Increase insulation by R 8 | 4,048 | NA | 4,048 | 6,716 | 3,005 | 9,721 | 5,673 | 2 40 | 7 4 | 4,048 |
| Roof | CLUBS 01 | CLUBS | Roof Insulation R-Value 8.90 | FL52: FL 1X4 2P32T8 ELC2 | 2,317 | NA | 2,317 | 5,486 | 0 | 5,486 | 3,170 | 2 40 | 8 6 | 2,317 |
| Lights | BARRACKS 01 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL51: FL 2X4 2P32T8 ELC2 | 1,280 | NA | 1,280 | 2,910 | 188 | 3,098 | 1,818 | 2 40 | 7 4 | 1,280 |
| Lights | BARRACKS 01 | BARRACKS | FL3: FL 2X4 2P40T12 STD2 | FL131: FL 1X8 2P96T12E8 ELC2 REP | 1,280 | NA | 1,280 | 2,910 | 188 | 3,098 | 1,818 | 2 40 | 7 4 | 1,280 |
| Lights | CLUBS 01 | CLUBS | FL62: FL 1X8 2P96T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 736 | NA | 736 | 1,493 | 298 | 1,791 | 1,055 | 2 40 | 7 6 | 736 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2P40T12 STD2 | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LPSHs, Aerators | 215 | NA | 215 | 356 | 160 | 516 | 301 | 2 40 | 7 5 | 215 |
| Hot Water | MWR 07 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Blow in Insulation: Increase Insulation by R 2 4 | 32 | NA | 32 | 76 | 0 | 76 | 44 | 2 40 | 0 8 | 32 |
| Wall | RECREATION 02 | RECREATION | Wall Insulation R Value 7.00 | Suspended Ceiling: Increase Insulation by R 30 | 21,108 | NA | 21,108 | 48,445 | 0 | 48,445 | 27,337 | 2 30 | 8 2 | 21,108 |
| Roof | MWR 03 | MORALE WELFARE RECREATION | Roof Insulation R Value 20 05 | PL106: FL 1X4 2P40T12E8 ELC2 | 12,324 | NA | 12,324 | 28,596 | 0 | 28,596 | 16,272 | 2 30 | 8 0 | 12,324 |
| Lights | FH DUPLEX 03 | DUPLEX | FL82: FL 1X4 2P40T12E8 STD2 | 0.76 LPG Wll (CON-), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp. | 8,855 | NA | 8,855 | 13,434 | 6,871 | 20,305 | 11,450 | 2 30 | 7 8 | 8,855 |
| Hot Water | WAREHOUSE 09 | WAREHOUSE | Electric SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp. | 32 | NA | 32 | 74 | 0 | 74 | 42 | 2 30 | 1 6 | 72 |
| Hot Water | FH-DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | FL29: FL 1X4 1P40T12 ELC1 | 9,477 | NA | 9,477 | 21,272 | 0 | 21,272 | 11,795 | 2 20 | 2 9 | 9,477 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | FL5: FL 1X4 1P40T12 STD1 | Attic Ceiling: Increase insulation by R 19 | 1,768 | NA | 1,768 | 2,878 | 1,016 | 3,894 | 2,126 | 2 20 | 8 1 | 1,768 |
| Roof | BHOPS 02 | BHOPS | Roof Insulation R Value 8.69 | Suspended Ceiling: Increase insulation by R 30 | 33,590 | NA | 33,590 | 71,995 | 0 | 71,995 | 38,405 | 2 10 | 8 9 | 33,590 |
| Roof | RECREATION 04 | RECREATION | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 22,535 | NA | 22,535 | 47,558 | 0 | 47,558 | 25,023 | 2 10 | 8 8 | 22,535 |
| Roof | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Roof Insulation R 8.90 | FL52: FL 1X4 2P32T8 ELC2 | 11,058 | NA | 11,058 | 22,822 | 0 | 22,822 | 11,764 | 2 10 | 8 8 | 11,058 |
| Lights | WAREHOUSE 06 | WAREHOUSE | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 5,079 | NA | 5,079 | 6,645 | 3,929 | 10,574 | 5,495 | 2 10 | 8 5 | 5,079 |
| Lights | BARRACKS 05 | BARRACKS | FL4: FL 1X4 2P40T12 STD2 | FL52: FL 1X4 2P32T8 ELC2 | 20 | NA | 20 | 39 | 3 | 42 | 22 | 2 10 | 8 4 | 20 |
| Wall | BARRACKS 04 | BARRACKS | Wall Insulation R Value 7 00 | Blow in Insulation: Increase Insulation by R 2 4 | 31,169 | NA | 31,169 | 62,676 | 0 | 62,676 | 31,507 | 2 00 | 9 6 | 31,169 |
| Wall | CLUBS 02 | CLUBS | Wall Insulation R Value 0.00 | Interior Masonry Surface: Increase Insulation by R 10.9 | 26,717 | NA | 26,717 | 52,319 | 0 | 52,319 | 25,602 | 2 00 | 9 4 | 26,717 |
| Hot Water | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | 0.85 LPG Wll (RES), Ins. Pipe, LPSHs, Aerators, Lower Tank Temp. | 18,926 | NA | 18,926 | 38,194 | 0 | 38,194 | 19,267 | 2 00 | 9 5 | 165,604 |
| Roof | MILITARY OTHER 01 | MILITARY OTHER | Roof Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 11 | 4,852 | NA | 4,852 | 9,901 | 0 | 9,901 | 5,048 | 2 00 | 10 1 | 4,852 |
| Lights | BARRACKS 06 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,450 | NA | 3,450 | 6,104 | 846 | 6,950 | 3,500 | 2 00 | 9 0 | 3,450 |
| Heating | MWR 04 | MORALE WELFARE RECREATION | Other Fuels Coav Boiler | Add Automatic Electric Damper | 304 | NA | 304 | 602 | 0 | 602 | 298 | 2 00 | 8 7 | 304 |
| Lights | BARRACKS 04 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | FL106: FL 1X4 2P40T12E8 ELC2 | 10,114 | NA | 10,114 | 17,088 | 2,481 | 19,569 | 9,456 | 1 90 | 9 3 | 10,114 |
| Wall | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | Wall Insulation R Value 8 79 | Blow-in Insulation: Increase Insulation by R 4.5 | 5,007 | NA | 5,007 | 9,369 | 0 | 9,369 | 4,362 | 1 90 | 9 7 | 5,007 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 3,296 | NA | 3,296 | 5,542 | 2,557 | 8,099 | 2,803 | 1 90 | 9 6 | 3,296 |
| Lights | CLUBS 03 | CLUBS | FL117: FL 1X8 1P96T12E8 STD1 | PL123: FL 1X8 1P96T12E8 EEP1 | 2,461 | NA | 2,461 | 2,978 | 1,616 | 4,594 | 2,132 | 1 90 | 9 5 | 2,461 |
| Lights | CLUBS 02 | CLUBS | FL117: FL 1X8 1P96T12E8 STD1 | PL123: FL 1X8 1P96T12E8 EEP1 REP | 1,582 | NA | 1,582 | 1,958 | 1,102 | 3,060 | 1,477 | 1 90 | 9 2 | 1,582 |
| Roof | MILITARY OTHER 04 | MILITARY OTHER | Roof Insulation R Value 7.15 | Attic Ceiling: Increase Insulation by R-19 | 1,000 | NA | 1,000 | 1,937 | 0 | 1,937 | 937 | 1 90 | 10 7 | 1,000 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 190 | NA | 190 | 222 | 148 | 370 | 179 | 1 90 | 2 1 | 190 |
| Lights | COMMISSARIES | COMMISSARIES | FL63: FL 1X8 1P96T12 STD1 | PL126: FL 1X8 1P96T12E8 EEP1 REP | 14,842 | NA | 14,842 | 27,777 | -719 | 27,058 | 12,217 | 1 80 | 10 0 | 14,842 |
| Roof | DINING HALLS 03 | DINING HALLS | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 7,006 | NA | 7,006 | 12,745 | 0 | 12,745 | 5,739 | 1 80 | 11 4 | 7,006 |
| Lights | COMMISSARIES | COMMISSARIES | H815: HPS 150 PEND | L86: LPS 90 PEND | 6,351 | NA | 6,351 | 12,567 | 1,100 | 13,467 | 5,116 | 1 80 | 10 1 | 6,351 |
| Roof | SECURITY 03 | SECURITY | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase Insulation by R 30 | 3,699 | NA | 3,699 | 6,827 | 0 | 6,827 | 3,128 | 1 80 | 9 9 | 3,699 |
| Lights | QUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 175 | NA | 175 | 172 | 136 | 308 | 133 | 1 80 | 10 1 | 175 |
| Hot Water | ADMINISTRATION 07 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LPSHs, Aer , Lower Tank Temp | 109 | NA | 109 | 196 | 0 | 196 | 87 | 1 80 | 2 6 | 109 |
| Lights | BARRACKS 02 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 29,155 | NA | 29,155 | 42,389 | 7,152 | 49,541 | 20,386 | 1 70 | 10 5 | 29,155 |
| Roof | ADMINISTRATION 01 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 4,031 | NA | 4,031 | 7,043 | 0 | 7,043 | 3,012 | 1 70 | 11 9 | 4,031 |
| Wall | ELECTRONICS 03 | ELECTRONICS | Wall Insulation R-Value 0 00 | Interior Masonry Surface: Increase Insulation by R 4 3 | 4,364 | NA | 4,364 | 7,341 | 0 | 7,341 | 2,977 | 1 70 | 11 5 | 4,364 |
| Wall | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Wall Insulation R Value 0 00 | Blow-in Insulation: Increase Insulation by R 4.5 | 3,099 | NA | 3,099 | 5,395 | 0 | 5,395 | 2,295 | 1 70 | 10 5 | 3,099 |
| Lights | BARRACKS 05 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 319 | NA | 319 | 468 | 78 | 546 | 227 | 1 70 | 10 4 | 319 |
| Wall | CHAPEL 02 | CHAPEL | Wall Insulation R Value 5.32 | Interior Masonry Surface: Increase Insulation by R 4 3 | 9,153 | NA | 9,153 | 14,664 | 0 | 14,664 | 5,511 | 1 60 | 12 9 | 9,153 |
| Lights | BHOPS 04 | BHOPS | FL63: FL 1X8 1P96T12 STD1 | PL126: FL 1X8 1P96T12E8 EEP1 REP | 7,248 | NA | 7,248 | 9,624 | 2,121 | 11,745 | 4,497 | 1 60 | 11 1 | 7,248 |
| Lights | BARRACKS 01 | BARRACKS | FL82: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 918 | NA | 918 | 1,282 | 225 | 1,507 | 589 | 1 60 | 10 8 | 918 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2P96T12 STD2 | PL74: FL 1X8 2P96T12 ELC2 | 80,945 | NA | 80,945 | 75,445 | 42,478 | 117,923 | 36,978 | 1 50 | 13 2 | 80,945 |
| Roof | BARRACKS 02 | BARRACKS | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 73,163 | NA | 73,163 | 109,732 | 0 | 109,732 | 36,568 | 1 50 | 13 4 | 73,163 |
| Roof | ADMINISTRATION 08 | ADMINISTRATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 19 | 28,208 | NA | 28,208 | 43,336 | 0 | 43,336 | 15,128 | 1 50 | 12 1 | 28,208 |
| Lights | DINING HALLS 03 | DINING HALLS | FL63: FL 1X8 1P96T12 STD1 | PL126: FL 1X8 1P96T12E8 EEP1 REP | 20,853 | NA | 20,853 | 24,167 | 6,936 | 31,103 | 10,250 | 1 50 | 12 1 | 20,853 |
| Wall | ADMINISTRATION 02 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Blow in Insulation: Increase Insulation by R 4.5 | 18,375 | NA | 18,375 | 26,784 | 0 | 26,784 | 8,409 | 1 50 | 12 9 | 18,375 |
| Lights | RECREATION 04 | RECREATION | H814: HPS 100 PEND | L83: LPS 55 PEND | 4,980 | NA | 4,980 | 7,302 | 283 | 7,585 | 2,605 | 1 50 | 11 9 | 4,980 |
| Roof | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 4,438 | NA | 4,438 | 6,592 | 0 | 6,592 | 2,154 | 1 50 | 14 0 | 4,438 |
| Roof | MILITARY OTHER 03 | MILITARY OTHER | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase insulation by R 30 | 3,925 | NA | 3,925 | 5,829 | 0 | 5,829 | 1,904 | 1 50 | 12 3 | 3,925 |
| Wall | SECURITY 01 | SECURITY | Wall Insulation R Value 5 32 | Interior Masonry Surface: Increase Insulation by R 10 9 | 3,735 | NA | 3,735 | 5,611 | 0 | 5,611 | 1,876 | 1 50 | 12 1 | 3,735 |
| Roof | ADMINISTRATION 06 | ADMINISTRATION | Roof Insulation R Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 3,358 | NA | 3,358 | 5,062 | 0 | 5,062 | 1,704 | 1 50 | 13 9 | 3 358 |
| Roof | BHOPS 06 | BHOPS | Roof Insulation R Value 8.69 | Attic Ceiling: Increase Insulation by R 8 | 2,326 | NA | 2,326 | 3,551 | 0 | 3,551 | 1,225 | 1 50 | 13 5 | 2,326 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | FLE2: FL 1X4 2P40T12E8 STD2 | PL106: FL 1X4 2P40T12E8 ELC2 | 2,115 | NA | 2,115 | 1,597 | 1,498 | 3,095 | 979 | 1 50 | 12 1 | 2,115 |
| Roof | ELECTRONICS 03 | ELECTRONICS | Roof Insulation R Value 20 05 | Suspended Ceiling Increase Insulation by R 8 | 1,755 | NA | 1,755 | 2,706 | 0 | 2,706 | 952 | 1 50 | 12 4 | 1,755 |
| Lights | MWR 06 | MORALE WELFARE RECREATION | FL63: FL 1X8 1P96T12 STD1 | FL75: FL 1X8 1P96T12 ELC1 | 985 | NA | 985 | 772 | 680 | 1,452 | 468 | 1 50 | 12 0 | 985 |
| Roof | ADMINISTRATION 09 | ADMINISTRATION | Roof Insulation R Value 30.00 | Attic Ceiling: Increase Insulation by R 19 | 88,158 | NA | 88,158 | 120,120 | 0 | 120 120 | 31,962 | 1 40 | 13 4 | 88,158 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL63: FL 1X8 1P96T12 STD1 | PL126: FL 1X8 1P96T12E8 EEP1 REP | 54,419 | NA | 54,419 | 57,561 | 17,091 | 74 652 | 20,233 | 1 40 | 11 1 | 54,419 |
| Roof | BHOPS 05 | BHOPS | Roof Insulation R Value 0.00 | Suspended Ceiling Increase insulation by R 19 | 35,771 | NA | 35,771 | 51,297 | 0 | 51 29* | 15,526 | 1 40 | 14 5 | 35,771 |

# Table 3.8a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy & Demand Savings ($1994 $) | Present Value of Non Annual O&M Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period | Net Cost ($1994 $) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | SHOPS 05 | SHOPS | FL43: FL 1X8 1I96T12 STD1 | FL126: FL 1X8 1I96T12S8 EEP1 REP | 12,844 | NA | 12,844 | 14,584 | 3,758 | 18,342 | 5,497 | 1.40 | 12.6 | 12,844 |
| Lights | BARRACKS 07 | BARRACKS | FL5: FL 1X4 1P40T12 STD1 | FL29: FL 1X4 1P40T12 ELC1 | 8,670 | NA | 8,670 | 11,253 | 963 | 12,216 | 3,545 | 1.40 | 12.7 | 8,670 |
| Lights | DINING HALLS 01 | DINING HALLS | FL43: FL 1X8 1I96T12 STD1 | FL126: FL 1X8 1I96T12S8 EEP1 REP | 7,176 | NA | 7,176 | 7,985 | 2,387 | 10,372 | 3,196 | 1.40 | 12.4 | 7,176 |
| Lights | PROD/PROCESS 01 | PRODUCTION and/or PROCESS | FL82: FL 1X4 2P40T12S8 STD2 | FL126: FL 1X8 1I96T12S8 EEP1 REP | 8,641 | NA | 8,641 | 11,216 | 491 | 11,707 | 3,066 | 1.40 | 13.5 | 8,641 |
| Lights | MWR 07 | MORALE WELFARE RECREATION | FL43: FL 1X8 1I96T12 STD1 | FL106: FL 1X4 2P40T12S8 ELC2 | 3,302 | NA | 3,302 | 2,334 | 2,267 | 4,601 | 1,300 | 1.40 | 13.0 | 3,302 |
| Roof | BARRACKS 01 | BARRACKS | Roof Insulation R Value 11.00 | FL126: FL 1X8 1I96T12S8 EEP1 REP | 2,592 | NA | 2,592 | 3,331 | 210 | 3,541 | 949 | 1.40 | 13.3 | 2,592 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL43: FL 1X8 1I96T12 STD1 | Attic Ceiling: Increase insulation by R 11 | 2,439 | NA | 2,439 | 3,366 | 0 | 3,366 | 926 | 1.40 | 14.9 | 2,439 |
| Heating | RECREATION 02 | RECREATION | Other Fuels Conv Boiler | FL126: FL 1X8 1I96T12S8 EEP1 REP | 1,270 | NA | 1,270 | 1,321 | 399 | 1,720 | 451 | 1.40 | 13.2 | 1,270 |
| Wall | PH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R Value 0.00 | Add Automatic Electric Damper | 244 | NA | 244 | 330 | 0 | 330 | 86 | 1.40 | 8.0 | 244 |
| Lights | PROD/PROCESS 02 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2I96T12 STD2 | Blow-in Insulation: Increase insulation by R 6.5 | 209,504 | NA | 209,504 | 276,790 | 0 | 276,790 | 67,286 | 1.30 | 14.8 | 209,504 |
| Cooling | ADMINISTRATION 07 | ADMINISTRATION | Electric Conv Chiller | L83: LPB 55 PEND | 113,513 | NA | 113,513 | 116,514 | 29,524 | 146,038 | 32,525 | 1.30 | 14.0 | 113,513 |
| Roof | STORAGE 02 | STORAGE | Roof Insulation R Value 0.00 | Air Cooled Reciprocating Chiller (75 to 200 tons cooling) | 71,588 | NA | 71,588 | 95,029 | 0 | 95,029 | 23,441 | 1.30 | 7.7 | 106,648 |
| Wall | HOSPITAL | HOSPITAL | Wall Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 8 | 56,310 | NA | 56,310 | 71,645 | 0 | 71,665 | 15,355 | 1.30 | 14.7 | 56,310 |
| Cooling | CLINIC 01 | CLINIC | Electric Conv Chiller | Interior Masonary Surface: Increase insulation by R 4.3 | 42,931 | NA | 42,931 | 54,160 | 0 | 54,160 | 11,228 | 1.30 | 15.6 | 42,931 |
| Wall | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Wall Insulation R Value 0.00 | Air Cooled Reciprocating Chiller (75 to 200 tons cooling) | 27,057 | NA | 27,057 | 35,674 | 0 | 35,674 | 8,617 | 1.30 | 8.8 | 35,549 |
| Heating | HOSPITAL | HOSPITAL | Other Fuels Conv Boiler | Blow-in Insulation: Increase insulation by R 6.5 | 19,441 | NA | 19,441 | 24,882 | 0 | 24,882 | 5,440 | 1.30 | 16.1 | 19,441 |
| Heating | CLUBS 03 | CLUBS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 258 | NA | 258 | 346 | 0 | 346 | 89 | 1.30 | 9.3 | 258 |
| Hot Water | MILITARY OTHER 04 | MILITARY OTHER | Other Fuels SHW Heater | Add Automatic Electric Damper | 113 | NA | 113 | 143 | 0 | 143 | 30 | 1.30 | 16.5 | 113 |
| Roof | PH DUPLEX 03 | DUPLEX | Roof Insulation R Value 30.00 | Wrap Old LPG Tank, Ins Pipe, LPSHs, Acc., Lower Tank Temp | 46 | NA | 46 | 58 | 0 | 58 | 12 | 1.30 | 3.6 | 46 |
| Roof | PH 3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R Value 11.00 | Attic Ceiling: Increase insulation by R 19 | 314,380 | NA | 314,380 | 382,884 | 0 | 382,884 | 68,504 | 1.20 | 15.5 | 314,380 |
| Wall | CLINIC 02 | CLINIC | Wall Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R 19 | 50,557 | NA | 50,557 | 59,468 | 0 | 59,468 | 8,910 | 1.20 | 17.2 | 50,557 |
| Lights | BARRACKS 02 | BARRACKS | FL94: FL 1X4 2P40T12S8 EEP2 | Blow-in Insulation: Increase insulation by R 6.5 | 25,381 | NA | 25,381 | 30,430 | 0 | 30,430 | 5,049 | 1.20 | 17.4 | 25,381 |
| Roof | ADMINISTRATION 02 | ADMINISTRATION | Roof Insulation R Value 30.00 | FL106: FL 1X4 2P40T12S8 ELC2 | 14,971 | NA | 14,971 | 14,224 | 4,247 | 18,471 | 3,500 | 1.20 | 14.5 | 14,971 |
| Roof | MWR 07 | MORALE WELFARE RECREATION | Roof Insulation R Value 30.00 | Attic Ceiling: Increase insulation by R 19 | 14,427 | NA | 14,427 | 17,438 | 0 | 17,438 | 3,011 | 1.20 | 15.3 | 14,427 |
| Wall | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Wall Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 19 | 13,318 | NA | 13,318 | 15,772 | 0 | 15,772 | 2,454 | 1.20 | 15.7 | 13,318 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL63: FL 1X8 1P96T12 STD1 | Interior Masonary Surface: Increase insulation by R 4.3 | 10,662 | NA | 10,662 | 12,474 | 0 | 12,474 | 1,812 | 1.20 | 18.0 | 10,662 |
| Lights | BARRACKS 01 | BARRACKS | FL94: FL 1X4 2P40T12S8 EEP2 | FL75: FL 1X8 1P96T12 ELC1 | 515 | NA | 515 | 275 | 356 | 631 | 116 | 1.20 | 14.4 | 515 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL43: FL 1X8 1P96T12 STD1 | FL106: FL 1X4 2P40T12S8 ELC2 | 471 | NA | 471 | 426 | 134 | 560 | 88 | 1.20 | 15.0 | 471 |
| Hot Water | MWR 03 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | FL75: FL 1X8 1P96T12 ELC1 | 84 | NA | 84 | 42 | 58 | 100 | 17 | 1.20 | 14.7 | 84 |
| Roof | PH 3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R Value 30.00 | Wrap Old LPG Tank, Ins Pipe, LPSHs, Acc., Lower Tank Temp | 106 | NA | 106 | 122 | 0 | 122 | 16 | 1.20 | 3.2 | 106 |
| Wall | BARRACKS 02 | BARRACKS | Wall Insulation R Value 0.00 | Attic Ceiling: Increase insulation by R 19 | 139,587 | NA | 139,587 | 160,259 | 0 | 160,259 | 20,672 | 1.10 | 16.3 | 139,587 |
| Roof | CHAPEL 02 | CHAPEL | Roof Insulation R Value 20.05 | Blow in Insulation: Increase insulation by R 6.5 | 108,268 | NA | 108,268 | 115,934 | 0 | 115,934 | 7,666 | 1.10 | 19.3 | 108,268 |
| Roof | MWR 06 | MORALE WELFARE RECREATION | Roof Insulation R-Value 30.00 | Suspended Ceiling: Increase insulation by R 8 | 5,858 | NA | 5,858 | 6,514 | 0 | 6,514 | 656 | 1.10 | 18.8 | 5,858 |
| Cooling | GUEST HOUSES 02 | MILITARY MOBILE HOMES | Electric Package Unit | Attic Ceiling: Increase insulation by R 19 | 8,780 | NA | 8,780 | 9,298 | 0 | 9,298 | 519 | 1.10 | 17.3 | 8,780 |
| Roof | CLINIC 01 | CLINIC | Roof Insulation R Value 20.05 | Split System Residential AC Unit (1.5 to 5 4167 tons cooling) | 3,197 | NA | 3,197 | 3,590 | 0 | 3,590 | 394 | 1.10 | 0.9 | 32,613 |
| Cooling | MWR 02 | MORALE WELFARE RECREATION | Electric Air Cool Heat Pump | Suspended Ceiling: Increase insulation by R 19 | 2,149 | NA | 2,149 | 2,307 | 0 | 2,307 | 158 | 1.10 | 17.6 | 2,149 |
| Wall | WAREHOUSE 09 | WAREHOUSE | Wall Insulation R Value 8.79 | Air to Air Heat Pump with Supplementary Electric Heat Coil | 22,852 | NA | 22,852 | 23,786 | 0 | 23,786 | 934 | 1.00 | 4.4 | 49,514 |
| Roof | WAREHOUSE 01 | WAREHOUSE | Roof Insulation R-Value 0.00 | Blow-in Insulation: Increase insulation by R 2.4 | 18,813 | NA | 18,813 | 19,732 | 0 | 19,732 | 919 | 1.00 | 20.1 | 18,813 |
| Wall | ADMINISTRATION 06 | ADMINISTRATION | Wall Insulation R-Value 0.00 | Attic Ceiling: Increase insulation by R 8 | 8,700 | NA | 8,700 | 9,020 | 0 | 9,020 | 319 | 1.00 | 19.3 | 8,700 |
| Roof | MWR 02 | MORALE WELFARE RECREATION | Roof Insulation R-Value 30.00 | Interior Masonary Surface: Increase insulation by R 4.3 | 16,023 | NA | 16,023 | 16,148 | 0 | 16,148 | 125 | 1.00 | 20.9 | 16,023 |
| | | | | Attic Ceiling: Increase insulation by R 11 | 5,788 | NA | 5,788 | 5,904 | 0 | 5,904 | 116 | 1.00 | 17.8 | 5,788 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 253 | 250 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 116,678 | 85,052 | 517 | 0 | 201,213 | 201,183 | 6,707 11 | 0 0 |
| AC | 2 | Bldg 263 | 354 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 103,828 | 94,238 | 517 | 0 | 197,549 | 197,519 | 6,584.96 | 0 0 |
| AC | 3 | Bldg 273 | 200 ton chiller | Reset chilled and condenser water temps - RI | 30 | 0 | 30 | 105,613 | 34,021 | 517 | 0 | 139,117 | 139,087 | 4,637.24 | 0.0 |
| T&D | | Substation | Sub. Transformers | Conservation Voltage Reduction - RI | 1,000 | 0 | 1,000 | 672,326 | 295,297 | 0 | 0 | 967,624 | 966,624 | 967.62 | 0 0 |
| HVAC | 6 | Ath Pool | Programmable T-Stat | Night Setback - RI | 2,770 | 0 | 2,770 | 421,880 | 2,121 | 0 | 1,255 | 422,746 | 419,976 | 152.64 | 0 1 |
| Lighting | OS 8b | Highbay | T8 Lighting | T8 + Occupancy Controls - RI | 16,560 | 4,968 | 11,592 | 864,678 | NA | 229,102 | NA | 1,093,780 | 1,082,188 | 94.36 | 0.2 |
| Envelope | MT 12 | | Leaky | Weatherization - RI | 8,967 | 0 | 8,967 | 453,986 | 203,198 | 0 | 0 | 657,185 | 648,218 | 73.29 | 0 2 |
| HVAC | 4 | Commis | Programmable T-Stat | Night Setback - RI | 2,077 | 0 | 2,077 | 138,353 | 1,089 | 0 | 941 | 138,501 | 136,424 | 66 68 | 0 3 |
| HVAC | 3 | Chair | Programmable T-Stat | Night Setback - RI | 2,077 | 0 | 2,077 | 114,249 | 1,319 | 0 | -941 | 114,621 | 112,544 | 55 18 | 0 3 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback - RI | 20,079 | 0 | 20,079 | 933,750 | 4,672 | 0 | -9,095 | 929,327 | 909,248 | 46.28 | 0 4 |
| Envelope | | Masonite Bldng- post 1950 | | Weatherization - RI | 7,336 | 0 | 7,336 | 218,137 | 120,561 | 0 | 0 | 338,699 | 331,363 | 46 17 | 0 4 |
| Lighting | OS 7b | Hallway | T8 Lighting | T8 + Occupancy Controls - RI | 16,416 | 4,925 | 11,491 | 383,726 | NA | 97,662 | NA | 481,389 | 469,897 | 41.89 | 0 4 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback - RI | 1,039 | 0 | 1,039 | 37,246 | 231 | 0 | 470 | 37,007 | 35,968 | 35 63 | 0.5 |
| Envelope | | Metal Bldng | | Weatherization - RI | 13,638 | 0 | 13,638 | 295,925 | 163,554 | 0 | 0 | 459,479 | 445,841 | 33 69 | 0.5 |
| Lighting | OS 4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 14,400 | 4,320 | 10,080 | 257,967 | NA | 67,184 | NA | 325,151 | 315,071 | 32.26 | 0.5 |
| Envelope | Other | U Shaped Bldgs Other | | Weatherization - RI | 5,330 | 0 | 5,330 | 110,373 | 61,002 | 0 | 0 | 171,375 | 166,045 | 32 15 | 0.5 |
| Envelope | | Masonite Bldng pre 1950 | | Weatherization - RI | 25,617 | 0 | 25,617 | 528,129 | 291,890 | 0 | 0 | 820,019 | 794,401 | 32 01 | 0.5 |
| Lighting | OS 3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 5,904 | 1,771 | 4,133 | 104,037 | NA | 26,704 | NA | 130,741 | 126,608 | 31 63 | 0.5 |
| Envelope | Admin | ADMIN/ MISC pre 1964 | | Weatherization - RI | 8,931 | 0 | 8,931 | 181,013 | 88,990 | 0 | 0 | 270,003 | 261,072 | 27 99 | 0 6 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 3,808 | 0 | 3,808 | 95,978 | 922 | 0 | 1,725 | 95,175 | 91,366 | 24.99 | 0 7 |
| Envelope | Barracks | U Shaped Bldgs Barracks | | Weatherization - RI | 28,505 | 0 | 28,505 | 413,900 | 228,756 | 0 | 0 | 642,656 | 614,151 | 22.55 | 0.8 |
| Envelope | | Wood Bldng | | Weatherization - RI | 1,811 | 0 | 1,811 | 25,017 | 13,827 | 0 | 0 | 38,844 | 37,033 | 21 45 | 0.8 |
| HVAC | 8 | Trning | Programmable T-Stat | Night Setback - RI | 5,885 | 0 | 5,885 | 120,531 | 2,054 | 0 | -2,245 | 120,339 | 114,454 | 20 45 | 0.8 |
| Envelope | Misc -pre 1980 | Concrete Block- Misc pre 1980 | | Weatherization - RI | 5,088 | 0 | 5,088 | 62,604 | 34,601 | 0 | 0 | 97,205 | 92,117 | 19 11 | 0.9 |
| Envelope | | WHS | | Weatherization - RI | 2,480 | 0 | 2,480 | 30,013 | 16,588 | 0 | 0 | 46,601 | 44,122 | 18 79 | 0.9 |
| Envelope | Shop | SHOP | | Weatherization - RI | 4,780 | 0 | 4,780 | 57,472 | 31,764 | 0 | 0 | 89,236 | 84,456 | 18 67 | 0.9 |
| Envelope | Barracks | Concrete Block- Barracks | | Weatherization - RI | 10,378 | 0 | 10,378 | 118,282 | 65,373 | 0 | 0 | 183,655 | 173,276 | 17 70 | 1 0 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization - RI | 31,502 | 0 | 31,502 | 347,758 | 192,201 | 0 | 0 | 539,959 | 508,458 | 17 14 | 1 0 |
| Lighting | OS MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 5,904 | 1,293 | 4,611 | 61,679 | NA | 15,924 | NA | 77,602 | 72,991 | 16.83 | 1 0 |
| Lighting | OS 2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 45,000 | 9,671 | 35,329 | 461,425 | NA | 127,909 | NA | 589,334 | 554,005 | 16 68 | 1.0 |
| Envelope | Family Housing | 1963 | | Weatherization - RI | 54,608 | 0 | 54,608 | 569,833 | 314,939 | 0 | 0 | 884,771 | 830,164 | 16 20 | 1 1 |
| Envelope | Dining | DINING/ MISC | | Weatherization - RI | 5,777 | 0 | 5,777 | 58,674 | 32,428 | 0 | 0 | 91,102 | 85,324 | 15 77 | 1.1 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization - RI | 1,806 | 0 | 1,806 | 17,981 | 9,938 | 0 | 0 | 27,920 | 26,113 | 15 46 | 1.1 |
| DHW & A/C | 13 | 00166 | CHILLER air cooled | Install Desuperheater - RI | 26,415 | 0 | 26,415 | 285,455 | 119,073 | 861 | 11,965 | 391,901 | 365,486 | 14 84 | 1.2 |
| Envelope | Misc -post 1980 | Concrete Block- Misc post 1980 | | Weatherization - RI | 9,621 | 0 | 9,621 | 86,535 | 47,827 | 0 | 0 | 134,362 | 124,741 | 13.97 | 1.2 |
| Envelope | Family Housing | 1961 | | Weatherization - RI | 59,959 | 0 | 59,959 | 521,228 | 288,075 | 0 | 0 | 809,304 | 749,345 | 13.50 | 1.3 |
| Motors | PMTR 44 | HOSPITL 00166 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 14,916 | 2,905 | 0 | 508 | 17,313 | 15,977 | 12 96 | 1 3 |
| Motors | PMTR 43 | HOSPITL 00166 | PMPMTR | EEM - RI | 728 | 60 | 668 | 7,458 | 1,453 | 0 | 254 | 8,656 | 7,988 | 12.96 | 1.3 |
| T&D | A | Substation | Capacitor Bank | Power Factor Correction to Unity - RI | 31,590 | 0 | 31,590 | 16,932 | 390,511 | 109 | 0 | 407,334 | 375,744 | 12.89 | 1.3 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater - RI | 1,486 | 0 | 1,486 | 15,349 | 3,402 | 861 | 473 | 17,217 | 15,732 | 11.59 | 1.5 |
| Motors | PMTR 485 | WHSCLD 00862 | Pea Motor | EEM - RI | 414 | 30 | 384 | 3,779 | 736 | 0 | 150 | 4,365 | 3,981 | 11.37 | 1.5 |
| Motors | PMTR 71 | POOL OT 00328 | PMPMTR | EEM - RI | 207 | 15 | 192 | 1,890 | 368 | 0 | 75 | 2,183 | 1,991 | 11.37 | 1.5 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater - RI | 3,099 | 0 | 3,099 | 26,499 | 10,887 | 861 | 1,404 | 35,121 | 32,023 | 11.33 | 1.5 |
| Envelope | Admin | ADMIN, MISC post 1964 | | Weatherization - RI | 2,732 | 0 | 2,732 | 19,553 | 10,807 | 0 | 0 | 30,359 | 27,627 | 11.11 | 1.5 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 3,832 | 0 | 3,832 | 28,609 | 14,289 | 861 | 1,736 | 40,301 | 36,469 | 10.52 | 1.6 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 4,492 | 0 | 4,492 | 32,231 | 17,351 | 861 | 2,035 | 46,686 | 42,194 | 10 39 | 1.7 |
| Lighting | DLC MT 2b | MT Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 17,000 | 5,100 | 11,900 | 83,185 | NA | 34,661 | NA | 119,846 | 107,946 | 10 07 | 1.7 |
| Motors | PMTR 42 | HOSPITL 00166 | PMPMTR | EEM - RI | 1,104 | 80 | 1,024 | 8,618 | 1,679 | 0 | 591 | 9,906 | 8,882 | 9.67 | 1.8 |
| Envelope | Training | TRAINING | | Weatherization - RI | 4,080 | 0 | 4,080 | 23,799 | 13,154 | 0 | 0 | 36,953 | 32,873 | 9.06 | 1 9 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 22,204 | 13,608 | 861 | 1,649 | 33,282 | 29,597 | 9.03 | 1.9 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Weatherization - RI | 2,318 | 0 | 2,318 | 13,448 | 7,433 | 0 | 0 | 20,881 | 18,563 | 9.01 | 1.9 |
| Housing | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 4,600 | 0 | 4,600 | 36,512 | 2,803 | 0 | 1,783 | 41,098 | 36,498 | 8.93 | 1.9 |
| HVAC | 7 | Shop Ele | Programmable T-Stat | Night Setback - RI | 1,385 | 0 | 1,385 | 12,782 | 176 | 0 | 627 | 12,331 | 10,946 | 8.90 | 1.9 |
| Motors | MTR 35c | REC - 00905 | COMPMTR | VSD & EEM - RI | 6,854 | 1,183 | 5,671 | 48,156 | 2,069 | 172 | 1,951 | 48,103 | 42,432 | 8 48 | 2.0 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater - RI | 2,585 | 0 | 2,585 | 13,877 | 8,505 | 861 | 1,171 | 20,350 | 17,765 | 7.87 | 2.2 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 2,072 | 0 | 2,072 | 11,822 | 6,124 | 861 | 939 | 16,146 | 14,074 | 7.79 | 2.2 |
| Motors | PMTR 72 | POOL OT 00328 | PMPMTR | EEM - RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2.2 |
| Motors | PMTR 73 | POOL OT 00328 | PMPMTR | EEM - RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2.2 |
| Motors | PMTR 70 | POOL OT 00328 | PMPMTR | EEM - RI | 187 | 0 | 187 | 1,260 | 245 | 0 | 67 | 1,438 | 1,251 | 7 69 | 2.2 |
| DHW & A/C | 31 | 00905 | CHILLER air cooled | Install Desuperheater - RI | 3,685 | 0 | 3,685 | 16,488 | 13,608 | 861 | 1,669 | 27,566 | 23,881 | 7 48 | 2 3 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 10,429 | 5,103 | 861 | 839 | 13,832 | 11,980 | 7.47 | 2 3 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 1,852 | 0 | 1,852 | 10,429 | 5,103 | 861 | 839 | 13,832 | 11,980 | 7.47 | 2 3 |
| Envelope | Family Housing | 1983 | | Weatherization - RI | 45,070 | 0 | 45,070 | 215,619 | 119,170 | 0 | 0 | 334,789 | 289,719 | 7.43 | 2.3 |
| Motors | PMTR 94 | PUMP - 00044 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 21,533 | 4,194 | 0 | 1,285 | 24,442 | 21,124 | 7.37 | 2.3 |
| Motors | PMTR 93 | PUMP 00044 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 21,533 | 4,194 | 0 | 1,285 | 24,442 | 21,124 | 7.37 | 2.3 |
| Envelope | MT 9 | | Single pane window | Shade Screens SW side - RI | 6,188 | 982 | 5,156 | 22,675 | 21,425 | 0 | 6,317 | 37,783 | 32,627 | 7.33 | 2 4 |
| Envelope | | Metal Bldng | | Window Screen - SW side - RI | 12,640 | 2,022 | 10,618 | 46,694 | 44,119 | 0 | 13,008 | 77,805 | 67,187 | 7.33 | 2 4 |
| Envelope | | Concrete Block- Misc post 1980 | | Window Screen - SW side - RI | 1,733 | 277 | 1,456 | 6,403 | 6,050 | 0 | 1,784 | 10,670 | 9,214 | 7.33 | 2 4 |
| Envelope | | Masonite Bldng pre 1950 | | Window Screen - SW side - RI | 18,002 | 2,880 | 15,121 | 66,499 | 62,832 | 0 | 18,525 | 110,806 | 95,684 | 7.33 | 2 4 |
| Envelope | | ADMIN, MISC post 1964 | | Window Screen - SW side - RI | 4,872 | 780 | 4,093 | 17,999 | 17,006 | 0 | 5,014 | 29,991 | 25,898 | 7.33 | 2 4 |
| Envelope | | U Shaped Bldgs Other | | Window Screen - SW side - RI | 4,695 | 751 | 3,944 | 17,343 | 16,387 | 0 | 4,831 | 28,898 | 24,955 | 7.33 | 2 4 |
| Envelope | | BRK/ADM MISC | | Window Screen - SW side - RI | 2,648 | 424 | 2,225 | 9,784 | 9,244 | 0 | 2,726 | 16,302 | 14,078 | 7.33 | 2 4 |
| Envelope | | Wood Bldng | | Window Screen - SW side - RI | 2,203 | 352 | 1,850 | 8,137 | 7,688 | 0 | 2,247 | 13,558 | 11,708 | 7.33 | 2 4 |
| Envelope | | TRAINING | | Window Screen - SW side - RI | 1,612 | 258 | 1,354 | 5,954 | 5,626 | 0 | 1,659 | 9,922 | 8,568 | 7.33 | 2 4 |
| Envelope | | WHS | | Window Screen - SW side - RI | 1,016 | 163 | 854 | 3,754 | 3,547 | 0 | 1,046 | 6,256 | 5,402 | 7.33 | 2 4 |
| Envelope | | Concrete Block- Barracks | | Window Screen - SW side - RI | 6,417 | 1,027 | 5,391 | 23,707 | 22,400 | 0 | 6,604 | 39,502 | 34,111 | 7.33 | 2 4 |
| Envelope | | MOTORPOOL | | Window Screen - SW side - RI | 4,967 | 795 | 4,172 | 18,349 | 17,338 | 0 | 5,112 | 30,575 | 26,403 | 7.33 | 2 4 |
| Envelope | | SHOP | | Window Screen - SW side - RI | 4,865 | 778 | 4,087 | 17,973 | 16,982 | 0 | 5,007 | 29,949 | 25,862 | 7 33 | 2 4 |
| Envelope | | U Shaped Bldgs Barracks | | Window Screen - SW side - RI | 32,879 | 5,261 | 27,619 | 121,459 | 114,762 | 0 | 33,836 | 202,384 | 174,765 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screen - RI | 27,001 | 4,320 | 22,681 | 99,744 | 94,245 | 0 | 27,787 | 166,202 | 143,521 | 7.33 | 2 4 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screen - RI | 25,231 | 4,037 | 21,194 | 93,205 | 88,066 | 0 | 25,965 | 155,306 | 134,112 | 7.33 | 2 4 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screen RI | 18,975 | 3,036 | 15,939 | 70,093 | 66,228 | 0 | 19,527 | 116,795 | 100,856 | 7 33 | 2 4 |
| Envelope | | DINING/ MISC | | Window Screen - SW side - RI | 2,950 | 474 | 2,486 | 10,933 | 10,332 | 0 | 3,046 | 18,220 | 15,734 | 7.33 | 2 4 |
| Envelope | | ADMIN, MISC pre 1964 | | Window Screen - SW side - RI | 2,761 | 442 | 2,319 | 10,200 | 9,637 | 0 | 2,841 | 16,996 | 14,676 | 7.33 | 2 4 |
| Envelope | | Concrete Block- Misc pre 1980 | | Window Screen - SW side - RI | 1,987 | 318 | 1,669 | 7,342 | 6,937 | 0 | 2,045 | 12,234 | 10,564 | 7.33 | 2 4 |
| Envelope | | SECURITY | | Window Screen SW side - RI | 236 | 38 | 198 | 871 | 823 | 0 | 243 | 1,452 | 1,254 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen RI | 24,854 | 3,977 | 20,877 | 91,813 | 86,750 | 0 | 25,577 | 152,985 | 132,108 | 7 33 | 2 4 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen RI | 16,478 | 2,637 | 13,842 | 60,872 | 57,516 | 0 | 16,958 | 101,430 | 87,588 | 7 33 | 2 4 |
| Envelope | | Masonite Bldng post 1950 | | Window Screen SW side - RI | 7,215 | 1,154 | 6,060 | 26,651 | 25,182 | 0 | 7,425 | 44,409 | 38,348 | 7.33 | 2 4 |
| Envelope | | MWR | | Window Screen SW side - RI | 1,151 | 184 | 967 | 4,253 | 4,018 | 0 | 1,185 | 7,087 | 6,120 | 7 33 | 2 4 |
| Housing | 20 | MTRPOOL 00612 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 9,996 | 692 | 0 | 1,643 | 12,331 | 10,631 | 7.25 | 2 4 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Present Values of Costs and Savings

| End Use Envelope | Bldg Type | Use Area | Drivng Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Family Housng | 1984 | | Weatherization RI | 34,480 | 0 | 34,480 | 160,175 | 88,526 | 0 | 0 | 248,702 | 214,222 | 7 21 | 2 4 |
| Motors | MTR 474 | MWR 01322 | Fan Motor | EEM RI | 621 | 45 | 576 | 3,247 | 1,104 | 0 | 225 | 4,126 | 3,550 | 7 16 | 2 4 |
| Motors | MTR 469 | MWR 01322 | Fan Motor | EEM RI | 207 | 15 | 192 | 1,082 | 368 | 0 | 75 | 1,375 | 1,183 | 7 16 | 2 4 |
| Heating | 17 | MTRPOOL 00840 | Unit Heaters | Radiant Heat RI | 6,120 | 0 | 6,120 | 39,093 | 3,114 | 0 | 1,341 | 43,549 | 37,429 | 7 12 | 2 4 |
| Motors | MTR 34c | REC 00905 | COMPMTR | VSD & EEM RI | 6,854 | 1,039 | 5,815 | 41,277 | 1,774 | 172 | 1,951 | 40,928 | 35,113 | 7 04 | 2 4 |
| Motors | PMTR 66 | PLT DLDG - 00253 | PMPMTR | EEM RI | 864 | 70 | 794 | 4,260 | 1,449 | 0 | 318 | 5,391 | 4,597 | 6.79 | 2.5 |
| Lighing | 08 6b | Restroom | TR Lighing | TR + Occupancy Controls RI | 27,072 | 2,694 | 24,378 | 128,547 | NA | 34,413 | NA | 162,960 | 138,582 | 6 68 | 2 6 |
| Motors | PMTR 88 | PUMP 00044 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 7,618 | 1,484 | 0 | 508 | 8,593 | 7,257 | 6 43 | 2 7 |
| Lighing | 08 5b | Copy Room | TR Lighing | TR + Occupancy Controls RI | 4,536 | 438 | 4,098 | 20,894 | NA | 5,353 | NA | 26,247 | 22,149 | 6 40 | 2 7 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 8,065 | 0 | 8,065 | 22,058 | 34,021 | 861 | 3,662 | 51,556 | 43,491 | 6 38 | 2 7 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater RI | 1,852 | 0 | 1,852 | 8,326 | 5,103 | 861 | 839 | 11,730 | 9,877 | 6 33 | 2 7 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater RI | 1,852 | 0 | 1,852 | 8,326 | 5,103 | 861 | 839 | 11,730 | 9,877 | 6 33 | 2 7 |
| Heating | 41 | BHOP - 00501 | Unit Heaters | Radiant Heat RI | 760 | 0 | 760 | 3,587 | 1,125 | 0 | -26 | 4,686 | 3,926 | 6 17 | 2 8 |
| Motors | MTR 440 | DOR - 00308 | Fan Motor | EEM - RI | 446 | 32 | 414 | 1,761 | 827 | 0 | 53 | 2,634 | 2,220 | 6 12 | 2 8 |
| Motors | MTR 439 | DOR - 00308 | Fan Motor | EEM RI | 669 | 48 | 621 | 2,750 | 1,292 | 0 | 243 | 3,798 | 3,177 | 6 12 | 2 8 |
| Motors | MTR 475 | PLT DLDG 00253 | Fan Motor | EEM - RI | 446 | 32 | 414 | 1,833 | 861 | 0 | 162 | 2,532 | 2,118 | 6 12 | 2 8 |
| Motors | MTR 446 | DINING 00254 | Fan Motor | EEM RI | 223 | 16 | 207 | 917 | 431 | 0 | 81 | 1,266 | 1,059 | 6 12 | 2 8 |
| Motors | PMTR 117 | REC 00905 | PMPMTR | EEM RI | 223 | 16 | 207 | 917 | 431 | 0 | 81 | 1,266 | 1,059 | 6 12 | 2 8 |
| Motors | MTR 446 | DINING 00254 | Fan Motor | EEM RI | 223 | 16 | 207 | 917 | 431 | 0 | 81 | 1,266 | 1,059 | 6 12 | 2 8 |
| Vehicles | Conversion | Vehicles | | CNG Vehicles | 2,047,000 | 0 | 2,047,000 | 5,688,420 | 25,561 | 6,475,790 | 0 | 12,138 649 | 10,091,649 | 5.93 | 2 9 |
| Motors | PMTR 120 | WHS CLD 00862 | refrigeration unit | EEM RI | 5,184 | 420 | 4,764 | 25,036 | 4,876 | 0 | 1,910 | 28,002 | 23,238 | 5 88 | 2 9 |
| Motors | PMTR 121 | WHS CLD 00862 | refrigeration unit | EEM - RI | 2,592 | 210 | 2,382 | 12,518 | 2,438 | 0 | 955 | 14,001 | 11,619 | 5 88 | 2 9 |
| Heating | 23 | MTRPOOL 00847 | Unit Heaters | Radiant Heat RI | 3,060 | 0 | 3,060 | 15,345 | 1,246 | 0 | 1,192 | 17,782 | 14,722 | 5 81 | 3 0 |
| Motors | PMTR 109 | PUMP 00636 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 13,679 | 6,826 | 0 | 1,290 | 19 215 | 15,897 | 5 79 | 3 0 |
| Motors | PMTR 6c | ADMIN 00988 | PMPMTR | VSD & EEM RI | 4,978 | 320 | 4,658 | 26,618 | 1,744 | 172 | 1,470 | 26,720 | 22 062 | 5 74 | 3 0 |
| Heating | 22 | MTRPOOL 00830 | Unit Heaters | Radiant Heat RI | 2,300 | 0 | 2,300 | 11,255 | 934 | 0 | 891 | 13,111 | 10,811 | 5 70 | 3 0 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater RI | 1,486 | 0 | 1,486 | 6,568 | 3,402 | 861 | 673 | 8,436 | 6,950 | 5 68 | 3 0 |
| Motors | PMTR 86 | PUMP - 00324 | PMPMTR | EEM - RI | 1,397 | 120 | 1,277 | 5,028 | 2,679 | 0 | -481 | 7,226 | 5,949 | 5 66 | 3 0 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater RI | 4,272 | 0 | 4,272 | 10,588 | 16,330 | 861 | 1,935 | 24,122 | 19,850 | 5 65 | 3 0 |
| Motors | MTR 437a | CLINIC 00171 | Fan Motor | EEM RI | 1,147 | 90 | 1,057 | 4,316 | 2 027 | 0 | 399 | 5,945 | 4,888 | 5 62 | 3 1 |
| Motors | MTR 484 | WHS 00474 | Fan Motor | EEM RI | 414 | 30 | 384 | 1,567 | 736 | 0 | 150 | 2,153 | 1 769 | 5 61 | 3 1 |
| Motors | PMTR 118 | REC - 00922 | PMPMTR | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR 482 | TRAING - 01202 | Fan Motor | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | PMTR 119 | REC - 00362 | PMPMTR | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR 435 | DINING 00254 | Fan Motor | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR 441 | DOR - 00308 | Fan Motor | EEM RI | 207 | 15 | 192 | 784 | 368 | 0 | 75 | 1,077 | 885 | 5 61 | 3 1 |
| Motors | MTR 442 | DINING - 00254 | Fan Motor | EEM RI | 1,242 | 90 | 1,152 | 4,701 | 2,208 | 0 | -450 | 6,460 | 5,308 | 5 61 | 3 1 |
| Heating | 35 | BHOP - 00367 | Unit Heaters | Radiant Heat RI | 1,700 | 0 | 1,700 | 7,681 | 0 | 0 | 1,643 | 9,324 | 7,624 | 5 48 | 3 1 |
| Motors | MTR 6 | HOSPITL 00166 | AIRCOMP | EEM RI | 1,456 | 120 | 1,336 | 5,579 | 2,173 | 0 | -508 | 7,243 | 5,907 | 5 42 | 3 2 |
| Motors | PMTR 106 | PUMP - 00636 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 12,410 | 6,826 | 0 | 1,290 | 17,946 | 14,628 | 5 41 | 3 2 |
| Heating | 37 | BHOP - 00384 | Unit Heaters | Radiant Heat - RI | 420 | 0 | 420 | 1,835 | 0 | 0 | 413 | 2,248 | 1,828 | 5 35 | 3 2 |
| Envelope | MT 11a | | None | Crawl Space Insulation R 19 RI | 124,770 | 0 | 124,770 | 421,228 | 246,263 | 0 | 0 | 667,491 | 542,721 | 5 35 | 3 2 |
| Motors | PMTR 89 | PUMP - 00044 | PMPMTR | EEM RI | 1,456 | 120 | 1,336 | 6,259 | 1,219 | 0 | -508 | 6,970 | 5,634 | 5 22 | 3 3 |
| Heating | 25 | MTRPOOL 00646 | Unit Heaters | Radiant Heat - RI | 1,020 | 0 | 1,020 | 4,209 | 311 | 0 | 745 | 5,265 | 4 245 | 5 16 | 3 3 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater RI | 2,402 | 0 | 2,402 | 6,609 | 7,655 | 861 | 1,088 | 12 314 | 9,912 | 5 13 | 3 4 |
| Motors | MTR 483 | TRAING - 01202 | Fan Motor | EEM - RI | 187 | 0 | 187 | 696 | 327 | 0 | -67 | 955 | 768 | 5 11 | 3 4 |
| Heating | 26 | MTRPOOL 00832 | Unit Heaters | Radiant Heat - RI | 1,540 | 0 | 1,540 | 6,720 | 467 | 0 | 591 | 7,779 | 6,239 | 5 05 | 3 4 |
| DHW & A/C | " | 00037 | AIR CONDITIONER | Install Desuperheater RI | 1,486 | 0 | 1,486 | 5,551 | 3,402 | 861 | -673 | 7,419 | 5,933 | 4.99 | 3 4 |
| DHW & A/C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater RI | 2,219 | 0 | 2,219 | 6,104 | 6,804 | 861 | 1,005 | 11,042 | 8,823 | 4 98 | 3 5 |
| Motors | PMTR 122 | WHS CLD 00862 | PMPMTR | EEM - RI | 414 | 30 | 384 | 1,306 | 736 | 0 | 150 | 1,892 | 1,508 | 4 93 | 3 5 |
| Motors | PMTR 81 | PUMP - 00044 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 3 652 | 1,946 | 0 | 399 | 5,198 | 4,141 | 4 92 | 3 5 |
| Motors | MTR 457 | MWR - 01313 | Fan Motor | EEM RI | 374 | 0 | 374 | 1,444 | 491 | 0 | 135 | 1,800 | 1,426 | 4 81 | 3 6 |
| Motors | MTR 460 | MWR 01313 | Fan Motor | EEM RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4 81 | 3 6 |
| Motors | MTR 461 | MWR - 01322 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4 81 | 3 6 |
| Motors | MTR 462 | MWR 01322 | Fan Motor | EEM RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4 81 | 3 6 |
| Motors | MTR 464 | MWR - 01322 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4 81 | 3 6 |
| Motors | MTR 466 | MWR - 01322 | Fan Motor | EEM - RI | 187 | 0 | 187 | 722 | 245 | 0 | 67 | 900 | 713 | 4 81 | 3 6 |
| Motors | PMTR 100 | PUMP - 00700 | PMPMTR | EEM - RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR 101 | PUMP - 00700 | PMPMTR | EEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR 103 | PUMP - 00700 | PMPMTR | EEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| Motors | PMTR 102 | PUMP - 00700 | PMPMTR | EEM RI | 2,743 | 200 | 2,543 | 11,056 | 2,153 | 0 | 987 | 12,222 | 9,679 | 4 81 | 3 6 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater RI | 3,685 | 0 | 3,685 | 6,104 | 13,608 | 861 | 1,669 | 17,181 | 13,496 | 4.66 | 3 7 |
| Heating | 1 | HANGAR 06203 | Unit Heaters | Radiant Heat RI | 3,850 | 0 | 3,850 | 13,115 | 887 | 0 | 3,699 | 17,702 | 13,852 | 4 63 | 3 7 |
| Motors | MTR 202 | BRK/ADM - 00261 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 199 | BRK/ADM 00252 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 197 | BRK/ADM 00251 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 200 | BRK/ADM 00252 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 195 | BRK/ADM 00250 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 198 | BRK/ADM - 00251 | EVAP | EEM RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 196 | BRK/ADM 00250 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 193 | BRK/ADM 00249 | EVAP | EEM - RI | 223 | 16 | 207 | 683 | 348 | 0 | 74 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 238 | BRK/ADM 00534 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 192 | BRK/ADM 00104 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 214 | BRK/ADM 00416 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 222 | BRK/ADM 00434 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 191 | BRK/ADM 00103 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 223 | BRK/ADM 00440 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 224 | BRK/ADM 00448 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 231 | BRK/ADM 00512 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 239 | BRK/ADM 00540 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 232 | BRK/ADM 00514 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 233 | BRK/ADM 00516 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 234 | BRK/ADM 00518 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4 492 | 4 62 | 3 7 |
| Motors | MTR 237 | BRK/ADM 00530 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 190 | BRK/ADM 00102 | EVAP | EEM RI | 1,338 | 96 | 1,242 | 4,121 | 2,099 | 0 | 486 | 5,734 | 4,492 | 4 62 | 3 7 |
| Motors | MTR 212 | BRK/ADM 00413 | EVAP | EEM RI | 892 | 64 | 828 | 2,748 | 1,399 | 0 | 324 | 3,823 | 2,995 | 4 62 | 3 7 |
| Motors | MTR 194 | BRK/ADM 00249 | EVAP | EEM RI | 223 | 16 | 207 | 687 | 350 | 0 | 81 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 250 | CLUB 00202 | EVAP | EEM RI | 223 | 16 | 207 | 687 | 350 | 0 | 81 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 189 | BRK/ADM 00098 | EVAP | EEM RI | 223 | 16 | 207 | 687 | 350 | 0 | 81 | 956 | 749 | 4 62 | 3 7 |
| Motors | MTR 248 | CLUB 00021 | EVAP | EEM RI | 446 | 32 | 414 | 1 352 | 704 | 0 | 176 | 1,910 | 1 496 | 4 61 | 3 7 |
| Motors | MTR 188 | BRK ADM 00314 | EVAP | EEM RI | 223 | 16 | 207 | 691 | 352 | 0 | 88 | 955 | 748 | 4 61 | 3 7 |
| Motors | MTR 230 | BRK/ADM 00511 | EVAP | EEM RI | 1 115 | 80 | 1,035 | 3,476 | 1 770 | 0 | 443 | 4 [illegible] | 3 [illegible] | 4 61 | 3 7 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-236 | BRE/ADM - 00523 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 4,171 | 2,124 | 0 | 567 | 5,727 | 4,485 | 4.61 | 3.7 |
| Motors | MTR-201 | BRE/ADM 00261 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-203 | BRE/ADM - 00262 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-210 | BRE/ADM - 00267 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-204 | BRE/ADM - 00262 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 358 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-205 | BRE/ADM - 00264 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-206 | BRE/ADM - 00264 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR 207 | BRE/ADM - 00265 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-208 | BRE/ADM 00265 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-209 | BRE/ADM - 00267 | EVAP | EEM - RI | 223 | 16 | 207 | 699 | 356 | 0 | 101 | 954 | 747 | 4.61 | 3.7 |
| Motors | MTR-211 | BRE/ADM - 00412 | EVAP | EEM - RI | 4,906 | 352 | 4,554 | 15,379 | 7,832 | 0 | -2,222 | 20,989 | 16,435 | 4.61 | 3.7 |
| Motors | PMTR-Sc | ADMIN - 00928 | PMPMTR | VSD & EEM - RI | 3,132 | 172 | 2,960 | 13,218 | 660 | 172 | 954 | 12,752 | 9,792 | 4.31 | 4.0 |
| Motors | PMTR 110 | PUMP - 05996 | PMPMTR | EEM - RI | 1,540 | 0 | 1,540 | 5,480 | 467 | 0 | 591 | 6,539 | 4,999 | 4.25 | 4.1 |
| Heating | 34 | SHOP 20018 | Unit Heaters | Radiant Heat - RI | 5,795 | 450 | 5,345 | 16,692 | 8,065 | 0 | 2,184 | 22,573 | 17,228 | 4.22 | 4.1 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater - RI | 1,200 | 0 | 1,200 | 3,766 | 1,180 | 0 | 101 | 5,047 | 3,847 | 4.21 | 4.1 |
| Motors | PMTR 113 | PUMP - 00319 | PMPMTR | EEM - RI | 2,512 | 0 | 2,512 | 4,248 | 8,165 | 861 | -1,138 | 10,414 | 7,902 | 4.15 | 4.2 |
| Motors | PMTR 112 | PUMP - 00319 | PMPMTR | EEM - RI | 4,304 | 320 | 3,984 | 11,790 | 6,166 | 0 | 1,585 | 16,371 | 12,387 | 4.11 | 4.2 |
| Motors | MTR 428 | ADMIN 00988 | Fan Motor | EEM - RI | 4,304 | 320 | 3,984 | 11,573 | 6,166 | 0 | -1,585 | 16,154 | 12,170 | 4.05 | 4.2 |
| Motors | PMTR 40 | HOSPITL - 00166 | PMPMTR | EEM - RI | 2,445 | 175 | 2,270 | 8,447 | 1,645 | 0 | 892 | 9,200 | 6,930 | 4.05 | 4.2 |
| Motors | PMTR 39 | HOSPITL - 00166 | PMPMTR | EEM - RI | 978 | 70 | 908 | 3,379 | 658 | 0 | 357 | 3,680 | 2,772 | 4.05 | 4.2 |
| Motors | PMTR 41 | HOSPITL - 00166 | PMPMTR | EEM - RI | 978 | 70 | 908 | 3,379 | 658 | 0 | 357 | 3,680 | 2,772 | 4.05 | 4.2 |
| Motors | PMTR 82 | PUMP - 00324 | PMPMTR | EEM - RI | 489 | 35 | 454 | 1,689 | 329 | 0 | 178 | 1,840 | 1,386 | 4.05 | 4.2 |
| Lighting | DLC-1b | Small Office | TR Lighting | TR + DayLighting Controls - RI | 207 | 15 | 192 | 784 | 69 | 0 | -75 | 778 | 586 | 4.05 | 4.3 |
| Motors | PMTR 114 | PUMP - 00643 | PMPMTR | EEM - RI | 60,139 | 15,146 | 44,994 | 112,461 | NA | 68,119 | NA | 180,580 | 135,586 | 4.01 | 4.3 |
| Motors | MTR 39 | ADMIN - 00985 | CONDMTR | EEM - RI | 9,174 | 550 | 8,624 | 23,902 | 13,473 | 0 | -3,230 | 34,145 | 25,521 | 3.96 | 4.3 |
| Motors | MTR 38 | ADMIN - 00985 | CONDMTR | EEM - RI | 446 | 32 | 414 | 926 | 861 | 0 | -162 | 1,625 | 1,211 | 3.92 | 4.4 |
| Motors | PMTR 108 | PUMP - 00652 | PMPMTR | EEM - RI | 223 | 16 | 207 | 463 | 431 | 0 | -81 | 812 | 605 | 3.92 | 4.4 |
| Motors | MTR 258 | DGR - 00909 | EVAP | EEM - RI | 3,588 | 270 | 3,318 | 7,274 | 6,826 | 0 | 1,290 | 12,810 | 9,492 | 3.86 | 4.5 |
| Motors | MTR 417 | WHS 00934 | EVAP | EEM - RI | 223 | 16 | 207 | 498 | 336 | 0 | -35 | 798 | 591 | 3.86 | 4.5 |
| Motors | MTR 259 | DGR - 00909 | EVAP | EEM - RI | 669 | 48 | 621 | 1,504 | 1,015 | 0 | -130 | 2,389 | 1,768 | 3.85 | 4.5 |
| Motors | PMTR 30 | DGR - 00430 | PMPMTR | EEM - RI | 446 | 32 | 414 | 1,010 | 682 | 0 | 103 | 1,589 | 1,175 | 3.84 | 4.5 |
| Motors | MTR 424 | ADMIN 00988 | Fan Motor | EEM - RI | 207 | 15 | 192 | 443 | 368 | 0 | 75 | 736 | 544 | 3.83 | 4.5 |
| Motors | MTR 431 | ADMIN - 00988 | Fan Motor | EEM - RI | 207 | 15 | 192 | 443 | 368 | 0 | -75 | 736 | 544 | 3.83 | 4.5 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side - RI | 1,242 | 90 | 1,152 | 2,659 | 2,208 | 0 | 450 | 4,317 | 3,265 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screens - NW Side - RI | 6,138 | 0 | 6,138 | 15,377 | 14,439 | 0 | 4,317 | 23,500 | 17,362 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Barracks | | Window Screens - NW Side RI | 14,183 | 0 | 14,183 | 35,532 | 33,364 | 0 | 14,596 | 54,300 | 40,117 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens - NW Side - RI | 4,778 | 0 | 4,778 | 11,969 | 11,238 | 0 | 4,917 | 18,290 | 13,513 | 3.83 | 4.5 |
| Envelope | | Masonite Bldgs: post 1950 | | Window Screens - NW Side RI | 2,025 | 0 | 2,025 | 5,074 | 4,764 | 0 | 2,084 | 7,753 | 5,728 | 3.83 | 4.5 |
| Envelope | | TRAINING | | Window Screens - NW Side RI | 1,804 | 0 | 1,804 | 4,519 | 4,243 | 0 | 1,856 | 6,905 | 5,102 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screens - RI | 403 | 0 | 403 | 1,010 | 948 | 0 | 415 | 1,543 | 1,140 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screens - RI | 27,001 | 0 | 27,001 | 67,643 | 63,517 | 0 | 27,787 | 103,373 | 76,372 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screens - RI | 25,231 | 0 | 25,231 | 63,209 | 59,353 | 0 | 25,965 | 96,596 | 71,365 | 3.83 | 4.5 |
| Envelope | | Metal Siding | | Window Screens - NW Side RI | 24,679 | 0 | 24,679 | 61,826 | 58,054 | 0 | 25,397 | 94,482 | 69,803 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc pre 1980 | | Window Screens - NW Side RI | 13,120 | 0 | 13,120 | 32,869 | 30,864 | 0 | 13,502 | 50,230 | 37,110 | 3.83 | 4.5 |
| Envelope | | SHOP | | Window Screens - NW Side RI | 1,987 | 0 | 1,987 | 4,979 | 4,675 | 0 | 2,045 | 7,609 | 5,622 | 3.83 | 4.5 |
| Envelope | | DINING, MISC | | Window Screens - NW Side - RI | 1,216 | 0 | 1,216 | 3,047 | 2,861 | 0 | 1,252 | 4,657 | 3,440 | 3.83 | 4.5 |
| Envelope | | BRE/ADM MISC | | Window Screens - NW Side RI | 740 | 0 | 740 | 1,854 | 1,741 | 0 | 762 | 2,833 | 2,093 | 3.83 | 4.5 |
| Envelope | | Wood Siding | | Window Screens - NW Side RI | 662 | 0 | 662 | 1,659 | 1,558 | 0 | 681 | 2,535 | 1,873 | 3.83 | 4.5 |
| Envelope | | MWR | | Window Screens - NW Side - RI | 551 | 0 | 551 | 1,380 | 1,295 | 0 | 567 | 2,108 | 1,558 | 3.83 | 4.5 |
| Envelope | | WHS | | Window Screens - NW Side RI | 288 | 0 | 288 | 721 | 677 | 0 | 296 | 1,102 | 814 | 3.83 | 4.5 |
| Envelope | | SECURITY | | Window Screens - NW Side - RI | 254 | 0 | 254 | 637 | 598 | 0 | 261 | 973 | 719 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screens - RI | 59 | 0 | 59 | 148 | 139 | 0 | 61 | 226 | 167 | 3.83 | 4.5 |
| Envelope | | Masonite Bldgs: pre 1950 | | Window Screens - NW Side - RI | 18,975 | 0 | 18,975 | 47,535 | 44,635 | 0 | 19,527 | 72,643 | 53,668 | 3.83 | 4.5 |
| Envelope | | MOTORPOOL | | Window Screens - NW Side RI | 4,771 | 0 | 4,771 | 11,952 | 11,223 | 0 | 4,910 | 18,266 | 13,495 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screens - NW Side - RI | 1,242 | 0 | 1,242 | 3,111 | 2,921 | 0 | 1,278 | 4,754 | 3,512 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screens - RI | 690 | 0 | 690 | 1,729 | 1,624 | 0 | 710 | 2,643 | 1,952 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc -post 1980 | | Window Screens - NW Side - RI | 16,478 | 0 | 16,478 | 41,281 | 38,763 | 0 | 16,958 | 63,086 | 46,608 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screens - NW Side RI | 1,733 | 0 | 1,733 | 4,342 | 4,078 | 0 | 1,784 | 6,636 | 4,903 | 3.83 | 4.5 |
| Motors | MTR 128 | ADMIN - 00441 | EVAP | EEM - RI | 1,218 | 0 | 1,218 | 3,052 | 2,865 | 0 | 1,254 | 4,663 | 3,445 | 3.83 | 4.5 |
| Motors | MTR 166 | ADMIN - 00544 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR 150 | ADMIN - 00504 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR 148 | ADMIN - 00499 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR 132 | ADMIN - 00441 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR 245 | CLINIC 00242 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - RI | 446 | 32 | 414 | 1,017 | 686 | 0 | 118 | 1,585 | 1,171 | 3.83 | 4.5 |
| Motors | MTR 124 | ADMIN - 00436 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,051 | 2,059 | 0 | 355 | 4,755 | 3,513 | 3.83 | 4.5 |
| Motors | MTR 246 | CLINIC 00245 | EVAP | EEM - RI | 669 | 48 | 621 | 1,525 | 1,029 | 0 | 178 | 2 377 | 1,756 | 3.83 | 4.5 |
| Motors | MTR 347 | SECURITY - 00326 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 159 | ADMIN 00528 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 163 | ADMIN 00543 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 130 | ADMIN - 00443 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 147 | ADMIN 00498 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 155 | ADMIN - 00521 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 131 | ADMIN 00443 | EVAP | EEM - RI | 223 | 16 | 207 | 508 | 343 | 0 | 59 | 792 | 585 | 3.83 | 4.5 |
| Motors | MTR 25 | HOTEL - 00902 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | 270 | 2,859 | 2,111 | 3.82 | 4.5 |
| Motors | MTR 23 | HOTEL 00900 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2 147 | 982 | 0 | 270 | 2,859 | 2,111 | 3.82 | 4.5 |
| Motors | MTR 24 | HOTEL 00901 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | 270 | 2,859 | 2,111 | 3.82 | 4.5 |
| Motors | MTR 26 | HOTEL - 00903 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2 147 | 982 | 0 | 270 | 2,859 | 2,111 | 3.82 | 4.5 |
| Motors | MTR 28 | HOTEL - 00906 | COMPMTR | EEM - RI | 748 | 0 | 748 | 2,147 | 982 | 0 | 270 | 2,859 | 2,111 | 3.82 | 4.5 |
| Motors | MTR 27 | HOTEL - 00904 | COMPMTR | EEM - RI | 561 | 0 | 561 | 1,610 | 736 | 0 | 202 | 2,144 | 1,583 | 3.82 | 4.5 |
| Motors | MTR 103 | ADMIN - 00237 | EVAP | EEM - RI | 1,784 | 128 | 1,656 | 4,095 | 2,763 | 0 | 534 | 6,325 | 4,669 | 3.82 | 4.5 |
| Motors | MTR 411 | WHS - 00827 | EVAP | EEM - RI | 669 | 48 | 621 | 1,536 | 1,036 | 0 | 200 | 2,372 | 1,751 | 3.82 | 4.5 |
| Motors | MTR 105 | ADMIN - 00241 | EVAP | EEM - RI | 669 | 48 | 621 | 1,536 | 1,036 | 0 | 200 | 2,372 | 1,751 | 3.82 | 4.5 |
| Motors | MTR 304 | MTRPOOL 00680 | EVAP | EEM - RI | 446 | 32 | 414 | 1,024 | 691 | 0 | 133 | 1,581 | 1,167 | 3.82 | 4.5 |
| Motors | MTR 306 | MTRPOOL 00681 | EVAP | EEM - RI | 446 | 32 | 414 | 1,024 | 691 | 0 | 133 | 1,581 | 1,167 | 3.82 | 4.5 |
| Motors | MTR 254 | DGR 00308 | EVAP | EEM - RI | 446 | 32 | 414 | 1,024 | 691 | 0 | 133 | 1,581 | 1,167 | 3.82 | 4.5 |
| Motors | MTR 412 | WHS 00827 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | 67 | 791 | 584 | 3.82 | 4.5 |
| Motors | MTR 410 | WHS 00827 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | 67 | 791 | 584 | 3.82 | 4.5 |
| Motors | MTR 256 | DGR - 00404 | EVAP | EEM - RI | 223 | 16 | 207 | 512 | 345 | 0 | 67 | 791 | 584 | 3.82 | 4.5 |
| Motors | MTR 261 | DINING 00254 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | 74 | 789 | 582 | 3.81 | 4.5 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 336 | PLT BLDG 00253 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | -74 | 789 | 582 | 3.81 | 4.5 |
| Motors | MTR 335 | PLT BLDG 00253 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | -74 | 789 | 582 | 3.81 | 4.5 |
| Motors | MTR 260 | DINING - 00254 | EVAP | EEM - RI | 223 | 16 | 207 | 515 | 348 | 0 | -74 | 789 | 582 | 3.81 | 4.5 |
| Motors | MTR 354 | SHOP 00367 | EVAP | EEM - RI | 1,115 | 80 | 1,035 | 2,592 | 1,749 | 0 | 405 | 3,935 | 2,900 | 3.80 | 4.5 |
| Motors | MTR 153 | ADMIN - 00513 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 171 | ADMIN - 00570 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 361 | SHOP ELC - 00581 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 401 | WHS 00517 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 357 | SHOP 00384 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 382 | WHS 00342 | EVAP | EEM - RI | 892 | 64 | 828 | 2,073 | 1,399 | 0 | 324 | 3,148 | 2,320 | 3.80 | 4.5 |
| Motors | MTR 160 | ADMIN - 00528 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 384 | WHS - 00352 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 386 | WHS - 00364 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 154 | ADMIN - 00520 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 175 | ADMIN 00583 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 157 | ADMIN - 00526 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 158 | ADMIN - 00415 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 97 | 01315 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 362 | SHOP ELC 00616 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 294 | MTRPOOL 00621 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 381 | WHS 00342 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 355 | SHOP 00367 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 415 | WHS - 00860 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 296 | MTRPOOL 00623 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 383 | WHS 00344 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 262 | DINING 00431 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 380 | WHS 00333 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 242 | CHAPEL - 00315 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 350 | SHOP 00356 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 376 | WHS - 00318 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 162 | ADMIN - 00539 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 114 | ADMIN - 00372 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 116 | ADMIN - 00408 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 317 | MTRPOOL - 00850 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 286 | MTRPOOL - 00605 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 119 | ADMIN - 00425 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 133 | ADMIN - 00445 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | PMTR 28 | DGR 00430 | PMPMTR | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 320 | MTRPOOL 00941 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 291 | MTRPOOL - 00612 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 394 | WHS 00470 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 141 | ADMIN - 00464 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 292 | MTRPOOL - 00614 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 340 | PUMP - 00044 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 388 | WHS 00364 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 280 | MTRPOOL - 00600 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 13* | ADMIN - 00453 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 344 | REC 00338 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 240 | CHAPEL - 00212 | EVAP | EEM - RI | 446 | 32 | 414 | 1,037 | 700 | 0 | 162 | 1,574 | 1,160 | 3.80 | 4.5 |
| Motors | MTR 310 | MTRPOOL - 00837 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 309 | MTRPOOL - 00832 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 358 | SHOP - 00842 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 311 | MTRPOOL - 00840 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 359 | SHOP 00842 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 407 | WHS 00584 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 333 | MWR 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 342 | PUMP - 00838 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 360 | SHOP ELC - 00581 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 405 | WHS - 00545 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 416 | WHS - 00860 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 399 | WHS 00486 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 392 | WHS 00462 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 393 | WHS - 00462 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 385 | WHS 00360 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 379 | WHS 00333 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 377 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 363 | SHOP WPH - 07602 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 413 | WHS 00544 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 371 | WHS - 00234 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 367 | TRAING - 00496 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 368 | TRAING - 00496 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 370 | WHS 00024 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 387 | WHS - 00364 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 374 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 375 | WHS - 00318 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 414 | WHS - 00860 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 406 | WHS - 00558 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 396 | WHS 00470 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 270 | DINING 00560 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 324 | MWR 00410 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 308 | MTRPOOL - 00832 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 300 | MTRPOOL - 00646 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 352 | SHOP 00357 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 331 | MWR 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 323 | MWR - 00340 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 325 | MWR 00450 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 400 | WHS 00486 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 326 | MWR 00556 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 408 | WHS 00585 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 353 | SHOP 00357 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 332 | MWR 01322 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 283 | MTRPOOL - 00600 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 267 | DINING 00449 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 255 | DGR 00404 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 402 | WHS - 00531 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 403 | WHS - 00531 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 356 | SHOP - 00384 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 351 | SHOP - 00357 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 298 | MTRPOOL - 00639 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 313 | MTRPOOL - 00840 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 164 | ADMIN 00543 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 151 | ADMIN 00508 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 152 | ADMIN 00510 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 158 | ADMIN 00527 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 161 | ADMIN 00529 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 169 | ADMIN 00554 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 146 | ADMIN 00497 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 172 | ADMIN - 00578 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 173 | ADMIN 00579 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 174 | ADMIN - 00580 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 176 | ADMIN 00604 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 149 | ADMIN 00504 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 145 | ADMIN 00483 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 186 | ADMIN 06201 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 115 | ADMIN 00372 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 101 | ADMIN 00157 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 104 | ADMIN 00237 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 112 | ADMIN 00320 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 113 | ADMIN 00372 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 121 | ADMIN 00428 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 144 | ADMIN 00479 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 125 | ADMIN 00437 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 138 | ADMIN 00454 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 140 | ADMIN 00458 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 142 | ADMIN - 00464 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 182 | ADMIN 00988 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 177 | ADMIN 00604 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 187 | ADMIN 07600 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 297 | MTRPOOL - 00626 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 284 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 272 | FUELDSP - 00950 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 285 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 265 | DINING 00447 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 287 | MTRPOOL - 00605 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 295 | MTRPOOL - 00621 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 314 | MTRPOOL - 00847 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 288 | MTRPOOL - 00608 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 289 | MTRPOOL 00608 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 293 | MTRPOOL 00620 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 290 | MTRPOOL 00612 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 299 | MTRPOOL - 00642 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 316 | MTRPOOL - 00850 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 271 | FUELDSP 00836 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 315 | MTRPOOL 00847 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 302 | MTRPOOL - 00650 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 247 | CLINIC - 00245 | EVAP | EEM - RI | 223 | 16 | 207 | 518 | 350 | 0 | 81 | 787 | 580 | 3.80 | 4.5 |
| Motors | MTR 268 | DINING 00468 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | 486 | 4,723 | 3,481 | 3.80 | 4.5 |
| Motors | MTR 135 | ADMIN - 00452 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | 486 | 4,723 | 3,481 | 3.80 | 4.5 |
| Motors | MTR 257 | DGR - 00430 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,110 | 2,099 | 0 | 486 | 4,723 | 3,481 | 3.80 | 4.5 |
| Motors | MTR 170 | ADMIN 00564 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 120 | ADMIN 00426 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 165 | ADMIN 00544 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 312 | MTRPOOL - 00840 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 127 | ADMIN 00439 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 307 | MTRPOOL 00830 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 123 | ADMIN - 00433 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 139 | ADMIN - 00458 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 185 | ADMIN 06201 | EVAP | EEM - RI | 669 | 48 | 621 | 1,555 | 1,049 | 0 | 243 | 2,361 | 1,740 | 3.80 | 4.5 |
| Motors | MTR 98 | ADMIN 00101 | EVAP | EEM - RI | 446 | 32 | 414 | 1,049 | 708 | 0 | 189 | 1,568 | 1,154 | 3.79 | 4.5 |
| Motors | MTR 334 | OTHER - 00992 | EVAP | EEM - RI | 1,338 | 96 | 1,242 | 3,147 | 2,124 | 0 | 567 | 4,704 | 3,462 | 3.79 | 4.5 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat RI | 223 | 16 | 207 | 525 | 354 | 0 | 95 | 784 | 577 | 3.79 | 4.5 |
| Motors | MTR 339 | PLT BLDG - 00263 | EVAP | EEM RI | 9,180 | 0 | 9,180 | 31,845 | 2,129 | 0 | 710 | 34,705 | 25,525 | 3.78 | 4.6 |
| Motors | MTR 338 | PLT BLDG 00263 | EVAP | EEM RI | 446 | 32 | 414 | 1,055 | 712 | 0 | 202 | 1,565 | 1,151 | 3.78 | 4.6 |
| Heating | 19 | MTRPOOL 00650 | Unit Heaters | Radiant Heat RI | 223 | 16 | 207 | 528 | 356 | 0 | 101 | 782 | 575 | 3.78 | 4.6 |
| Motors | PMTR 84 | PUMP - 18005 | PMPMTR | EEM RI | 2,120 | 0 | 2,120 | 5,480 | 493 | 0 | 2,056 | 7,969 | 5,849 | 3.76 | 4.6 |
| Motors | MTR 420 | ADMIN - 00439 | Fan Motor | EEM RI | 7,280 | 500 | 6,780 | 18,093 | 10,104 | 0 | 2,781 | 25,416 | 18,636 | 3.75 | 4.6 |
| Motors | MTR 419 | ADMIN - 00433 | Fan Motor | EEM RI | 187 | 0 | 187 | 523 | 245 | 0 | 67 | 701 | 514 | 3.75 | 4.6 |
| Lighting | 09 MT-5b | MT Copy Room | TE Lighting | TE + Occupancy Controls RI | 187 | 0 | 187 | 523 | 245 | 0 | 67 | 701 | 514 | 3.75 | 4.6 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater RI | 4,536 | 265 | 4,271 | 12,635 | NA | 3,251 | NA | 15,886 | 11,615 | 3.72 | 4.6 |
| Heating | 2 | HANGAR BD007 | Unit Heaters | Radiant Heat RI | 1,852 | 0 | 1,852 | 3,442 | 5,103 | 861 | 839 | 6,865 | 5,013 | 3.71 | 4.6 |
| Heating | 4 | HANGAR BD009 | Unit Heaters | Radiant Heat RI | 12,240 | 0 | 12,240 | 41,450 | 2,839 | 0 | 947 | 45,236 | 32,996 | 3.70 | 4.7 |
| Heating | 42 | SHOP - HD5D8 | Unit Heaters | Radiant Heat RI | 12,240 | 0 | 12,240 | 41,450 | 2,839 | 0 | 947 | 45,236 | 32,996 | 3.70 | 4.7 |
| DHW & A/C | 30 | 00857 | Chiller air cooled | Install Desuperheater - RI | 11,480 | 0 | 11,480 | 37,912 | 0 | 0 | 4,466 | 42,379 | 30,899 | 3.69 | 4.7 |
| Wells | 1 | | Well Pumps | Add New 500 kgal. Tank RI | 3,685 | 0 | 3,685 | 2,320 | 13,608 | 861 | 1,669 | 13,398 | 9,712 | 3.64 | 4.7 |
| Motors | PMTR 67 | PLT BLDG 00253 | PMPMTR | EEM RI | 210,500 | 0 | 210,500 | 442,299 | 275,857 | 4,305 | 51,131 | 764,981 | 554,481 | 3.63 | 4.7 |
| Motors | PMTR 91 | PUMP 00042 | PMPMTR | EEM RI | 864 | 70 | 794 | 2,390 | 813 | 0 | 318 | 2,854 | 2,060 | 3.63 | 4.7 |
| Motors | PMTR 90 | PUMP 00044 | PMPMTR | EEM RI | 1,147 | 90 | 1,057 | 2,957 | 1,261 | 0 | 399 | 3,819 | 2,762 | 3.61 | 4.8 |
| Motors | MTR 183 | ADMIN 00988 | EVAP | EEM RI | 1,147 | 90 | 1,057 | 2,957 | 1,261 | 0 | 399 | 3,819 | 2,762 | 3.61 | 4.8 |
| Central Chillers | 2 | | Existing Chillers | Connect D253 & D263, Add TES RI | 207 | 15 | 192 | 427 | 288 | 0 | 24 | 691 | 499 | 3.60 | 4.8 |
| Motors | MTR 14 | CLUB 00202 | COMPMTR | EEM RI | 432,000 | 78,000 | 354,000 | 748,165 | 524,852 | 25,831 | 0 | 1,247,186 | 893,186 | 3.52 | 4.9 |
| Motors | MTR 15 | CLUB 00202 | COMPMTR | EEM RI | 187 | 0 | 187 | 479 | 245 | 0 | 67 | 657 | 470 | 3.51 | 4.9 |
| Motors | MTR 17 | CLUB 00202 | COMPMTR | EEM RI | 748 | 0 | 748 | 1,917 | 982 | 0 | 270 | 2,629 | 1,881 | 3.51 | 4.9 |
| | | | | | 748 | 0 | 748 | 1,917 | 982 | 0 | 270 | 2,629 | 1,881 | 3.51 | 4.9 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost ($1994 $) | Present Value of Rebate ($1994 $) | Present Value of Net Installed Cost ($1994 $) | Present Value of Energy Savings ($1994 $) | Present Value of Demand Savings ($1994 $) | Present Value of O&M Savings ($1994 $) | Present Value of Replacement Savings ($1994 $) | Present Value of Total Savings ($1994 $) | Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 16 | CLUB 00202 | COMPMTR | EEM - RI | 374 | 0 | 374 | 958 | 491 | 0 | 135 | 1,584 | 940 | 3.51 | 4.9 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 2,952 | 0 | 2,952 | 2,282 | 10,206 | 861 | 1,337 | 10,290 | 7,338 | 3.49 | 4.9 |
| Motors | MTR 42 | CLUB 00202 | CONDMTR | EEM - RI | 187 | 0 | 187 | 474 | 245 | 0 | 67 | 652 | 465 | 3.49 | 4.9 |
| Motors | MTR 184 | ADMIN 00988 | EVAP | EEM - RI | 414 | 30 | 384 | 886 | 598 | 0 | 150 | 1,334 | 950 | 3.47 | 5.0 |
| Motors | MTR 301 | MTRPOOL 00646 | EVAP | EEM - RI | 414 | 30 | 384 | 886 | 598 | 0 | 150 | 1,334 | 950 | 3.47 | 5.0 |
| Motors | PMTR 37 | GROCERY 00920 | PMPMTR | EEM - RI | 207 | 15 | 192 | 443 | 299 | 0 | 75 | 667 | 475 | 3.47 | 5.0 |
| Motors | MTR 181 | ADMIN - 00988 | PMPMTR | EEM - RI | 207 | 15 | 192 | 443 | 299 | 0 | 75 | 667 | 475 | 3.47 | 5.0 |
| Motors | PMTR 35 | GROCERY 00920 | PKG A/C | Install Desuperheater - RI | 207 | 15 | 192 | 443 | 299 | 0 | 75 | 667 | 475 | 3.47 | 5.0 |
| DHW & A/C | 28 | 00455 | Fan Motor | EEM - RI | 3,685 | 0 | 3,685 | 1,593 | 13,608 | 861 | 1,669 | 12,671 | 8,986 | 3.44 | 5.0 |
| Motors | MTR 456 | MTRPOOL 00857 | PMPMTR | EEM - RI | 1,397 | 120 | 1,277 | 3,627 | 1,233 | 0 | 481 | 4,380 | 3,103 | 3.43 | 5.0 |
| Motors | PMTR 83 | PUMP - 18005 | COMPMTR | EEM - RI | 7,280 | 500 | 6,780 | 15,367 | 10,104 | 0 | 2,781 | 22,690 | 15,910 | 3.35 | 5.1 |
| Motors | MTR 37 | WHS CLD 00842 | PMPMTR | VBD & EEM - RI | 187 | 0 | 187 | 446 | 245 | 0 | 67 | 624 | 437 | 3.34 | 5.2 |
| Motors | PMTR 17c | BRK/ADM 00273 | PMPMTR | VBD & EEM - RI | 8,032 | 402 | 7,630 | 26,001 | 2,049 | 344 | 2,358 | 25,347 | 17,717 | 3.32 | 5.2 |
| Motors | PMTR 16c | BRK/ADM 00273 | PMPMTR | VBD & EEM - RI | 8,032 | 402 | 7,630 | 26,001 | 2,049 | 344 | 2,358 | 25,347 | 17,717 | 3.32 | 5.2 |
| Motors | PMTR 15c | BRK/ADM 00273 | Unit Heaters | Radiant Heat - RI | 4,016 | 201 | 3,815 | 13,000 | 1,024 | 172 | 1,179 | 12,673 | 8,859 | 3.32 | 5.2 |
| Heating | 21 | MTRPOOL - 00945 | PMPMTR | EEM - RI | 1,540 | 0 | 1,540 | 4,209 | 311 | 0 | 591 | 5,112 | 3,572 | 3.32 | 5.2 |
| Motors | PMTR 19 | BRK/ADM 00099 | AIRCOMP | EEM - RI | 187 | 0 | 187 | 359 | 327 | 0 | 67 | 619 | 432 | 3.31 | 5.2 |
| Motors | MTR 13 | WHS - 00552 | PMPMTR | VBD & EEM - RI | 414 | 30 | 384 | 685 | 736 | 0 | 150 | 1,271 | 887 | 3.31 | 5.2 |
| Motors | PMTR 7c | ADMIN 00985 | CHILLER air cooled | Install Desuperheater - RI | 4,040 | 184 | 3,856 | 13,565 | 757 | 344 | 1,220 | 12,757 | 8,900 | 3.31 | 5.2 |
| DHW & A/C | 1 | 00013 | PMPMTR | EEM - RI | 3,319 | 0 | 3,319 | 1,410 | 11,907 | 861 | 1,503 | 10,953 | 7,635 | 3.30 | 5.2 |
| Motors | PMTR 18 | BRK/ADM 00110 | PMPMTR | EEM - RI | 187 | 0 | 187 | 355 | 324 | 0 | 67 | 612 | 425 | 3.27 | 5.3 |
| Motors | PMTR 111 | PUMP 05997 | PKG UNIT | Install Desuperheater - RI | 5,795 | 450 | 5,345 | 11,541 | 8,065 | 0 | 2,184 | 17,422 | 12,077 | 3.26 | 5.3 |
| DHW & A/C | 32 | 00905 | PMPMTR | EEM - RI | 1,302 | 0 | 1,302 | 3,092 | 2,552 | 861 | 590 | 4,192 | 2,890 | 3.22 | 5.3 |
| Motors | PMTR 65 | PLT BLDG - 00253 | PMPMTR | EEM - RI | 1,104 | 80 | 1,024 | 2,740 | 932 | 0 | 591 | 3,281 | 2,257 | 3.20 | 5.4 |
| Motors | PMTR 69 | PLT BLDG 00263 | | Weatherization - RI | 1,104 | 80 | 1,024 | 2,740 | 932 | 0 | 591 | 3,281 | 2,257 | 3.20 | 5.4 |
| Envelope | MWR | MWR | Heat System Fan | EEM - RI | 1,366 | 0 | 1,366 | 2,786 | 1,540 | 0 | 0 | 4,326 | 2,960 | 3.17 | 5.4 |
| Motors | MTR 526 | Fan Housing | Unit Heaters | Radiant Heat - RI | 305,932 | 0 | 305,932 | 438,229 | 630,336 | 0 | 100,295 | 968,270 | 662,338 | 3.16 | 5.4 |
| Heating | 7 | MTRPOOL - 00681 | PMPMTR | EEM - RI | 10,830 | 0 | 10,830 | 32,851 | 2,205 | 0 | 975 | 34,111 | 23,281 | 3.15 | 5.5 |
| Motors | PMTR 115 | PUMP - 00043 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 7,445 | 4,194 | 0 | 1,285 | 10,354 | 7,036 | 3.12 | 5.5 |
| Motors | PMTR 92 | PUMP - 00044 | Thermostat | Night Setback - RI | 3,588 | 270 | 3,318 | 7,379 | 4,194 | 0 | 1,285 | 10,288 | 6,970 | 3.10 | 5.6 |
| Controls | MT 1 | | PMPMTR | EEM - RI | 150,400 | 0 | 150,400 | 427,670 | 104,982 | 0 | -68,127 | 464,525 | 314,125 | 3.09 | 5.6 |
| Motors | PMTR 99 | PUMP - 00324 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,366 | 1,261 | 0 | 399 | 3,228 | 2,171 | 3.05 | 5.6 |
| Motors | PMTR 2a | ADMIN - 00988 | Unit Heaters | Radiant Heat - RI | 489 | 35 | 454 | 927 | 626 | 0 | 178 | 1,374 | 920 | 3.03 | 5.7 |
| Heating | 40 | SHOP HDSDT | PMPMTR | VBD & EEM - RI | 19,120 | 0 | 19,120 | 54,595 | 0 | 0 | 2,445 | 57,041 | 37,921 | 2.98 | 5.8 |
| Motors | PMTR 60c | PLT-BLDG 00263 | Unit Heaters | Radiant Heat - RI | 6,314 | 259 | 6,055 | 16,682 | 2,393 | 172 | -1,867 | 17,035 | 10,980 | 2.81 | 6.1 |
| Heating | 8 | MTRPOOL 00680 | AIR CONDITIONER | Install Desuperheater - RI | 10,830 | 0 | 10,830 | 29,182 | 2,205 | 0 | 975 | 30,412 | 19,582 | 2.81 | 6.1 |
| DHW & A/C | 6 | 00037 | Unit Heaters | Radiant Heat - RI | 1,119 | 0 | 1,119 | 2,775 | 1,701 | 861 | 507 | 3,109 | 1,990 | 2.78 | 6.2 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 520 | 0 | 520 | 1,076 | 0 | 0 | 368 | 1,444 | 924 | 2.78 | 6.2 |
| Heating | 10 | MTRPOOL 00626 | Unit Heaters | Radiant Heat - RI | 1,700 | 0 | 1,700 | 4,209 | 346 | 0 | 101 | 4,655 | 2,955 | 2.74 | 6.3 |
| Heating | 11 | MTRPOOL 00623 | PMPMTR | EEM - RI | 1,700 | 0 | 1,700 | 4,209 | 346 | 0 | 101 | 4,655 | 2,955 | 2.74 | 6.3 |
| Motors | PMTR 32 | DINING - 00254 | Fan Motor | EEM - RI | 207 | 15 | 192 | 222 | 368 | 0 | -75 | 515 | 323 | 2.68 | 6.4 |
| Motors | MTR 449 | GROCERY - 00920 | AIRCOMP | EEM - RI | 1,397 | 120 | 1,277 | 2,626 | 1,233 | 0 | 481 | 3,378 | 2,101 | 2.65 | 6.5 |
| Motors | MTR 9 | MTRPOOL 00873 | AIRCOMP | EEM - RI | 1,147 | 90 | 1,057 | 1,535 | 1,651 | 0 | 399 | 2,787 | 1,730 | 2.64 | 6.5 |
| Motors | MTR 11 | PUMP 00652 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 1,535 | 1,651 | 0 | 399 | 2,787 | 1,730 | 2.64 | 6.5 |
| Motors | PMTR 80 | PUMP - 05590 | PMPMTR | EEM - RI | 9,174 | 550 | 8,624 | 12,208 | 13,473 | 0 | 3,230 | 22,450 | 13,826 | 2.60 | 6.6 |
| Motors | PMTR 104 | PUMP - 00700 | PKG UNIT | Install Desuperheater - RI | 3,588 | 270 | 3,318 | 6,934 | 2,956 | 0 | 1,265 | 8,626 | 5,308 | 2.60 | 6.6 |
| DHW & A/C | 36 | 01313 | Unit Heaters | Radiant Heat - RI | 1,632 | 0 | 1,632 | 1,720 | 4,082 | 861 | 739 | 4,202 | 2,570 | 2.57 | 6.7 |
| Heating | 18 | MTRPOOL 00608 | Unit Heaters | Radiant Heat - RI | 2,560 | 0 | 2,560 | 3,858 | 260 | 0 | 2,460 | 6,578 | 4,018 | 2.57 | 6.7 |
| Heating | 29 | MTRPOOL 00941 | | Weatherization - RI | 2,560 | 0 | 2,560 | 4,428 | 260 | 0 | 1,857 | 6,544 | 3,984 | 2.56 | 6.7 |
| Envelope | w/ SE win only | Concrete Block: w/ SE win only | COMPMTR | EEM - RI | 4,195 | 0 | 4,195 | 6,871 | 3,798 | 0 | 0 | 10,669 | 6,474 | 2.54 | 6.8 |
| Motors | MTR 22 | HOSPITL - 00166 | Fan Motor | EEM - RI | 489 | 35 | 454 | 909 | 416 | 0 | 178 | 1,147 | 693 | 2.53 | 6.8 |
| Motors | MTR 447 | GROCERY 00920 | Fan Motor | EEM - RI | 1,456 | 120 | 1,336 | 2,595 | 1,219 | 0 | 508 | 3,306 | 1,970 | 2.47 | 7.0 |
| Motors | MTR 436a | CLINIC - 00171 | Fan Motor | EEM - RI | 728 | 60 | 668 | 1,298 | 610 | 0 | 254 | 1,653 | 985 | 2.47 | 7.0 |
| Motors | MTR 450 | GROCERY 00920 | Fan Motor | EEM - RI | 728 | 60 | 668 | 1,298 | 610 | 0 | 254 | 1,653 | 985 | 2.47 | 7.0 |
| Motors | MTR 481 | REC - 00905 | Fan Motor | EEM - RI | 552 | 40 | 512 | 992 | 466 | 0 | 195 | 1,262 | 750 | 2.47 | 7.0 |
| Motors | MTR 477 | PUMP - 00324 | Fan Motor | EEM - RI | 552 | 40 | 512 | 992 | 466 | 0 | 195 | 1,262 | 750 | 2.47 | 7.0 |
| Motors | MTR 467a | MWR 01322 | PMPMTR | VBD & EEM - RI | 489 | 35 | 454 | 968 | 329 | 0 | 178 | 1,118 | 664 | 2.46 | 7.0 |
| Motors | PMTR 59c | PLT BLDG - 00253 | VENTLTR | EEM - RI | 8,032 | 331 | 7,701 | 19,621 | 2,049 | 344 | 2,358 | 18,967 | 11,266 | 2.46 | 7.0 |
| Motors | MTR 524a | DOR - 00308 | Fan Motor | EEM - RI | 552 | 40 | 512 | 954 | 448 | 0 | 156 | 1,247 | 735 | 2.44 | 7.1 |
| Motors | MTR 438a | CLINIC - 00171 | PKG A/C | Install Desuperheater - RI | 1,794 | 135 | 1,659 | 3,147 | 1,478 | 0 | 432 | 3,992 | 2,333 | 2.41 | 7.2 |
| DHW & A/C | 34 | 00983 | PMPMTR | EEM - RI | 1,852 | 0 | 1,852 | 1,053 | 5,103 | 861 | 839 | 4,456 | 2,604 | 2.41 | 7.2 |
| Motors | PMTR 85 | PUMP - 18005 | PMPMTR | VBD & EEM - RI | 7,280 | 500 | 6,780 | 8,931 | 10,104 | 0 | 2,781 | 18,254 | 9,474 | 2.40 | 7.2 |
| Motors | PMTR 4c | ADMIN - 00988 | PMPMTR | EEM - RI | 1,937 | 66 | 1,891 | 4,689 | 626 | 172 | 422 | 4,521 | 2,630 | 2.39 | 7.2 |
| Motors | PMTR 77 | PUMP - 00324 | PMPMTR | EEM - RI | 1,147 | 90 | 1,057 | 2,684 | 236 | 0 | 399 | 2,521 | 1,464 | 2.39 | 7.2 |
| Motors | PMTR 105 | PUMP - 00652 | PKG UNIT | Install Desuperheater - RI | 489 | 35 | 454 | 810 | 445 | 0 | 178 | 1,077 | 623 | 2.37 | 7.3 |
| DHW & A/C | 29 | 00826 | Heat pump | 2 speed compressor RI | 1,376 | 0 | 1,376 | 1,851 | 2,892 | 861 | 623 | 3,259 | 1,883 | 2.37 | 7.3 |
| HVAC | MT 3 | | Unit Heaters | Radiant Heat RI | 240,507 | 0 | 240,507 | 342,991 | 334,687 | 0 | 108,943 | 568,735 | 328,228 | 2.36 | 7.3 |
| Heating | 15 | MTRPOOL - 00605 | PMPMTR | EEM - RI | 3,060 | 0 | 3,060 | 5,612 | 311 | 0 | 1,192 | 7,115 | 4,055 | 2.33 | 7.4 |
| Motors | PMTR 58 | PLT-BLDG 00109 | COMPMTR | EEM - RI | 207 | 15 | 192 | 222 | 299 | 0 | -75 | 446 | 254 | 2.32 | 7.4 |
| Motors | MTR 19 | GROCERY 00920 | COMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 2,380 | 1,219 | 0 | 508 | 3,091 | 1,755 | 2.31 | 7.4 |
| Motors | MTR 20 | GROCERY - 00920 | COMPMTR | EEM - RI | 728 | 60 | 668 | 1,190 | 610 | 0 | 254 | 1,545 | 877 | 2.31 | 7.4 |
| Motors | MTR 18 | GROCERY - 00920 | PMPMTR | EEM - RI | 728 | 60 | 668 | 1,190 | 610 | 0 | 254 | 1,545 | 877 | 2.31 | 7.4 |
| Motors | PMTR 24 | BRK/ADM 00273 | COMPMTR | EEM - RI | 207 | 15 | 192 | 133 | 385 | 0 | -75 | 443 | 251 | 2.31 | 7.5 |
| Motors | MTR 21 | GROCERY 00920 | EVAP | EEM - RI | 9,384 | 680 | 8,704 | 15,460 | 7,919 | 0 | 3,320 | 20,058 | 11,354 | 2.30 | 7.5 |
| Motors | MTR 329 | MWR - 01322 | Unit Heaters | Radiant Heat RI | 187 | 0 | 187 | 296 | 199 | 0 | 67 | 427 | 240 | 2.29 | 7.5 |
| Heating | 12 | MTRPOOL - 00621 | CONDMTR | EEM - RI | 3,060 | 0 | 3,060 | 5,420 | 311 | 0 | 1,192 | 6,923 | 3,923 | 2.28 | 7.5 |
| Motors | MTR 49 | WHS CLD 00842 | CONDMTR | EEM - RI | 187 | 0 | 187 | 264 | 230 | 0 | -67 | 427 | 240 | 2.28 | 7.5 |
| Motors | MTR 43 | GROCERY 00920 | PMPMTR | EEM - RI | 1,456 | 120 | 1,336 | 2,380 | 1,143 | 0 | -508 | 3,014 | 1,678 | 2.26 | 7.6 |
| Motors | PMTR 26 | CLINIC - 00171 | PMPMTR | EEM - RI | 2,294 | 180 | 2,114 | 3,036 | 2,521 | 0 | 798 | 4,759 | 2,645 | 2.25 | 7.6 |
| Motors | PMTR 27 | CLINIC - 00171 | Dock EDPM | Reflective roof RI | 2,294 | 180 | 2,114 | 3,036 | 2,521 | 0 | 798 | 4,759 | 2,645 | 2.25 | 7.6 |
| Envelope | MT 5 | | PMPMTR | EEM - RI | 223,920 | 0 | 223,920 | 275,786 | 225,782 | 0 | 0 | 501,567 | 277,647 | 2.24 | 7.7 |
| Motors | PMTR 78 | PUMP - 05590 | PMPMTR | EEM - RI | 9,174 | 550 | 8,624 | 7,508 | 11,584 | 0 | 711 | 18,383 | 9,759 | 2.13 | 8.1 |
| Motors | PMTR 53a | PLT-BLDG 00263 | PKG UNIT | Install Desuperheater RI | 1,794 | 135 | 1,659 | 1,773 | 2,393 | 0 | 432 | 3,533 | 1,874 | 2.13 | 8.1 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater RI | 1,691 | 0 | 1,691 | 871 | 4,355 | 861 | 766 | 3,598 | 1,907 | 2.13 | 8.1 |
| DHW & A/C | 25 | 00258 | Unit Heaters | Radiant Heat RI | 1,691 | 0 | 1,691 | 871 | 4,355 | 861 | 766 | 3,598 | 1,907 | 2.13 | 8.1 |
| Heating | 27 | MTRPOOL 00893 | Unit Heaters | Radiant Heat RI | 3,060 | 0 | 3,060 | 5,919 | 311 | 0 | 237 | 6,467 | 3,407 | 2.11 | 8.1 |
| Heating | 16 | MTRPOOL 00850 | Unit Heaters | Radiant Heat RI | 3,060 | 0 | 3,060 | 5,430 | 311 | 0 | 671 | 6,462 | 3,402 | 2.11 | 8.2 |
| Heating | 14 | MTRPOOL 00620 | COOL | EEM RI | 3,060 | 0 | 3,060 | 5,430 | 311 | 0 | 671 | 6,462 | 3,402 | 2.11 | 8.2 |
| Motors | MTR 92 | HOTEL 00904 | COOL | EEM RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 8* | HOSPITL 00166 | COOL | EEM RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 93 | HOTEL 00906 | COOL | EEM RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 91 | HOTEL 00903 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 86 | HOSPITL - 00166 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 88 | HOTEL - 00900 | COOL | EEM RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 89 | HOTEL 00901 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Motors | MTR 90 | HOTEL - 00902 | COOL | EEM - RI | 187 | 0 | 187 | 270 | 201 | 0 | 79 | 392 | 205 | 2.10 | 8.2 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 27,480 | 0 | 27,480 | 60,819 | 3,730 | 0 | -6,928 | 57,622 | 30 142 | 2 10 | 8.2 |
| Motors | PMTR 107 | PUMP - 00636 | PMPMTR | EEM - RI | 3,588 | 270 | 3,318 | 1,401 | 6,826 | 0 | -1,290 | 6,937 | 3 619 | 2.09 | 8.2 |
| Lighting | OS MT 4b | MT Lunchroom | TR Lighting | TR + Occupancy Controls RI | 14,400 | 449 | 13,951 | 21,442 | NA | 6,986 | NA | 28,427 | 14,477 | 2.04 | 8.5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 1,632 | 0 | 1,632 | 816 | 4,082 | -861 | -739 | 3,298 | 1,666 | 2.02 | 8.5 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater RI | 1,632 | 0 | 1,632 | 816 | 4,082 | -861 | -739 | 3,298 | 1,666 | 2.02 | 8.5 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 4,600 | 0 | 4,600 | 8,768 | 467 | 0 | -6 | 9,230 | 4,630 | 2 01 | 8.6 |
| Motors | MTR 2 | CLINIC - 00171 | AIRCOMP | EEM - RI | 1,728 | 140 | 1,588 | 1,840 | 1,978 | 0 | -437 | 3,381 | 1,793 | 2 00 | 8 6 |
| Motors | PMTR 79 | PUMP - 05590 | PMPMTR | EEM - RI | 9,174 | 550 | 8,624 | 6,898 | 13,473 | 0 | 3,230 | 17,140 | 8,516 | 1.99 | 8.7 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 9,180 | 0 | 9,180 | 14,572 | 934 | 0 | 710 | 18,217 | 9,037 | 1.98 | 8.7 |
| Envelope | MT 8 | | Single pane window | Blade Screens - SE side RI | 6,138 | 982 | 5,156 | 12,000 | 4,493 | 0 | -6,317 | 10,177 | 5,021 | 1.97 | 8.7 |
| Envelope | | Metal Siding | | Window Screens - SE side RI | 12,640 | 2,022 | 10,618 | 24,712 | 9,253 | 0 | -13,008 | 20,957 | 10,339 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Barracks | | Window Screens - SE side - RI | 4,774 | 764 | 4,010 | 9,333 | 3,494 | 0 | -4,912 | 7,914 | 3,905 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc post 1980 | | Window Screens SE side RI | 1,733 | 277 | 1,456 | 3,389 | 1,269 | 0 | -1,784 | 2,874 | 1,418 | 1.97 | 8.7 |
| Envelope | | MOTORPOOL | | Window Screens SE side RI | 1,242 | 198 | 1,043 | 2,428 | 909 | 0 | -1,278 | 2,059 | 1,016 | 1.97 | 8.7 |
| Envelope | | TRAINING | | Window Screens SE side RI | 403 | 64 | 338 | 788 | 295 | 0 | -415 | 668 | 330 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screens RI | 67,503 | 10,800 | 56,703 | 131,973 | 49,413 | 0 | -69,468 | 111,918 | 55,215 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1953 Vintage | | Window Screens RI | 63,078 | 10,092 | 52,985 | 123,321 | 46,173 | 0 | -64,914 | 104,581 | 51,595 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screens - RI | 61,671 | 9,867 | 51,804 | 120,571 | 45,144 | 0 | -63,466 | 102,249 | 50,445 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1954 Vintage | | Window Screens - RI | 47,436 | 7,590 | 39,846 | 92,741 | 34,724 | 0 | -48,817 | 78,648 | 38,801 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screens - RI | 41,196 | 6,591 | 34,604 | 80,540 | 30,156 | 0 | -42,395 | 68,301 | 33,697 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screens - SE side RI | 32,879 | 5,261 | 27,619 | 64,281 | 24,068 | 0 | -33,836 | 54,513 | 26,894 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screens SE side - RI | 5,659 | 905 | 4,754 | 11,066 | 4,143 | 0 | -5,824 | 9 383 | 4,629 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens - SE side RI | 4,695 | 751 | 3,944 | 9,179 | 3,437 | 0 | -4,831 | 7,784 | 3,840 | 1.97 | 8.7 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screens - SE side - RI | 3,040 | 486 | 2,554 | 5,943 | 2,225 | 0 | -3,128 | 5,040 | 2,487 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc pre 1980 | | Window Screens - SE side RI | 1,987 | 318 | 1,669 | 3,886 | 1,455 | 0 | -2,045 | 3,295 | 1,626 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: post 1950 | | Window Screens - SE side - RI | 1,871 | 299 | 1,572 | 3,658 | 1,370 | 0 | -1,926 | 3,102 | 1,531 | 1.97 | 8.7 |
| Envelope | | SHOP | | Window Screens SE side RI | 1,216 | 195 | 1,022 | 2,378 | 890 | 0 | -1,252 | 2,017 | 995 | 1.97 | 8.7 |
| Envelope | | DINING: MISC | | Window Screens - SE side RI | 740 | 118 | 622 | 1,447 | 542 | 0 | -762 | 1,227 | 605 | 1.97 | 8.7 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screens SE side RI | 690 | 110 | 580 | 1,350 | 505 | 0 | -710 | 1,144 | 565 | 1.97 | 8.7 |
| Envelope | | BRK/ADM MISC | | Window Screens - SE side RI | 662 | 106 | 556 | 1,294 | 485 | 0 | -681 | 1,098 | 542 | 1.97 | 8.7 |
| Envelope | | Wood Siding | | Window Screens - SE side RI | 551 | 88 | 463 | 1,077 | 403 | 0 | -567 | 913 | 450 | 1.97 | 8.7 |
| Envelope | | MWR | | Window Screens - SE side - RI | 288 | 46 | 242 | 563 | 211 | 0 | -296 | 477 | 235 | 1.97 | 8.7 |
| Envelope | | WHS | | Window Screens - SE side - RI | 254 | 41 | 213 | 497 | 186 | 0 | -261 | 421 | 208 | 1.97 | 8.7 |
| Envelope | | SECURITY | | Window Screens - SE side - RI | 59 | 9 | 50 | 115 | 43 | 0 | -61 | 98 | 48 | 1.97 | 8.7 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screens - SE side RI | 1,218 | 195 | 1,023 | 2,381 | 892 | 0 | -1,254 | 2,020 | 996 | 1.97 | 8.7 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 6,120 | 0 | 6,120 | 10,851 | 623 | 0 | -473 | 11,947 | 5,827 | 1.95 | 8.8 |
| Motors | PMTR 52a | PLT BLDG - 00263 | PMPMTR | EEM - RI | 728 | 60 | 668 | 654 | 883 | 0 | -254 | 1,283 | 615 | 1.92 | 9.0 |
| Heating | 38 | SHOP AIR - BD006 | Unit Heaters | Radiant Heat ROP | 1,206 | 0 | 1,206 | 1,109 | 189 | 0 | 1,016 | 2,314 | 1,108 | 1.92 | 9.0 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat RI | 5,360 | 0 | 5,360 | 10,193 | 545 | 0 | 581 | 10,157 | 4 797 | 1.89 | 9.1 |
| Heating | 39 | SHOP HVY - BD005 | Unit Heaters | Radiant Heat - ROP | 2,005 | 0 | 2,005 | 1,774 | 314 | 0 | 1,693 | 3,783 | 1 778 | 1.89 | 9.1 |
| Motors | MTR 444a | DINING - 00254 | Fan Motor | EEM - RI | 1,956 | 140 | 1,816 | 2,802 | 1,316 | 0 | -714 | 3,404 | 1,588 | 1.87 | 9.2 |
| Motors | MTR 486 | WHS CLD - 00862 | Fan Motor | EEM - RI | 978 | 70 | 908 | 1,401 | 658 | 0 | 357 | 1,702 | 794 | 1.87 | 9.2 |
| Motors | MTR 453e | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 20,328 | 610 | 19,718 | 44,724 | 1,087 | -172 | -8,803 | 36,836 | 17 118 | 1.87 | 9.2 |
| Motors | MTR 522a | DGR - 00308 | VENTLTR | EEM - RI | 489 | 35 | 454 | 677 | 318 | 0 | 147 | 848 | 394 | 1.87 | 9.2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat RI | 3,060 | 0 | 3,060 | 5,042 | 311 | 0 | 361 | 5,714 | 2,654 | 1.87 | 9.2 |
| Motors | MTR 523a | DGR - 00308 | VENTLTR | EEM - RI | 489 | 35 | 454 | 665 | 312 | 0 | 131 | 846 | 392 | 1.86 | 9.3 |
| TAD | 66g | | Transformer | Amorphous Core/Improved Windings (No Load & Load Loss Reduction) RI | 19,305 | 0 | 19,305 | 17,865 | 13,850 | 0 | 4,024 | 35,737 | 16,432 | 1.85 | 9.3 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat RI | 33,490 | 0 | 33,490 | 61,921 | 4,408 | 0 | -8,194 | 58,136 | 25,646 | 1.79 | 9.6 |
| Motors | MTR 527 | Fam Housing | Cool System Fan | EEM - RI | 305,932 | 0 | 305,932 | 520,222 | 326,239 | 0 | -110,309 | 536,252 | 230,320 | 1.75 | 9.8 |
| Motors | MTR 62 | BRK/ADM - 00226 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,685 | 14,956 | 0 | -5,057 | 24,584 | 10,559 | 1.75 | 9.8 |
| Motors | MTR 60 | BRK/ADM - 00110 | COOL | EEM - RI | 3,740 | 0 | 3,740 | 3,916 | 3,988 | 0 | -1,349 | 6,554 | 2,816 | 1.75 | 9.8 |
| Motors | MTR 59 | BRK/ADM - 00108 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | -1,079 | 5,245 | 2,253 | 1.75 | 9.8 |
| Motors | MTR 56 | BRK/ADM 00105 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | -1,079 | 5,245 | 2,253 | 1.75 | 9.8 |
| Motors | MTR 61 | BRK/ADM - 00111 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | -1,079 | 5,245 | 2,253 | 1.75 | 9.8 |
| Motors | MTR 57 | BRK/ADM - 00106 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | -1,079 | 5,245 | 2,253 | 1.75 | 9.8 |
| Motors | MTR 58 | BRK/ADM - 00107 | COOL | EEM - RI | 2,992 | 0 | 2,992 | 3,133 | 3,191 | 0 | 1,079 | 5,245 | 2,253 | 1.75 | 9.8 |
| Motors | MTR 82 | CLUB - 20018 | COOL | EEM - RI | 187 | 0 | 187 | 196 | 199 | 0 | -67 | 328 | 141 | 1 75 | 9.8 |
| Pum Htg HVAC | 2b | | | High Eff. Grnd Source HP - RI | 7,086,917 | 0 | 7,086,917 | 8,254,166 | 4,037,704 | 281,903 | -241,994 | 12,331,780 | 5,244,863 | 1.74 | 9.9 |
| Motors | MTR 479a | REC - 00905 | Fan Motor | EEM RI | 489 | 35 | 454 | 700 | 267 | 0 | 178 | 789 | 335 | 1.74 | 9.9 |
| Motors | MTR 480a | REC - 00905 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 267 | 0 | 178 | 789 | 335 | 1.74 | 9.9 |
| Motors | MTR 478a | REC - 00905 | Fan Motor | EEM - RI | 489 | 35 | 454 | 700 | 267 | 0 | 178 | 789 | 335 | 1.74 | 9.9 |
| Motors | MTR 451e | HOSPITL - 00166 | Fan Motor | VSD & EEM RI | 39,916 | 1,195 | 38,741 | 83,670 | 1,261 | -172 | 17,441 | 67,317 | 28,576 | 1 74 | 9 9 |
| Motors | MTR-79 | BRK/ADM - 00275 | COOL | EEM - RI | 1,309 | 0 | 1,309 | 1,378 | 1,403 | 0 | -514 | 2,267 | 958 | 1 73 | 9.9 |
| Motors | MTR 63 | BRK/ADM 00226 | COOL | EEM - RI | 1,309 | 0 | 1,309 | 1,378 | 1,403 | 0 | -514 | 2,267 | 958 | 1 73 | 9.9 |
| Motors | MTR 66 | BRK/ADM - 00261 | COOL | EEM - RI | 187 | 0 | 187 | 197 | 200 | 0 | 73 | 324 | 137 | 1.73 | 9.9 |
| Motors | MTR 78 | BRK/ADM 00275 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,761 | 15,033 | 0 | -5,502 | 24,292 | 10,267 | 1 73 | 9.9 |
| Motors | MTR 77 | BRK/ADM - 00273 | COOL | EEM - RI | 14,025 | 0 | 14,025 | 14,761 | 15,033 | 0 | -5,502 | 24,292 | 10,267 | 1 73 | 9.9 |
| Motors | MTR 76 | BRK/ADM - 00273 | COOL | EEM - RI | 374 | 0 | 374 | 394 | 401 | 0 | 147 | 648 | 274 | 1.73 | 9.9 |
| Motors | MTR 64 | BRK/ADM 00226 | COOL | EEM RI | 374 | 0 | 374 | 394 | 401 | 0 | -147 | 648 | 274 | 1.73 | 9.9 |
| Motors | MTR 80 | BRK/ADM - 00275 | COOL | EEM RI | 374 | 0 | 374 | 394 | 401 | 0 | 147 | 648 | 274 | 1 73 | 9.9 |
| Motors | PMTR 116 | PUMP - 00343 | PMPMTR | EPM - RI | 3,588 | 270 | 3,318 | 2,819 | 4,194 | 0 | 1,285 | 5,728 | 2,410 | 1.73 | 10.0 |
| Motors | MTR 452e | HOSPITL - 00166 | Fan Motor | VSD & EEM RI | 27,032 | 804 | 26,228 | 56,367 | 813 | -172 | 11,780 | 45,227 | 18,999 | 1 72 | 10 0 |
| Motors | MTR 29 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 2,794 | 240 | 2,554 | 3,342 | 2,004 | 0 | 961 | 4,385 | 1,831 | 1 72 | 10 0 |
| Motors | MTR 44 | MTRPOOL - 00857 | CONDMTR | EEM RI | 2,912 | 240 | 2,672 | 3,301 | 2,286 | 0 | 1,017 | 4,572 | 1,900 | 1.71 | 10 1 |
| Motors | MTR 75 | BRK/ADM 00273 | COOL | EEM RI | 1,309 | 0 | 1,309 | 1,391 | 1,417 | 0 | 593 | 2,215 | 906 | 1.69 | 10.2 |
| Motors | MTR 74 | BRK/ADM 00267 | COOL | EEM RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1.69 | 10.2 |
| Motors | MTR 69 | BRK/ADM 00264 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1.69 | 10.2 |
| Motors | MTR 68 | BRK/ADM - 00262 | COOL | EEM RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1.69 | 10.2 |
| Motors | MTR 72 | BRK/ADM - 00265 | COOL | EEM - RI | 187 | 0 | 187 | 199 | 202 | 0 | 85 | 316 | 129 | 1 69 | 10.2 |
| Motors | MTR 70 | BRK/ADM - 00264 | COOL | EEM RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22 467 | 9,190 | 1.69 | 10 2 |
| Motors | MTR 67 | BRK/ADM - 00262 | COOL | EEM RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9 190 | 1.69 | 10.2 |
| Motors | MTR 71 | BRK/ADM 00265 | COOL | EEM RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9,190 | 1.69 | 10.2 |
| Motors | MTR 73 | BRK/ADM 00267 | COOL | EEM RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22,467 | 9,190 | 1 69 | 10.2 |
| Motors | MTR 65 | BRK/ADM - 00261 | COOL | EEM RI | 13,277 | 0 | 13,277 | 14,110 | 14,371 | 0 | 6,014 | 22 467 | 9 190 | 1.69 | 10.2 |
| Motors | MTR 454e | HOSPITL - 00166 | Fan Motor | VSD & EEM RI | 52,878 | 1,561 | 51,317 | 108,821 | 1,233 | 172 | 23,167 | 84,714 | 35,397 | 1.69 | 10.2 |
| Motors | MTR 423a | ADMIN - 00958 | Fan Motor | EEM RI | 1,456 | 120 | 1,336 | 1,468 | 1,219 | 0 | 508 | 2 178 | 842 | 1.63 | 10.6 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR 34 | GROCERY 00920 | power vents | EEM RI | 1,104 | 80 | 1,024 | 1,122 | 932 | 0 | 391 | 1,643 | 619 | 1 62 | 10 6 |
| Motors | PMTR 55a | PLT-BLDG 00253 | PMPMTR | EEM RI | 2,794 | 240 | 2,554 | 2,169 | 2,928 | 0 | 961 | 4,136 | 1,582 | 1 62 | 10 6 |
| Motors | PMTR 56a | PLT-BLDG 00253 | PMPMTR | EEM RI | 2,794 | 240 | 2,554 | 2,169 | 2,928 | 0 | 961 | 4,136 | 1,582 | 1 62 | 10 6 |
| DHW & A/C' | 2* | 00323 | PKG UNIT | Install Desuperheater RI | 1,119 | 0 | 1,119 | 1,469 | 1,701 | 861 | 507 | 1,802 | 683 | 1 61 | 10 7 |
| Motors | PMTR 74 | PUMP - 00042 | PMPMTR | EEM RI | 978 | 70 | 908 | 1,158 | 658 | 0 | -357 | 1,459 | 551 | 1 61 | 10 7 |
| Motors | PMTR 75 | PUMP - 00044 | PMPMTR | EEM RI | 489 | 35 | 454 | 579 | 329 | 0 | 178 | 730 | 276 | 1 61 | 10 7 |
| DHW & A/C | 37 - | 01322 | AIR CONDITIONER | Install Desuperheater RI | 1,339 | 0 | 1,339 | 885 | 2,722 | 861 | 607 | 2 139 | 801 | 1 60 | 10 8 |
| DHW & A/C' | 43 | 01322 | PKG UNIT | Install Desuperheater RI | 1,339 | 0 | 1,339 | 885 | 2,722 | 861 | 607 | 2,139 | 801 | 1 60 | 10 8 |
| Motors | MTR 409 | WHS 00818 | EVAP | EEM RI | 1,397 | 120 | 1,277 | 1,485 | 1,002 | 0 | 481 | 2,006 | 729 | 1 57 | 11 0 |
| Motors | PMTR 25 | DRK/ADM - 00273 | PMPMTR | EEM RI | 207 | 15 | 192 | 133 | 242 | 0 | 75 | 299 | 107 | 1 56 | 11 0 |
| Motors | MTR 94 | MTRPOOL 00680 | COOL | EEM RI | 187 | 0 | 187 | 146 | 197 | 0 | 55 | 288 | 101 | 1 54 | 11 2 |
| Motors | PMTR 61c | PLT-BLDG - 00109 | PMPMTR | V&D & EEM RI | 4,040 | 132 | 3,908 | 6,782 | 757 | 344 | 1,220 | 5,974 | 2,066 | 1 53 | 11 3 |
| Motors | MTR 85 | DINING 00254 | COOL | EEM RI | 187 | 0 | 187 | 147 | 198 | 0 | -61 | 284 | 97 | 1 52 | 11 3 |
| Motors | PMTR 38 | HOSPITL - 00166 | PMPMTR | EEM RI | 890 | 36 | 854 | 1,351 | 263 | 0 | -326 | 1,288 | 434 | 1 51 | 11 4 |
| Motors | MTR 81 | CLINIC 00171 | COOL | EEM RI | 187 | 0 | 187 | 148 | 199 | 0 | 67 | 280 | 93 | 1 50 | 11 5 |
| Motors | MTR 95 | MTRPOOL - 00837 | COOL | EEM RI | 187 | 0 | 187 | 148 | 199 | 0 | 67 | 280 | 93 | 1 50 | 11 5 |
| Motors | MTR 432a | DRK/ADM 00273 | Fan Motor | EEM RI | 489 | 35 | 454 | 525 | 329 | 0 | 178 | 676 | 222 | 1 49 | 11 6 |
| Motors | MTR 433a | DRK/ADM - 00273 | Fan Motor | EEM RI | 489 | 35 | 454 | 525 | 329 | 0 | 178 | 676 | 222 | 1 49 | 11 6 |
| Motors | MTR 12 | SHOP - 00367 | AIRCOMP | EEM RI | 1,397 | 120 | 1,277 | 1,147 | 1,233 | 0 | 481 | 1,900 | 623 | 1 49 | 11 6 |
| Motors | MTR 435a | DRK/ADM 00275 | Fan Motor | EEM RI | 489 | 35 | 454 | 550 | 344 | 0 | -222 | 672 | 218 | 1 48 | 11 6 |
| Motors | MTR 434a | DRK/ADM - 00275 | Fan Motor | EEM - RI | 489 | 35 | 454 | 550 | 344 | 0 | 222 | 672 | 218 | 1 48 | 11 6 |
| Motors | MTR 8 | MTRPOOL - 00646 | AIRCOMP | EEM RI | 516 | 20 | 496 | 446 | 480 | 0 | 194 | 731 | 235 | 1 47 | 11 7 |
| Motors | MTR 96 | WHS 20001 | COOL | EEM RI | 748 | 0 | 748 | 594 | 802 | 0 | 293 | 1,102 | 354 | 1 47 | 11 7 |
| Motors | MTR 455c | HOSPITL - 00166 | Fan Motor | V&D & EEM RI | 13,008 | 351 | 12,657 | 23,945 | 358 | 344 | 5,346 | 18,612 | 5,955 | 1 47 | 11 7 |
| Motors | MTR 282 | MTRPOOL - 00600 | EVAP | EEM RI | 489 | 35 | 454 | 501 | 338 | 0 | -178 | 660 | 206 | 1 45 | 11 8 |
| Motors | MTR 99 | ADMIN 00152 | EVAP | EEM RI | 552 | 40 | 512 | 561 | 378 | 0 | 195 | 744 | 232 | 1 45 | 11 9 |
| Motors | MTR 54a | ADMIN 00988 | COOL | EEM RI | 552 | 40 | 512 | 581 | 392 | 0 | 232 | 741 | 229 | 1 45 | 11 9 |
| Motors | MTR 53a | ADMIN 00988 | COOL | EEM RI | 552 | 40 | 512 | 581 | 392 | 0 | 232 | 741 | 229 | 1 45 | 11 9 |
| Motors | MTR 55a | ADMIN 00988 | COOL | EEM RI | 552 | 40 | 512 | 581 | 392 | 0 | 232 | 741 | 229 | 1 45 | 11 9 |
| Motors | MTR 83 | DINING 00222 | COOL | EEM RI | 374 | 0 | 374 | 300 | 405 | 0 | 169 | 535 | 161 | 1 43 | 12 0 |
| Motors | MTR 84 | DINING 00222 | COOL | EEM RI | 374 | 0 | 374 | 300 | 405 | 0 | -169 | 535 | 161 | 1 43 | 12 0 |
| Motors | PMTR 29 | DGR 00308 | PMPMTR | EEM RI | 552 | 40 | 512 | 506 | 420 | 0 | 195 | 731 | 219 | 1 43 | 12 1 |
| TAD | 62h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 18,725 | 0 | 18,725 | 8,831 | 2,843 | 0 | 14,944 | 26,637 | 7,912 | 1 42 | 12 1 |
| TAD | 83h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 90,621 | 0 | 90,621 | 43,477 | 15,165 | 0 | 69,037 | 127,679 | 37,058 | 1 41 | 12 2 |
| TAD | 67h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 18,725 | 0 | 18,725 | 8,060 | 2,396 | 0 | 14,944 | 25,420 | 6,695 | 1 36 | 12 7 |
| Motors | MTR 509 | DRK/ADM 00251 | HEAT | EEM RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR 518 | DRK/ADM - 00252 | HEAT | EEM RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR 503 | DRK/ADM 00250 | HEAT | EEM - RI | 5,423 | 0 | 5,423 | 7,768 | 1,328 | 0 | 1,778 | 7,318 | 1,895 | 1 35 | 12 8 |
| Motors | MTR 515 | DRK/ADM 00252 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR 507 | DRK/ADM 00251 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR 502 | DRK/ADM 00250 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR 499 | DRK/ADM - 00249 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,286 | 732 | 0 | 981 | 4,037 | 1,045 | 1 35 | 12 8 |
| Motors | MTR 513 | DRK/ADM 00251 | HEAT | EEM RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR 520 | DRK/ADM - 00252 | HEAT | EEM - RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR 504 | DRK/ADM - 00250 | HEAT | EEM RI | 748 | 0 | 748 | 1,071 | 183 | 0 | 245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR 498 | DRK/ADM - 00249 | HEAT | EEM RI | 748 | 0 | 748 | 1,071 | 183 | 0 | -245 | 1,009 | 261 | 1 35 | 12 8 |
| Motors | MTR 495 | DRK/ADM - 00249 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 516 | DRK/ADM - 00252 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 496 | DRK/ADM 00249 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 510 | DRK/ADM 00251 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 514 | DRK/ADM 00252 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 505 | DRK/ADM 00250 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 500 | DRK/ADM 00250 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 501 | DRK/ADM 00250 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 506 | DRK/ADM 00250 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 511 | DRK/ADM 00251 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 493 | DRK/ADM 00249 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 517 | DRK/ADM 00252 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 508 | DRK/ADM 00251 | HEAT | EEM - RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 512 | DRK/ADM 00251 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 519 | DRK/ADM 00252 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 497 | DRK/ADM 00249 | HEAT | EEM RI | 187 | 0 | 187 | 268 | 46 | 0 | 61 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 521 | MTRPOOL 00681 | HEAT | EEM RI | 187 | 0 | 187 | 261 | 46 | 0 | 55 | 252 | 65 | 1 35 | 12 8 |
| Motors | MTR 50a | WHS CLD 00862 | CONDMTR | EEM RI | 1,104 | 80 | 1,024 | 1,002 | 757 | 0 | 391 | 1,368 | 344 | 1 34 | 12 9 |
| TAD | 45h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 25,395 | 0 | 25,395 | 9,928 | 3,365 | 0 | 20,460 | 33,753 | 8,357 | 1 33 | 13 0 |
| Motors | MTR 494 | DRK/ADM - 00249 | HEAT | EEM RI | 5,423 | 0 | 5,423 | 7,809 | 1,315 | 0 | -1,955 | 7 188 | 1,765 | 1 33 | 13 0 |
| Motors | MTR 491 | DRK/ADM - 00110 | HEAT | EEM RI | 3,740 | 0 | 3,740 | 5,386 | 920 | 0 | 1,349 | 4,957 | 1,217 | 1 33 | 13 0 |
| Motors | MTR 492 | DRK/ADM 00111 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 490 | DRK/ADM 00108 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 489 | DRK/ADM 00107 | HEAT | EEM - RI | 2,992 | 0 | 2,992 | 4 308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 488 | DRK/ADM 00106 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | -1,079 | 3,966 | 974 | 1 33 | 13 0 |
| Motors | MTR 487 | DRK/ADM - 00105 | HEAT | EEM RI | 2,992 | 0 | 2,992 | 4,308 | 736 | 0 | 1,079 | 3,966 | 974 | 1 33 | 13 0 |
| TAD | 39h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 27,935 | 0 | 27,935 | 10,531 | 3,600 | 0 | 22,534 | 36 665 | 8,730 | 1 31 | 13 1 |
| TAD | 50h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 29 628 | 0 | 29 628 | 11,105 | 3,852 | 0 | 23,870 | 38 827 | 9,199 | 1 31 | 13 1 |
| TAD | 32h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 21,629 | 0 | 21,629 | 7,982 | 2,697 | 0 | 17,486 | 28 164 | 6,535 | 1 30 | 13 2 |
| TAD | 63h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,226 | 0 | 14,226 | 4 750 | 1,529 | 0 | 12,205 | 18 484 | 4,258 | 1 30 | 13 3 |
| TAD | 59h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 74,899 | 0 | 74,899 | 28,235 | 9,147 | 0 | 59,854 | 97,236 | 22 337 | 1 30 | 13 3 |
| TAD | 65h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 12,483 | 0 | 12,483 | 4,706 | 1,525 | 0 | 9,976 | 16,206 | 3,723 | 1 30 | 13 3 |
| TAD | 81h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 17,788 | 0 | 17 788 | 7,092 | 2,433 | 0 | 13,559 | 23,084 | 5,296 | 1 30 | 13 3 |
| Motors | MTR 30 | MWR 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 48 | MWR 01322 | CONDMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 47 | MWR 01322 | CONDMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 31 | MWR 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 46 | MWR 01322 | CONDMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 33 | MWR 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 32 | MWR 01322 | COMPMTR | EEM RI | 187 | 0 | 187 | 264 | 46 | 0 | 67 | 243 | 56 | 1 30 | 13 3 |
| Motors | MTR 476 | PLT-BLDG (0026) | Fan Motor | EEM RI | 489 | 35 | 454 | 700 | 62 | 0 | 178 | 584 | 130 | 1 29 | 13 4 |
| TAD | 56h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 40,348 | 0 | 40 348 | 12 912 | 4,262 | 0 | 34 692 | 51,865 | 11,516 | 1 29 | 13 4 |
| TAD | 58h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 12 105 | 0 | 12,105 | 3 873 | 1,278 | 0 | 10,407 | 15,559 | 3 455 | 1 29 | 13 4 |
| TAD | 21h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 89 189 | 0 | 89 189 | 30,956 | 10,377 | 0 | 72,459 | 113 791 | 24 602 | 1 28 | 13 5 |
| TAD | 7h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 20,806 | 0 | 20,806 | 7 056 | 2,344 | 0 | 17,095 | 26 496 | 5 690 | 1 27 | 13 5 |

# Table 3.8b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAD | 53h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 69,040 | 0 | 69,040 | 24,430 | 7,786 | 0 | 35,357 | 87,573 | 18,533 | 1.27 | 13 6 |
| TAD | 85h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 22,249 | 0 | 22,249 | 6,814 | 2 612 | 0 | 18,446 | 27,872 | 5,623 | 1 25 | 13 7 |
| TAD | 14h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 13,009 | 0 | 13,009 | 4,223 | 1,376 | 0 | 10,635 | 16,235 | 3,226 | 1.25 | 13 8 |
| Motors | PMTR 13a | DRE/ADM - 00273 | PMP/MTR | EEM RI | 728 | 60 | 668 | 539 | 549 | 0 | 254 | 833 | 165 | 1.25 | 13 8 |
| TAD | 87f | | Transformer | Improvd Silicon Steel Windings (No Load & Load Loss Reduction) - ROP | 432,951 | 0 | 432,951 | 100,787 | 60,130 | 0 | 379,082 | 540,000 | 107,049 | 1.25 | 13 8 |
| TAD | 46h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 9,647 | 0 | 9,647 | 2,670 | 905 | 0 | 8,321 | 11,896 | 2,249 | 1.23 | 14 0 |
| Motors | PMTR 3e | ADMIN 00928 | PMP/MTR | VSD & EEM RI | 4,920 | 92 | 4,828 | 7,305 | 731 | 172 | 1,924 | 5,940 | 1,112 | 1.23 | 14 0 |
| TAD | 40h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 6,064 | 0 | 6,064 | 1,418 | 553 | 0 | 5,235 | 7,406 | 1,342 | 1 22 | 14 1 |
| TAD | 51h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 9,647 | 0 | 9,647 | 2,560 | 888 | 0 | 8,321 | 11,769 | 2,122 | 1.22 | 14 1 |
| TAD | 33h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 8,216 | 0 | 8,216 | 2,147 | 725 | 0 | 7,103 | 9,975 | 1,759 | 1.21 | 14.2 |
| TAD | 60h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 28,452 | 0 | 28,452 | 7,594 | 2,460 | 0 | 24,409 | 34,463 | 6,011 | 1.21 | 14.2 |
| TAD | 29h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 43,258 | 0 | 43,258 | 13,124 | 4,171 | 0 | 34,972 | 52,266 | 9,008 | 1.21 | 14 3 |
| TAD | 37h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 21,629 | 0 | 21,629 | 6,562 | 2,084 | 0 | 17,486 | 26,133 | 4,504 | 1 21 | 14.3 |
| TAD | 35h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 7,210 | 0 | 7,210 | 2,187 | 695 | 0 | 5,829 | 8,711 | 1,501 | 1.21 | 14 3 |
| Motors | MTR 426a | ADMIN 00928 | Pm Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1 20 | 14.3 |
| Motors | MTR 430a | ADMIN 00928 | Pm Motor | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1.20 | 14.3 |
| Motors | MTR 422a | ADMIN 00928 | Pm Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1.20 | 14 3 |
| Motors | MTR 429a | ADMIN 00928 | Pm Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | -178 | 547 | 93 | 1.20 | 14.3 |
| Motors | MTR 421a | ADMIN 00928 | Pm Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | 178 | 547 | 93 | 1.20 | 14.3 |
| Motors | MTR 425a | ADMIN 00928 | Pm Motor | EEM RI | 489 | 35 | 454 | 396 | 329 | 0 | -178 | 547 | 93 | 1.20 | 14.3 |
| TAD | 42h | | Transformer | EEM - RI | 489 | 35 | 454 | 396 | 329 | 0 | -178 | 547 | 93 | 1.20 | 14 3 |
| TAD | 48h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 156,603 | 0 | 156,603 | 45,884 | 15,392 | 0 | 126,168 | 187,444 | 30,841 | 1.20 | 14 4 |
| TAD | 22h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 8,465 | 0 | 8,465 | 2,480 | 832 | 0 | 6,820 | 10,132 | 1,667 | 1.20 | 14 4 |
| TAD | 6h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 39,346 | 0 | 39,346 | 9,668 | 3,241 | 0 | 34,125 | 47,034 | 7,688 | 1.20 | 14 4 |
| TAD | 54h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 23,711 | 0 | 23,711 | 5,693 | 1,891 | 0 | 20,720 | 28,304 | 4,594 | 1 19 | 14 4 |
| TAD | 77h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 64,557 | 0 | 64,557 | 16,174 | 5,155 | 0 | 55,507 | 76,835 | 12,277 | 1 19 | 14.5 |
| TAD | 13h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 11,794 | 0 | 11,794 | 3,156 | 1,042 | 0 | 9,812 | 14,010 | 2,216 | 1 19 | 14.5 |
| TAD | 69h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 24,709 | 0 | 24,709 | 5,679 | 1,851 | 0 | 21,520 | 29,050 | 4,341 | 1 18 | 14 6 |
| TAD | 18h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 11,180 | 0 | 11,180 | 3,487 | 1,103 | 0 | 9,531 | 13,121 | 1,941 | 1 17 | 14 7 |
| TAD | 24h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 11,508 | 0 | 11,508 | 3,127 | 1,011 | 0 | 9,350 | 13,487 | 1,979 | 1 17 | 14 7 |
| TAD | 71h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 8,631 | 0 | 8,631 | 2,345 | 758 | 0 | 7,012 | 10,115 | 1,484 | 1 17 | 14 7 |
| TAD | 8h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 25,623 | 0 | 25,623 | 7,543 | 2,566 | 0 | 19,546 | 29,655 | 4,032 | 1 16 | 14.9 |
| TAD | 2h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 24,273 | 0 | 24,273 | 6,168 | 1,854 | 0 | 19,945 | 27,967 | 3,694 | 1 15 | 14.9 |
| TAD | 9h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 22,539 | 0 | 22,539 | 5,728 | 1,722 | 0 | 18,520 | 25,969 | 3,430 | 1.15 | 14.9 |
| TAD | 12h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 5,201 | 0 | 5,201 | 1,322 | 397 | 0 | 4,274 | 5,993 | 792 | 1 15 | 14.9 |
| TAD | 16h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 28,186 | 0 | 28,186 | 7,173 | 2,258 | 0 | 23,043 | 32,475 | 4,289 | 1 15 | 14.9 |
| TAD | 30h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 23,850 | 0 | 23,850 | 6,070 | 1,911 | 0 | 19,498 | 27,479 | 3,629 | 1 15 | 14 9 |
| TAD | 43h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 49,299 | 0 | 49,299 | 10,589 | 3,365 | 0 | 42,618 | 56,572 | 7,274 | 1 15 | 15 0 |
| TAD | 49h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 25,725 | 0 | 25,725 | 5,336 | 1,790 | 0 | 22,189 | 29,315 | 3,590 | 1 14 | 15 1 |
| TAD | 27h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 9,647 | 0 | 9,647 | 2,001 | 671 | 0 | 8,321 | 10,993 | 1,346 | 1.14 | 15 1 |
| TAD | 19h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 39,346 | 0 | 39,346 | 7,568 | 2,447 | 0 | 34,125 | 44,140 | 4,794 | 1 12 | 15 4 |
| TAD | 25h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 13,115 | 0 | 13,115 | 2,523 | 816 | 0 | 11,375 | 14,713 | 1,598 | 1 12 | 15.4 |
| TAD | 17h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 6,558 | 0 | 6,558 | 1,261 | 408 | 0 | 5,687 | 7,357 | 799 | 1 12 | 15 4 |
| TAD | 64h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 29,651 | 0 | 29,651 | 5,516 | 1,719 | 0 | 25,824 | 33,059 | 3,408 | 1 11 | 15 4 |
| TAD | 84h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 10,483 | 0 | 10,483 | 1,346 | 433 | 0 | 9,909 | 11,686 | 1,203 | 1 11 | 15.4 |
| TAD | 82h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 63,420 | 0 | 63,420 | 8,272 | 2,885 | 0 | 59,303 | 70,460 | 7,041 | 1 11 | 15.5 |
| TAD | 57h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 12,684 | 0 | 12,684 | 1,454 | 577 | 0 | 11,861 | 14,092 | 1,408 | 1 11 | 15.5 |
| TAD | 3h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 8,920 | 0 | 8,920 | 1,096 | 342 | 0 | 8,438 | 9,896 | 976 | 1 11 | 15.5 |
| TAD | 5h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 11,855 | 0 | 11,855 | 2,133 | 641 | 0 | 10,360 | 13,134 | 1,279 | 1.11 | 15.5 |
| TAD | 11h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 2,635 | 0 | 2,635 | 474 | 142 | 0 | 2,302 | 2,919 | 284 | 1 11 | 15.5 |
| TAD | 74h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 13,178 | 0 | 13,178 | 2,374 | 748 | 0 | 11,477 | 14,599 | 1,421 | 1 11 | 15.5 |
| Motors | MTR 111 | ADMIN 00281 | EVAP | EEM - RI | 13,480 | 0 | 13,480 | 3,390 | 1,176 | 0 | 10,281 | 14,848 | 1,369 | 1 10 | 15 6 |
| TAD | 86h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 552 | 40 | 512 | 452 | 305 | 0 | 195 | 562 | 50 | 1 10 | 15 7 |
| TAD | 1h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 16,395 | 0 | 16,395 | 1,928 | 739 | 0 | 15,315 | 17,983 | 1,587 | 1.10 | 15 7 |
| TAD | 47h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 1,801 | 0 | 1,801 | 291 | 94 | 0 | 1,583 | 1,968 | 167 | 1 09 | 15.8 |
| Motors | PMTR 12a | DRE/ADM 00273 | PMP/MTR | EEM RI | 14,218 | 0 | 14,218 | 1,511 | 512 | 0 | 13,465 | 15,488 | 1,270 | 1.09 | 15.8 |
| TAD | 41h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 728 | 60 | 668 | 486 | 495 | 0 | 254 | 727 | 59 | 1 09 | 15 8 |
| TAD | 52h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 8,937 | 0 | 8,937 | 916 | 313 | 0 | 8,466 | 9,695 | 758 | 1.08 | 15 9 |
| TAD | 34h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,218 | 0 | 14,218 | 1,449 | 503 | 0 | 13,465 | 15,416 | 1,198 | 1 08 | 15.9 |
| Motors | PMTR 31a | DINING 00254 | PMP/MTR | EEM - RI | 6,055 | 0 | 6,055 | 608 | 205 | 0 | 5,739 | 6,551 | 497 | 1 08 | 15 9 |
| TAD | 61h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,456 | 120 | 1,336 | 734 | 1,219 | 0 | 508 | 1,445 | 109 | 1.08 | 15.9 |
| TAD | 78h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 38,439 | 0 | 38,439 | 3,940 | 1,276 | 0 | 36,334 | 41,550 | 3,111 | 1 08 | 15.9 |
| TAD | 80h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 39,836 | 0 | 39,836 | 4,318 | 1,421 | 0 | 37,254 | 43,054 | 3,218 | 1.08 | 15.9 |
| TAD | 23h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 19,918 | 0 | 19,918 | 2,159 | 741 | 0 | 18,627 | 21,527 | 1,609 | 1.08 | 15 9 |
| TAD | 55h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 9,665 | 0 | 9,665 | 912 | 306 | 0 | 9,171 | 10,388 | 724 | 1 07 | 16 0 |
| TAD | 76h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 68,386 | 0 | 68,386 | 6,579 | 2,097 | 0 | 64,692 | 73,368 | 4,982 | 1 07 | 16 1 |
| Motors | MTR 274 | GROCERY - 00920 | EVAP | EEM RI | 26,072 | 0 | 26,072 | 2,679 | 884 | 0 | 24,384 | 27,948 | 1,876 | 1.07 | 16 1 |
| TAD | 15h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,467 | 105 | 1,362 | 1,188 | 802 | 0 | 535 | 1,455 | 93 | 1.07 | 16 1 |
| TAD | 75h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 7,283 | 0 | 7,283 | 643 | 209 | 0 | 6,921 | 7,773 | 490 | 1.07 | 16 1 |
| TAD | 38h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 22,640 | 0 | 22,640 | 2,096 | 863 | 0 | 21,176 | 24,135 | 1,495 | 1 07 | 16.2 |
| TAD | 31h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 12,110 | 0 | 12,110 | 999 | 317 | 0 | 11,477 | 12,793 | 684 | 1.06 | 16 3 |
| TAD | 36h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 10,091 | 0 | 10,091 | 832 | 265 | 0 | 9,564 | 10,661 | 570 | 1.06 | 16 3 |
| TAD | 44h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 6,055 | 0 | 6,055 | 499 | 159 | 0 | 5,739 | 6,397 | 342 | 1 06 | 16 3 |
| Motors | MTR 273 | GROCERY 00920 | EVAP | EEM RI | 40,284 | 0 | 40,284 | 3,209 | 1,076 | 0 | 38,150 | 42,436 | 2,151 | 1.05 | 16 3 |
| TAD | 68h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,467 | 105 | 1,362 | 1,226 | 827 | 0 | 623 | 1,431 | 69 | 1 05 | 16 4 |
| TAD | 70h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 12,519 | 0 | 12,519 | 1,061 | 336 | 0 | 11,711 | 13,108 | 589 | 1.05 | 16.4 |
| TAD | 79h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 6,259 | 0 | 6,259 | 531 | 168 | 0 | 5,855 | 6,554 | 294 | 1 05 | 16 4 |
| TAD | 26h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 9,959 | 0 | 9,959 | 824 | 310 | 0 | 9,314 | 10,427 | 468 | 1.05 | 16 4 |
| TAD | 28h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 9,665 | 0 | 9,665 | 714 | 231 | 0 | 9,171 | 10,115 | 451 | 1 05 | 16.5 |
| TAD | 20h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 9,665 | 0 | 9,665 | 714 | 231 | 0 | 9,171 | 10,115 | 451 | 1 05 | 16.5 |
| TAD | 72h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 6,443 | 0 | 6,443 | 476 | 154 | 0 | 6,114 | 6,743 | 300 | 1 05 | 16.5 |
| TAD | 4h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 7,173 | 0 | 7,173 | 574 | 195 | 0 | 6,709 | 7,478 | 306 | 1 04 | 16.5 |
| TAD | 10h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,912 | 0 | 2,912 | 201 | 60 | 0 | 2,771 | 3,032 | 120 | 1.04 | 16.5 |
| Motors | MTR 472a | MWR 01322 | Pm Motor | EEM RI | 18,208 | 0 | 18,208 | 1,260 | 397 | 0 | 17,303 | 18,959 | 751 | 1 04 | 16.5 |
| Motors | MTR 465a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1.03 | 16 7 |
| Motors | MTR 468a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR 463a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1.03 | 16 7 |
| Motors | MTR 470a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR 471a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| Motors | MTR 473a | MWR 01322 | Pm Motor | EEM RI | 516 | 20 | 496 | 526 | 179 | 0 | 194 | 511 | 15 | 1 03 | 16 7 |
| TAD | 73h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 60 374 | 0 | 60,374 | 4 128 | 1,432 | 0 | 56 470 | 62,031 | 1,657 | 1.03 | 16.8 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non-Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | DINING HALLS 03 | DINING HALLS | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R 38 | 212 | NA | 212 | 21,637 | 0 | 21,637 | 21,425 | 101 90 | 0 2 |
| Hot Water | COMMISSARIES | COMMISSARIES | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LFSHe, Aerators | 13 | NA | 13 | 1,197 | 0 | 1,197 | 1,183 | 89 30 | 0 2 |
| Hot Water | CLUBS 03 | CLUBS | Other Fuels Central Boiler | LPG Wrap Tank w/ Insulation, LFSHe, Aerators | 30 | NA | 30 | 2,240 | 0 | 2,240 | 2,211 | 75 90 | 0 3 |
| Lights | SECURITY 03 | SECURITY | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 326 | NA | 326 | 15,066 | 4,442 | 19,508 | 19,182 | 59 90 | 0 3 |
| Hot Water | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | Electric Central Boiler | Electric Boiler Wrap Tank w/ Insulation, LFSHe, Aerators | 7 | NA | 7 | 364 | 0 | 364 | 357 | 52 70 | 0 3 |
| Lights | SECURITY 02 | SECURITY | IN8. INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 376 | NA | 376 | 12,914 | 5,123 | 18,037 | 17,662 | 48 00 | 0 4 |
| Lights | SECURITY 01 | SECURITY | IN8. INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 4 | NA | 4 | 132 | 35 | 167 | 163 | 42 60 | 0 4 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 5 | NA | 5 | 167 | 36 | 203 | 198 | 42 30 | 0 4 |
| Lights | COMMISSARIES | COMMISSARIES | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 11 | NA | 11 | 350 | 99 | 449 | 438 | 40 60 | 0 4 |
| Hot Water | WAREHOUSE 08 | WAREHOUSE | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHe, Aerators | 1 | NA | 1 | 38 | 0 | 38 | 37 | 40 50 | 0 3 |
| Hot Water | MILITARY OTHER 05 | MILITARY OTHER | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHe, Aerators | 19 | NA | 19 | 727 | 0 | 727 | 709 | 39 20 | 0 5 |
| Hot Water | EXCHANGE FACILITIES 05 | EXCHANGE FACILITIES | Other Fuels Central Boiler | LPG. Wrap Tank w/ Insulation, LFSHe, Aerators | 6 | NA | 6 | 238 | 0 | 238 | 232 | 38 80 | 0 2 |
| Hot Water | ADMINISTRATION 08 | ADMINISTRATION | Hot Water (Generated) Steam Central Hter | LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 80 | NA | 80 | 2,839 | 0 | 2,839 | 2,759 | 35 60 | 0 6 |
| Lights | EXCHANGE FACILITIES 04 | EXCHANGE FACILITIES | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 36 | NA | 36 | 978 | 273 | 1,251 | 1,214 | 34 30 | 0 5 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 16 | NA | 16 | 391 | 91 | 482 | 465 | 30 10 | 0 6 |
| Lights | SHOPS 03 | SHOPS | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 31 | NA | 31 | 659 | 208 | 867 | 836 | 28 00 | 0 6 |
| Lights | MWR 03 | MORALE-WELFARE RECREATION | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 2 | NA | 2 | 37 | 8 | 45 | 44 | 27 50 | 0 7 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 101 | NA | 101 | 2,098 | 617 | 2,715 | 2,615 | 26 90 | 0 7 |
| Roof | SHOPS 04 | SHOPS | Roof Insulation R-Value 5.00 | Attic Ceiling Increase insulation by R-19 | 1,802 | NA | 1,802 | 48,218 | 0 | 48,218 | 46,415 | 26 80 | 0 8 |
| Hot Water | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Ele Tank, Ins Pipe, LFSHe, Aer , Lower Tank Temp | 53 | NA | 53 | 1,334 | 0 | 1,334 | 1,281 | 25 10 | 0 1 |
| Lights | WAREHOUSE 12 | WAREHOUSE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 270 | NA | 270 | 5,499 | 1,257 | 6,756 | 6,485 | 25 00 | 0 7 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 2 | NA | 2 | 43 | 14 | 57 | 55 | 24 30 | 0 7 |
| Roof | SECURITY 01 | SECURITY | Roof Insulation R-Value 8 69 | Attic Ceiling: Increase insulation by R 19 | 13 | NA | 13 | 320 | 0 | 320 | 306 | 24 10 | 0 8 |
| Lights | RECREATION 02 | RECREATION | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 8 | NA | 8 | 137 | 48 | 185 | 177 | 23 70 | 0.7 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 14 | NA | 14 | 251 | 84 | 335 | 320 | 23 60 | 0 8 |
| Roof | RECREATION 02 | RECREATION | Roof Insulation R-Value 0.00 | Suspended Ceiling. Increase insulation by R-30 | 2,247 | NA | 2,247 | 52,651 | 0 | 52,651 | 50,405 | 23 40 | 0 8 |
| Hot Water | DINING HALLS 06 | DINING HALLS | Hot Water (Generated) Steam Central Hter | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 134 | NA | 134 | 3,101 | 0 | 3,101 | 2,967 | 23 20 | 0 9 |
| Lights | CHAPEL 01 | CHAPEL | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 69 | NA | 69 | 1,184 | 281 | 1,465 | 1,396 | 21 30 | 0 8 |
| Lights | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1,529 | NA | 1,529 | 25,270 | 6,043 | 31,313 | 29,784 | 20 50 | 0 9 |
| Lights | WAREHOUSE 02 | WAREHOUSE | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 276 | NA | 276 | 4,080 | 1,283 | 5,363 | 5,087 | 19 50 | 0.9 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 66 | NA | 66 | 977 | 306 | 1,283 | 1,218 | 19 50 | 0 9 |
| Lights | WAREHOUSE 01 | WAREHOUSE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 613 | NA | 613 | 9,017 | 2,854 | 11,871 | 11,258 | 19 40 | 0 9 |
| Hot Water | BARRACKS 07 | BARRACKS | Hot Water (Generated) Steam Central Hter, | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 1,159 | NA | 1,159 | 22,330 | 0 | 22,330 | 21,171 | 19 30 | 1 1 |
| Roof | HANGER | HANGAR | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R-30 | 382 | NA | 382 | 7,267 | 0 | 7,267 | 6,886 | 19 00 | 1 1 |
| Roof | WAREHOUSE 06 | WAREHOUSE | Roof Insulation R-Value 0.00 | Attic Ceiling. Increase insulation by R-19 | 283 | NA | 283 | 5,389 | 0 | 5,389 | 5,106 | 19 00 | 1 1 |
| Hot Water | ADMINISTRATION 09 | ADMINISTRATION | Electric SHW Heater | Wrap Old Ele Tank, Ins Pipe, LFSHe, Aer , Lower Tank Temp | 67 | NA | 67 | 1,219 | 0 | 1,219 | 1,151 | 18.10 | 0 3 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 24 | NA | 24 | 329 | 107 | 436 | 412 | 18 00 | 1.0 |
| Hot Water | BARRACKS 02 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 661 | NA | 661 | 11,704 | 0 | 11,704 | 11,042 | 17.70 | 1.0 |
| Hot Water | FH-DUPLEX 03 | DUPLEX | Other Fuels SHW Heator | Wrap Old LPG Tank, Ins Pipe, LFSHe, Aer , Lower Tank Temp | 3,028 | NA | 3,028 | 52,926 | 0 | 52,926 | 49,898 | 17 50 | 0 4 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 89 | NA | 89 | 1,171 | 352 | 1,523 | 1,434 | 17 10 | 1 0 |
| Lights | RECREATION 03 | RECREATION | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 208 | NA | 208 | 2,440 | 1,085 | 3,525 | 3,318 | 16 90 | 1.1 |
| Hot Water | BARRACKS 04 | BARRACKS | Hot Water (Generated) Steam Central Hter | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 199 | NA | 199 | 3,199 | 0 | 3,199 | 3,001 | 16 10 | 0 8 |
| Lights | SHOPS 04 | SHOPS | MV8: MERC 1000 PEND | HS19: HPS 400 PEND | 384 | NA | 384 | 5,979 | 146 | 6,125 | 5,740 | 16.00 | 1 1 |
| Lights | FH-DUPLEX 03 | DUPLEX | IN8. INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 312 | NA | 312 | 3,891 | 1,001 | 4,892 | 4,580 | 15 70 | 1 2 |
| Lights | CHAPEL 02 | CHAPEL | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 318 | NA | 318 | 3,651 | 1,301 | 4,952 | 4,633 | 15.60 | 1 2 |
| Lights | FH DUPLEX 01 | DUPLEX | IN8 INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 854 | NA | 854 | 9,940 | 2,739 | 12,679 | 11,825 | 14 80 | 1.2 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 113 | NA | 113 | 1,314 | 293 | 1,607 | 1,493 | 14 20 | 1.3 |
| Hot Water | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | Electric SHW Heater | Wrap Old Ele Tank, Ins. Pipe, LFSHe, Aer , Lower Tank Temp | 9 | NA | 9 | 130 | 0 | 130 | 121 | 14 20 | 0 4 |
| Hot Water | RECREATION 04 | RECREATION | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSHe, Aerators | 33 | NA | 33 | 461 | 0 | 461 | 428 | 14 10 | 1 5 |
| Lights | SHOPS 04 | SHOPS | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 29 | NA | 29 | 332 | 77 | 409 | 379 | 14 00 | 1 3 |
| Roof | WAREHOUSE 12 | WAREHOUSE | Roof Insulation R Value 0 00 | Suspended Ceiling Increase insulation by R 30 | 715 | NA | 715 | 9,672 | 0 | 9,672 | 8,957 | 13 50 | 1 4 |
| Lights | FH 3 OR MORE 03 | MULTI-FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 1,311 | NA | 1,311 | 13,207 | 4,203 | 17,410 | 16,099 | 13 30 | 1 3 |
| Lights | ADMINISTRATION 04 | ADMINISTRATION | IN6. INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 18 | NA | 18 | 195 | 43 | 238 | 220 | 13 30 | 1 4 |
| Roof | BARRACKS 04 | BARRACKS | Roof Insulation R Value 0 00 | Suspended Ceiling: Increase insulation by R-19 | 1,657 | NA | 1,657 | 21,735 | 0 | 21,735 | 20,078 | 13.10 | 1 5 |
| Hot Water | MWR 05 | MORALE-WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSHe, Aerators | 51 | NA | 51 | 657 | 0 | 657 | 606 | 12 90 | 0 8 |
| Lights | GUEST HOUSES 02 | MILITARY MOBILE HOMES | IN8. INC 75 CEIL | FL175. CFL 27 INTEGRAL UNIT | 7 | NA | 7 | 65 | 21 | 86 | 80 | 12 90 | 1 4 |
| Lights | COMMISSARIES | COMMISSARIES | IN5. INC 60 CEIL | FL181. CFL 13 + BLST UNIT | 19 | NA | 19 | 204 | 43 | 247 | 228 | 12 70 | 1 4 |
| Lights | FH 3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN8: INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 2,217 | NA | 2,217 | 20,675 | 7,109 | 27,784 | 25,567 | 12 50 | 1 4 |
| Lights | ADMINISTRATION 07 | ADMINISTRATION | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 65 | NA | 65 | 638 | 157 | 795 | 730 | 12 20 | 1.5 |
| Lights | SHOPS 03 | SHOPS | IN6: INC 2 60 CEIL | FL182 CFL 2-13 + BLST UNIT | 18 | NA | 18 | 162 | 53 | 215 | 198 | 12 10 | 1.5 |
| Lights | ADMINISTRATION 08 | ADMINISTRATION | IN6 INC 2-60 CEIL | FL182. CFL 2-13 + BLST UNIT | 67 | NA | 67 | 634 | 160 | 794 | 728 | 11 90 | 1 5 |
| Lights | CLINIC 02 | CLINIC | IN6: INC 2 60 CEIL | FL182. CFL 2 13 + BLST UNIT | 9 | NA | 9 | 76 | 27 | 103 | 95 | 11 90 | 1.5 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN6 INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 39 | NA | 39 | 365 | 97 | 462 | 423 | 11 80 | 1 5 |
| Lights | ADMINISTRATION 07a | ADMINISTRATION | IN6: INC 2-60 CEIL | FL182. CFL 2 13 + BLST UNIT | 16 | NA | 16 | 148 | 38 | 186 | 171 | 11 80 | 1.5 |
| Lights | FH DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN8. INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 517 | NA | 517 | 4,389 | 1,658 | 6,047 | 5,530 | 11 70 | 1 5 |
| Lights | COMMISSARIES | COMMISSARIES | IN11: INC 100 CEIL | FL189. CFL 2 15 CEIL FIXT | 13 | NA | 13 | 140 | 13 | 153 | 140 | 11 40 | 1.6 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | FL189. CFL 2 15 CEIL FIXT | 9 | NA | 9 | 93 | 9 | 102 | 92 | 11 40 | 1.6 |
| Lights | SECURITY 03 | SECURITY | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 383 | NA | 383 | 3,981 | 364 | 4,345 | 3,963 | 11 30 | 1 6 |
| Lights | MWR 06 | MORALE-WELFARE RECREATION | IN6: INC 2-60 CEIL | FL182: CFL 2 13 + BLST UNIT | 33 | NA | 33 | 306 | 66 | 372 | 339 | 11 30 | 1 6 |
| Roof | CHAPEL 01 | CHAPEL | Roof Insulation R-Value 11 00 | Attic Ceiling Increase insulation by R 38 | 208 | NA | 208 | 2,317 | 0 | 2,317 | 2,110 | 11.20 | 1 7 |
| Lights | GUEST HOUSES 01 | SINGLE FAMILY DETACHED HOUSE | IN8. INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 6 | NA | 6 | 49 | 20 | 69 | 63 | 11 20 | 1 6 |
| Lights | SHOPS 05 | SHOPS | IN6 INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 42 | NA | 42 | 359 | 111 | 470 | 428 | 11 10 | 1 6 |
| Lights | STORAGE 01 | STORAGE | IN8 INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 865 | NA | 865 | 6,563 | 2,921 | 9,484 | 8,619 | 11 00 | 1 6 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | IN6 INC 2-60 CEIL | FL182 CFL 2 13 + BLST UNIT | 3 | NA | 3 | 22 | 7 | 29 | 26 | 11 00 | 1 6 |
| Lights | STORAGE 02 | STORAGE | IN8 INC 75 CEIL | FL175 CFL 27 INTEGRAL UNIT | 3,970 | NA | 3,970 | 29,941 | 13,404 | 43,345 | 39,374 | 10 90 | 1 6 |
| Lights | DINING HALLS 04 | DINING HALLS | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 62 | NA | 62 | 557 | 123 | 682 | 620 | 10 90 | 1 6 |
| Lights | MWR 07 | MORALE-WELFARE RECREATION | IN6 INC 2 60 CEIL | FL182 CFL 2 13 + BLST UNIT | 50 | NA | 50 | 446 | 100 | 546 | 496 | 10 90 | 1 6 |
| Roof | SCHOOL TRAINING 03 | SCHOOLS and/or TRAINING | Roof Insulation R Value 11 00 | Attic Ceiling Increase Insulation by R 8 | 310 | NA | 310 | 3,359 | 0 | 3,359 | 3,049 | 10 80 | 1 9 |
| Lights | CLUBS 02 | CLUBS | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 47 | NA | 47 | 415 | 97 | 512 | 465 | 10 80 | 1 7 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | IN5 INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 148 | NA | 148 | 1,314 | 262 | 1,576 | 1,428 | 10 70 | 1 7 |
| Hot Water | MWR 04 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden Boiler, Wrap Tank w Insulation LFSHe, Aerators | 53 | NA | 53 | 571 | 0 | 571 | 517 | 10 70 | 1 6 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roof | MWR-04 | MORALE WELFARE RECREATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 341 | NA | 341 | 3,562 | 0 | 3,562 | 3,222 | 10 30 | 2 0 |
| Lights | COMMISSARIES | COMMISSARIES | EX2: EXIT - INC (2x15) | EX6: EXIT - LED | 72 | NA | 72 | 224 | 525 | 749 | 677 | 10 50 | 1.7 |
| Lights | FH 3 OR MORE-01 | MULTI FAMILY 3 OR MORE UNIT | IN8. INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 475 | NA | 475 | 3,368 | 1,522 | 4,890 | 4,416 | 10.30 | 1 7 |
| Lights | MWR-02 | MORALE-WELFARE-RECREATION | IN6: INC 2-60 CEIL | FL182: CFL 2 13 + BLST UNIT | 22 | NA | 22 | 184 | 45 | 229 | 206 | 10 20 | 1 8 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN6: INC 2 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 16 | NA | 16 | 121 | 39 | 160 | 145 | 10 10 | 1 8 |
| Lights | DINING HALLS-04 | DINING HALLS | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 92 | NA | 92 | 813 | 102 | 915 | 823 | 9.90 | 1 8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 23 | NA | 23 | 195 | 38 | 233 | 210 | 9 90 | 1 8 |
| Hot Water | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Oil Elc Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 3 | NA | 3 | 33 | 0 | 33 | 29 | 9 90 | 0 6 |
| Lights | FH DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | IN8: INC 75 CEIL | FL175: CFL 27 INTEGRAL UNIT | 116 | NA | 116 | 761 | 373 | 1,134 | 1,017 | 9 80 | 1 8 |
| Lights | HOSPITAL | HOSPITAL | FL1: FL 2X4 4F40T12 STD2 | FL257. FL 2X4 3F32T8 ELC3 REF | 1,303 | NA | 1,303 | 11,599 | 1,241 | 12,840 | 11,537 | 9 70 | 1 9 |
| Lights | CLUBS-05 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 74 | NA | 74 | 573 | 137 | 710 | 637 | 9 70 | 1 8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | FL178 CFL 9 + BLST UNIT | 14 | NA | 14 | 114 | 16 | 130 | 116 | 9.30 | 1 9 |
| Lights | CLINIC-02 | CLINIC | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 27 | NA | 27 | 191 | 59 | 250 | 223 | 9.20 | 1 9 |
| Hot Water | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Electric SHW Heater | Wrap Oil Elc Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 11 | NA | 11 | 97 | 0 | 97 | 87 | 9 20 | 0 6 |
| Lights | SHOPS-04 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236. FL 2X4 3F32T8 ELC3 | 20 | NA | 20 | 168 | 16 | 184 | 164 | 9.10 | 2 0 |
| Lights | SECURITY-02 | SECURITY | FL1: FL 2X4 4F40T12 STD2 | FL257: FL 2X4 3F32T8 ELC3 REF | 442 | NA | 442 | 3,573 | 420 | 3,993 | 3,551 | 9 00 | 2 0 |
| Lights | SHOPS-03 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 47 | NA | 47 | 324 | 96 | 420 | 373 | 9.00 | 2.0 |
| Roof | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-38 | 239 | NA | 239 | 2,130 | 0 | 2,130 | 1,891 | 8 90 | 2 0 |
| Lights | SHOPS-04 | SHOPS | IN12: INC 2-100 CEIL | HS12. HPS 50 PEND | 39 | NA | 39 | 284 | 66 | 350 | 311 | 8 90 | 2.0 |
| Hot Water | BARRACKS-05 | BARRACKS | Other Fuels Central Boiler | LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 28 | NA | 28 | 246 | 0 | 246 | 218 | 8 80 | 2 4 |
| Hot Water | BARRACKS-04 | BARRACKS | Other Fuels Central Boiler | LPG: Wrap Tank w/ Insulation, LFSIIs, Aerators | 229 | NA | 229 | 1,999 | 0 | 1,999 | 1,770 | 8.70 | 2 4 |
| Hot Water | FH-DUPLEX-01 | DUPLEX | Other Fuels SHW Heater | Wrap Oil LPG Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 3,731 | NA | 3,731 | 31,409 | 0 | 31,409 | 27,678 | 8 40 | 0.5 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2 15 CEIL FIXT | 32 | NA | 32 | 235 | 33 | 268 | 236 | 8 40 | 2 2 |
| Roof | BARRACKS-03 | BARRACKS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R 8 | 557 | NA | 557 | 4,653 | 0 | 4,653 | 4,096 | 8 30 | 2.5 |
| Lights | RECREATION-02 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 192 | NA | 192 | 1,246 | 341 | 1,587 | 1,395 | 8.30 | 2 2 |
| Lights | SHOPS-05 | SHOPS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 28 | NA | 28 | 176 | 50 | 226 | 198 | 8 20 | 2 2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | IN5: INC 60 CEIL | FL237: FL 2X4 3F32T8 ELC3 REF | 3 | NA | 3 | 22 | 6 | 28 | 25 | 8 20 | 2 2 |
| Lights | ELECTRONICS-03 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL181: CFL 13 + BLST UNIT | 315 | NA | 315 | 2,328 | 221 | 2,549 | 2,234 | 8 10 | 2 2 |
| Lights | SHOPS-06 | SHOPS | IN5: INC 60 CEIL | FL182: CFL 2-13 + BLST UNIT | 15 | NA | 15 | 92 | 26 | 118 | 104 | 8.10 | 2.2 |
| Lights | BARRACKS-07 | BARRACKS | IN6: INC 2 60 CEIL | FL52 FL 1X4 2F32T8 ELC2 | 897 | NA | 897 | 5,166 | 1,890 | 7,056 | 6,158 | 7 90 | 2.3 |
| Lights | HOSPITAL | HOSPITAL | FL4: FL 1X4 2F40T12 STD2 | FL236: FL 2X4 3F32T8 ELC3 | 847 | NA | 847 | 5,924 | 763 | 6,687 | 5,840 | 7.90 | 2 3 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL2: FL 2X4 3F40T12 STD1,2 | FL181: CFL 13 + BLST UNIT | 14 | NA | 14 | 98 | 9 | 107 | 93 | 7.80 | 2 4 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN5: INC 60 CEIL | Suspended Ceiling: Increase insulation by R-30 | 33 | NA | 33 | 196 | 56 | 252 | 218 | 7.60 | 2 4 |
| Roof | DINING HALLS-04 | DINING HALLS | Roof Insulation R-Value 20.05 | FL189: CFL 2-15 CEIL FIXT | 756 | NA | 756 | 5,677 | 0 | 5,677 | 4,921 | 7.50 | 2 5 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | IN11: INC 100 CEIL | FL51: FL 2X4 2F32T8 ELC2 | 371 | NA | 371 | 2,477 | 316 | 2,793 | 2,422 | 7.50 | 2 4 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | LPG Pulse Conden. Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 62 | NA | 62 | 424 | 43 | 467 | 405 | 7.50 | 2.4 |
| Hot Water | MWR-06 | MORALE-WELFARE-RECREATION | Other Fuels Central Boiler | Wrap Oil Elc Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 48 | NA | 48 | 357 | 0 | 357 | 310 | 7 50 | 2 8 |
| Hot Water | DINING HALLS-01 | DINING HALLS | Electric SHW Heater | FL105 FL 2X4 2F40T12ES ELC2 | 125 | NA | 125 | 933 | 0 | 933 | 808 | 7.50 | 0 7 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL81: FL 2X4 2F40T12ES STD2 | LS4 LPS-90 PEND | 9 | NA | 9 | 57 | 7 | 64 | 55 | 7 50 | 2 5 |
| Lights | SHOPS-03 | SHOPS | MH36: MH 250 HB PEND | LPG. Wrap Tank w/ Insulation, LFSIIs, Aerators | 2,133 | NA | 2,133 | 13,641 | 2,200 | 15,841 | 13,706 | 7 40 | 2 4 |
| Hot Water | BARRACKS-06 | BARRACKS | Other Fuels Central Boiler | FL178 CFL 9 + BLST UNIT | 258 | NA | 258 | 1,907 | 0 | 1,907 | 1,649 | 7 40 | 2 8 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | IN1: INC 40 CEIL | EX6. EXIT - LED | 106 | NA | 106 | 661 | 120 | 781 | 675 | 7 40 | 2 4 |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | EX1: EXIT - INC (2x20) | Wrap Oil Elc Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 24 | NA | 24 | 126 | 50 | 176 | 152 | 7.40 | 2 4 |
| Hot Water | WAREHOUSE-06 | WAREHOUSE | Electric SHW Heater | LS6. LPS 180 PEND | 16 | NA | 16 | 117 | 0 | 117 | 101 | 7.40 | 0 7 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL158. FL 1X8 4F96T12HO STD2 REF | LS2 LPS 35 PEND | 1,076 | NA | 1,076 | 7,497 | 409 | 7,906 | 6,830 | 7.30 | 2.5 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN30: INC 300 PEND | Suspended Ceiling: Increase insulation by R-38 | 766 | NA | 766 | 5,015 | 616 | 5,631 | 4,865 | 7 30 | 2 5 |
| Roof | DINING HALLS-06 | DINING HALLS | Roof Insulation R-Value 0 00 | LS5. LPS 135 PEND | 784 | NA | 784 | 5,565 | 0 | 5,565 | 4,780 | 7 10 | 2 7 |
| Lights | SHOPS-04 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | FL236: FL 2X4 3F32T8 ELC3 | 620 | NA | 620 | 4,263 | 117 | 4,380 | 3,760 | 7 10 | 2 6 |
| Lights | CLINIC-01 | CLINIC | FL2: FL 2X4 3F40T12 STD1,2 | FL181: CFL 13 + BLST UNIT | 240 | NA | 240 | 1,544 | 157 | 1,701 | 1,460 | 7 10 | 2 6 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN5. INC 60 CEIL | FL189. CFL 2-15 CEIL FIXT | 72 | NA | 72 | 399 | 109 | 508 | 436 | 7.10 | 2 5 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | IN11: INC 100 CEIL | LS6. LPS 180 PEND | 52 | NA | 52 | 314 | 51 | 365 | 314 | 7 10 | 2 5 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL158. FL 1X8 4F96T12HO STD2 REF | EX6: EXIT - LED | 175 | NA | 175 | 1,148 | 66 | 1,214 | 1,040 | 7.00 | 2 6 |
| Lights | SECURITY-03 | SECURITY | EX1: EXIT - INC (2x20) | FL189: CFL 2-15 CEIL FIXT | 152 | NA | 152 | 742 | 316 | 1,058 | 906 | 7 00 | 2 6 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | IN11: INC 100 CEIL | LPG: Wrap Tank w/ Insulation, LFSIIs, Aerators | 113 | NA | 113 | 680 | 115 | 795 | 682 | 7.00 | 2 6 |
| Hot Water | BARRACKS-05 | BARRACKS | Other Fuels Central Boiler | EX6: EXIT - LED | 158 | NA | 158 | 1,111 | 0 | 1,111 | 953 | 7 00 | 1 5 |
| Lights | MWR-05 | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 51 | NA | 51 | 248 | 105 | 353 | 303 | 7 00 | 2 6 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | FL257: FL 2X4 3F32T8 ELC3 REF | 51 | NA | 51 | 247 | 105 | 352 | 302 | 7.00 | 2 6 |
| Lights | CLINIC-01 | CLINIC | FL1: FL 2X4 4F40T12 STD2 | EX6: EXIT - LED | 463 | NA | 463 | 2,943 | 260 | 3,203 | 2,740 | 6 90 | 2 6 |
| Lights | CLUBS-05 | CLUBS | EX1: EXIT - INC (2x20) | Suspended Ceiling: Increase insulation by R 19 | 79 | NA | 79 | 386 | 165 | 551 | 472 | 6 90 | 2 6 |
| Roof | CLINIC-02 | CLINIC | Roof Insulation R-Value 0 00 | EX6 EXIT - LED | 65 | NA | 65 | 446 | 0 | 446 | 381 | 6 90 | 3 0 |
| Lights | MWR-07 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 60 | NA | 60 | 288 | 125 | 413 | 353 | 6 90 | 2.6 |
| Lights | DINING HALLS-04 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 51 | NA | 51 | 244 | 105 | 349 | 298 | 6 90 | 2 6 |
| Lights | WAREHOUSE 11 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6 EXIT - LED | 25 | NA | 25 | 123 | 53 | 176 | 150 | 6 90 | 2 6 |
| Lights | WAREHOUSE 12 | WAREHOUSE | Roof Insulation R-Value 0 00 | Attic Ceiling Increase insulation by R 30 | 25 | NA | 25 | 122 | 53 | 175 | 150 | 6 90 | 2 6 |
| Roof | FH DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | EX1: EXIT INC (2x20) | EX6 EXIT - LED | 9,223 | NA | 9,223 | 62,291 | 0 | 62,291 | 53,068 | 6 80 | 2 9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | EX1: EXIT INC (2x20) | EX6: EXIT - LED | 152 | NA | 152 | 711 | 316 | 1,027 | 875 | 6 80 | 2 6 |
| Lights | MWR-03 | MORALE WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 128 | NA | 128 | 603 | 267 | 870 | 741 | 6 80 | 2 6 |
| Lights | RECREATION-04 | RECREATION | EX1: EXIT INC (2x20) | EX6. EXIT - LED | 51 | NA | 51 | 238 | 105 | 343 | 293 | 6 80 | 2 6 |
| Lights | ADMINISTRATION-09 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 927 | NA | 927 | 4,250 | 1,928 | 6,178 | 5,252 | 6 70 | 2 7 |
| Lights | COMMISSARIES | COMMISSARIES | FL4 FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 32 | NA | 32 | 193 | 21 | 214 | 183 | 6 70 | 2 7 |
| Lights | MWR-05 | MORALE WELFARE RECREATION | Other Fuels Central Boiler | LPG Pulse Conden Boiler, Wrap Tank w/Insulation, LFSIIs, Aerators | 21 | NA | 21 | 123 | 17 | 140 | 119 | 6 70 | 2 8 |
| Hot Water | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 482 | NA | 482 | 3,181 | 0 | 3,181 | 2,699 | 6 60 | 2 0 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | EX1: EXIT INC (2x20) | EX6 EXIT LED | 156 | NA | 156 | 699 | 325 | 1,024 | 868 | 6 60 | 2 7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL61. FL 1X8 4F96T12 STD2 | LS5 LPS 135 PEND | 51 | NA | 51 | 230 | 105 | 335 | 285 | 6 60 | 2 7 |
| Lights | SHOPS-03 | SHOPS | EX1: EXIT - INC (2x20) | EX6 EXIT LED | 317 | NA | 317 | 1,980 | 88 | 2,068 | 1,752 | 6 50 | 2 8 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | IN1: INC 40 CEIL | FL178. CFL 9 + BLST UNIT | 304 | NA | 304 | 1,351 | 632 | 1,983 | 1,680 | 6 50 | 2 7 |
| Lights | SHOPS-05 | SHOPS | EX1: EXIT - INC (2x20) | EX6. EXIT LED | 73 | NA | 73 | 365 | 112 | 477 | 403 | 6 50 | 2 7 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | EX1. EXIT INC (2x20) | EX6 EXIT LED | 51 | NA | 51 | 225 | 105 | 330 | 280 | 6 50 | 2 8 |
| Lights | CHAPEL-01 | CHAPEL | EX1: EXIT INC (2x20) | EX6 EXIT LED | 51 | NA | 51 | 222 | 105 | 327 | 277 | 6 50 | 2 7 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | FL61 FL 1X8 4F96T12 STD2 | FL130: FL 1X8 4F96T12ES ELC2 REF | 40 | NA | 40 | 174 | 82 | 256 | 217 | 6 50 | 2 7 |
| Lights | COMMISSARIES | COMMISSARIES | | | 61 | NA | 61 | 381 | 5 | 386 | 326 | 6 40 | 2 9 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | MWR-05a | MORALE-WELFARE-RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 31 | NA | 31 | 218 | 105 | 323 | 273 | 6.40 | 2.8 |
| Lights | CLINIC-02 | CLINIC | IN1: INC 40 CEIL | FL178: CFL 9 + BLST UNIT | 5 | NA | 5 | 24 | 8 | 32 | 28 | 6.40 | 2.8 |
| Lights | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | FL6: FL 2X2 2F40T12U STD2 | FL54: FL 2X2 2F32T8U ELC2 | 2 | NA | 2 | 11 | 1 | 12 | 10 | 6.40 | 2.8 |
| Lights | SHOPS-04 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 47 | NA | 47 | 260 | 34 | 294 | 247 | 6.30 | 2.9 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 25 | NA | 25 | 147 | 13 | 160 | 135 | 6.30 | 2.9 |
| Lights | DINING HALLS-05 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 11 | NA | 11 | 47 | 23 | 70 | 59 | 6.30 | 2.8 |
| Lights | SHOPS-05 | SHOPS | IN29: INC 200 PEND | HS12: HPS 50 PEND | 493 | NA | 493 | 2,631 | 427 | 3,058 | 2,565 | 6.20 | 2.9 |
| Lights | MWR-02 | MORALE-WELFARE RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 405 | NA | 405 | 1,691 | 843 | 2,534 | 2,128 | 6.20 | 2.9 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 405 | NA | 405 | 1,683 | 843 | 2,526 | 2,121 | 6.20 | 2.9 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 380 | NA | 380 | 1,575 | 791 | 2,366 | 1,985 | 6.20 | 2.9 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 372 | NA | 372 | 1,655 | 660 | 2,315 | 1,942 | 6.20 | 2.9 |
| Lights | FH-DUPLEX-02 | DUPLEX | IN6: INC 2-60 CEIL | FL182: CFL 2-13 + BLST UNIT | 168 | NA | 168 | 749 | 298 | 1,047 | 879 | 6.20 | 2.9 |
| Lights | CLINIC-01 | CLINIC | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 57 | NA | 57 | 237 | 118 | 355 | 298 | 6.20 | 2.9 |
| Lights | CLUBS-02 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 208 | 106 | 314 | 263 | 6.20 | 2.9 |
| Lights | CLUBS-01 | CLUBS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 18 | NA | 18 | 88 | 27 | 115 | 97 | 6.20 | 2.9 |
| Lights | SHOPS-05 | SHOPS | FL61: FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 3,048 | NA | 3,048 | 18,057 | 576 | 18,633 | 15,585 | 6.10 | 3.0 |
| Lights | SHOPS-07 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 203 | NA | 203 | 813 | 422 | 1,235 | 1,032 | 6.10 | 2.9 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 38 | NA | 38 | 155 | 79 | 234 | 196 | 6.10 | 2.9 |
| Lights | DINING HALLS-06 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 34 | NA | 34 | 138 | 72 | 210 | 175 | 6.10 | 2.9 |
| Hot Water | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric SHW Heater | 0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 288 | NA | 288 | 1,757 | 0 | 1,757 | 1,469 | 6.10 | 0.2 |
| Wall | DINING HALLS-04 | DINING HALLS | Wall Insulation R-Value 0.00 | Interior Masonary Surface. Increase Insulation by R-10.9 | 782 | NA | 782 | 4,673 | 0 | 4,673 | 3,891 | 6.00 | 3.1 |
| Lights | BARRACKS-04 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 324 | NA | 324 | 1,255 | 673 | 1,928 | 1,604 | 6.00 | 3.0 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 299 | 158 | 457 | 381 | 6.00 | 3.0 |
| Lights | ELECTRONICS-03 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | NA | 25 | 100 | 53 | 153 | 127 | 6.00 | 3.0 |
| Lights | MWR-03 | MORALE-WELFARE RECREATION | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 9 | NA | 9 | 48 | 8 | 56 | 46 | 6.00 | 3.0 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 8 | NA | 8 | 40 | 7 | 47 | 39 | 6.00 | 3.0 |
| Lights | SHOPS-05 | SHOPS | FL2: FL 2X4 3F40T12 STD1,2 | FL236: FL 2X4 3F32T8 ELC3 | 1,312 | NA | 1,312 | 6,665 | 1,024 | 7,689 | 6,377 | 5.90 | 3.1 |
| Lights | BARRACKS-07 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,233 | NA | 1,233 | 4,714 | 2,564 | 7,278 | 6,045 | 5.90 | 3.0 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 927 | NA | 927 | 5,217 | 216 | 5,433 | 4,506 | 5.90 | 3.1 |
| Lights | COMMISSARIES | COMMISSARIES | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 539 | NA | 539 | 2,786 | 411 | 3,197 | 2,658 | 5.90 | 3.0 |
| Lights | BARRACKS-07 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 504 | NA | 504 | 2,254 | 712 | 2,966 | 2,462 | 5.90 | 3.0 |
| Lights | HOSPITAL | HOSPITAL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 380 | NA | 380 | 1,467 | 791 | 2,258 | 1,878 | 5.90 | 3.0 |
| Lights | BARRACKS-06 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 110 | NA | 110 | 420 | 230 | 650 | 539 | 5.90 | 3.0 |
| Lights | ADMINISTRATION-02 | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 4,506 | NA | 4,506 | 25,018 | 1,050 | 26,068 | 21,562 | 5.80 | 3.1 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,267 | NA | 1,267 | 4,665 | 2,635 | 7,300 | 6,033 | 5.80 | 3.1 |
| Wall | MWR-05 | MORALE-WELFARE RECREATION | Wall Insulation R-Value 5.32 | Interior Masonary Surface. Increase Insulation by R-10.9 | 686 | NA | 686 | 3,948 | 0 | 3,948 | 3,262 | 5.80 | 3.2 |
| Lights | STORAGE-01 | STORAGE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 583 | NA | 583 | 2,179 | 1,212 | 3,391 | 2,808 | 5.80 | 3.1 |
| Lights | DINING HALLS-01 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 101 | NA | 101 | 378 | 211 | 589 | 488 | 5.80 | 3.1 |
| Lights | MILITARY OTHER-05 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 101 | NA | 101 | 378 | 211 | 589 | 488 | 5.80 | 3.1 |
| Lights | ELECTRONICS-02 | ELECTRONICS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 281 | 158 | 439 | 363 | 5.80 | 3.1 |
| Lights | BARRACKS-02 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2,094 | NA | 2,094 | 8,956 | 2,959 | 11,915 | 9,821 | 5.70 | 3.1 |
| Lights | WAREHOUSE-01 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 988 | NA | 988 | 3,622 | 2,055 | 5,677 | 4,689 | 5.70 | 3.1 |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 963 | NA | 963 | 3,446 | 2,003 | 5,449 | 4,486 | 5.70 | 3.1 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 473 | NA | 473 | 2,356 | 328 | 2,684 | 2,211 | 5.70 | 3.2 |
| Lights | SHOPS-02 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 431 | NA | 431 | 1,580 | 896 | 2,476 | 2,045 | 5.70 | 3.1 |
| Lights | SHOPS-03 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 431 | NA | 431 | 1,562 | 896 | 2,458 | 2,027 | 5.70 | 3.1 |
| Lights | DINING HALLS-03 | DINING HALLS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 355 | NA | 355 | 1,296 | 738 | 2,034 | 1,679 | 5.70 | 3.1 |
| Lights | WAREHOUSE-02 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 177 | NA | 177 | 647 | 369 | 1,016 | 838 | 5.70 | 3.1 |
| Lights | WAREHOUSE-10 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 278 | 158 | 436 | 360 | 5.70 | 3.1 |
| Lights | WAREHOUSE-09 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 278 | 158 | 436 | 360 | 5.70 | 3.1 |
| Lights | RECREATION-01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 277 | 158 | 435 | 359 | 5.70 | 3.1 |
| Lights | RECREATION-01 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 277 | 158 | 435 | 359 | 5.70 | 3.1 |
| Lights | WAREHOUSE-03 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 273 | 158 | 431 | 355 | 5.70 | 3.1 |
| Lights | WAREHOUSE-04 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 186 | 105 | 291 | 240 | 5.70 | 3.1 |
| Lights | RECREATION-03 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 185 | 105 | 290 | 240 | 5.70 | 3.1 |
| Lights | CLINIC-01 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 43 | NA | 43 | 221 | 26 | 247 | 204 | 5.70 | 3.2 |
| Lights | CLUBS-01 | CLUBS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 20 | NA | 20 | 72 | 42 | 114 | 94 | 5.70 | 3.1 |
| Lights | ELECTRONICS-01 | ELECTRONICS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 9 | NA | 9 | 37 | 12 | 49 | 40 | 5.70 | 3.2 |
| Hot Water | ELECTRONICS-03 | ELECTRONICS | Other Fuels SHW Heater | Wrap Oth LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 7 | NA | 7 | 41 | 0 | 41 | 34 | 5.70 | 0.8 |
| Lights | WAREHOUSE-07 | WAREHOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 4,400 | NA | 4,400 | 22,260 | 2,568 | 24,828 | 20,428 | 5.60 | 3.2 |
| Lights | BARRACKS-02 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 1,622 | NA | 1,622 | 5,732 | 3,373 | 9,105 | 7,483 | 5.60 | 3.2 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 1,178 | NA | 1,178 | 5,861 | 687 | 6,548 | 5,371 | 5.60 | 3.2 |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 912 | NA | 912 | 3,201 | 1,897 | 5,098 | 4,186 | 5.60 | 3.2 |
| Lights | WAREHOUSE-05 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 684 | NA | 684 | 2,407 | 1,423 | 3,830 | 3,146 | 5.60 | 3.2 |
| Lights | SECURITY-02 | SECURITY | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 304 | NA | 304 | 1,084 | 632 | 1,716 | 1,413 | 5.60 | 3.2 |
| Lights | ADMINISTRATION-06 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 304 | NA | 304 | 1,038 | 632 | 1,690 | 1,386 | 5.60 | 3.2 |
| Lights | SHOPS-05 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 253 | NA | 253 | 883 | 527 | 1,410 | 1,156 | 5.60 | 3.2 |
| Lights | CLINIC-01 | CLINIC | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 91 | NA | 91 | 455 | 55 | 510 | 419 | 5.60 | 3.2 |
| Hot Water | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | Electric SHW Heater | 0.76 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 277 | NA | 277 | 1,546 | 0 | 1,546 | 1,270 | 5.60 | 1.0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 178 | 105 | 283 | 232 | 5.60 | 3.2 |
| Lights | WAREHOUSE-06 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 177 | 105 | 282 | 232 | 5.60 | 3.2 |
| Lights | CHAPEL-02 | CHAPEL | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 177 | 105 | 282 | 231 | 5.60 | 3.2 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | NA | 25 | 88 | 53 | 141 | 115 | 5.60 | 3.2 |
| Hot Water | MWR-02 | MORALE-WELFARE-RECREATION | Electric SHW Heater | Wrap Oth Elc Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp. | 40 | NA | 40 | 224 | 0 | 224 | 184 | 5.60 | 0.8 |
| Lights | MWR-07 | MORALE-WELFARE-RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 2,047 | NA | 2,047 | 9,968 | 1,197 | 11,165 | 9,118 | 5.50 | 3.3 |
| Lights | MWR-06 | MORALE-WELFARE-RECREATION | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,350 | NA | 1,350 | 6,598 | 789 | 7,387 | 6,038 | 5.50 | 3.3 |
| Hot Water | FH 3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Oth LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 3,369 | NA | 3,369 | 18,568 | 0 | 18,568 | 15,208 | 5.50 | 1.2 |
| Lights | WAREHOUSE-08 | WAREHOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 714 | NA | 714 | 3,517 | 416 | 3,933 | 3,220 | 5.50 | 3.3 |
| Lights | BARRACKS-03 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 304 | NA | 304 | 1,029 | 632 | 1,661 | 1,357 | 5.50 | 3.2 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 101 | NA | 101 | 343 | 211 | 556 | 454 | 5.50 | 3.2 |
| Lights | LABS-01 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 76 | NA | 76 | 258 | 158 | 416 | 340 | 5.50 | 3.2 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non-Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | ADMINISTRATION-08 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 53 | NA | 53 | 184 | 111 | 295 | 242 | 5.50 | 3.2 |
| Lights | SHOPS-06 | SHOPS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 173 | 105 | 278 | 228 | 5.50 | 3.2 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 14 | NA | 14 | 73 | 4 | 77 | 63 | 5.50 | 3.4 |
| Hot Water | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 5 | NA | 5 | 28 | 0 | 28 | 23 | 5.50 | 1.0 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 3,193 | NA | 3,193 | 10,712 | 6,641 | 17,353 | 14,160 | 5.40 | 3.3 |
| Wall | HANGER | HANGAR | Wall Insulation R-Value 0.00 | Blow-in Insulation: Increase Insulation by R-13 | 1,181 | NA | 1,181 | 6,366 | 0 | 6,366 | 5,186 | 5.40 | 3.8 |
| Lights | CLINIC-02 | CLINIC | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 760 | NA | 760 | 2,498 | 1,581 | 4,079 | 3,319 | 5.40 | 3.3 |
| Lights | WAREHOUSE-12 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 319 | NA | 319 | 1,540 | 187 | 1,727 | 1,408 | 5.40 | 3.3 |
| Lights | BARRACKS-03 | BARRACKS | IN15: INC 60 TABLE LAMP | FL181: CFL 13 + BLST UNIT | 207 | NA | 207 | 831 | 293 | 1,124 | 917 | 5.40 | 3.3 |
| Lights | RECREATION-04 | RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 92 | NA | 92 | 434 | 65 | 499 | 407 | 5.40 | 3.3 |
| Lights | BARRACKS-01 | BARRACKS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 66 | NA | 66 | 263 | 93 | 356 | 291 | 5.40 | 3.3 |
| Lights | DINING HALLS-04 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 26 | NA | 26 | 126 | 16 | 142 | 115 | 5.40 | 3.4 |
| Roof | WAREHOUSE-07 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 1,744 | NA | 1,744 | 9,186 | 0 | 9,186 | 7,442 | 5.30 | 3.8 |
| Lights | SHOPS-07 | SHOPS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 572 | NA | 572 | 2,640 | 410 | 3,050 | 2,478 | 5.30 | 3.4 |
| Roof | MWR-05 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 524 | NA | 524 | 2,771 | 0 | 2,771 | 2,247 | 5.30 | 3.5 |
| Lights | DINING HALLS-05 | DINING HALLS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 52 | NA | 52 | 244 | 30 | 274 | 223 | 5.30 | 3.4 |
| Lights | LABS-02 | LABS | EX1: EXIT - INC (2x20) | EX6: EXIT LED | 25 | NA | 25 | 83 | 53 | 136 | 110 | 5.30 | 3.3 |
| Lights | MWR-04 | MORALE-WELFARE-RECREATION | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 253 | NA | 253 | 780 | 527 | 1,307 | 1,054 | 5.20 | 3.4 |
| Lights | RECREATION-04 | RECREATION | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 177 | NA | 177 | 790 | 124 | 914 | 737 | 5.20 | 3.5 |
| Lights | BARRACKS-01 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 158 | 105 | 263 | 213 | 5.20 | 3.4 |
| Lights | MWR-07 | MORALE-WELFARE-RECREATION | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 27 | NA | 27 | 116 | 22 | 138 | 111 | 5.20 | 3.5 |
| Lights | HANGER | HANGAR | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 25 | NA | 25 | 78 | 53 | 131 | 105 | 5.20 | 3.4 |
| Lights | BARRACKS-05 | BARRACKS | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 10 | NA | 10 | 32 | 21 | 53 | 43 | 5.20 | 3.4 |
| Lights | MILITARY OTHER-03 | MILITARY OTHER | FL4 FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 270 | NA | 270 | 1,184 | 201 | 1,385 | 1,114 | 5.10 | 3.5 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | EX1 EXIT - INC (2x20) | EX6: EXIT - LED | 127 | NA | 127 | 385 | 264 | 649 | 522 | 5.10 | 3.4 |
| Lights | RECREATION-02 | RECREATION | FL79. FL 2X4 4F40T12ES STD2 | FL232: FL 2X4 3F40T12 ELC3 | 43 | NA | 43 | 168 | 51 | 219 | 177 | 5.10 | 3.4 |
| Lights | BARRACKS-03 | BARRACKS | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 12 | NA | 12 | 54 | 10 | 64 | 51 | 5.10 | 3.5 |
| Heating | MWR-07 | MORALE-WELFARE-RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 8 | NA | 8 | 38 | 0 | 38 | 31 | 5.10 | 4.1 |
| Hot Water | MILITARY OTHER-03 | MILITARY OTHER | Electric SHW Heater | Wrap Old Ele Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp. | 2 | NA | 2 | 11 | 0 | 11 | 9 | 5.10 | 1.1 |
| Lights | FH DUPLEX-03 | DUPLEX | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 7,576 | NA | 7,576 | 27,582 | 10,251 | 37,833 | 30,258 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 311 | NA | 311 | 1,146 | 397 | 1,543 | 1,233 | 5.00 | 3.6 |
| Lights | RECREATION-01 | RECREATION | IN5. INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 311 | NA | 311 | 1,146 | 397 | 1,543 | 1,233 | 5.00 | 3.6 |
| Lights | DINING HALLS-06 | DINING HALLS | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 160 | NA | 160 | 710 | 94 | 804 | 644 | 5.00 | 3.6 |
| Lights | RECREATION-02 | RECREATION | EX1: EXIT - INC (2x20) | EX6: EXIT - LED | 25 | NA | 25 | 74 | 52 | 126 | 102 | 5.00 | 3.4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL1. FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 5,836 | NA | 5,836 | 25,387 | 3,030 | 28,417 | 22,581 | 4.90 | 3.7 |
| Lights | CLUBS-02 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 537 | NA | 537 | 2,293 | 333 | 2,626 | 2,089 | 4.90 | 3.7 |
| Lights | COMMISSARIES | COMMISSARIES | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 511 | NA | 511 | 2,437 | 79 | 2,516 | 2,006 | 4.90 | 3.7 |
| Lights | WAREHOUSE-07 | WAREHOUSE | IN29: INC 200 PEND | HS12: HPS 50 PEND | 348 | NA | 348 | 1,500 | 205 | 1,705 | 1,357 | 4.90 | 3.7 |
| Lights | SHOPS-03 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 440 | NA | 440 | 1,857 | 269 | 2,126 | 1,686 | 4.80 | 3.7 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 329 | NA | 329 | 1,306 | 266 | 1,572 | 1,243 | 4.80 | 3.8 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL1: FL 2X4 4F40T12 STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 136 | NA | 136 | 585 | 71 | 656 | 519 | 4.80 | 3.7 |
| Roof | LABS-02 | LABS | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R-19 | 123 | NA | 123 | 588 | 0 | 588 | 465 | 4.80 | 4.3 |
| Lights | CLINIC-02 | CLINIC | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 122 | NA | 122 | 510 | 74 | 584 | 462 | 4.80 | 3.8 |
| Lights | WAREHOUSE-07 | WAREHOUSE | EX1: EXIT - INC (2x20) | EX6. EXIT - LED | 51 | NA | 51 | 136 | 105 | 241 | 191 | 4.80 | 3.6 |
| Lights | MWR-06 | MORALE-WELFARE-RECREATION | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 18 | NA | 18 | 71 | 14 | 85 | 68 | 4.80 | 3.7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL6: FL 2X2 2F40T12U STD2 | FL54. FL 2X2 2F32T8U ELC2 | 15 | NA | 15 | 62 | 8 | 70 | 55 | 4.80 | 3.8 |
| Heating | BARRACKS-03 | BARRACKS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 19 | NA | 19 | 93 | 0 | 93 | 73 | 4.80 | 2.3 |
| Lights | SHOPS-05 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 1,808 | NA | 1,808 | 7,262 | 1,296 | 8,558 | 6,750 | 4.70 | 3.8 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 549 | NA | 549 | 1,815 | 742 | 2,557 | 2,008 | 4.70 | 3.8 |
| Lights | BARRACKS-02 | BARRACKS | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 522 | NA | 522 | 2,049 | 404 | 2,453 | 1,931 | 4.70 | 3.8 |
| Lights | FH DUPLEX-02 | DUPLEX | IN5: INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 248 | NA | 248 | 837 | 336 | 1,173 | 924 | 4.70 | 3.8 |
| Lights | SHOPS-04 | SHOPS | MV5: MERC 250 PEND | LS4: LPS 90 PEND | 216 | NA | 216 | 1,034 | -20 | 1,014 | 798 | 4.70 | 3.9 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 163 | NA | 163 | 542 | 220 | 762 | 599 | 4.70 | 3.8 |
| Lights | SHOPS-05 | SHOPS | IN28. INC 150 PEND | HS11: HPS 35 PEND | 114 | NA | 114 | 454 | 81 | 535 | 421 | 4.70 | 3.8 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 92 | NA | 92 | 421 | 12 | 433 | 341 | 4.70 | 3.9 |
| Lights | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | EX1. EXIT - INC (2x20) | EX6: EXIT - LED | 51 | NA | 51 | 135 | 105 | 240 | 190 | 4.70 | 3.7 |
| Lights | FH 3 OR MORE-03 | MULTI FAMILY 3 OR MORE UNIT | IN5. INC 60 CEIL | FL181. CFL 13 + BLST UNIT | 6,528 | NA | 6,528 | 20,534 | 8,562 | 29,096 | 22,769 | 4.60 | 3.9 |
| Lights | FH-DUPLEX-01 | DUPLEX | IN5: INC 60 CEIL | FL181. CFL 13 + BLST UNIT | 4,123 | NA | 4,123 | 13,632 | 5,430 | 19,062 | 14,939 | 4.60 | 3.8 |
| Lights | ADMINISTRATION-05 | ADMINISTRATION | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 581 | NA | 581 | 2,300 | 345 | 2,645 | 2,064 | 4.60 | 4.0 |
| Hot Water | FH DUPLEX-02 | DUPLEX | Other Fuels SHW Heater | 0.85 LPG WH (RES), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 1,238 | NA | 1,238 | 5,702 | 0 | 5,702 | 4,464 | 4.60 | 1.0 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 296 | NA | 296 | 1,327 | 39 | 1,366 | 1,071 | 4.60 | 3.9 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237 FL 2X4 3F32T8 ELC3 REF | 278 | NA | 278 | 1,204 | 72 | 1,276 | 999 | 4.60 | 3.9 |
| Lights | ADMINISTRATION-06a | ADMINISTRATION | FL3. FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 128 | NA | 128 | 499 | 90 | 589 | 460 | 4.60 | 3.9 |
| Lights | SHOPS-07 | SHOPS | FL4: FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 38 | NA | 38 | 148 | 27 | 175 | 137 | 4.60 | 3.9 |
| Roof | CLUBS-03 | CLUBS | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-38 | 1,810 | NA | 1,810 | 8,129 | 0 | 8,129 | 6,319 | 4.50 | 4.1 |
| Roof | CLUBS-02 | CLUBS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 30 | 911 | NA | 911 | 4,066 | 0 | 4,066 | 3,155 | 4.50 | 4.1 |
| Wall | CHAPEL-01 | CHAPEL | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase Insulation by R-6.5 | 300 | NA | 300 | 1,336 | 0 | 1,336 | 1,036 | 4.50 | 4.2 |
| Roof | WAREHOUSE-08 | WAREHOUSE | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 283 | NA | 283 | 1,283 | 0 | 1,283 | 1,001 | 4.50 | 4.5 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181. CFL 13 + BLST UNIT | 150 | NA | 150 | 471 | 197 | 668 | 518 | 4.50 | 4.0 |
| Lights | BARRACKS-01 | BARRACKS | IN11 INC 100 CEIL | FL189 CFL 2-15 CEIL FIXT | 16 | NA | 16 | 62 | 13 | 75 | 58 | 4.50 | 3.9 |
| Lights | WAREHOUSE-05 | WAREHOUSE | IN29. INC 200 PEND | HS12: HPS 50 PEND | 894 | NA | 894 | 3,391 | 526 | 3,917 | 3,023 | 4.40 | 4.1 |
| Lights | CLUBS-05 | CLUBS | FL79. FL 2X4 4F40T12ES STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 836 | NA | 836 | 3,146 | 569 | 3,715 | 2,879 | 4.40 | 4.0 |
| Lights | FH DUPLEX-01 | DUPLEX | IN11: INC 100 CEIL | FL189. CFL 2 15 CEIL FIXT | 540 | NA | 540 | 1,834 | 542 | 2,376 | 1,837 | 4.40 | 4.1 |
| Lights | FH DUPLEX-02 | DUPLEX | IN1 INC 40 CEIL | FL178. CFL 9 + BLST UNIT | 49 | NA | 49 | 161 | 54 | 215 | 166 | 4.40 | 4.2 |
| Lights | MWR-05a | MORALE-WELFARE RECREATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 6 | NA | 6 | 20 | 5 | 25 | 19 | 4.40 | 4.1 |
| Lights | SCHOOL/TRAINING-02 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,819 | NA | 1,819 | 6,967 | 860 | 7,827 | 6,008 | 4.30 | 4.2 |
| Lights | FH-3 OR MORE-02 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 1,401 | NA | 1,401 | 4,653 | 1,407 | 6,060 | 4,659 | 4.30 | 4.1 |
| Roof | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Roof Insulation R-Value 8.69 | Attic Ceiling Increase insulation by R 30 | 565 | NA | 565 | 2,406 | 0 | 2,406 | 1,841 | 4.30 | 4.5 |
| Roof | ADMINISTRATION-07a | ADMINISTRATION | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-38 | 542 | NA | 542 | 2,322 | 0 | 2,322 | 1,780 | 4.30 | 4.3 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL1. FL 2X4 4F40T12 STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 351 | NA | 351 | 1,409 | 85 | 1,494 | 1,143 | 4.30 | 4.2 |
| Lights | ELECTRONICS-02 | ELECTRONICS | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 246 | NA | 246 | 1,008 | 60 | 1,068 | 821 | 4.30 | 4.2 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | RECREATION 04 | RECREATION | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 158 | NA | 158 | 564 | 107 | 671 | 514 | 4 30 | 4 2 |
| Lights | ADMINISTRATION 02 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 152 | NA | 152 | 641 | 20 | 661 | 509 | 4 30 | 4 2 |
| Lights | MILITARY OTHER 03 | MILITARY OTHER | FL79: FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 97 | NA | 97 | 392 | 28 | 420 | 324 | 4 30 | 4 2 |
| Lights | WAREHOUSE 08 | WAREHOUSE | IN29: INC 200 PEND | HS12: HPS 50 PEND | 57 | NA | 57 | 210 | 33 | 243 | 186 | 4 30 | 4 2 |
| Hot Water | ADMINISTRATION 03 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer., Lower Tank Temp | 148 | NA | 148 | 633 | 0 | 633 | 486 | 4 30 | 1 1 |
| Lights | WAREHOUSE 07 | WAREHOUSE | FL2: FL 2X4 3F40T12 STD1,2 | FL236 FL 2X4 3F32T8 ELC3 | 30 | NA | 30 | 105 | 25 | 130 | 100 | 4 30 | 4 1 |
| Lights | WAREHOUSE 08 | WAREHOUSE | FL2. FL 2X4 3F40T12 STD1,2 | FL236 FL 2X4 3F32T8 ELC3 | 5 | NA | 5 | 17 | 4 | 21 | 16 | 4 30 | 4 2 |
| Lights | FH-3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | IN5. INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 10,703 | NA | 10,703 | 30,134 | 14,483 | 44,617 | 33,914 | 4 20 | 4 2 |
| Roof | SCHOOL/TRAINING 02 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R 38 | 1,567 | NA | 1,567 | 6,645 | 0 | 6,645 | 5,078 | 4 20 | 4 3 |
| Roof | SHOPS 03 | SHOPS | Roof Insulation R-Value 20 05 | Suspended Ceiling. Increase Insulation by R-8 | 1,445 | NA | 1,445 | 6,074 | 0 | 6,074 | 4,629 | 4 20 | 4 9 |
| Lights | LABS 01 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 414 | NA | 414 | 1,646 | 100 | 1,746 | 1,332 | 4 20 | 4 3 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL61. FL 1X8 4F96T12 STD2 | LS5: LPS 135 PEND | 252 | NA | 252 | 1,028 | 44 | 1,072 | 820 | 4 20 | 4 3 |
| Lights | LABS 02 | LABS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 208 | NA | 208 | 825 | 50 | 875 | 667 | 4 20 | 4 3 |
| Lights | MILITARY OTHER 04 | MILITARY OTHER | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 77 | NA | 77 | 279 | 45 | 324 | 247 | 4 20 | 4 3 |
| Hot Water | BARRACKS 01 | BARRACKS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSHs, Aerators | 22 | NA | 22 | 93 | 0 | 93 | 71 | 4 20 | 1 1 |
| Lights | FH DETACHED 03 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181 CFL 13 + BLST UNIT | 2,819 | NA | 2,819 | 7,788 | 3,815 | 11,603 | 8,784 | 4 10 | 4 3 |
| Lights | FH-DETACHED 01 | SINGLE FAMILY DETACHED HOUSE | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2,496 | NA | 2,496 | 6,868 | 3,287 | 10,155 | 7,660 | 4 10 | 4 3 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | FL3. FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 1,865 | NA | 1,865 | 6,615 | 1,107 | 7,722 | 5,857 | 4.10 | 4 4 |
| Lights | WAREHOUSE 01 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 724 | NA | 724 | 2,568 | 424 | 2,992 | 2,269 | 4 10 | 4 4 |
| Lights | ADMINISTRATION 06 | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 454 | NA | 454 | 1,550 | 318 | 1,868 | 1,415 | 4 10 | 4 4 |
| Lights | WAREHOUSE 02 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237 FL 2X4 3F32T8 ELC3 REF | 325 | NA | 325 | 1,151 | 190 | 1,341 | 1,017 | 4 10 | 4 4 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 297 | NA | 297 | 1,028 | 175 | 1,203 | 906 | 4 10 | 4 4 |
| Lights | CLUBS 01 | CLUBS | FL79: FL 2X4 4F40T12ES STD2 | FL232: FL 2X4 3F40T12 ELC3 | 111 | NA | 111 | 308 | 147 | 455 | 344 | 4.10 | 4 4 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 44 | NA | 44 | 151 | 26 | 177 | 133 | 4 10 | 4 4 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 14 | NA | 14 | 47 | 8 | 55 | 42 | 4 10 | 4 4 |
| Roof | WAREHOUSE 05 | WAREHOUSE | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R-8 | 1,918 | NA | 1,918 | 7,633 | 0 | 7,633 | 5,714 | 4 00 | 5 2 |
| Lights | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,870 | NA | 1,870 | 6,596 | 910 | 7,506 | 5,636 | 4 00 | 4 5 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,751 | NA | 1,751 | 6,060 | 985 | 7,045 | 5,294 | 4 00 | 4 5 |
| Lights | FH-3 OR MORE 01 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 300 | NA | 300 | 897 | 301 | 1,198 | 898 | 4 00 | 4 5 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL1: FL 2X4 4F40T12 STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 183 | NA | 183 | 623 | 107 | 730 | 547 | 4.00 | 4 5 |
| Lights | CLINIC 02 | CLINIC | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 119 | NA | 119 | 401 | 75 | 476 | 357 | 4 00 | 4 5 |
| Lights | SHOPS 06 | SHOPS | FL79 FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,605 | NA | 1,605 | 5,113 | 1,096 | 6,209 | 4,603 | 3 90 | 4 7 |
| Lights | BARRACKS 07 | BARRACKS | FL1: FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 166 | NA | 166 | 607 | 39 | 646 | 480 | 3 90 | 4 6 |
| Roof | MWR 05a | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-38 | 150 | NA | 150 | 582 | 0 | 582 | 432 | 3.90 | 4 8 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 143 | NA | 143 | 465 | 86 | 551 | 408 | 3 90 | 4 7 |
| Lights | CLUBS 02 | CLUBS | FL62. FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 109 | NA | 109 | 397 | 27 | 424 | 315 | 3 90 | 4 7 |
| Lights | SHOPS 03 | SHOPS | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 92 | NA | 92 | 300 | 58 | 358 | 266 | 3 90 | 4 6 |
| Lights | DINING HALLS 05 | DINING HALLS | FL82. FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 81 | NA | 81 | 248 | 68 | 316 | 235 | 3 90 | 4 6 |
| Lights | CHAPEL 01 | CHAPEL | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 67 | NA | 67 | 214 | 46 | 260 | 193 | 3 90 | 4 6 |
| Lights | ADMINISTRATION 03a | ADMINISTRATION | FL13: FL 2X4 4F40T12 EEF2 | FL237. FL 2X4 3F32T8 ELC3 REF | 41 | NA | 41 | 138 | 23 | 161 | 120 | 3 90 | 4 6 |
| Hot Water | CHAPEL 02 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 23 | NA | 23 | 90 | 0 | 90 | 66 | 3 90 | 1 2 |
| Lights | ADMINISTRATION 09 | ADMINISTRATION | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 37,610 | NA | 37,610 | 131,691 | 10,686 | 142,377 | 104,767 | 3 80 | 4 8 |
| Lights | FH-3 OR MORE 01 | MULTI-FAMILY 3 OR MORE UNIT | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2,292 | NA | 2,292 | 5,598 | 3,018 | 8,616 | 6,324 | 3.80 | 4 7 |
| Lights | SHOPS 03 | SHOPS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 1,954 | NA | 1,954 | 7,568 | -146 | 7,422 | 5,468 | 3 80 | 4 8 |
| Lights | SHOPS 07 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 931 | NA | 931 | 2,764 | 783 | 3,547 | 2,616 | 3.80 | 4 7 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | FL79: FL 2X4 4F40T12ES STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 392 | NA | 392 | -1,282 | 222 | -1,504 | 1,113 | 3 80 | 4 7 |
| Wall | SHOPS 04 | SHOPS | Wall Insulation R-Value 0 00 | Blow-in Insulation Increase Insulation by R-6 5 | 1,170 | NA | 1,170 | 4,285 | 0 | 4,285 | 3,115 | 3 70 | 5 9 |
| Roof | ADMINISTRATION 03 | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling. Increase insulation by R-11 | 1,158 | NA | 1,158 | 4,262 | 0 | 4,262 | 3,105 | 3 70 | 5 5 |
| Lights | FH-3 OR MORE 03 | MULTI FAMILY 3 OR MORE UNIT | IN11: INC 100 CEIL | FL189. CFL 2-15 CEIL FIXT | 828 | NA | 828 | 2,198 | 832 | 3,030 | 2,201 | 3 70 | 4 9 |
| Roof | WAREHOUSE 09 | WAREHOUSE | Roof Insulation R-Value 20.05 | Suspended Ceiling. Increase Insulation by R 8 | 306 | NA | 306 | 1,129 | 0 | 1,129 | 823 | 3 70 | 5 5 |
| Lights | DINING HALLS 06 | DINING HALLS | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 250 | NA | 250 | 720 | 209 | 929 | 680 | 3 70 | 4 8 |
| Lights | CLINIC 02 | CLINIC | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 212 | NA | 212 | 604 | 182 | 786 | 574 | 3 70 | 4 8 |
| Lights | CLUBS 03 | CLUBS | FL62. FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 170 | NA | 170 | 598 | 32 | 630 | 460 | 3 70 | 4 9 |
| Lights | EXCHANGE FACILITIES 01 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 86 | NA | 86 | 270 | 52 | 322 | 236 | 3 70 | 4 8 |
| Lights | RECREATION 04 | RECREATION | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 35 | NA | 35 | 122 | 7 | 129 | 94 | 3 70 | 4 9 |
| Hot Water | MWR 04 | MORALE-WELFARE-RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 22 | NA | 22 | 79 | 0 | 79 | 57 | 3 70 | 1 3 |
| Hot Water | ADMINISTRATION 06 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer . Lower Tank Temp | 14 | NA | 14 | 53 | 0 | 53 | 38 | 3 70 | 1 3 |
| Hot Water | ADMINISTRATION 04 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer.. Lower Tank Temp | 8 | NA | 8 | 31 | 0 | 31 | 22 | 3 70 | 1 3 |
| Lights | ADMINISTRATION 05 | ADMINISTRATION | FL3. FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 1,487 | NA | 1,487 | 5,177 | 225 | 5,402 | 3,915 | 3 60 | 5 0 |
| Heating | BARRACKS 04 | BARRACKS | Hot Water (Generated) Fan Coil | New Conventional Individual Building LPG Boiler | 994 | NA | 994 | 3,613 | 0 | 3,613 | 2,620 | 3 60 | 3 4 |
| Lights | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | EX1: EXIT - INC (2x20) | EX7 EXIT - SELF LUMINOUS | 102 | NA | 102 | 261 | 105 | 366 | 265 | 3 60 | 5 0 |
| Lights | WAREHOUSE 03 | WAREHOUSE | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 87 | NA | 87 | 247 | 71 | 318 | 230 | 3 60 | 4 9 |
| Lights | MWR 04 | MORALE WELFARE RECREATION | FL4 FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 36 | NA | 36 | 102 | 29 | 131 | 95 | 3 60 | 4 9 |
| Lights | DINING HALLS 05 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 29 | NA | 29 | 99 | 7 | 106 | 77 | 3 60 | 5 0 |
| Hot Water | ADMINISTRATION 01 | ADMINISTRATION | Electric SHW Heater | 0 76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 41 | NA | 41 | 150 | 0 | 150 | 108 | 3 60 | 1 5 |
| Hot Water | RECREATION 02 | RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer , Lower Tank Temp | 25 | NA | 25 | 90 | 0 | 90 | 65 | 3 60 | 1 3 |
| Lights | ADMINISTRATION 03 | ADMINISTRATION | FL79 FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 10,367 | NA | 10,367 | 33,596 | 2,946 | 36,542 | 26,175 | 3 50 | 5 1 |
| Roof | COMMISSARIES | COMMISSARIES | Roof Insulation R Value 8.90 | Suspended Ceiling: Increase insulation by R-38 | 4,081 | NA | 4,081 | 14,472 | 0 | 14,472 | 10,392 | 3 50 | 5 1 |
| Lights | WAREHOUSE 05 | WAREHOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 711 | NA | 711 | 1,933 | 575 | 2,508 | 1,797 | 3 50 | 5 1 |
| Lights | MWR 02 | MORALE-WELFARE RECREATION | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 520 | NA | 520 | 1,507 | 329 | 1,836 | 1,316 | 3 50 | 5 1 |
| Roof | EXCHANGE FACILITIES 03 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling Increase Insulation by R 8 | 396 | NA | 396 | 1,376 | 0 | 1,376 | 979 | 3 50 | 5 9 |
| Lights | WAREHOUSE 11 | WAREHOUSE | FL62. FL 1X8 2F96T12 STD2 | LS3. LPS 55 PEND | 163 | NA | 163 | 575 | -9 | 566 | 404 | 3 50 | 5 2 |
| Lights | EXCHANGE FACILITIES 02 | EXCHANGE FACILITIES | FL79 FL 2X4 4F40T12ES STD2 | FL237. FL 2X4 3F32T8 ELC3 REF | 148 | NA | 148 | 433 | 84 | 519 | 371 | 3 50 | 5 1 |
| Lights | SHOPS 03 | SHOPS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 124 | NA | 124 | 326 | 107 | 433 | 309 | 3 50 | 5 1 |
| Lights | SCHOOL/TRAINING 01 | SCHOOLS and/or TRAINING | FL1 FL 2X4 4F40T12 STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 106 | NA | 106 | 324 | 50 | 374 | 268 | 3 50 | 5 1 |
| Lights | COMMISSARIES | COMMISSARIES | FL5: FL 1X4 1F40T12 STD1 | FL29 FL 1X4 1F40T12 ELC1 | 65 | NA | 65 | 187 | 39 | 226 | 162 | 3 50 | 5 2 |
| Lights | SHOPS 03 | SHOPS | FL81 FL 2X4 2F40T12ES STD2 | FL105 FL 2X4 2F40T12ES ELC2 | 62 | NA | 62 | 163 | 54 | 217 | 155 | 3 50 | 5 1 |
| Hot Water | SCHOOL/TRAINING 03 | SCHOOLS and/or TRAINING | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 78 | NA | 78 | 276 | 0 | 276 | 197 | 3 50 | 1 3 |
| Hot Water | MILITARY OTHER 01 | MILITARY OTHER | Electric SHW Heater | Replace Existing Water Heater w a 0 76 LPG Water Heater (COM) | 19 | NA | 19 | 66 | 0 | 66 | 47 | 3 50 | 1 6 |
| Hot Water | SHOPS 02 | SHOPS | Electric SHW Heater | Wrap Old Ele Tank, Ins Pipe, LFSHs, Aer . Lower Tank Temp | 14 | NA | 14 | 48 | 0 | 48 | 35 | 3 50 | 0 8 |
| Lights | ADMINISTRATION 01 | ADMINISTRATION | FL3 FL 2X4 2F40T12 STD2 | FL51 FL 2X4 2F32T8 ELC2 | 297 | NA | 297 | 972 | 45 | 1,017 | 719 | 3 40 | 5 3 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | SHOPS-04 | SHOPS | EXI: EXIT - INC (2x20) | EX7: EXIT - SELF LUMINOUS | 204 | NA | 204 | 491 | 211 | 691 | 487 | 3 40 | 5 3 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 130 | NA | 130 | 421 | 20 | 441 | 311 | 3 40 | 5 3 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | IN1: INC 40 CEIL | FL178 CFL 9 + BLST UNIT | 109 | NA | 109 | 247 | 120 | 367 | 258 | 3 40 | 5 3 |
| Lights | COMMISSARIES | COMMISSARIES | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 13 | NA | 13 | 32 | 11 | 43 | 31 | 3 40 | 5 3 |
| Heating | CHAPEL-02 | CHAPEL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 12 | NA | 12 | 41 | 0 | 41 | 29 | 3 40 | 3 9 |
| Hot Water | MWR-05a | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp | 9 | NA | 9 | 32 | 0 | 32 | 23 | 3 40 | 1 3 |
| Hot Water | ADMINISTRATION-06a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp | 9 | NA | 9 | 31 | 0 | 31 | 22 | 3 40 | 1 3 |
| Hot Water | LABS-02 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSIIs, Aerators | 2 | NA | 2 | 8 | 0 | 8 | 6 | 3 40 | 1 4 |
| Roof | ADMINISTRATION-05 | ADMINISTRATION | Roof Insulation R-Value 0 00 | Suspended Ceiling: Increase insulation by R-19 | 2,329 | NA | 2,329 | 7,733 | 0 | 7,733 | 5,404 | 3 30 | 6 2 |
| Wall | WAREHOUSE-12 | WAREHOUSE | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase Insulation by R-13 | 774 | NA | 774 | 2,548 | 0 | 2,548 | 1,774 | 3 30 | 5 6 |
| Hot Water | FH-3 OR MORE-01 | MULTI-FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp | 2,854 | NA | 2,854 | 9,441 | 0 | 9,441 | 6,587 | 3 30 | 1 4 |
| Wall | WAREHOUSE-06 | WAREHOUSE | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6.5 | 732 | NA | 732 | 2,390 | 0 | 2,390 | 1,658 | 3 30 | 6 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 265 | NA | 265 | 675 | 211 | 886 | 622 | 3 30 | 5 4 |
| Lights | DINING HALLS-06 | DINING HALLS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 90 | NA | 90 | 274 | 22 | 296 | 207 | 3 30 | 5 5 |
| Roof | ADMINISTRATION-03a | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase Insulation by R 8 | 43 | NA | 43 | 141 | 0 | 141 | 98 | 3 30 | 6 2 |
| Hot Water | SHOPS-05 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Insulation and Insulate Pipe Near Tank | 61 | NA | 61 | 204 | 0 | 204 | 142 | 3 30 | 1 4 |
| Hot Water | LABS-01 | LABS | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins. Pipe, LFSIIs, Aerators | 4 | NA | 4 | 14 | 0 | 14 | 10 | 3 30 | 1 4 |
| Hot Water | CLUBS-01 | CLUBS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp | 2 | NA | 2 | 5 | 0 | 5 | 3 | 3 30 | 1 4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 1,932 | NA | 1,932 | 4,716 | 1,542 | 6,258 | 4,326 | 3 20 | 5 6 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL6: FL 2X2 2F40T12U STD2 | FL54: FL 2X2 2F32T8U ELC2 | 688 | NA | 688 | 1,838 | 358 | 2,196 | 1,508 | 3 20 | 5 7 |
| Lights | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 652 | NA | 652 | 1,691 | 394 | 2,085 | 1,432 | 3 20 | 5 6 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL80. FL 2X4 3F40T12ES STD1,2 | FL57: FL 2X4 2F32T8 ELC2 REF | 292 | NA | 292 | 741 | 187 | 928 | 636 | 3 20 | 5 6 |
| Lights | RECREATION-02 | RECREATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 137 | NA | 137 | 323 | 109 | 432 | 295 | 3 20 | 5 6 |
| Hot Water | DINING HALLS-03 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 315 | NA | 315 | 1,017 | 0 | 1,017 | 702 | 3 20 | 1 4 |
| Hot Water | DINING HALLS-04 | DINING HALLS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp | 291 | NA | 291 | 938 | 0 | 938 | 647 | 3 20 | 1 4 |
| Hot Water | WAREHOUSE-07 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp. | 16 | NA | 16 | 51 | 0 | 51 | 35 | 3 20 | 1.4 |
| Hot Water | CHAPEL 01 | CHAPEL | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp. | 14 | NA | 14 | 46 | 0 | 46 | 32 | 3 20 | 1.4 |
| Hot Water | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer , Lower Tank Temp. | 4 | NA | 4 | 11 | 0 | 11 | 8 | 3 20 | 1 4 |
| Lights | FH DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | IN11: INC 100 CEIL | FL189: CFL 2-15 CEIL FIXT | 327 | NA | 327 | 677 | 328 | 1,005 | 678 | 3 10 | 5 6 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 307 | NA | 307 | 883 | 71 | 954 | 647 | 3 10 | 5 8 |
| Lights | BARRACKS-07 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 137 | NA | 137 | 401 | 20 | 421 | 284 | 3.10 | 5 9 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 50 | NA | 50 | 122 | 34 | 156 | 106 | 3.10 | 5 7 |
| Hot Water | SECURITY-02 | SECURITY | Electric SHW Heater | 0.76 LPG WH (COM), Ins Pipe, LFSIIs, Aerators, Lower Tank Temp | 113 | NA | 113 | 344 | 0 | 344 | 232 | 3 10 | 1 8 |
| Hot Water | WAREHOUSE-05 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSIIs, Aer , Lower Tank Temp. | 96 | NA | 96 | 300 | 0 | 300 | 204 | 3.10 | 1.5 |
| Lights | CLINIC-02 | CLINIC | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 25 | NA | 25 | 73 | 5 | 78 | 53 | 3 10 | 5 8 |
| Hot Water | WAREHOUSE-12 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 9 | NA | 9 | 29 | 0 | 29 | 20 | 3.10 | 1.5 |
| Hot Water | WAREHOUSE-08 | WAREHOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSIIs, Aer., Lower Tank Temp | 9 | NA | 9 | 29 | 0 | 29 | 20 | 3.10 | 1.5 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 1,830 | NA | 1,830 | 3,543 | 1,999 | 5,542 | 3,712 | 3.00 | 5 9 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 204 | NA | 204 | 570 | 47 | 617 | 413 | 3.00 | 6 0 |
| Lights | FH DUPLEX-02 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 116 | NA | 116 | 260 | 86 | 346 | 230 | 3.00 | 6 1 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 53 | NA | 53 | 116 | 42 | 158 | 105 | 3.00 | 6 0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL80. FL 2X4 3F40T12ES STD1,2 | FL57: FL 2X4 2F32T8 ELC2 REF | 47 | NA | 47 | 111 | 30 | 141 | 94 | 3 00 | 6 0 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 45 | NA | 45 | 101 | 36 | 137 | 91 | 3.00 | 5.9 |
| Hot Water | SHOPS-04 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 24 | NA | 24 | 71 | 0 | 71 | 47 | 3.00 | 1 6 |
| Heating | ADMINISTRATION-03a | ADMINISTRATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 4 | NA | 4 | 13 | 0 | 13 | 9 | 3.00 | 7.0 |
| Roof | FH-DUPLEX-01 | DUPLEX | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-30 | 15,236 | NA | 15,236 | 43,777 | 0 | 43,777 | 28,541 | 2.90 | 6.6 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | IN5: INC 60 CEIL | FL181: CFL 13 + BLST UNIT | 2,856 | NA | 2,856 | 5,217 | 3,111 | 8328 | 5,473 | 2.90 | 6 1 |
| Lights | FH-DUPLEX-03 | DUPLEX | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 632 | NA | 632 | 1,377 | 469 | 1.846 | 1,214 | 2.90 | 6.1 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105. FL 2X4 2F40T12ES ELC2 | 542 | NA | 542 | 1,445 | 125 | 1,570 | 1,029 | 2.90 | 6 2 |
| Lights | HANGER | HANGAR | HS17: HPS 250 PEND | LS5: LPS 135 PEND | 347 | NA | 347 | 1,068 | -48 | 1,020 | 674 | 2.90 | 6 2 |
| Lights | SHOPS-07 | SHOPS | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 186 | NA | 186 | 421 | 113 | 534 | 348 | 2.90 | 6.3 |
| Lights | ADMINISTRATION-07a | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105. FL 2X4 2F40T12ES ELC2 | 162 | NA | 162 | 439 | 37 | 476 | 314 | 2.90 | 6 1 |
| Lights | CLINIC-01 | CLINIC | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 53 | NA | 53 | 123 | 32 | 155 | 103 | 2.90 | 6.1 |
| Hot Water | CLINIC-02 | CLINIC | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins , Ins Pipe, LFSIIs, Aerators | 49 | NA | 49 | 141 | 0 | 141 | 92 | 2 90 | 1.6 |
| Heating | MWR-06 | MORALE-WELFARE-RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 6 | NA | 6 | 18 | 0 | 18 | 12 | 2 90 | 7 1 |
| Roof | BARRACKS-07 | BARRACKS | Roof Insulation R-Value R 00 | Suspended Ceiling: Increase insulation by R 19 | 3,157 | NA | 3,157 | 8,957 | 0 | 8,957 | 5,799 | 2 80 | 6.9 |
| Cooling | HOSPITAL | HOSPITAL | Electric Conv Chiller | Centrifugal Liquid (Water) Chiller (200 to 500 tons cooling) | 4,855 | NA | 4,855 | 13,705 | 0 | 13,705 | 8,850 | 2.80 | 3.1 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL79. FL 2X4 4F40T12ES STD2 | FL237: FL 2X4 3F32T8 ELC3 REF | 1,040 | NA | 1,040 | 2,289 | 657 | 2,946 | 1,907 | 2.80 | 6.3 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL82. FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 837 | NA | 837 | 2,180 | 193 | 2,373 | 1,536 | 2 80 | 6 4 |
| Lights | ADMINISTRATION-07 | ADMINISTRATION | FL81: FL 2X4 2F40T12ES STD2 | FL105: FL 2X4 2F40T12ES ELC2 | 667 | NA | 667 | 1,726 | 154 | 1,880 | 1,213 | 2 80 | 6.4 |
| Wall | ADMINISTRATION-04 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R 6.5 | 536 | NA | 536 | 1,507 | 0 | 1,507 | 971 | 2.80 | 6 6 |
| Roof | ADMINISTRATION-04 | ADMINISTRATION | Roof Insulation R-Value 0.00 | Suspended Ceiling: Increase insulation by R 38 | 492 | NA | 492 | 1,364 | 0 | 1,364 | 872 | 2.80 | 6 7 |
| Lights | CHAPEL-02 | CHAPEL | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 311 | NA | 311 | 660 | 215 | 875 | 564 | 2 80 | 6 4 |
| Lights | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | FL5. FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 64 | NA | 64 | 144 | 37 | 181 | 117 | 2 80 | 6 4 |
| Lights | RECREATION-02 | RECREATION | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 55 | NA | 55 | 111 | 44 | 155 | 100 | 2 80 | 6 2 |
| Lights | RECREATION-04 | RECREATION | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 11 | NA | 11 | 24 | 6 | 30 | 20 | 2 80 | 6 3 |
| Lights | MILITARY OTHER-02 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 761 | NA | 761 | 1,394 | 687 | 2,081 | 1,321 | 2.70 | 6.5 |
| Lights | MILITARY OTHER-01 | MILITARY OTHER | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 596 | NA | 596 | 1,088 | 539 | 1,627 | 1,030 | 2.70 | 6 5 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 434 | NA | 434 | 770 | 392 | 1,162 | 728 | 2.70 | 6 6 |
| Lights | ADMINISTRATION-08 | ADMINISTRATION | FL82: FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 232 | NA | 232 | 584 | 54 | 638 | 405 | 2.70 | 6 6 |
| Lights | BARRACKS-04 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 36 | NA | 36 | 93 | 5 | 98 | 63 | 2 70 | 6 6 |
| Lights | MWR-03 | MORALE-WELFARE-RECREATION | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 17 | NA | 17 | 34 | 14 | 48 | 30 | 2 70 | 6.5 |
| Heating | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Other Fuels Conv Boiler | Add Automatic Electric Damper | 10 | NA | 10 | 27 | 0 | 27 | 17 | 2 70 | 7 8 |
| Heating | RECREATION-04 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 8 | NA | 8 | 20 | 0 | 20 | 13 | 2.70 | 7 9 |
| Hot Water | ADMINISTRATION-01 | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp. | 35 | NA | 35 | 95 | 0 | 95 | 60 | 2 70 | 1 0 |
| Wall | FH-DUPLEX-01 | DUPLEX | Wall Insulation R Value 0.00 | Blow-in Insulation: Increase Insulation by R 6 5 | 13,205 | NA | 13,205 | 34,368 | 0 | 34,568 | 21,162 | 2.60 | 7 3 |
| Lights | BARRACKS-02 | BARRACKS | FL4. FL 1X4 2F40T12 STD2 | FL52. FL 1X4 2F32T8 ELC2 | 2,361 | NA | 2,361 | 5,812 | 347 | 6,159 | 3,797 | 2 60 | 6 9 |
| Lights | BARRACKS-02 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 2,361 | NA | 2,361 | 5,812 | 347 | 6,159 | 3,797 | 2 60 | 6 9 |
| Hot Water | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSIIs, Aer , Lower Tank Temp. | 3,306 | NA | 3,306 | 8,719 | 0 | 8,719 | 5,413 | 2 60 | 1 8 |
| Hot Water | SHOPS-03 | SHOPS | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSIIs, Aer., Lower Tank Temp | 706 | NA | 706 | 1,826 | 0 | 1,826 | 1,120 | 2 60 | 1 8 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL81: FL 2X4 2F40T12ES STD2 | FL105 FL 2X4 2F40T12ES ELC2 | 145 | NA | 145 | 249 | 131 | 380 | 235 | 2 60 | 6 8 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 14 | NA | 14 | 25 | 10 | 35 | 21 | 2 60 | 6 9 |
| Lights | BARRACKS-06 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL28: FL 1X4 2F40T12 ELC2 | 10 | NA | 10 | 23 | 2 | 25 | 16 | 2 60 | 7 0 |
| Lights | WAREHOUSE-05 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 4,395 | NA | 4,395 | 11,193 | -235 | 10,958 | 6,563 | 2 50 | 7 3 |
| Roof | ADMINISTRATION-07 | ADMINISTRATION | Roof Insulation R-Value 8.90 | Suspended Ceiling: Increase insulation by R-30 | 1,744 | NA | 1,744 | 4,376 | 0 | 4,376 | 2,632 | 2 50 | 7 4 |
| Lights | WAREHOUSE-10 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 442 | NA | 442 | 1,148 | -24 | 1,124 | 682 | 2 50 | 7 2 |
| Lights | WAREHOUSE-09 | WAREHOUSE | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 368 | NA | 368 | 952 | 20 | 932 | 564 | 2 50 | 7 2 |
| Lights | FH-DETACHED-02 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 257 | NA | 257 | 449 | 190 | 639 | 383 | 2 50 | 7 2 |
| Roof | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Roof Insulation R-Value 11.00 | Attic Ceiling: Increase insulation by R-19 | 49 | NA | 49 | 121 | 0 | 121 | 72 | 2 50 | 7 4 |
| Lights | SCHOOL/TRAINING-03 | SCHOOLS and/or TRAINING | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 557 | NA | 557 | 1,153 | 179 | 1,332 | 774 | 2 40 | 7 5 |
| Lights | ADMINISTRATION-01 | ADMINISTRATION | FL62. FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 306 | NA | 306 | 750 | 2 | 748 | 443 | 2 40 | 7.4 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 235 | NA | 235 | 390 | 174 | 564 | 329 | 2.40 | 7 4 |
| Roof | CLUBS-01 | CLUBS | Roof Insulation R-Value 8 90 | Suspended Ceiling: Increase Insulation by R-8 | 135 | NA | 135 | 319 | 0 | 319 | 184 | 2 40 | 8 6 |
| Lights | BARRACKS-01 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 74 | NA | 74 | 169 | 11 | 180 | 106 | 2 40 | 7 4 |
| Lights | BARRACKS-01 | BARRACKS | FL3: FL 2X4 2F40T12 STD2 | FL51: FL 2X4 2F32T8 ELC2 | 74 | NA | 74 | 169 | 11 | 180 | 106 | 2 40 | 7 4 |
| Lights | CLUBS-01 | CLUBS | FL62: FL 1X8 2F96T12 STD2 | FL131: FL 1X8 2F96T12ES ELC2 REF | 43 | NA | 43 | 87 | 17 | 104 | 61 | 2 40 | 7 6 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL4. FL 1X4 2F40T12 STD2 | FL52: FL 1X4 2F32T8 ELC2 | 12 | NA | 12 | 21 | 9 | 30 | 17 | 2 40 | 7.5 |
| Hot Water | MWR-07 | MORALE WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank w/ Ins., Ins. Pipe, LFSHs, Aerators | 17 | NA | 17 | 40 | 0 | 40 | 23 | 2 40 | 0 8 |
| Wall | RECREATION-02 | RECREATION | Wall Insulation R-Value 7.00 | Blow-in Insulation: Increase Insulation by R-2.4 | 1,226 | NA | 1,226 | 2,813 | 0 | 2,813 | 1,587 | 2 30 | 8 2 |
| Roof | MWR-03 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-30 | 716 | NA | 716 | 1,661 | 0 | 1,661 | 945 | 2 30 | 8 0 |
| Lights | FH-DUPLEX-03 | DUPLEX | FL82. FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 514 | NA | 514 | 780 | 399 | 1,179 | 665 | 2 30 | 7 8 |
| Hot Water | WAREHOUSE-09 | WAREHOUSE | Electric SHW Heater | 0.76 LPG WH (COM), Ins Pipe, LFSHs, Aerators, Lower Tank Temp | 8 | NA | 8 | 20 | 0 | 20 | 11 | 2 30 | 1 6 |
| Hot Water | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins. Pipe, LFSHs, Aer., Lower Tank Temp | 1,527 | NA | 1,527 | 3,427 | 0 | 3,427 | 1,900 | 2 20 | 2 9 |
| Lights | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | FL5: FL 1X4 1F40T12 STD1 | FL29: FL 1X4 1F40T12 ELC1 | 103 | NA | 103 | 167 | 59 | 226 | 123 | 2 20 | 8.1 |
| Roof | SHOPS-02 | SHOPS | Roof Insulation R-Value 8.69 | Attic Ceiling: Increase insulation by R-19 | 1,951 | NA | 1,951 | 4,181 | 0 | 4,181 | 2,230 | 2 10 | 8.9 |
| Roof | RECREATION-04 | RECREATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase insulation by R 30 | 1,309 | NA | 1,309 | 2,762 | 0 | 2,762 | 1,453 | 2 10 | 8 8 |
| Roof | EXCHANGE FACILITIES-04 | EXCHANGE FACILITIES | Roof Insulation R-Value 8 90 | Suspended Ceiling: Increase Insulation by R-8 | 642 | NA | 642 | 1,325 | 0 | 1,325 | 683 | 2 10 | 8 8 |
| Lights | WAREHOUSE-06 | WAREHOUSE | FL5: FL 1X4 1F40T12 STD1 | FL29. FL 1X4 1F40T12 ELC1 | 295 | NA | 295 | 386 | 228 | 614 | 319 | 2 10 | 8 5 |
| Lights | BARRACKS-05 | BARRACKS | FL4: FL 1X4 2F40T12 STD2 | FL52 FL 1X4 2F32T8 ELC2 | 1 | NA | 1 | 2 | 0 | 2 | 1 | 2 10 | 8 4 |
| Wall | BARRACKS-04 | BARRACKS | Wall Insulation R-Value 7.00 | Blow in Insulation: Increase Insulation by R-2.4 | 1,810 | NA | 1,810 | 3,640 | 0 | 3,640 | 1,830 | 2.00 | 9 6 |
| Wall | CLUBS-02 | CLUBS | Wall Insulation R-Value 0.00 | Interior Masonary Surface: Increase Insulation by R 10 9 | 1,551 | NA | 1,551 | 3,038 | 0 | 3,038 | 1,487 | 2.00 | 9 4 |
| Hot Water | FH-3 OR MORE 02 | MULTI FAMILY 3 OR MORE UNIT | Other Fuels SHW Heater | 0 85 LPG WH (RES), Ins. Pipe, LFSHs, Aerators, Lower Tank Temp | 19,513 | NA | 19,513 | 39,378 | 0 | 39,378 | 19,865 | 2 00 | 0 5 |
| Roof | MILITARY OTHER-01 | MILITARY OTHER | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase insulation by R-11 | 282 | NA | 282 | 575 | 0 | 575 | 293 | 2 00 | 10.1 |
| Lights | BARRACKS-06 | BARRACKS | FL82. FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 200 | NA | 200 | 354 | 49 | 403 | 203 | 2 00 | 9 0 |
| Heating | MWR-04 | MORALE WELFARE-RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 21 | NA | 21 | 41 | 0 | 41 | 20 | 2 00 | 8 7 |
| Lights | BARRACKS-04 | BARRACKS | FL82. FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 587 | NA | 587 | 992 | 144 | 1,136 | 549 | 1 90 | 9 3 |
| Wall | EXCHANGE FACILITIES-01 | EXCHANGE FACILITIES | Wall Insulation R-Value 8.79 | Blow-in Insulation: Increase Insulation by R-6.5 | 291 | NA | 291 | 544 | 0 | 544 | 253 | 1.90 | 9 7 |
| Lights | FH-DETACHED-03 | SINGLE FAMILY DETACHED HOUSE | FL82 FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 191 | NA | 191 | 206 | 148 | 354 | 163 | 1 90 | 9 6 |
| Lights | CLUBS-03 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | FL123: FL 1X8 1F96T12ES EEF1 | 143 | NA | 143 | 173 | 94 | 267 | 124 | 1.90 | 9 5 |
| Lights | CLUBS-02 | CLUBS | FL117: FL 1X8 1F96T12ES STD1 | FL123: FL 1X8 1F96T12ES EEF1 | 92 | NA | 92 | 114 | 64 | 178 | 86 | 1 90 | 9.2 |
| Roof | MILITARY OTHER-04 | MILITARY OTHER | Roof Insulation R-Value 7.15 | Attic Ceiling: Increase insulation by R 19 | 58 | NA | 58 | 113 | 0 | 113 | 54 | 1 90 | 10.7 |
| Lights | GUEST HOUSES-02 | MILITARY MOBILE HOMES | FL82. FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 11 | NA | 11 | 13 | 9 | 22 | 10 | 1 90 | 9 1 |
| Lights | COMMISSARIES | COMMISSARIES | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 862 | NA | 862 | 1,613 | -42 | 1,571 | 709 | 1 80 | 10 0 |
| Roof | DINING HALLS-03 | DINING HALLS | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 407 | NA | 407 | 740 | 0 | 740 | 333 | 1 80 | 11 4 |
| Lights | COMMISSARIES | COMMISSARIES | HS15: HPS 150 PEND | LS4: LPS 90 PEND | 369 | NA | 369 | 730 | -64 | 666 | 297 | 1 80 | 10 1 |
| Roof | SECURITY-03 | SECURITY | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R-30 | 215 | NA | 215 | 396 | 0 | 396 | 182 | 1 80 | 9 9 |
| Lights | GUEST HOUSES-01 | SINGLE FAMILY DETACHED HOUSE | FL82: FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 10 | NA | 10 | 10 | 8 | 18 | 8 | 1 80 | 10 1 |
| Hot Water | ADMINISTRATION-07a | ADMINISTRATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 24 | NA | 24 | 43 | 0 | 43 | 19 | 1 80 | 2 6 |
| Lights | BARRACKS-02 | BARRACKS | FL82. FL 1X4 2F40T12ES STD2 | FL106: FL 1X4 2F40T12ES ELC2 | 1,693 | NA | 1,693 | 2,462 | 415 | 2,877 | 1,184 | 1 70 | 10 5 |
| Roof | ADMINISTRATION-01 | ADMINISTRATION | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase Insulation by R-8 | 234 | NA | 234 | 409 | 0 | 409 | 175 | 1 70 | 11.9 |
| Wall | ELECTRONICS-03 | ELECTRONICS | Wall Insulation R-Value 0.00 | Interior Masonary Surface. Increase Insulation by R-4 3 | 253 | NA | 253 | 426 | 0 | 426 | 173 | 1 70 | 11.5 |
| Wall | SCHOOL/TRAINING-01 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0 00 | Blow in Insulation. Increase Insulation by R-6 5 | 180 | NA | 180 | 313 | 0 | 313 | 133 | 1 70 | 10 5 |
| Lights | BARRACKS-05 | BARRACKS | FL82. FL 1X4 2F40T12ES STD2 | FL106. FL 1X4 2F40T12ES ELC2 | 19 | NA | 19 | 27 | 5 | 32 | 13 | 1 70 | 10 4 |
| Wall | CHAPEL-02 | CHAPEL | Wall Insulation R-Value 5.32 | Interior Masonary Surface: Increase Insulation by R-4.3 | 532 | NA | 532 | 852 | 0 | 852 | 320 | 1 60 | 12.9 |
| Lights | SHOPS-04 | SHOPS | FL63: FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 421 | NA | 421 | 559 | 123 | 682 | 261 | 1 60 | 11 1 |
| Lights | BARRACKS-01 | BARRACKS | FL82: FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 53 | NA | 53 | 74 | 13 | 87 | 34 | 1 60 | 10 8 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | FL74: FL 1X8 2F96T12 ELC2 | 4,700 | NA | 4,700 | 4,381 | 2,467 | 6,848 | 2,147 | 1 50 | 12 2 |
| Roof | BARRACKS-02 | BARRACKS | Roof Insulation R-Value 20 05 | Suspended Ceiling , Increase Insulation by R-8 | 4,249 | NA | 4,249 | 6,372 | 0 | 6,372 | 2,123 | 1 50 | 13 4 |
| Roof | ADMINISTRATION-08 | ADMINISTRATION | Roof Insulation R Value 20 05 | Suspended Ceiling. Increase insulation by R-19 | 1,638 | NA | 1,638 | 2,516 | 0 | 2,516 | 878 | 1 50 | 12 1 |
| Lights | DINING HALLS-03 | DINING HALLS | FL63. FL 1X8 1F96T12 STD1 | FL126. FL,1X8 1F96T12ES EEF1 REF | 1,211 | NA | 1,211 | 1,403 | 403 | 1,806 | 595 | 1 50 | 12 1 |
| Wall | ADMINISTRATION-02 | ADMINISTRATION | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1,067 | NA | 1,067 | 1,555 | 0 | 1,555 | 488 | 1 50 | 12 9 |
| Lights | RECREATION-04 | RECREATION | HS14. HPS 100 PEND | LS3: LPS 55 PEND | 289 | NA | 289 | 424 | 16 | 440 | 151 | 1 50 | 11 9 |
| Roof | EXCHANGE FACILITIES-02 | EXCHANGE FACILITIES | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R-8 | 258 | NA | 258 | 383 | 0 | 383 | 125 | 1 50 | 14 0 |
| Roof | MILITARY OTHER-03 | MILITARY OTHER | Roof Insulation R Value 20 05 | Suspended Ceiling: Increase insulation by R 30 | 228 | NA | 228 | 338 | 0 | 338 | 111 | 1 50 | 12 5 |
| Wall | SECURITY-01 | SECURITY | Wall Insulation R-Value 5 32 | Interior Masonary Surface: Increase Insulation by R 10 9 | 217 | NA | 217 | 326 | 0 | 326 | 109 | 1 50 | 12 1 |
| Roof | ADMINISTRATION-06 | ADMINISTRATION | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 195 | NA | 195 | 294 | 0 | 294 | 99 | 1 50 | 13 9 |
| Roof | SHOPS-06 | SHOPS | Roof Insulation R Value 8 69 | Attic Ceiling Increase Insulation by R-8 | 135 | NA | 135 | 206 | 0 | 206 | 71 | 1 50 | 13 5 |
| Lights | PROD/PROCESS-02 | PRODUCTION and/or PROCESS | FL82 FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 123 | NA | 123 | 93 | 87 | 180 | 57 | 1 50 | 12 1 |
| Roof | ELECTRONICS-03 | ELECTRONICS | Roof Insulation R-Value 20 05 | Suspended Ceiling Increase Insulation by R-8 | 102 | NA | 102 | 157 | 0 | 157 | 55 | 1 50 | 12 4 |
| Lights | MWR-06 | MORALE WELFARE RECREATION | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 57 | NA | 57 | 45 | 40 | 85 | 27 | 1 50 | 12 0 |
| Roof | ADMINISTRATION-09 | ADMINISTRATION | Roof Insulation R Value 30.00 | Attic Ceiling Increase insulation by R 19 | 5,119 | NA | 5,119 | 6,975 | 0 | 6,975 | 1,856 | 1 40 | 13 4 |
| Lights | ADMINISTRATION-03 | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126: FL 1X8 1F96T12ES EEF1 REF | 3,160 | NA | 3,160 | 3,343 | 992 | 4,335 | 1,175 | 1 40 | 13 1 |
| Roof | SHOPS-05 | SHOPS | Roof Insulation R-Value 0 00 | Suspended Ceiling. Increase insulation by R-19 | 2,077 | NA | 2,077 | 2,979 | 0 | 2,979 | 902 | 1 40 | 14 5 |
| Lights | SHOPS-05 | SHOPS | FL63: FL 1X8 1F96T12 STD1 | FL126. FL 1X8 1F96T12ES EEF1 REF | 746 | NA | 746 | 847 | 218 | 1,065 | 319 | 1 40 | 12 6 |
| Lights | BARRACKS-07 | BARRACKS | FL5. FL 1X4 1F40T12 STD1 | FL29 FL 1X4 1F40T12 ELC1 | 503 | NA | 503 | 653 | 56 | 709 | 206 | 1 40 | 12 7 |
| Lights | DINING HALLS-01 | DINING HALLS | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 417 | NA | 417 | 464 | 139 | 603 | 186 | 1 40 | 12 4 |
| Lights | ADMINISTRATION-04 | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126. FL 1X8 1F96T12ES EEF1 REF | 502 | NA | 502 | 651 | 28 | 679 | 178 | 1 40 | 13 3 |
| Lights | PROD/PROCESS-01 | PRODUCTION and/or PROCESS | FL82 FL 1X4 2F40T12ES STD2 | FL106 FL 1X4 2F40T12ES ELC2 | 192 | NA | 192 | 130 | 132 | 262 | 70 | 1 40 | 13 0 |
| Lights | MWR-07 | MORALE-WELFARE RECREATION | FL63 FL 1X8 1F96T12 STD1 | FL126. FL 1X8 1F96T12ES EEF1 REF | 151 | NA | 151 | 193 | 12 | 205 | 55 | 1 40 | 13.3 |
| Roof | BARRACKS-01 | BARRACKS | Roof Insulation R-Value 11 00 | Attic Ceiling Increase insulation by R 11 | 142 | NA | 142 | 195 | 0 | 195 | 54 | 1 40 | 14 9 |
| Lights | ADMINISTRATION-03a | ADMINISTRATION | FL63 FL 1X8 1F96T12 STD1 | FL126 FL 1X8 1F96T12ES EEF1 REF | 74 | NA | 74 | 77 | 23 | 100 | 26 | 1 40 | 13 2 |
| Heating | RECREATION-02 | RECREATION | Other Fuels Conv Boiler | Add Automatic Electric Damper | 25 | NA | 25 | 33 | 0 | 33 | 9 | 1 40 | 8 0 |

# Table 3.9a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Annualized Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy & Demand Savings (1994 $) | Annualized Value of Non Annual O&M Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wall | FH-DETACHED-01 | SINGLE FAMILY DETACHED HOUSE | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6.5 | 12,166 | NA | 12,166 | 16,073 | 0 | 16,073 | 3,907 | 1 30 | 14 8 |
| Lights | PROD PROCESS-02 | PRODUCTION and/or PROCESS | FL62: FL 1X8 2F96T12 STD2 | LS3: LPS 55 PEND | 6,592 | NA | 6,592 | 6,766 | 1,714 | 8,480 | 1,889 | 1 30 | 14 0 |
| Cooling | ADMINISTRATION-07 | ADMINISTRATION | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 7,235 | NA | 7,235 | 9,604 | 0 | 9,604 | 2,369 | 1 30 | 7 7 |
| Roof | STORAGE-02 | STORAGE | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase Insulation by R-8 | 3,270 | NA | 3,270 | 4,162 | 0 | 4,162 | 892 | 1 30 | 14 7 |
| Wall | HOSPITAL | HOSPITAL | Wall Insulation R-Value 0.00 | Interior Masonry Surface: Increase Insulation by R-4.3 | 2,493 | NA | 2,493 | 3,145 | 0 | 3,145 | 652 | 1 30 | 15 6 |
| Cooling | CLINIC-01 | CLINIC | Electric Conv Chiller | Air-Cooled Reciprocating Chiller (75 to 200 tons cooling) | 2,412 | NA | 2,412 | 3,180 | 0 | 3,180 | 768 | 1 30 | 8 8 |
| Wall | SCHOOL-TRAINING-03 | SCHOOLS and/or TRAINING | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6.5 | 1,129 | NA | 1,129 | 1,445 | 0 | 1,445 | 316 | 1 30 | 16 1 |
| Heating | HOSPITAL | HOSPITAL | Other Fuels Conv Boiler | Add Automatic Electric Damper | 23 | NA | 23 | 31 | 0 | 31 | 8 | 1 30 | 9 3 |
| Heating | CLUBS-03 | CLUBS | Other Fuels Conv Boiler | Add Automatic Electric Damper | 7 | NA | 7 | 8 | 0 | 8 | 2 | 1 30 | 16 5 |
| Hot Water | MILITARY OTHER-04 | MILITARY OTHER | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp | 10 | NA | 10 | 13 | 0 | 13 | 3 | 1 30 | 3 6 |
| Roof | FH DUPLEX-03 | DUPLEX | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R 19 | 18,256 | NA | 18,256 | 22,234 | 0 | 22,234 | 3,978 | 1 20 | 15 5 |
| Roof | FH 3 OR MORE-01 | MULTI FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 11 00 | Attic Ceiling: Increase insulation by R 19 | 2,936 | NA | 2,936 | 3,453 | 0 | 3,453 | 517 | 1 20 | 17 2 |
| Wall | CLINIC-02 | CLINIC | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R-6 5 | 1,474 | NA | 1,474 | 1,767 | 0 | 1,767 | 293 | 1 20 | 17 4 |
| Lights | BARRACKS-02 | BARRACKS | FL94: FL 1X4 2F40T12ES EEF2 | FL106: FL 1X4 2F40T12ES ELC2 | 869 | NA | 869 | 826 | 247 | 1,073 | 205 | 1 20 | 14 5 |
| Roof | ADMINISTRATION-02 | ADMINISTRATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R 19 | 838 | NA | 838 | 1,013 | 0 | 1,013 | 175 | 1 20 | 15 3 |
| Roof | MWR-07 | MORALE-WELFARE RECREATION | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R 19 | 773 | NA | 773 | 916 | 0 | 916 | 142 | 1 20 | 15 7 |
| Wall | EXCHANGE FACILITIES-03 | EXCHANGE FACILITIES | Wall Insulation R-Value 0 00 | Interior Masonry Surface: Increase Insulation by R-4.3 | 619 | NA | 619 | 724 | 0 | 724 | 105 | 1 20 | 18 0 |
| Lights | WAREHOUSE-07 | WAREHOUSE | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 30 | NA | 30 | 16 | 21 | 37 | 7 | 1 20 | 14 4 |
| Lights | BARRACKS-01 | BARRACKS | FL94: FL 1X4 2F40T12ES EEF2 | FL106: FL 1X4 2F40T12ES ELC2 | 27 | NA | 27 | 25 | 8 | 33 | 5 | 1 20 | 15 0 |
| Lights | WAREHOUSE-08 | WAREHOUSE | FL63: FL 1X8 1F96T12 STD1 | FL75: FL 1X8 1F96T12 ELC1 | 5 | NA | 5 | 2 | 3 | 5 | 1 | 1 20 | 14 7 |
| Hot Water | MWR-03 | MORALE-WELFARE RECREATION | Other Fuels SHW Heater | Wrap Old LPG Tank, Ins Pipe, LFSHs, Aer , Lower Tank Temp. | 29 | NA | 29 | 33 | 0 | 33 | 4 | 1 20 | 3 2 |
| Roof | FH-3 OR MORE-03 | MULTI-FAMILY 3 OR MORE UNIT | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-19 | 8,106 | NA | 8,106 | 9,306 | 0 | 9,306 | 1,200 | 1.10 | 16 3 |
| Wall | BARRACKS-02 | BARRACKS | Wall Insulation R-Value 0 00 | Blow-in Insulation: Increase Insulation by R 6 5 | 6,287 | NA | 6,287 | 6,732 | 0 | 6,732 | 445 | 1.10 | 19 3 |
| Roof | CHAPEL-02 | CHAPEL | Roof Insulation R-Value 20 05 | Suspended Ceiling: Increase Insulation by R 8 | 340 | NA | 340 | 378 | 0 | 378 | 38 | 1.10 | 18 8 |
| Roof | MWR-06 | MORALE-WELFARE-RECREATION | Roof Insulation R-Value 30 00 | Attic Ceiling: Increase insulation by R-19 | 510 | NA | 510 | 540 | 0 | 540 | 30 | 1 10 | 17 3 |
| Cooling | GUEST HOUSES-02 | MILITARY MOBILE HOMES | Electric Package Unit | Split System Residential AC Unit (1.5 to 5.4167 tons cooling) | 3,296 | NA | 3,296 | 3,702 | 0 | 3,702 | 406 | 1 10 | 0 9 |
| Roof | CLINIC-01 | CLINIC | Roof Insulation R-Value 20.05 | Suspended Ceiling: Increase insulation by R 19 | 125 | NA | 125 | 134 | 0 | 134 | 9 | 1 10 | 17 6 |
| Cooling | MWR-02 | MORALE-WELFARE-RECRFATION | Electric Air Cool Heat Pump | Air to Air Heat Pump with Supplementary Electric Heat Coil | 5,004 | NA | 5,004 | 5,209 | 0 | 5,209 | 205 | 1 00 | 4 4 |
| Wall | WAREHOUSE-09 | WAREHOUSE | Wall Insulation R-Value 8.79 | Blow-in Insulation: Increase Insulation by R-2 4 | 1,092 | NA | 1,092 | 1,146 | 0 | 1,146 | 53 | 1 00 | 20 1 |
| Roof | WAREHOUSE-01 | WAREHOUSE | Roof Insulation R-Value 0 00 | Attic Ceiling: Increase Insulation by R 8 | 505 | NA | 505 | 524 | 0 | 524 | 19 | 1 00 | 19 3 |
| Wall | ADMINISTRATION-06 | ADMINISTRATION | Wall Insulation R-Value 0.00 | Interior Masonry Surface: Increase Insulation by R-4 3 | 930 | NA | 930 | 938 | 0 | 938 | 7 | 1 00 | 20 9 |
| Roof | MWR-02 | MORALE-WELFARE RECREATION | Roof Insulation R-Value 30.00 | Attic Ceiling: Increase insulation by R-11 | 336 | NA | 336 | 343 | 0 | 343 | 7 | 1 00 | 17 8 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 253 | 250 ton chiller | Reset chilled and condenser water temps RI | 2 | 0 | 2 | 6,775 | 4 939 | 30 | 0 | 11 684 | 11 683 | 6 707 11 | 0.0 |
| AC | 2 | Bldg 263 | 554 ton chiller | Reset chilled and condenser water temps RI | 2 | 0 | 2 | 6,029 | 5,472 | 30 | 0 | 11 472 | 11 470 | 6,584 96 | 0.0 |
| AC | 3 | Bldg 273 | 200 ton chiller | Reset chilled and condenser water temps RI | 2 | 0 | 2 | 6,133 | 1 976 | 30 | 0 | 8 078 | 8 076 | 4 643 24 | 0.0 |
| TAD | | Substation | Sub Transformers | Conservation Voltage Reduction RI | 58 | 0 | 58 | 39 042 | 1* 148 | 0 | 0 | 56,190 | 56 131 | 96* 62 | 0.0 |
| HVAC | 6 | MinPool | Programmable T-Stat | Night Setback RI | 161 | 0 | 161 | 24,498 | 123 | 0 | *3 | 24,549 | 24,388 | 152 64 | 0.1 |
| Lighting | 08 8b | Highbay | T8 Lighting | T8 + Occupancy Controls RI | 962 | 288 | 673 | 50,212 | 0 | 13 104 | 0 | 63,515 | 62,842 | 94 36 | 0.2 |
| Envelope | MT 12 | | Leaky | Weatherization RI | 521 | 0 | 521 | 26,363 | 11,800 | 0 | 0 | 38,162 | 37 642 | 73 29 | 0.2 |
| HVAC | 4 | Concrete | Programmable T-Stat | Night Setback RI | 121 | 0 | 121 | 8,034 | 63 | 0 | 55 | 8 043 | 7 922 | 66 68 | 0.3 |
| HVAC | 5 | Clinic | Programmable T-Stat | Night Setback RI | 121 | 0 | 121 | 6,634 | 76 | 0 | 55 | 6 656 | 6,535 | 55 18 | 0.3 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback RI | 1,166 | 0 | 1,166 | 54,223 | 271 | 0 | 528 | 53,966 | 52 800 | 46 28 | 0.4 |
| Envelope | | Masonite Siding post 1950 | | Weatherization RI | 426 | 0 | 426 | 12,647 | 7,001 | 0 | 0 | 19,648 | 19,242 | 46 17 | 0.4 |
| Lighting | 05 7b | Hallway | T8 Lighting | T8 + Occupancy Controls RI | 953 | 286 | 66* | 22,283 | 0 | 5,6*1 | 0 | 27,954 | 27,287 | 41 89 | 0.4 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback RI | 60 | 0 | 60 | 2,163 | 13 | 0 | 27 | 2 149 | 2 089 | 35 63 | 0.5 |
| Envelope | | Metal Siding | | Weatherization RI | 792 | 0 | *92 | 17,184 | 9,498 | 0 | 0 | 26,682 | 25,890 | 33 69 | 0.5 |
| Lighting | 05 4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls RI | 836 | 251 | 585 | 14,980 | 0 | 3,901 | 0 | 18,881 | 18,296 | 32 26 | 0.5 |
| Envelope | Other | U Shaped Bldgs Other | | Weatherization RI | 310 | 0 | 310 | 6,409 | 3,542 | 0 | 0 | 9 952 | 9,642 | 32 15 | 0.5 |
| Envelope | | Masonite Siding pre 1950 | | Weatherization RI | 1,488 | 0 | 1 488 | 30,648 | 16 950 | 0 | 0 | 47,618 | 46 131 | 32 01 | 0.5 |
| Lighting | 05 3b | Conference | T8 Lighting | T8 + Occupancy Controls RI | 343 | 103 | 240 | 6,041 | 0 | 1,551 | 0 | 7,592 | 7,352 | 31 63 | 0.5 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Weatherization RI | 519 | 0 | 519 | 9,350 | 5,168 | 0 | 0 | 14,518 | 13 999 | 27 99 | 0.6 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback RI | 221 | 0 | 221 | 5,*73 | 54 | 0 | 100 | 5,527 | 5 306 | 24 99 | 0.7 |
| Envelope | Barracks | U Shaped Bldgs Barracks | | Weatherization RI | 1,655 | 0 | 1,655 | 24,035 | 13 284 | 0 | 0 | 37 319 | 35 664 | 22 55 | 0.8 |
| Envelope | | Wood Siding | | Weatherization RI | 105 | 0 | 105 | 1,453 | 803 | 0 | 0 | 2,256 | 2 150 | 21 45 | 0.8 |
| HVAC | 8 | Trailer | Programmable T-Stat | Night Setback RI | 342 | 0 | 342 | 6,999 | 119 | 0 | 130 | 6 988 | 6 646 | 20 45 | 0.8 |
| Envelope | Misc pre 1980 | Concrete Block Misc pre 1980 | | Weatherization RI | 295 | 0 | 295 | 3,635 | 2,009 | 0 | 0 | 5 645 | 5 349 | 19 11 | 0.9 |
| Envelope | | WHS | | Weatherization RI | 144 | 0 | 144 | 1,743 | 963 | 0 | 0 | 2,706 | 2,562 | 18 79 | 0.9 |
| Envelope | Shop | SHOP | | Weatherization RI | 278 | 0 | 278 | 3,337 | 1,845 | 0 | 0 | 5,182 | 4,904 | 18 6* | 0.9 |
| Envelope | Barracks | Concrete Block Barracks | | Weatherization RI | 603 | 0 | 603 | 6,869 | 3,796 | 0 | 0 | 10 665 | 10 062 | 17 70 | 1.0 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization RI | 1,829 | 0 | 1,829 | 20,194 | 11 161 | 0 | 0 | 31,355 | 29,526 | 17 14 | 1.0 |
| Lighting | 04 MT 3b | MT Conference | T8 Lighting | T8 + Occupancy Controls RI | 343 | *5 | 268 | 3,582 | 0 | 925 | 0 | 4,506 | 4,239 | 16 83 | 1.0 |
| Lighting | 09 2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls RI | 2,613 | 562 | 2 052 | 26,795 | 0 | 7,428 | 0 | 34,222 | 32,171 | 16 68 | 1.0 |
| Envelope | Family Housing | 1963 | | Weatherization RI | 3,171 | 0 | 3,171 | 33,090 | 18 288 | 0 | 0 | 51 378 | 48,207 | 16 20 | 1.1 |
| Envelope | Dining | DINING: MISC | | Weatherization RI | 335 | 0 | 335 | 3,407 | 1,883 | 0 | 0 | 5,290 | 4 955 | 15 77 | 1.1 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization RI | 105 | 0 | 105 | 1,044 | 57* | 0 | 0 | 1 621 | 1,516 | 15 46 | 1.1 |
| DHW & A/C | 13 | 00166 | CHILLER air cooled | Install Desuperheater - RI | 1,534 | 0 | 1,534 | 16,588 | 6,915 | 50 | 695 | 22,758 | 21,224 | 14 84 | 1.2 |
| Envelope | Misc post 1980 | Concrete Block Misc post 1980 | | Weatherization RI | 559 | 0 | 559 | 5,025 | 2,777 | 0 | 0 | 7 802 | 7,244 | 13 9* | 1.2 |
| Envelope | Family Housing | 1961 | | Weatherization RI | 3,482 | 0 | 3,482 | 30,248 | 16,728 | 0 | 0 | 46 996 | 43,514 | 13 50 | 1.3 |
| Motors | PMTR 44 | HOSPITL 00166 | PMP/MTR | EEM - RI | 85 | 7 | 78 | 866 | 169 | 0 | 30 | 1,095 | 928 | 12 96 | 1.3 |
| Motors | PMTR 43 | HOSPITL 00166 | PMP/MTR | EEM - RI | 42 | 3 | 39 | 433 | 84 | 0 | 15 | 503 | 464 | 12 96 | 1.3 |
| TAD | A | Substation | Capacitor Bank | Power Factor Correction to Unity RI | 1,834 | 0 | 1,834 | 983 | 22,677 | -6 | 0 | 23,654 | 21,819 | 12 89 | 1.3 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater RI | 86 | 0 | 86 | 891 | 198 | 50 | 39 | 1,000 | 914 | 11 59 | 1.5 |
| Motors | MTR 485 | WHS CLD 00862 | Fan Motor | EEM - RI | 24 | 2 | 22 | 219 | 43 | 0 | 9 | 254 | 231 | 11 37 | 1.5 |
| Motors | PMTR-71 | POOL OT 00328 | PMP/MTR | EEM RI | 12 | 1 | 11 | 110 | 21 | 0 | 4 | 127 | 116 | 11 37 | 1.5 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater RI | 180 | 0 | 180 | 1,539 | 632 | 50 | 82 | 2,039 | 1,860 | 11 33 | 1.5 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Weatherization - RI | 159 | 0 | 159 | 1,135 | 628 | 0 | 0 | 1,763 | 1,604 | 11 11 | 1.5 |
| DHW & A/C | 14 | 00173 | AIR CONDITIONER | Install Desuperheater RI | 223 | 0 | 223 | 1,661 | 830 | 50 | 101 | 2,340 | 2,118 | 10 52 | 1.6 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 261 | 0 | 261 | 1,872 | 1,008 | 50 | -118 | 2,711 | 2,450 | 10 39 | 1.7 |
| Lighting | DLC MT 2b | MT Large Office/Room | T8 Lighting | T8 + DayLighting Controls RI | 9*7 | 296 | 691 | 4,831 | 0 | 2,129 | 0 | 6,959 | 6,268 | 10 0* | 1.7 |
| Motors | PMTR 42 | HOSPITL 00166 | PMP/MTR | EEM - RI | 64 | 5 | 59 | 500 | 97 | 0 | 23 | 575 | 516 | 9 67 | 1.8 |
| Envelope | Training | TRAINING | | Weatherization RI | 237 | 0 | 237 | 1,382 | 764 | 0 | 0 | 2,146 | 1,909 | 9 06 | 1.9 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 214 | 0 | 214 | 1,289 | 790 | 50 | 97 | 1,933 | 1,719 | 9 03 | 1.9 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Weatherization - RI | 135 | 0 | 135 | 781 | 432 | 0 | 0 | 1,213 | 1,078 | 9 01 | 1.9 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 267 | 0 | 26* | 2,120 | 163 | 0 | 104 | 2,387 | 2,119 | 8 93 | 1.9 |
| HVAC | 7 | Shop Elc | Programmable T-Stat | Night Setback - RI | 80 | 0 | 80 | 742 | 10 | 0 | -36 | 716 | 636 | 8 90 | 1.9 |
| Motors | MTR 35o | REC - 00905 | COMPMTR | VSD & EEM - RI | 398 | 69 | 329 | 2,796 | 120 | 10 | 113 | 2,793 | 2,464 | 8 48 | 2.0 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater RI | 150 | 0 | 150 | 806 | 494 | 50 | 48 | 1,182 | 1,032 | 7 87 | 2.2 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater RI | 120 | 0 | 120 | 686 | 356 | 50 | 55 | 938 | 817 | 7 79 | 2.2 |
| Motors | PMTR 72 | POOL-OT - 00328 | PMP/MTR | EEM RI | 11 | 0 | 11 | 73 | 14 | 0 | 4 | 84 | 73 | 7 69 | 2.2 |
| Motors | PMTR 73 | POOL OT - 00328 | PMP/MTR | EEM - RI | 11 | 0 | 11 | 73 | 14 | 0 | 4 | 84 | 73 | 7 69 | 2.2 |
| Motors | PMTR *0 | POOL-OT - 00328 | PMP/MTR | EEM - RI | 11 | 0 | 11 | 73 | 14 | 0 | -4 | 84 | *3 | 7 69 | 2.2 |
| DHW & A/C | 31 | 00905 | CHILLER air cooled | Install Desuperheater RI | 214 | 0 | 214 | 957 | 780 | -50 | 97 | 1,601 | 1,387 | 7 48 | 2.3 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater RI | 108 | 0 | 108 | 606 | 296 | -50 | -49 | 803 | 696 | 7 47 | 2.3 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 108 | 0 | 108 | 606 | 296 | 50 | -49 | 803 | 696 | 7 47 | 2.3 |
| Envelope | Family Housing | 1983 | | Weatherization - RI | 2,617 | 0 | 2,617 | 12,521 | 6,920 | 0 | 0 | 19,441 | 16,824 | 7 43 | 2.3 |
| Motors | PMTR 94 | PUMP - 00044 | PMP/MTR | EEM - RI | 208 | 16 | 193 | 1,250 | 244 | 0 | 75 | 1,419 | 1,227 | 7 37 | 2.3 |
| Motors | PMTR 93 | PUMP - 00044 | PMP/MTR | EEM - RI | 208 | 16 | 193 | 1,250 | 244 | 0 | 75 | 1,419 | 1,227 | 7 37 | 2.3 |
| Envelope | | | Single pane window | Shade Screens - SW side - RI | 356 | 57 | 299 | 1,317 | 1,244 | 0 | 367 | 2,194 | 1,895 | 7 33 | 2.4 |
| Envelope | | Metal Siding | | Window Screens - SW side RI | 734 | 117 | 617 | 2,712 | 2,562 | 0 | 755 | 4,518 | 3,902 | 7 33 | 2.4 |
| Envelope | | Concrete Block: Misc post 1980 | | Window Screens - SW side RI | 101 | 16 | 85 | 372 | 351 | 0 | 104 | 620 | 535 | 7 33 | 2.4 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screens - SW side RI | 1,045 | 167 | 878 | 3,862 | 3,649 | 0 | 1,076 | 6,434 | 5,556 | 7 33 | 2.4 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screens - SW side RI | 283 | 45 | 238 | 1,045 | 988 | 0 | 291 | 1,742 | 1,504 | 7 33 | 2.4 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens - SW side RI | 273 | 44 | 229 | 1,007 | 952 | 0 | 281 | 1,678 | 1,449 | 7 33 | 2.4 |
| Envelope | | BRK/ADM MISC | | Window Screens - SW side RI | 154 | 25 | 129 | 568 | 537 | 0 | 158 | 947 | 817 | 7 33 | 2.4 |
| Envelope | | Wood Siding | | Window Screens - SW side - RI | 128 | 20 | 107 | 472 | 446 | 0 | 132 | 787 | 680 | 7 33 | 2.4 |
| Envelope | | TRAINING | | Window Screens - SW side RI | 94 | 15 | 79 | 346 | 327 | 0 | 96 | 576 | 498 | 7 33 | 2.4 |
| Envelope | | WHS | | Window Screens - SW side - RI | 59 | 9 | 50 | 218 | 206 | 0 | 61 | 363 | 314 | 7 33 | 2.4 |
| Envelope | | Concrete Block: Barracks | | Window Screens - SW side RI | 373 | 60 | 313 | 1,377 | 1,301 | 0 | 384 | 2,294 | 1,981 | 7 33 | 2.4 |
| Envelope | | MOTORPOOL | | Window Screens - SW side RI | 288 | 46 | 242 | 1,066 | 1,007 | 0 | 297 | 1,775 | 1,533 | 7 33 | 2.4 |
| Envelope | | SHOP | | Window Screens - SW side RI | 283 | 45 | 237 | 1,044 | 986 | 0 | 291 | 1,739 | 1,502 | 7 33 | 2.4 |
| Envelope | | U Shaped Bldgs Barracks | | Window Screens - SW side RI | 1,909 | 305 | 1,604 | 7,053 | 6,664 | 0 | 1,965 | 11,752 | 10,149 | 7 33 | 2.4 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screens - RI | 1,568 | 251 | 1,317 | 5,792 | 5,473 | 0 | 1,614 | 9,651 | 8,334 | 7 33 | 2.4 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screens - RI | 1,445 | 234 | 1,231 | 5,412 | 5,114 | 0 | 1,508 | 9,019 | 7,788 | 7 33 | 2.4 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screens - RI | 1 102 | 1*6 | 926 | 4,070 | 3,846 | 0 | 1,134 | 6,*82 | 5,85* | 7 33 | 2.4 |
| Envelope | | DINING, MISC | | Window Screens - SW side RI | 172 | 28 | 144 | 635 | 600 | 0 | 17* | 1,058 | 914 | 7 33 | 2.4 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screens - SW side RI | 160 | 26 | 135 | 592 | 560 | 0 | 165 | 98* | 852 | 7 33 | 2.4 |
| Envelope | | Concrete Block Misc pre 1980 | | Window Screens - SW side RI | 115 | 18 | 9* | 426 | 403 | 0 | 119 | *10 | 613 | 7 33 | 2.4 |
| Envelope | | SECURITY | | Window Screens - SW side RI | 14 | 2 | 12 | 51 | 48 | 0 | 14 | 84 | *3 | 7 33 | 2.4 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screens RI | 1,443 | 231 | 1,212 | 5,332 | 5,038 | 0 | 1,485 | 8,854 | 7 6*1 | 7 33 | 2.4 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screens RI | 95* | 153 | 804 | 3,535 | 3 340 | 0 | 985 | 5,890 | 5 086 | 7 33 | 2.4 |
| Envelope | | Masonite Siding post 1950 | | Window Screens SW side RI | 419 | 6* | 352 | 1,548 | 1 462 | 0 | 431 | 2 579 | 2 22* | 7 33 | 2.4 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | | MWR | | Window Screen - RV adv - R1 | 67 | 11 | 56 | 247 | 233 | 0 | -69 | 412 | 355 | 7.33 | 24 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - R1 | 99 | 0 | 99 | 580 | 40 | 0 | 95 | 716 | 617 | 7.25 | 24 |
| Envelope | Family Housing | 1984 | | Weatherization - R1 | 2,002 | 0 | 2,002 | 9,301 | 5,141 | 0 | 0 | 14,442 | 12,440 | 7.21 | 24 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - R1 | 36 | 3 | 33 | 189 | 64 | 0 | 13 | 240 | 206 | 7.16 | 24 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - R1 | 12 | 1 | 11 | 63 | 21 | 0 | -4 | 80 | 69 | 7.16 | 24 |
| Motors | MTR 34c | REC - 00905 | COMPMTR | VSD & EEM - R1 | 355 | 0 | 355 | 2,270 | 181 | 0 | 78 | 2,529 | 2,173 | 7.12 | 24 |
| Motors | PMTR 66 | PLT BLDG 00253 | PMPMTR | EEM - R1 | 398 | 60 | 338 | 2,397 | 103 | 10 | 113 | 2,377 | 2,039 | 7.04 | 24 |
| Lighting | 08 6b | Restroom | TR Lighting | TR + Occupancy Controls - R1 | 50 | 4 | 46 | 247 | 84 | 0 | 18 | 313 | 267 | 6.79 | 25 |
| Motors | PMTR 88 | PUMP - 00044 | PMPMTR | EEM - R1 | 1,572 | 156 | 1,416 | 7,465 | 0 | 1,998 | 0 | 9,463 | 8,047 | 6.68 | 26 |
| Lighting | 08 5b | Copy Room | TR Lighting | TR + Occupancy Controls - R1 | 85 | 7 | 78 | 442 | 86 | 0 | 30 | 499 | 421 | 6.43 | 27 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - R1 | 263 | 25 | 238 | 1,213 | 0 | 311 | 0 | 1,524 | 1,286 | 6.40 | 27 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - R1 | 469 | 0 | 469 | 1,281 | 1,976 | 50 | -213 | 2,994 | 2,524 | 6.38 | 27 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater - R1 | 108 | 0 | 108 | 484 | 296 | 50 | -49 | 681 | 574 | 6.33 | 27 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - R1 | 108 | 0 | 108 | 484 | 296 | 50 | -49 | 681 | 574 | 6.33 | 27 |
| Motors | MTR 440 | DOR - 00308 | Fan Motor | EEM - R1 | 44 | 0 | 44 | 208 | 65 | 0 | -2 | 272 | 228 | 6.17 | 28 |
| Motors | MTR 439 | DOR - 00308 | Fan Motor | EEM - R1 | 26 | 2 | 24 | 102 | 48 | 0 | -3 | 147 | 123 | 6.12 | 28 |
| Motors | MTR 475 | PLT BLDG 00253 | Fan Motor | EEM - R1 | 39 | 3 | 36 | 160 | 75 | 0 | 14 | 221 | 184 | 6.12 | 28 |
| Motors | PMTR 119 | REC - 00905 | PMPMTR | EEM - R1 | 26 | 2 | 24 | 106 | 50 | 0 | 9 | 147 | 123 | 6.12 | 28 |
| Motors | MTR 446 | DINING - 00254 | Fan Motor | EEM - R1 | 13 | 1 | 12 | 53 | 25 | 0 | 5 | 74 | 61 | 6.12 | 28 |
| Vehicles | Conversion | Vehicles | | CNG Vehicles | 13 | 1 | 12 | 53 | 25 | 0 | 5 | 74 | 61 | 6.12 | 28 |
| Motors | PMTR 120 | WHSE CLD - 00862 | refrigeration unit | EEM - R1 | 118,869 | 0 | 118,869 | 330,325 | 1,484 | 376,047 | 0 | 704,857 | 586,018 | 5.93 | 29 |
| Motors | PMTR 121 | WHSE CLD 00862 | refrigeration unit | EEM - R1 | 301 | 24 | 277 | 1,454 | 283 | 0 | -111 | 1,626 | 1,349 | 5.88 | 29 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - R1 | 151 | 12 | 138 | 727 | 142 | 0 | -55 | 813 | 675 | 5.88 | 29 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM - R1 | 178 | 0 | 178 | 891 | 72 | 0 | 69 | 1,033 | 855 | 5.81 | 30 |
| Motors | PMTR 6c | ADMIN 00988 | PMPMTR | VSD & EEM - R1 | 208 | 16 | 193 | 794 | 396 | 0 | -75 | 1,116 | 923 | 5.79 | 30 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - R1 | 289 | 19 | 270 | 1,546 | 101 | -10 | 85 | 1,552 | 1,281 | 5.74 | 30 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater - R1 | 134 | 0 | 134 | 655 | 54 | 0 | 52 | 761 | 628 | 5.70 | 30 |
| Motors | PMTR 86 | PUMP - 00324 | PMPMTR | EEM - R1 | 86 | 0 | 86 | 381 | 198 | -50 | 39 | 490 | 404 | 5.68 | 30 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater - R1 | 81 | 7 | 74 | 292 | 156 | 0 | 28 | 420 | 345 | 5.66 | 30 |
| Motors | MTR-437a | CLINIC 00171 | Fan Motor | EEM - R1 | 248 | 0 | 248 | 615 | 948 | -50 | -112 | 1,401 | 1,153 | 5.65 | 30 |
| Motors | MTR 484 | WHS - 00474 | Fan Motor | EEM - R1 | 67 | 5 | 61 | 251 | 118 | 0 | -23 | 345 | 284 | 5.62 | 31 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - R1 | 24 | 2 | 22 | 91 | 43 | 0 | -9 | 125 | 103 | 5.61 | 31 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - R1 | 12 | 1 | 11 | 46 | 21 | 0 | -4 | 63 | 51 | 5.61 | 31 |
| Motors | PMTR 119 | REC - 00362 | PMPMTR | EEM - R1 | 12 | 1 | 11 | 46 | 21 | 0 | -4 | 63 | 51 | 5.61 | 31 |
| Motors | MTR 445 | DINING - 00254 | Fan Motor | EEM - R1 | 12 | 1 | 11 | 46 | 21 | 0 | -4 | 63 | 51 | 5.61 | 31 |
| Motors | MTR 441 | DOR - 00308 | Fan Motor | EEM - R1 | 12 | 1 | 11 | 46 | 21 | 0 | -4 | 63 | 51 | 5.61 | 31 |
| Motors | MTR 442 | DINING - 00254 | Fan Motor | EEM - R1 | 12 | 1 | 11 | 46 | 21 | 0 | -4 | 63 | 51 | 5.61 | 31 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - R1 | 72 | 5 | 67 | 273 | 128 | 0 | 26 | 375 | 308 | 5.61 | 31 |
| Motors | MTR-6 | HOSPITL - 00166 | AIRCOMP | EEM - R1 | 99 | 0 | 99 | 446 | 0 | 0 | 95 | 541 | 443 | 5.48 | 31 |
| Motors | PMTR-106 | PUMP - 00636 | PMPMTR | EEM - R1 | 85 | 7 | 78 | 324 | 126 | 0 | -30 | 421 | 343 | 5.42 | 32 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - R1 | 208 | 16 | 193 | 721 | 396 | 0 | 75 | 1,042 | 849 | 5.41 | 32 |
| Envelope | MT-11a | | None | Crawl Space Insulation: R 19 - R1 | 24 | 0 | 24 | 107 | 0 | 0 | 24 | 131 | 106 | 5.35 | 32 |
| Motors | PMTR 89 | PUMP - 00044 | PMPMTR | EEM - R1 | 7,245 | 0 | 7,245 | 24,461 | 14,300 | 0 | 0 | 38,761 | 31,516 | 5.35 | 32 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - R1 | 85 | 7 | 78 | 363 | 71 | 0 | 30 | 465 | 327 | 5.22 | 33 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater - R1 | 59 | 0 | 59 | 244 | 18 | 0 | 43 | 306 | 246 | 5.16 | 33 |
| Motors | MTR 483 | TRAING - 01202 | Fan Motor | EEM - R1 | 139 | 0 | 139 | 384 | 445 | -50 | -63 | 715 | 576 | 5.13 | 34 |
| Heating | 24 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - R1 | 11 | 0 | 11 | 40 | 19 | 0 | -4 | 55 | 45 | 5.11 | 34 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - R1 | 89 | 0 | 89 | 390 | 27 | 0 | 34 | 452 | 362 | 5.05 | 34 |
| DHW & A/C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater - R1 | 86 | 0 | 86 | 322 | 198 | -50 | -39 | 431 | 345 | 4.99 | 34 |
| Motors | PMTR 122 | WHSE CLD - 00862 | PMPMTR | EEM - R1 | 129 | 0 | 129 | 354 | 395 | -50 | -58 | 641 | 512 | 4.98 | 35 |
| Motors | PMTR 81 | PUMP - 00044 | PMPMTR | EEM - R1 | 24 | 2 | 22 | 76 | 43 | 0 | -9 | 110 | 88 | 4.93 | 35 |
| Motors | MTR-457 | MWR 01313 | Fan Motor | EEM - R1 | 67 | 5 | 61 | 212 | 113 | 0 | -23 | 302 | 240 | 4.92 | 35 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | EEM - R1 | 22 | 0 | 22 | 84 | 29 | 0 | 8 | 104 | 83 | 4.81 | 36 |
| Motors | MTR 461 | MWR - 01322 | Fan Motor | EEM - R1 | 11 | 0 | 11 | 42 | 14 | 0 | -4 | 52 | 41 | 4.81 | 36 |
| Motors | MTR 462 | MWR - 01322 | Fan Motor | EEM - R1 | 11 | 0 | 11 | 42 | 14 | 0 | -4 | 52 | 41 | 4.81 | 36 |
| Motors | MTR 464 | MWR - 01322 | Fan Motor | EEM - R1 | 11 | 0 | 11 | 42 | 14 | 0 | 4 | 52 | 41 | 4.81 | 36 |
| Motors | MTR 466 | MWR - 01322 | Fan Motor | EEM - R1 | 11 | 0 | 11 | 42 | 14 | 0 | 4 | 52 | 41 | 4.81 | 36 |
| Motors | PMTR 100 | PUMP - 00700 | PMPMTR | EEM - R1 | 159 | 12 | 148 | 642 | 125 | 0 | -57 | 710 | 562 | 4.81 | 36 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - R1 | 159 | 12 | 148 | 642 | 125 | 0 | -57 | 710 | 562 | 4.81 | 36 |
| Motors | PMTR 103 | PUMP - 00700 | PMPMTR | EEM - R1 | 159 | 12 | 148 | 642 | 125 | 0 | -57 | 710 | 562 | 4.81 | 36 |
| Motors | PMTR 102 | PUMP - 00700 | PMPMTR | EEM - R1 | 159 | 12 | 148 | 642 | 125 | 0 | -57 | 710 | 562 | 4.81 | 36 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - R1 | 216 | 0 | 216 | 554 | 799 | 50 | 97 | 998 | 784 | 4.66 | 37 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - R1 | 222 | 0 | 222 | 762 | 52 | 0 | 215 | 1,028 | 806 | 4.63 | 37 |
| Motors | MTR-202 | BRE/ADM - 00261 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 199 | BRE/ADM - 00252 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 197 | BRE/ADM - 00251 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 200 | BRE/ADM 00252 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 195 | BRE/ADM - 00250 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 198 | BRE/ADM - 00251 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 196 | BRE/ADM - 00250 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 193 | BRE/ADM - 00249 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR 238 | BRE/ADM - 00534 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | -4 | 56 | 44 | 4.62 | 37 |
| Motors | MTR-192 | BRE/ADM - 00104 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 214 | BRE/ADM 00416 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 222 | BRE/ADM - 00434 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 191 | BRE/ADM - 00103 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 223 | BRE/ADM - 00440 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 224 | BRE/ADM 00448 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR-231 | BRE/ADM - 00512 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 239 | BRE/ADM 00540 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 232 | BRE/ADM 00514 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR-233 | BRE/ADM 00516 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 234 | BRE/ADM 00518 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 237 | BRE/ADM 00530 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 190 | BRE/ADM 00102 | EVAP | EEM - R1 | 78 | 6 | 72 | 239 | 122 | 0 | 28 | 333 | 261 | 4.62 | 37 |
| Motors | MTR 212 | BRE/ADM 00413 | EVAP | EEM - R1 | 52 | 4 | 48 | 160 | 81 | 0 | 19 | 222 | 174 | 4.62 | 37 |
| Motors | MTR 194 | BRE/ADM 00249 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 5 | 55 | 43 | 4.62 | 37 |
| Motors | MTR 250 | CLUB 00202 | EVAP | EEM - R1 | 13 | 1 | 12 | 40 | 20 | 0 | 5 | 55 | 43 | 4.62 | 37 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Primary Technology | Benefit Technology | Annualized Value of Installed Cost ($1994 $) | Annualized Value of Rebate ($1994 $) | Annualized Value of Net Installed Cost ($1994 $) | Annualized Value of Energy Savings ($1994 $) | Annualized Value of Demand Savings ($1994 $) | Annualized Value of O&M Savings ($1994 $) | Annualized Value of Replacement Savings ($1994 $) | Annualized Total Savings ($1994 $) | Annualized Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 189 | BRK/ADM - 00098 | EVAP | PPM RI | 13 | 1 | 12 | 40 | 20 | 0 | 5 | 55 | 43 | 4.62 | 3.7 |
| Motors | MTR 248 | CLUB - 00021 | EVAP | PPM RI | 26 | 2 | 24 | 89 | 41 | 0 | 10 | 111 | 87 | 4.61 | 3.7 |
| Motors | MTR 188 | BRK/ADM - 00014 | EVAP | EPM RI | 13 | 1 | 12 | 40 | 20 | 0 | 5 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 230 | BRK/ADM - 00511 | EVAP | EPM RI | 65 | 5 | 60 | 202 | 103 | 0 | 27 | 277 | 217 | 4.61 | 3.7 |
| Motors | MTR 234 | BRK/ADM - 00523 | EVAP | EPM RI | 78 | 6 | 72 | 242 | 123 | 0 | 33 | 333 | 260 | 4.61 | 3.7 |
| Motors | MTR 201 | BRK/ADM - 00261 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 203 | BRK/ADM - 00262 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 210 | BRK/ADM - 00267 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 204 | BRK/ADM - 00262 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 205 | BRK/ADM - 00264 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 206 | BRK/ADM - 00264 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 207 | BRK/ADM - 00265 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 208 | BRK/ADM - 00265 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 209 | BRK/ADM - 00267 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | MTR 211 | BRK/ADM - 00412 | EVAP | EPM RI | 13 | 1 | 12 | 41 | 21 | 0 | 6 | 55 | 43 | 4.61 | 3.7 |
| Motors | PMTR 5c | ADMIN - 00988 | PMPMTR | VAR A EPM RI | 285 | 20 | 264 | 893 | 455 | 0 | 129 | 1,219 | 954 | 4.61 | 3.7 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat RI | 182 | 10 | 172 | 568 | 38 | 10 | 55 | 740 | 569 | 4.31 | 4.0 |
| Motors | PMTR 110 | PUMP 05996 | PMPMTR | EPM - RI | 89 | 0 | 89 | 318 | 27 | 0 | 34 | 380 | 290 | 4.25 | 4.1 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat RI | 337 | 26 | 310 | 969 | 468 | 0 | 127 | 1,311 | 1,000 | 4.22 | 4.1 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater RI | 70 | 0 | 70 | 219 | 69 | 0 | 6 | 293 | 223 | 4.21 | 4.1 |
| Motors | PMTR 113 | PUMP - 00319 | PMPMTR | EPM RI | 146 | 0 | 146 | 247 | 474 | 50 | 66 | 605 | 459 | 4.15 | 4.2 |
| Motors | PMTR 112 | PUMP - 00319 | PMPMTR | EPM RI | 250 | 19 | 231 | 685 | 358 | 0 | 92 | 951 | 719 | 4.11 | 4.2 |
| Motors | MTR 428 | ADMIN - 00988 | Pan Motor | EPM RI | 250 | 19 | 231 | 672 | 358 | 0 | 92 | 938 | 707 | 4.05 | 4.2 |
| Motors | PMTR 40 | HOSPITL - 00166 | PMPMTR | EPM RI | 142 | 10 | 132 | 491 | 96 | 0 | 52 | 534 | 402 | 4.05 | 4.2 |
| Motors | PMTR 39 | HOSPITL - 00166 | PMPMTR | EPM RI | 57 | 4 | 53 | 196 | 38 | 0 | 21 | 214 | 161 | 4.05 | 4.2 |
| Motors | PMTR 41 | HOSPITL - 00166 | PMPMTR | EPM RI | 57 | 4 | 53 | 196 | 38 | 0 | 21 | 214 | 161 | 4.05 | 4.2 |
| Motors | PMTR 82 | PUMP - 00324 | PMPMTR | EPM RI | 28 | 2 | 26 | 98 | 19 | 0 | 10 | 107 | 80 | 4.05 | 4.2 |
| Lighting | DLC 1b | Small Office | TR Lighting | TR + Daylighting Controls RI | 12 | 1 | 11 | 46 | 4 | 0 | 4 | 45 | 34 | 4.05 | 4.3 |
| Motors | PMTR-114 | PUMP - 00643 | PMPMTR | EPM RI | 3,492 | 879 | 2,613 | 6,531 | 0 | 3,956 | 0 | 10,486 | 7,873 | 4.01 | 4.3 |
| Motors | MTR 39 | ADMIN 00985 | CONDMTR | EPM RI | 533 | 32 | 501 | 1,388 | 782 | 0 | 188 | 1 983 | 1,482 | 3.96 | 4.3 |
| Motors | MTR 38 | ADMIN - 00985 | CONDMTR | EPM RI | 26 | 2 | 24 | 54 | 50 | 0 | 9 | 94 | 70 | 3.92 | 4.4 |
| Motors | PMTR 108 | PUMP - 00652 | PMPMTR | EPM RI | 13 | 1 | 12 | 27 | 25 | 0 | 5 | 47 | 35 | 3.92 | 4.4 |
| Motors | MTR 258 | DOR - 00909 | EVAP | EPM - RI | 208 | 16 | 193 | 422 | 396 | 0 | 75 | 744 | 551 | 3.86 | 4.5 |
| Motors | MTR 417 | WHS - 00934 | EVAP | EPM - RI | 13 | 1 | 12 | 29 | 20 | 0 | 2 | 46 | 34 | 3.86 | 4.5 |
| Motors | MTR 259 | DOR 00909 | EVAP | EPM RI | 39 | 3 | 36 | 87 | 59 | 0 | 8 | 139 | 103 | 3.85 | 4.5 |
| Motors | PMTR-30 | DOR 00430 | PMPMTR | EPM RI | 26 | 2 | 24 | 59 | 40 | 0 | 6 | 92 | 68 | 3.84 | 4.5 |
| Motors | MTR 424 | ADMIN 00988 | Pan Motor | EPM RI | 12 | 1 | 11 | 26 | 21 | 0 | 4 | 43 | 32 | 3.83 | 4.5 |
| Motors | MTR 431 | ADMIN 00988 | Pan Motor | EPM RI | 12 | 1 | 11 | 26 | 21 | 0 | 4 | 43 | 32 | 3.83 | 4.5 |
| Envelope | MT 10 | | Single pane window | Shade Screens - NW side - RI | 72 | 5 | 67 | 154 | 128 | 0 | 26 | 256 | 190 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screens NW Side RI | 356 | 0 | 356 | 893 | 838 | 0 | 367 | 1,365 | 1,008 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Barracks | | Window Screens NW Side - RI | 824 | 0 | 824 | 2,063 | 1 937 | 0 | 848 | 3,153 | 2 330 | 3.83 | 4.5 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens NW Side - RI | 277 | 0 | 277 | 695 | 653 | 0 | 286 | 1 062 | 785 | 3.83 | 4.5 |
| Envelope | | Masonite Siding: post 1950 | | Window Screens NW Side - RI | 118 | 0 | 118 | 295 | 277 | 0 | 121 | 450 | 333 | 3.83 | 4.5 |
| Envelope | | TRAINING | | Window Screens NW Side - RI | 105 | 0 | 105 | 262 | 246 | 0 | 108 | 401 | 296 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screens RI | 23 | 0 | 23 | 59 | 55 | 0 | -24 | 90 | 66 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screens RI | 1,568 | 0 | 1,568 | 3,928 | 3,688 | 0 | 1,414 | 6,003 | 4,435 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screens RI | 1,465 | 0 | 1,465 | 3,671 | 3,447 | 0 | 1,508 | 5,609 | 4,144 | 3.83 | 4.5 |
| Envelope | | Metal Siding | | Window Screens - NW Side - RI | 1,433 | 0 | 1,433 | 3,590 | 3,371 | 0 | 1,475 | 5,487 | 4,053 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc pre 1980 | | Window Screens - NW Side - RI | 762 | 0 | 762 | 1,909 | 1,792 | 0 | 784 | 2,917 | 2,155 | 3.83 | 4.5 |
| Envelope | | SHOP | | Window Screens - NW Side - RI | 115 | 0 | 115 | 289 | 271 | 0 | 119 | 442 | 326 | 3.83 | 4.5 |
| Envelope | | DINING: MISC | | Window Screens - NW Side - RI | 71 | 0 | 71 | 177 | 166 | 0 | 73 | 270 | 200 | 3.83 | 4.5 |
| Envelope | | BRK/ADM MISC | | Window Screens - NW Side - RI | 43 | 0 | 43 | 108 | 101 | 0 | 44 | 165 | 122 | 3.83 | 4.5 |
| Envelope | | Wood Siding | | Window Screens - NW Side - RI | 38 | 0 | 38 | 96 | 90 | 0 | 40 | 147 | 109 | 3.83 | 4.5 |
| Envelope | | MWR | | Window Screens - NW Side - RI | 32 | 0 | 32 | 80 | 75 | 0 | 33 | 122 | 90 | 3.83 | 4.5 |
| Envelope | | WHS | | Window Screens - NW Side - RI | 17 | 0 | 17 | 42 | 39 | 0 | 17 | 64 | 47 | 3.83 | 4.5 |
| Envelope | | SECURITY | | Window Screens - NW Side - RI | 15 | 0 | 15 | 37 | 35 | 0 | 15 | 56 | 42 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screens - RI | 3 | 0 | 3 | 9 | 8 | 0 | -4 | 13 | 10 | 3.83 | 4.5 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screens - NW Side RI | 1,102 | 0 | 1,102 | 2,740 | 2,592 | 0 | 1,134 | 4 218 | 3,117 | 3.83 | 4.5 |
| Envelope | | MOTORPOOL | | Window Screens NW Side - RI | 277 | 0 | 277 | 691 | 652 | 0 | 285 | 1,061 | 784 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screens - NW Side RI | 72 | 0 | 72 | 181 | 170 | 0 | 74 | 276 | 204 | 3.83 | 4.5 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screens - RI | 40 | 0 | 40 | 100 | 94 | 0 | 41 | 153 | 113 | 3.83 | 4.5 |
| Envelope | | Concrete Block: Misc post 1980 | | Window Screens - NW Side RI | 957 | 0 | 957 | 2,397 | 2,251 | 0 | 985 | 3 663 | 2,707 | 3.83 | 4.5 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screens - NW Side - RI | 101 | 0 | 101 | 252 | 237 | 0 | 104 | 385 | 285 | 3.83 | 4.5 |
| Motors | MTR 128 | ADMIN 00441 | EVAP | EPM RI | 71 | 0 | 71 | 177 | 166 | 0 | 73 | 271 | 200 | 3.83 | 4.5 |
| Motors | MTR 166 | ADMIN - 00546 | EVAP | EPM RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 150 | ADMIN - 00504 | EVAP | EPM RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 148 | ADMIN - 00499 | EVAP | EPM - RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 132 | ADMIN 00444 | EVAP | EPM - RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 245 | CLINIC 00242 | EVAP | EPM - RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 156 | ADMIN 00524 | EVAP | EPM RI | 26 | 2 | 24 | 59 | 40 | 0 | 7 | 92 | 68 | 3.83 | 4.5 |
| Motors | MTR 124 | ADMIN - 00436 | EVAP | EPM - RI | 78 | 6 | 72 | 177 | 120 | 0 | 21 | 276 | 204 | 3.83 | 4.5 |
| Motors | MTR 246 | CLINIC - 00245 | EVAP | EPM - RI | 39 | 3 | 36 | 89 | 60 | 0 | 10 | 138 | 102 | 3.83 | 4.5 |
| Motors | MTR 347 | SECURITY - 00326 | EVAP | EPM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 159 | ADMIN - 00528 | EVAP | EPM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 163 | ADMIN - 00543 | EVAP | EPM RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 130 | ADMIN 00443 | EVAP | EPM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 147 | ADMIN - 00498 | EVAP | EPM RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 155 | ADMIN 00521 | EVAP | EPM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 131 | ADMIN 00443 | EVAP | EPM RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 25 | HOTEL - 00902 | COMPMTR | EPM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 3 | 46 | 34 | 3.83 | 4.5 |
| Motors | MTR 23 | HOTEL - 00900 | COMPMTR | EPM RI | 43 | 0 | 43 | 125 | 57 | 0 | 16 | 166 | 123 | 3.82 | 4.5 |
| Motors | MTR 24 | HOTEL 00901 | COMPMTR | EPM - RI | 43 | 0 | 43 | 125 | 57 | 0 | 16 | 166 | 123 | 3.82 | 4.5 |
| Motors | MTR 26 | HOTEL - 00903 | COMPMTR | EPM RI | 43 | 0 | 43 | 125 | 57 | 0 | 16 | 166 | 123 | 3.82 | 4.5 |
| Motors | MTR 28 | HOTEL 00906 | COMPMTR | EPM - RI | 43 | 0 | 43 | 125 | 57 | 0 | 16 | 166 | 123 | 3.82 | 4.5 |
| Motors | MTR 27 | HOTEL 00904 | COMPMTR | EPM - RI | 43 | 0 | 43 | 125 | 57 | 0 | 16 | 166 | 123 | 3.82 | 4.5 |
| Motors | MTR 103 | ADMIN - 00237 | EVAP | EPM RI | 33 | 0 | 33 | 93 | 43 | 0 | 12 | 125 | 92 | 3.82 | 4.5 |
| Motors | MTR 411 | WHS - 00827 | EVAP | EPM - RI | 104 | 7 | 96 | 238 | 160 | 0 | 31 | 367 | 271 | 3.82 | 4.5 |
| Motors | MTR 105 | ADMIN - 00241 | EVAP | EPM - RI | 39 | 3 | 36 | 89 | 60 | 0 | 12 | 138 | 102 | 3.82 | 4.5 |
| Motors | MTR 304 | MTRPOOL 00630 | EVAP | EPM RI | 39 | 3 | 36 | 89 | 60 | 0 | 12 | 138 | 102 | 3.82 | 4.5 |
| | | | | | 26 | 2 | 24 | 59 | 40 | 0 | 8 | 92 | 68 | 3.82 | 4.5 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings-to-Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-306 | MTRPOOL - 00681 | EVAP | EEM - RI | 26 | 2 | 24 | 59 | 40 | 0 | -8 | 92 | 68 | 3.82 | 4.5 |
| Motors | MTR-254 | DGR 00308 | EVAP | EEM - RI | 26 | 2 | 24 | 59 | 40 | 0 | -8 | 92 | 68 | 3.82 | 4.5 |
| Motors | MTR 412 | WHS 00827 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.82 | 4.5 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.82 | 4.5 |
| Motors | MTR-256 | DGR - 00404 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.82 | 4.5 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.82 | 4.5 |
| Motors | MTR 336 | PLT BLDG 00253 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.82 | 4.5 |
| Motors | MTR-335 | PLT-BLDG 00253 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.81 | 4.5 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.81 | 4.5 |
| Motors | MTR 354 | SHOP - 00367 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -4 | 46 | 34 | 3.81 | 4.5 |
| Motors | MTR 153 | ADMIN - 00513 | EVAP | EEM - RI | 65 | 5 | 60 | 151 | 102 | 0 | -24 | 229 | 168 | 3.80 | 4.5 |
| Motors | MTR 171 | ADMIN 00570 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR 341 | SHOP ELC - 00581 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR 357 | SHOP 00384 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR 382 | WHS - 00342 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR 160 | ADMIN - 00528 | EVAP | EEM - RI | 52 | 4 | 48 | 120 | 81 | 0 | -19 | 183 | 135 | 3.80 | 4.5 |
| Motors | MTR 384 | WHS - 00352 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 386 | WHS - 00364 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 154 | ADMIN - 00520 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 175 | ADMIN - 00583 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 157 | ADMIN - 00526 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 118 | ADMIN - 00415 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 97 | 01315 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 362 | SHOP ELC - 00616 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR-294 | MTRPOOL - 00621 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 381 | WHS - 00342 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 355 | SHOP 00367 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR-415 | WHS 00860 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR-296 | MTRPOOL 00623 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 383 | WHS 00344 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 262 | DINING - 00431 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 380 | WHS - 00333 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 242 | CHAPEL - 00315 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 350 | SHOP - 00356 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 376 | WHS - 00318 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 162 | ADMIN - 00539 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 114 | ADMIN - 00372 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 116 | ADMIN - 00408 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 317 | MTRPOOL 00850 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 286 | MTRPOOL - 00605 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 119 | ADMIN - 00425 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | PMTR 28 | DGR - 00430 | EVAP | PMPMTR | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 320 | MTRPOOL - 00941 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 291 | MTRPOOL - 00612 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 394 | WHS 00470 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 141 | ADMIN - 00464 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 292 | MTRPOOL - 00614 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 340 | PUMP - 00044 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 388 | WHS - 00364 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 280 | MTRPOOL 00600 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 137 | ADMIN - 00453 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 344 | REC - 00338 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 260 | CHAPEL - 00212 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 310 | MTRPOOL - 00837 | EVAP | EEM - RI | 26 | 2 | 24 | 60 | 41 | 0 | -9 | 91 | 67 | 3.80 | 4.5 |
| Motors | MTR 309 | MTRPOOL 00832 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 358 | SHOP 00842 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 311 | MTRPOOL - 00840 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 359 | SHOP 00842 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 407 | WHS - 00584 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 353 | MWR - 01322 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 342 | PUMP - 00838 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 340 | SHOP ELC 02221 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 405 | WHS 00545 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 416 | WHS - 00860 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 399 | WHS 00486 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 392 | WHS - 00462 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 393 | WHS - 00462 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 385 | WHS 00360 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 379 | WHS - 00333 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 377 | WHS - 00318 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 343 | SHOP-WPN - 07602 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 413 | WHS - 00844 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 371 | WHS - 00234 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 367 | TRAING - 00496 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 368 | TRAING - 00496 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 370 | WHS - 00024 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 387 | WHS - 00364 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 374 | WHS - 00318 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 375 | WHS - 00318 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 414 | WHS - 00860 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 406 | WHS 00558 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 396 | WHS - 00470 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 270 | DINING - 00560 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 324 | MWR 00410 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 308 | MTRPOOL 00832 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 300 | MTRPOOL - 00646 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |
| Motors | MTR 352 | SHOP - 00357 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | -5 | 46 | 34 | 3.80 | 4.5 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 331 | MWR 01322 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 323 | MWR 00340 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 325 | MWR 00480 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 400 | WHS 00486 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 326 | MWR 00556 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 408 | WHS 00585 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 353 | BHOP 00357 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 332 | MWR 01322 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 283 | MTRPOOL 00600 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 267 | DINING 00449 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 255 | DOR - 00404 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 402 | WHS 00531 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 403 | WHS 00531 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 356 | BHOP 00384 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 351 | BHOP 00357 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 298 | MTRPOOL 00639 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 313 | MTRPOOL 00840 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 164 | ADMIN - 00543 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 151 | ADMIN 00508 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-152 | ADMIN 00510 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 158 | ADMIN 00527 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 161 | ADMIN - 00529 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 169 | ADMIN - 00554 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 146 | ADMIN - 00497 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 172 | ADMIN - 00578 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-173 | ADMIN 00579 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 174 | ADMIN - 00580 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 149 | ADMIN - 00504 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 145 | ADMIN - 00483 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 186 | ADMIN - 06201 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 115 | ADMIN - 00372 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 101 | ADMIN - 00157 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 104 | ADMIN - 00237 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 112 | ADMIN 00320 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-138 | ADMIN 00454 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 140 | ADMIN - 00458 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 142 | ADMIN 00464 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 182 | ADMIN - 00588 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 177 | ADMIN - 00604 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 187 | ADMIN - 0*600 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 297 | MTRPOOL - 00626 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 284 | MTRPOOL - 00605 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 272 | FUELDSP - 00950 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 285 | MTRPOOL - 00605 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 287 | MTRPOOL - 00605 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-295 | MTRPOOL - 00621 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 314 | MTRPOOL - 00847 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 288 | MTRPOOL - 00608 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 289 | MTRPOOL - 00608 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 293 | MTRPOOL - 00620 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 299 | MTRPOOL - 00642 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 316 | MTRPOOL - 00850 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 271 | FUELDSP - 00836 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 315 | MTRPOOL - 00847 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR-302 | MTRPOOL - 00650 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 247 | CLINIC - 00245 | EVAP | EEM RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 268 | DINING - 00468 | EVAP | EEM - RI | 13 | 1 | 12 | 30 | 20 | 0 | 5 | 44 | 34 | 3.80 | 4.5 |
| Motors | MTR 135 | ADMIN - 00452 | EVAP | EEM RI | 78 | 6 | 72 | 181 | 122 | 0 | 28 | 274 | 202 | 3.80 | 4.5 |
| Motors | MTR 257 | DOR - 00430 | EVAP | EEM - RI | 78 | 6 | 72 | 181 | 122 | 0 | 28 | 274 | 202 | 3.80 | 4.5 |
| Motors | MTR 170 | ADMIN - 00564 | EVAP | EEM - RI | 78 | 6 | 72 | 181 | 122 | 0 | 28 | 274 | 202 | 3.80 | 4.5 |
| Motors | MTR 120 | ADMIN - 00428 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 165 | ADMIN - 00544 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 312 | MTRPOOL - 00840 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 307 | MTRPOOL - 00830 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 123 | ADMIN - 00433 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 139 | ADMIN - 00458 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 185 | ADMIN - 06201 | EVAP | EEM - RI | 39 | 3 | 36 | 90 | 61 | 0 | 14 | 137 | 101 | 3.80 | 4.5 |
| Motors | MTR 95 | ADMIN - 00101 | EVAP | EEM RI | 26 | 2 | 24 | 61 | 41 | 0 | 11 | 91 | 67 | 3.79 | 4.5 |
| Motors | MTR 334 | OTHER - 00992 | EVAP | EEM RI | 78 | 6 | 72 | 183 | 123 | 0 | 33 | 273 | 201 | 3.79 | 4.5 |
| Heating | 3 | HANGAR BD008 | Unit Heaters | Radiant Heat RI | 13 | 1 | 12 | 30 | 21 | 0 | 5 | 46 | 34 | 3.79 | 4.5 |
| Motors | MTR 339 | PLT BLDG - 00263 | EVAP | EEM RI | 533 | 0 | 533 | 1,850 | 124 | 0 | 41 | 2,015 | 1,482 | 3.78 | 4.6 |
| Motors | MTR 338 | PLT-BLDG 00263 | EVAP | EEM - RI | 26 | 2 | 24 | 61 | 41 | 0 | 12 | 91 | 67 | 3.78 | 4.6 |
| Heating | 19 | MTRPOOL 00650 | Unit Heaters | Radiant Heat - RI | 13 | 1 | 12 | 31 | 21 | 0 | 6 | 45 | 33 | 3.78 | 4.6 |
| Motors | PMTR 84 | PUMP - 18005 | PMPMTR | EEM RI | 123 | 0 | 123 | 318 | 25 | 0 | 119 | 463 | 340 | 3.76 | 4.6 |
| Motors | MTR 420 | ADMIN 00439 | Fan Motor | EEM - RI | 423 | 29 | 394 | 1,051 | 587 | 0 | 162 | 1,476 | 1,082 | 3.75 | 4.6 |
| Motors | MTR 419 | ADMIN 00433 | Fan Motor | EEM - RI | 11 | 0 | 11 | 30 | 14 | 0 | 4 | 41 | 30 | 3.75 | 4.6 |
| Lighting | 08 MT 5b | MT Copy Room | TR Lighting | TR + Occupancy Controls RI | 11 | 0 | 11 | 30 | 14 | 0 | 4 | 41 | 30 | 3.75 | 4.6 |
| DHW & A/C | 19 | 0023* | AIR CONDITIONER | Install Desuperheater RI | 263 | 15 | 248 | *34 | 0 | 189 | 0 | 923 | 674 | 3.72 | 4.6 |
| Heating | 2 | HANGAR BD007 | Unit Heaters | Radiant Heat RI | 108 | 0 | 108 | 201 | 296 | 50 | 49 | 399 | 291 | 3.71 | 4.6 |
| Heating | 4 | HANGAR BD009 | Unit Heaters | Radiant Heat RI | *11 | 0 | *11 | 2,40* | 165 | 0 | 55 | 2,62* | 1,916 | 3.70 | 4.7 |
| Heating | 42 | SHOP HDSDS | Unit Heaters | Radiant Heat RI | 711 | 0 | *11 | 2,40* | 165 | 0 | 55 | 2,62* | 1,916 | 3.70 | 4.7 |
| | | | | | 64* | 0 | 64* | 2,202 | 0 | 0 | 259 | 2,461 | 1,794 | 3.69 | 4.7 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DHW & A/C | 30 | 00857 | Chiller air cooled | Install Desuperheater - RI | 214 | 0 | 214 | 135 | 790 | 50 | 97 | 972 | 564 | 3.64 | 4.7 |
| Wells | 1 | | Well Pumps | Add New 500 kgal Tank RI | 12,224 | 0 | 12,224 | 25,684 | 16,019 | 250 | 2,969 | 44,922 | 32,199 | 3.63 | 4.7 |
| Motors | PMTR 67 | PLT-BLDG 00253 | PMPMTR | EEM RI | 50 | 4 | 46 | 139 | 47 | 0 | 18 | 187 | 121 | 3.63 | 4.7 |
| Motors | PMTR 91 | PUMP - 00042 | PMPMTR | EEM - RI | 67 | 5 | 61 | 172 | 73 | 0 | 23 | 222 | 160 | 3.61 | 4.8 |
| Motors | PMTR 90 | PUMP - 00044 | PMPMTR | EEM - RI | 67 | 5 | 61 | 172 | 73 | 0 | 23 | 222 | 160 | 3.61 | 4.8 |
| Motors | MTR 183 | ADMIN 00928 | EVAP | EEM RI | 12 | 1 | 11 | 25 | 17 | 0 | 1 | 40 | 29 | 3.60 | 4.8 |
| Central Chillers | 2 | | Existing Chillers | Connect B/253 & B/263, Add TPR - RI | 25,086 | 4,529 | 20,557 | 49,446 | 10,478 | 1,500 | 0 | 72,424 | 51,867 | 3.52 | 4.9 |
| Motors | MTR 16 | CLUB - 00202 | COMPMTR | EEM RI | 11 | 0 | 11 | 28 | 14 | 0 | 4 | 38 | 27 | 3.51 | 4.9 |
| Motors | MTR 15 | CLUB 00202 | COMPMTR | EEM RI | 43 | 0 | 43 | 111 | 57 | 0 | 16 | 153 | 109 | 3.51 | 4.9 |
| Motors | MTR 17 | CLUB - 00202 | COMPMTR | EEM RI | 43 | 0 | 43 | 111 | 57 | 0 | 16 | 153 | 109 | 3.51 | 4.9 |
| Motors | MTR 16 | CLUB - 00202 | COMPMTR | EEM RI | 43 | 0 | 43 | 111 | 57 | 0 | 16 | 153 | 109 | 3.51 | 4.9 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 22 | 0 | 22 | 56 | 29 | 0 | 8 | 76 | 55 | 3.51 | 4.9 |
| Motors | MTR 42 | CLUB - 00202 | CONDMTR | EEM RI | 171 | 0 | 171 | 133 | 593 | 50 | -78 | 598 | 426 | 3.49 | 4.9 |
| Motors | MTR 184 | ADMIN - 00988 | EVAP | EEM RI | 11 | 0 | 11 | 28 | 14 | 0 | 4 | 38 | 27 | 3.49 | 4.9 |
| Motors | MTR 301 | MTRPOOL - 00646 | EVAP | EEM - RI | 24 | 2 | 22 | 51 | 35 | 0 | 9 | 77 | 55 | 3.47 | 5.0 |
| Motors | PMTR 37 | GROCERY - 00920 | PMPMTR | EEM RI | 24 | 2 | 22 | 51 | 35 | 0 | 9 | 77 | 55 | 3.47 | 5.0 |
| Motors | MTR 181 | ADMIN - 00988 | EVAP | EEM - RI | 12 | 1 | 11 | 26 | 17 | 0 | 4 | 39 | 28 | 3.47 | 5.0 |
| Motors | PMTR 35 | GROCERY - 00920 | PMPMTR | EEM - RI | 12 | 1 | 11 | 26 | 17 | 0 | 4 | 39 | 28 | 3.47 | 5.0 |
| DHW & A/C | 28 | 00488 | PEQ A/C | Install Desuperheater - RI | 12 | 1 | 11 | 26 | 17 | 0 | 4 | 39 | 28 | 3.47 | 5.0 |
| Motors | MTR 456 | MTRPOOL 00857 | Pm Motor | EEM RI | 214 | 0 | 214 | 93 | 790 | 50 | 97 | 716 | 522 | 3.44 | 5.0 |
| Motors | PMTR 83 | PUMP - 18005 | PMPMTR | EEM - RI | 81 | 7 | 74 | 211 | 72 | 0 | -28 | 254 | 180 | 3.43 | 5.0 |
| Motors | MTR 37 | WHR-CLD - 00862 | COMPMTR | EEM - RI | 423 | 29 | 394 | 892 | 587 | 0 | 162 | 1,318 | 924 | 3.35 | 5.1 |
| Motors | PMTR 17e | DRE/ADM - 00273 | PMPMTR | VSD & EEM RI | 11 | 0 | 11 | 26 | 14 | 0 | 4 | 36 | 25 | 3.34 | 5.2 |
| Motors | PMTR 16e | DRE/ADM - 00273 | PMPMTR | VSD & EEM - RI | 466 | 23 | 443 | 1,510 | 119 | 20 | 137 | 1,472 | 1,029 | 3.32 | 5.2 |
| Motors | PMTR 15e | DRE/ADM - 00273 | PMPMTR | VSD & EEM RI | 466 | 23 | 443 | 1,510 | 119 | 20 | 137 | 1,472 | 1,029 | 3.32 | 5.2 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 233 | 12 | 222 | 755 | 59 | 10 | -68 | 736 | 514 | 3.32 | 5.2 |
| Motors | PMTR 19 | DRE/ADM - 00099 | PMPMTR | EEM RI | 89 | 0 | 89 | 244 | 18 | 0 | 34 | 297 | 207 | 3.32 | 5.2 |
| Motors | MTR 15 | WHR - 00552 | AIRCOMP | EEM - RI | 11 | 0 | 11 | 21 | 19 | 0 | 4 | 36 | 25 | 3.31 | 5.2 |
| Motors | PMTR 7e | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 24 | 2 | 22 | 40 | 43 | 0 | 9 | 74 | 51 | 3.31 | 5.2 |
| DHW & A/C | 1 | 00013 | CHILLER air cooled | Install Desuperheater RI | 235 | 11 | 224 | 788 | 44 | 20 | 71 | 741 | 517 | 3.31 | 5.2 |
| Motors | PMTR 18 | DRE/ADM - 00110 | PMPMTR | EEM - RI | 193 | 0 | 193 | 82 | 691 | 50 | -87 | 636 | 443 | 3.30 | 5.2 |
| Motors | PMTR 111 | PUMP - 05997 | PMPMTR | EEM RI | 11 | 0 | 11 | 21 | 19 | 0 | 4 | 36 | 25 | 3.27 | 5.3 |
| DHW & A/C | 32 | 00905 | PEQ UNIT | Install Desuperheater - RI | 337 | 26 | 310 | 670 | 468 | 0 | -127 | 1,012 | 701 | 3.26 | 5.3 |
| Motors | PMTR 45 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 76 | 0 | 76 | 180 | 148 | 50 | -34 | 243 | 168 | 3.22 | 5.5 |
| Motors | PMTR 49 | PLT-BLDG 00263 | PMPMTR | EEM - RI | 64 | 5 | 59 | 159 | 54 | 0 | -23 | 191 | 131 | 3.20 | 5.5 |
| Envelope | MWR | MWR | | Weatherization RI | 64 | 5 | 59 | 159 | 54 | 0 | -23 | 191 | 131 | 3.20 | 5.4 |
| Motors | MTR 526 | Pant Housing | Heat System Pan | EEM - RI | 79 | 0 | 79 | 162 | 89 | 0 | 0 | 251 | 172 | 3.17 | 5.4 |
| Heating | 7 | MTRPOOL 00681 | Unit Heaters | Radiant Heat - RI | 17,765 | 0 | 17,765 | 25,448 | 36,603 | 0 | -5,824 | 56,227 | 38,462 | 3.16 | 5.4 |
| Motors | PMTR 115 | PUMP - 00043 | PMPMTR | EEM - RI | 629 | 0 | 629 | 1,909 | 128 | 0 | -57 | 1,981 | 1,352 | 3.15 | 5.5 |
| Motors | PMTR 92 | PUMP - 00044 | PMPMTR | EEM RI | 208 | 16 | 193 | 432 | 244 | 0 | -75 | 601 | 409 | 3.12 | 5.5 |
| Controls | MT 1 | | Thermostat | Night Setback RI | 208 | 16 | 193 | 428 | 244 | 0 | -75 | 597 | 405 | 3.10 | 5.6 |
| Motors | PMTR 99 | PUMP - 00324 | PMPMTR | EEM - RI | 8,734 | 0 | 8,734 | 24,835 | 6,096 | 0 | -3,956 | 26,975 | 18,241 | 3.09 | 5.6 |
| Motors | PMTR 2a | ADMIN - 00988 | PMPMTR | EEM RI | 67 | 5 | 61 | 137 | 73 | 0 | -23 | 187 | 126 | 3.05 | 5.6 |
| Heating | 40 | BHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 28 | 2 | 26 | 54 | 36 | 0 | -10 | 80 | 53 | 3.03 | 5.7 |
| Motors | PMTR 60e | PLT-BLDG - 00263 | PMPMTR | VSD & EEM RI | 1,110 | 0 | 1,110 | 3,170 | 0 | 0 | 142 | 3,312 | 2,202 | 2.98 | 5.8 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat RI | 367 | 15 | 352 | 969 | 139 | 10 | -108 | 989 | 638 | 2.81 | 6.1 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 629 | 0 | 629 | 1,695 | 128 | 0 | -57 | 1,766 | 1,137 | 2.81 | 6.1 |
| Heating | 34 | BHOP - 00357 | Unit Heaters | Radiant Heat - RI | 65 | 0 | 65 | 161 | 99 | 50 | -29 | 281 | 116 | 2.78 | 6.2 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 30 | 0 | 30 | 62 | 0 | 0 | 21 | 84 | 54 | 2.78 | 6.2 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 99 | 0 | 99 | 244 | 20 | 0 | 6 | 270 | 172 | 2.74 | 6.3 |
| Motors | PMTR 32 | DINING - 00254 | PMPMTR | EEM RI | 99 | 0 | 99 | 244 | 20 | 0 | 6 | 270 | 172 | 2.74 | 6.3 |
| Motors | MTR 449 | GROCERY - 00920 | Pm Motor | EEM - RI | 12 | 1 | 11 | 13 | 21 | 0 | -4 | 30 | 19 | 2.68 | 6.4 |
| Motors | MTR 9 | MTRPOOL 00873 | AIRCOMP | EEM - RI | 81 | 7 | 74 | 152 | 72 | 0 | -28 | 196 | 122 | 2.65 | 6.5 |
| Motors | MTR 11 | PUMP - 00652 | AIRCOMP | EEM RI | 67 | 5 | 61 | 89 | 96 | 0 | -23 | 162 | 100 | 2.64 | 6.5 |
| Motors | PMTR 80 | PUMP - 05590 | PMPMTR | EEM - RI | 67 | 5 | 61 | 89 | 96 | 0 | -23 | 162 | 100 | 2.64 | 6.5 |
| Motors | PMTR 104 | PUMP - 00700 | PMPMTR | EEM - RI | 533 | 32 | 501 | 709 | 782 | 0 | -188 | 1,304 | 803 | 2.60 | 6.6 |
| DHW & A/C | 36 | 01313 | PEQ UNIT | Install Desuperheater - RI | 208 | 16 | 193 | 403 | 172 | 0 | -73 | 501 | 308 | 2.60 | 6.6 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat RI | 95 | 0 | 95 | 100 | 237 | 50 | -43 | 344 | 249 | 2.57 | 6.7 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 149 | 0 | 149 | 224 | 15 | 0 | 143 | 382 | 233 | 2.57 | 6.7 |
| Envelope | w/ HS win only | Concrete Block: w/ HS win only | | Weatherization - RI | 149 | 0 | 149 | 257 | 15 | 0 | 108 | 380 | 231 | 2.56 | 6.7 |
| Motors | MTR 22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 244 | 0 | 244 | 399 | 221 | 0 | 0 | 620 | 376 | 2.54 | 6.8 |
| Motors | MTR 447 | GROCERY - 00920 | Pm Motor | EEM RI | 28 | 2 | 26 | 53 | 24 | 0 | -10 | 67 | 40 | 2.53 | 6.8 |
| Motors | MTR 436a | CLINIC - 00171 | Pm Motor | PEM - PI | 85 | 7 | 78 | 151 | 71 | 0 | -30 | 192 | 114 | 2.47 | 7.0 |
| Motors | MTR 450 | GROCERY - 00920 | Pm Motor | EEM RI | 42 | 3 | 39 | 75 | 35 | 0 | -15 | 96 | 57 | 2.47 | 7.0 |
| Motors | MTR 451 | REC - 00905 | Pm Motor | EEM - RI | 42 | 3 | 39 | 75 | 35 | 0 | -15 | 96 | 57 | 2.47 | 7.0 |
| Motors | MTR 477 | PUMP - 00324 | Pm Motor | EEM - RI | 32 | 2 | 30 | 58 | 27 | 0 | -11 | 73 | 44 | 2.47 | 7.0 |
| Motors | MTR 467a | MWR - 01322 | Pm Motor | EEM - RI | 32 | 2 | 30 | 58 | 27 | 0 | -11 | 73 | 44 | 2.47 | 7.0 |
| Motors | PMTR 59e | PLT-BLDG - 00253 | PMPMTR | VSD & EEM RI | 28 | 2 | 26 | 56 | 19 | 0 | -10 | 65 | 39 | 2.46 | 7.0 |
| Motors | MTR 524a | DGR - 00908 | VENTLTR | EEM RI | 466 | 19 | 447 | 1,139 | 119 | -20 | -137 | 1,101 | 654 | 2.46 | 7.0 |
| Motors | MTR 438a | CLINIC - 00171 | Pm Motor | EEM RI | 32 | 2 | 30 | 55 | 26 | 0 | -9 | 72 | 43 | 2.44 | 7.1 |
| DHW & A/C | 34 | 00983 | PEQ A/C | Install Desuperheater - RI | 104 | 8 | 94 | 183 | 86 | 0 | -37 | 232 | 135 | 2.41 | 7.2 |
| Motors | PMTR 85 | PUMP - 18005 | PMPMTR | EEM RI | 108 | 0 | 108 | 61 | 256 | -50 | -49 | 259 | 151 | 2.41 | 7.2 |
| Motors | PMTR 4e | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 423 | 29 | 394 | 519 | 587 | 0 | -162 | 944 | 550 | 2.40 | 7.2 |
| Motors | PMTR 77 | PUMP - 00324 | PMPMTR | EEM - RI | 114 | 4 | 110 | 272 | 34 | 10 | -36 | 283 | 153 | 2.39 | 7.2 |
| Motors | PMTR 105 | PUMP - 00652 | PMPMTR | EEM - RI | 67 | 5 | 61 | 156 | 14 | 0 | 23 | 166 | 85 | 2.39 | 7.2 |
| DHW & A/C | 29 | 00826 | PEQ UNIT | Install Desuperheater - RI | 28 | 2 | 26 | 47 | 26 | 0 | -10 | 63 | 36 | 2.37 | 7.3 |
| HVAC | MT 3 | | Heat pump | 2-spred compressor - RI | 80 | 0 | 80 | 108 | 168 | 50 | -36 | 189 | 109 | 2.37 | 7.3 |
| Heating | 15 | MTRPOOL 00605 | Unit Heaters | Radiant Heat RI | 13,966 | 0 | 13,966 | 19,917 | 19,435 | 0 | -4,326 | 33,026 | 19,060 | 2.36 | 7.3 |
| Motors | PMTR 58 | PLT-BLDG - 00109 | PMPMTR | EEM RI | 178 | 0 | 178 | 326 | 18 | 0 | 69 | 413 | 235 | 2.33 | 7.4 |
| Motors | MTR 19 | GROCERY 00920 | COMPMTR | EEM RI | 12 | 1 | 11 | 13 | 17 | 0 | -4 | 26 | 15 | 2.32 | 7.4 |
| Motors | MTR 20 | GROCERY 00920 | COMPMTR | EEM RI | 85 | 7 | 78 | 138 | 71 | 0 | 30 | 179 | 102 | 2.31 | 7.4 |
| Motors | MTR 18 | GROCERY 00920 | COMPMTR | EEM RI | 42 | 3 | 39 | 69 | 35 | 0 | 15 | 90 | 51 | 2.31 | 7.4 |
| Motors | PMTR 24 | DRE/ADM 00273 | PMPMTR | EEM - RI | 42 | 3 | 39 | 69 | 35 | 0 | -15 | 90 | 51 | 2.31 | 7.4 |
| Motors | MTR 21 | GROCERY 00920 | COMPMTR | EEM RI | 12 | 1 | 11 | 8 | 22 | 0 | -4 | 26 | 15 | 2.31 | 7.5 |
| Motors | MTR 329 | MWR 01322 | EVAP | EEM RI | 545 | 39 | 505 | 898 | 460 | 0 | 193 | 1,165 | 659 | 2.30 | 7.5 |
| Heating | 12 | MTRPOOL 00621 | Unit Heaters | Radiant Heat - RI | 11 | 0 | 11 | 17 | 12 | 0 | -4 | 25 | 14 | 2.29 | 7.5 |
| Motors | MTR 49 | WHR-CLD 00862 | CONDMTR | EEM RI | 178 | 0 | 178 | 318 | 18 | 0 | 69 | 406 | 228 | 2.28 | 7.5 |
| Motors | MTR 43 | GROCERY 00920 | CONDMTR | EEM RI | 11 | 0 | 11 | 15 | 13 | 0 | -4 | 25 | 14 | 2.28 | 7.5 |
| Motors | PMTR 26 | CLINIC - 00171 | PMPMTR | EEM - RI | 85 | 7 | 78 | 138 | 66 | 0 | 30 | 175 | 97 | 2.26 | 7.6 |
| | | | | | 133 | 10 | 123 | 176 | 146 | 0 | 46 | 276 | 154 | 2.25 | 7.6 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost ($1994 $) | Annualized Value of Rebate ($1994 $) | Annualized Net Installed Cost ($1994 $) | Annualized Value of Energy Savings ($1994 $) | Annualized Value of Demand Savings ($1994 $) | Annualized Value of O&M Savings ($1994 $) | Annualized Value of Replacement Savings ($1994 $) | Annualized Value of Total Savings ($1994 $) | Annualized Net Savings ($1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR 2" | CLINIC 00171 | PMPMTR | EEM RI | 133 | 10 | 123 | 176 | 146 | 0 | 46 | 276 | 154 | 2.25 | 7.6 |
| Envelope | MT 5 | | Block EDPM | Reflective roof RI | 11,003 | 0 | 11,003 | 18,015 | 13,111 | 0 | 0 | 29,126 | 18,123 | 2.24 | 7.7 |
| Motors | PMTR 78 | PUMP 05590 | PMPMTR | EEM RI | 533 | 32 | 501 | 436 | 673 | 0 | 41 | 1,067 | 567 | 2.13 | 8.1 |
| Motors | PMTR 53a | PLT BLDG 00263 | PMPMTR | EEM RI | 104 | 8 | 96 | 103 | 139 | 0 | 37 | 295 | 199 | 2.13 | 8.1 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater RI | 98 | 0 | 98 | 51 | 253 | 50 | 44 | 209 | 111 | 2.13 | 8.1 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 98 | 0 | 98 | 51 | 253 | 50 | 44 | 209 | 111 | 2.13 | 8.1 |
| Heating | 27 | MTRPOOL 00893 | Unit Heaters | Radiant Heat RI | 178 | 0 | 178 | 344 | 18 | 0 | 14 | 376 | 198 | 2.11 | 8.1 |
| Heating | 16 | MTRPOOL 00850 | Unit Heaters | Radiant Heat RI | 178 | 0 | 178 | 318 | 18 | 0 | 39 | 375 | 198 | 2.11 | 8.2 |
| Heating | 14 | MTRPOOL - 00820 | Unit Heaters | Radiant Heat RI | 178 | 0 | 178 | 318 | 18 | 0 | 39 | 375 | 198 | 2.11 | 8.2 |
| Motors | MTR 92 | HOTEL - 00904 | COOL | EEM RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 87 | HOSPITL - 00166 | COOL | EPM - RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 93 | HOTEL - 00906 | COOL | EEM - RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 91 | HOTEL - 00903 | COOL | EPM - RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 86 | HOSPITL - 00166 | COOL | EEM RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 88 | HOTEL 00900 | COOL | EEM - RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 89 | HOTEL - 00901 | COOL | EEM RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Motors | MTR 90 | HOTEL - 00902 | COOL | EEM - RI | 11 | 0 | 11 | 16 | 12 | 0 | 5 | 23 | 12 | 2.10 | 8.2 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat RI | 1,596 | 0 | 1,596 | 3,532 | 217 | 0 | 402 | 3,346 | 1,750 | 2.10 | 8.2 |
| Motors | PMTR 10" | PUMP - 00836 | PMPMTR | EPM RI | 208 | 16 | 193 | 81 | 396 | 0 | 75 | 403 | 210 | 2.09 | 8.2 |
| Lighting | 08 MT 4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls RI | 836 | 26 | 810 | 1,245 | 0 | 406 | 0 | 1,651 | 841 | 2.04 | 8.5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater RI | 95 | 0 | 95 | 47 | 237 | 50 | 43 | 192 | 97 | 2.02 | 8.5 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 95 | 0 | 95 | 47 | 237 | 50 | 43 | 192 | 97 | 2.02 | 8.5 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat RI | 267 | 0 | 267 | 509 | 27 | 0 | 0 | 536 | 269 | 2.01 | 8.6 |
| Motors | MTR 2 | CLINIC - 00171 | AIRCOMP | EEM - RI | 100 | 8 | 92 | 107 | 115 | 0 | 37 | 185 | 93 | 2.00 | 8.6 |
| Motors | PMTR 79 | PUMP 05590 | PMPMTR | EEM - RI | 533 | 32 | 501 | 401 | 782 | 0 | 188 | 995 | 495 | 1.99 | 8.7 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat RI | 533 | 0 | 533 | 962 | 54 | 0 | 41 | 1,058 | 525 | 1.98 | 8.7 |
| Envelope | MT 8 | | Single pane window | Shade Screens - SE side RI | 356 | 57 | 299 | 497 | 261 | 0 | 367 | 591 | 292 | 1.97 | 8.7 |
| Envelope | | Metal Siding | | Window Screens - SE side - RI | 734 | 117 | 617 | 1,435 | 537 | 0 | 755 | 1,217 | 600 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Barracks | | Window Screens - SE side RI | 277 | 44 | 233 | 542 | 203 | 0 | 285 | 460 | 227 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc post 1920 | | Window Screens - SE side RI | 101 | 16 | 85 | 197 | 74 | 0 | 104 | 167 | 82 | 1.97 | 8.7 |
| Envelope | | MOTORPOOL | | Window Screens - SE side RI | 72 | 12 | 61 | 141 | 53 | 0 | 74 | 120 | 59 | 1.97 | 8.7 |
| Envelope | | TRAINING | | Window Screens - SE side RI | 23 | 4 | 20 | 46 | 17 | 0 | 24 | 39 | 19 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screens RI | 3,920 | 627 | 3,293 | 7,664 | 2,869 | 0 | 4,014 | 6,499 | 3,206 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screens - RI | 3,663 | 586 | 3,077 | 7,161 | 2,681 | 0 | 3,770 | 6,073 | 2,996 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screens RI | 3,581 | 573 | 3,008 | 7,002 | 2,622 | 0 | 3,685 | 5,938 | 2,929 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screens RI | 2,755 | 441 | 2,314 | 5,385 | 2,016 | 0 | 2,835 | 4,547 | 2,253 | 1.97 | 8.7 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screens - SE side RI | 2,392 | 383 | 2,009 | 4,677 | 1,751 | 0 | 2,462 | 3,966 | 1,957 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screens - SE side RI | 1,909 | 305 | 1,604 | 3,733 | 1,398 | 0 | 1,965 | 3,166 | 1,562 | 1.97 | 8.7 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screens - SE side RI | 329 | 53 | 276 | 642 | 241 | 0 | 338 | 545 | 269 | 1.97 | 8.7 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens - SE side RI | 273 | 44 | 229 | 533 | 200 | 0 | 281 | 452 | 223 | 1.97 | 8.7 |
| Envelope | | Concrete Block: w/ SE win only | | Window Screens - SE side RI | 177 | 28 | 148 | 345 | 129 | 0 | 182 | 293 | 144 | 1.97 | 8.7 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screens - SE side RI | 115 | 18 | 97 | 226 | 84 | 0 | 119 | 191 | 94 | 1.97 | 8.7 |
| Envelope | | Masonite Siding, post 1950 | | Window Screens - SE side RI | 109 | 17 | 91 | 212 | 80 | 0 | 112 | 180 | 89 | 1.97 | 8.7 |
| Envelope | | BHOP | | Window Screens - SE side RI | 71 | 11 | 59 | 138 | 52 | 0 | 73 | 117 | 58 | 1.97 | 8.7 |
| Envelope | | DINING- MISC | | Window Screens - SE side RI | 43 | 7 | 36 | 84 | 31 | 0 | 44 | 71 | 35 | 1.97 | 8.7 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screens - SE side - RI | 40 | 6 | 34 | 78 | 29 | 0 | 41 | 66 | 33 | 1.97 | 8.7 |
| Envelope | | BRK/ADM MISC | | Window Screens - SE side RI | 38 | 6 | 32 | 75 | 28 | 0 | 40 | 64 | 31 | 1.97 | 8.7 |
| Envelope | | Wood Siding | | Window Screens - SE side RI | 32 | 5 | 27 | 63 | 23 | 0 | 33 | 53 | 26 | 1.97 | 8.7 |
| Envelope | | MWR | | Window Screens - SE side RI | 17 | 3 | 14 | 33 | 12 | 0 | 17 | 28 | 14 | 1.97 | 8.7 |
| Envelope | | WHB | | Window Screens - SE side RI | 15 | 2 | 12 | 29 | 11 | 0 | 15 | 24 | 12 | 1.97 | 8.7 |
| Envelope | | SECURITY | | Window Screens - SE side - RI | 3 | 1 | 3 | 7 | 3 | 0 | 4 | 6 | 3 | 1.97 | 8.7 |
| Envelope | | ADMIN: MISC post 1964 | | Radiant Heat RI | 71 | 11 | 59 | 138 | 52 | 0 | 73 | 117 | 58 | 1.97 | 8.7 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | EPM RI | 355 | 0 | 355 | 630 | 36 | 0 | 27 | 694 | 338 | 1.95 | 8.8 |
| Motors | PMTR 52a | PLT-BLDG - 00263 | PMPMTR | Radiant Heat ROP | 42 | 3 | 39 | 38 | 51 | 0 | 15 | 74 | 36 | 1.92 | 9.0 |
| Heating | 38 | BHOP AIR BD006 | Unit Heaters | Radiant Heat RI | 70 | 0 | 70 | 64 | 11 | 0 | 59 | 134 | 64 | 1.92 | 9.0 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat ROP | 311 | 0 | 311 | 592 | 32 | 0 | 34 | 590 | 279 | 1.89 | 9.1 |
| Heating | 39 | BHOP HVY - BD005 | Unit Heaters | EEM RI | 116 | 0 | 116 | 103 | 18 | 0 | 98 | 220 | 103 | 1.89 | 9.1 |
| Motors | MTR 444a | DINING - 00254 | Pan Motor | EEM - RI | 114 | 8 | 105 | 163 | 76 | 0 | 41 | 198 | 92 | 1.87 | 9.2 |
| Motors | MTR 456 | WHB-CLD - 00862 | Pan Motor | VSD & EEM RI | 57 | 4 | 53 | 81 | 38 | 0 | 21 | 99 | 46 | 1.87 | 9.2 |
| Motors | MTR 453a | HOSPITL - 00166 | Pan Motor | EEM - RI | 1,180 | 35 | 1,145 | 2,597 | 63 | 10 | 511 | 2,139 | 994 | 1.87 | 9.2 |
| Motors | MTR 522a | DOR - 00308 | VENTLTR | Radiant Heat RI | 28 | 2 | 26 | 59 | 18 | 0 | 9 | 49 | 23 | 1.87 | 9.2 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | EEM - RI | 178 | 0 | 178 | 293 | 18 | 0 | 21 | 332 | 154 | 1.87 | 9.2 |
| Motors | MTR 523a | DOR - 00308 | VENTLTR | Amorphous Core/Improved Windings (No Load & Load Loss Reduction) RI | 28 | 2 | 26 | 59 | 18 | 0 | 8 | 49 | 23 | 1.86 | 9.2 |
| T&D | 66g | | Transformer | Radiant Heat RI | 1,121 | 0 | 1,121 | 1,037 | 804 | 0 | 234 | 2,075 | 954 | 1.85 | 9.3 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | EEM RI | 1,887 | 0 | 1,887 | 3,596 | 256 | 0 | 476 | 3,376 | 1,489 | 1.79 | 9.6 |
| Motors | MTR 527 | Pan Heating | Cool System Pan | EEM - RI | 17,765 | 0 | 17,765 | 18,601 | 18,945 | 0 | 6,406 | 31,140 | 13,375 | 1.75 | 9.8 |
| Motors | MTR 62 | BRK/ADM - 00226 | COOL | EEM - RI | 814 | 0 | 814 | 853 | 868 | 0 | 294 | 1,428 | 613 | 1.75 | 9.8 |
| Motors | MTR 60 | BRK/ADM - 00110 | COOL | EEM RI | 217 | 0 | 217 | 227 | 232 | 0 | 78 | 381 | 164 | 1.75 | 9.8 |
| Motors | MTR 59 | BRK/ADM - 00108 | COOL | EEM RI | 174 | 0 | 174 | 182 | 185 | 0 | 63 | 305 | 131 | 1.75 | 9.8 |
| Motors | MTR 56 | BRK/ADM - 00105 | COOL | EEM RI | 174 | 0 | 174 | 182 | 185 | 0 | 63 | 305 | 131 | 1.75 | 9.8 |
| Motors | MTR 61 | BRK/ADM - 00111 | COOL | EEM - RI | 174 | 0 | 174 | 182 | 185 | 0 | 63 | 305 | 131 | 1.75 | 9.8 |
| Motors | MTR 57 | BRK/ADM 00106 | COOL | EEM - RI | 174 | 0 | 174 | 182 | 185 | 0 | 63 | 305 | 131 | 1.75 | 9.8 |
| Motors | MTR 58 | BRK/ADM - 00107 | COOL | EEM - RI | 174 | 0 | 174 | 182 | 185 | 0 | 63 | 305 | 131 | 1.75 | 9.8 |
| Motors | MTR 82 | CLUB - 20018 | COOL | High Eff Grnd Source HP RI | 11 | 0 | 11 | 11 | 12 | 0 | 4 | 19 | 8 | 1.75 | 9.8 |
| Pum. Htg. HVAC | 2b | | Pan Motor | EEM - RI | 411,535 | 0 | 411,535 | 479,316 | 234,468 | 16,370 | 14,052 | 746,102 | 304,567 | 1.74 | 9.9 |
| Motors | MTR 479a | REC 00905 | Pan Motor | EEM - RI | 22 | 2 | 26 | 41 | 16 | 0 | 10 | 46 | 19 | 1.74 | 9.9 |
| Motors | MTR 480a | REC 00905 | Pan Motor | EEM - RI | 22 | 2 | 26 | 41 | 16 | 0 | 10 | 46 | 19 | 1.74 | 9.9 |
| Motors | MTR 478a | REC 00905 | Pan Motor | VSD & EEM RI | 22 | 2 | 26 | 41 | 16 | 0 | 10 | 46 | 19 | 1.74 | 9.9 |
| Motors | MTR 451e | HOSPITL - 00166 | COOL | EEM RI | 2,318 | 68 | 2,250 | 4,859 | 73 | 10 | 1,013 | 3,909 | 1,659 | 1.74 | 9.9 |
| Motors | MTR 79 | BRK/ADM - 00275 | COOL | EEM RI | 76 | 0 | 76 | 80 | 81 | 0 | 30 | 132 | 56 | 1.73 | 9.9 |
| Motors | MTR 63 | BRK/ADM - 00226 | COOL | EEM - RI | 76 | 0 | 76 | 80 | 81 | 0 | 30 | 132 | 56 | 1.73 | 9.9 |
| Motors | MTR 66 | BRK/ADM 00261 | COOL | EEM - RI | 11 | 0 | 11 | 11 | 12 | 0 | 4 | 19 | 8 | 1.73 | 9.9 |
| Motors | MTR 78 | BRK/ADM 00275 | COOL | EEM - RI | 814 | 0 | 814 | 853 | 873 | 0 | 320 | 1,411 | 596 | 1.73 | 9.9 |
| Motors | MTR 77 | BRK/ADM 00273 | COOL | EEM RI | 814 | 0 | 814 | 853 | 873 | 0 | 320 | 1,411 | 596 | 1.73 | 9.9 |
| Motors | MTR 76 | BRK/ADM 00273 | COOL | EEM RI | 22 | 0 | 22 | 23 | 23 | 0 | 9 | 38 | 16 | 1.73 | 9.9 |
| Motors | MTR 64 | BRK/ADM - 00226 | COOL | EEM - RI | 22 | 0 | 22 | 23 | 23 | 0 | 9 | 38 | 16 | 1.73 | 9.9 |
| Motors | MTR 80 | BRK/ADM - 00275 | COOL | EEM RI | 22 | 0 | 22 | 23 | 23 | 0 | 9 | 38 | 16 | 1.73 | 9.9 |
| Motors | PMTR 116 | PUMP - 00043 | PMPMTR | EEM RI | 208 | 16 | 193 | 164 | 244 | 0 | 75 | 333 | 140 | 1.73 | 10.0 |
| Motors | MTR 452c | HOSPITL 00166 | Pan Motor | VSD & EEM RI | 1,570 | 47 | 1,523 | 3,273 | 47 | 10 | 484 | 2,426 | 1,103 | 1.72 | 10.0 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 29 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 162 | 14 | 148 | 194 | 116 | 0 | 56 | 255 | 106 | 1.72 | 10.0 |
| Motors | MTR 44 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 169 | 14 | 155 | 192 | 133 | 0 | 59 | 266 | 110 | 1.71 | 10.1 |
| Motors | MTR-75 | BRK'ADM - 00273 | COOL | EEM - RI | 76 | 0 | 76 | 81 | 82 | 0 | 34 | 129 | 53 | 1.69 | 10.2 |
| Motors | MTR 74 | BRK'ADM - 00267 | COOL | EEM - RI | 11 | 0 | 11 | 12 | 12 | 0 | 5 | 18 | 8 | 1.69 | 10.2 |
| Motors | MTR 69 | BRK'ADM - 00264 | COOL | EEM - RI | 11 | 0 | 11 | 12 | 12 | 0 | 5 | 18 | 8 | 1.69 | 10.2 |
| Motors | MTR 68 | BRK'ADM - 00262 | COOL | EEM - RI | 11 | 0 | 11 | 12 | 12 | 0 | 5 | 18 | 8 | 1.69 | 10.2 |
| Motors | MTR 72 | BRK'ADM - 00265 | COOL | EEM - RI | 11 | 0 | 11 | 12 | 12 | 0 | 5 | 18 | 8 | 1.69 | 10.2 |
| Motors | MTR 70 | BRK'ADM - 00264 | COOL | EEM - RI | 11 | 0 | 11 | 12 | 12 | 0 | 5 | 18 | 8 | 1.69 | 10.2 |
| Motors | MTR 67 | BRK'ADM - 00262 | COOL | EEM - RI | 771 | 0 | 771 | 819 | 834 | 0 | 349 | 1,305 | 534 | 1.69 | 10.2 |
| Motors | MTR 71 | BRK'ADM - 00265 | COOL | EEM - RI | 771 | 0 | 771 | 819 | 834 | 0 | 349 | 1,305 | 534 | 1.69 | 10.2 |
| Motors | MTR-73 | BRK'ADM - 00267 | COOL | EEM - RI | 771 | 0 | 771 | 819 | 834 | 0 | 349 | 1,305 | 534 | 1.69 | 10.2 |
| Motors | MTR 65 | BRK'ADM - 00261 | COOL | PEM - RI | 771 | 0 | 771 | 819 | 834 | 0 | 349 | 1,305 | 534 | 1.69 | 10.2 |
| Motors | MTR 454e | HOSPITL - 00166 | Pan Motor | VBD & EEM - RI | 771 | 0 | 771 | 819 | 834 | 0 | 349 | 1,305 | 534 | 1.69 | 10.2 |
| Motors | MTR 423a | ADMIN 00988 | Pan Motor | EEM - RI | 3,071 | 91 | 2,980 | 6,319 | 72 | 10 | 1,345 | 5,035 | 2,055 | 1.69 | 10.2 |
| Motors | PMTR 34 | GROCERY - 00920 | power wash | EEM - RI | 85 | 7 | 78 | 85 | 71 | 0 | 30 | 126 | 49 | 1.63 | 10.4 |
| Motors | PMTR 55a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 64 | 5 | 59 | 65 | 54 | 0 | 23 | 97 | 37 | 1.62 | 10.6 |
| Motors | PMTR 56a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 162 | 14 | 148 | 126 | 170 | 0 | 56 | 240 | 92 | 1.62 | 10.6 |
| DHW & AC | 27 | 00323 | PEG UNIT | Install Desuperheater - RI | 162 | 14 | 148 | 126 | 170 | 0 | 56 | 240 | 92 | 1.62 | 10.6 |
| Motors | PMTR 74 | PUMP - 00042 | PMPMTR | EEM - RI | 65 | 0 | 65 | 85 | 99 | 50 | 29 | 105 | 40 | 1.61 | 10.7 |
| Motors | PMTR 75 | PUMP - 00044 | PMPMTR | EEM - RI | 57 | 4 | 53 | 67 | 38 | 0 | 21 | 85 | 32 | 1.61 | 10.7 |
| DHW & AC | 37 | 01322 | AIR CONDITIONER | Install Desuperheater RI | 28 | 2 | 26 | 34 | 19 | 0 | 10 | 42 | 16 | 1.61 | 10.7 |
| DHW & AC | 43 | 01322 | PEG UNIT | Install Desuperheater - RI | 78 | 0 | 78 | 51 | 158 | 50 | 35 | 124 | 46 | 1.60 | 10.8 |
| Motors | MTR 409 | WHS 00818 | EVAP | EEM - RI | 78 | 0 | 78 | 51 | 158 | 50 | 35 | 124 | 46 | 1.60 | 10.8 |
| Motors | PMTR 25 | BRK'ADM - 00273 | PMPMTR | EEM - RI | 81 | 7 | 74 | 86 | 58 | 0 | 28 | 117 | 42 | 1.57 | 11.0 |
| Motors | MTR 94 | MTRPOOL - 00680 | COOL | EEM - RI | 12 | 1 | 11 | 8 | 14 | 0 | 4 | 17 | 6 | 1.56 | 11.0 |
| Motors | PMTR 61e | PLT-BLDG 00109 | PMPMTR | VBD & EEM - RI | 11 | 0 | 11 | 8 | 11 | 0 | 3 | 17 | 6 | 1.54 | 11.2 |
| Motors | MTR 85 | DINING 00254 | COOL | EEM - RI | 235 | 8 | 227 | 394 | 44 | 20 | 71 | 347 | 120 | 1.53 | 11.3 |
| Motors | PMTR 38 | HOSPITL - 00166 | PMPMTR | EEM - RI | 11 | 0 | 11 | 9 | 12 | 0 | 4 | 16 | 6 | 1.52 | 11.3 |
| Motors | MTR 81 | CLINIC 00171 | COOL | EEM - RI | 52 | 2 | 50 | 78 | 15 | 0 | 19 | 75 | 25 | 1.51 | 11.4 |
| Motors | MTR 95 | MTRPOOL - 00857 | COOL | EEM - RI | 11 | 0 | 11 | 9 | 12 | 0 | 4 | 16 | 5 | 1.50 | 11.5 |
| Motors | MTR 432a | BRK'ADM - 00273 | Pan Motor | EEM - RI | 11 | 0 | 11 | 9 | 12 | 0 | 4 | 16 | 5 | 1.50 | 11.5 |
| Motors | MTR 433a | BRK'ADM - 00273 | Pan Motor | EEM - RI | 28 | 2 | 26 | 30 | 19 | 0 | 10 | 39 | 13 | 1.49 | 11.6 |
| Motors | MTR 12 | SHOP - 00367 | AIRCOMP | EEM - RI | 28 | 2 | 26 | 30 | 19 | 0 | 10 | 39 | 13 | 1.49 | 11.6 |
| Motors | MTR 435a | BRK'ADM - 00275 | Pan Motor | EEM - RI | 81 | 7 | 74 | 67 | 72 | 0 | 28 | 110 | 36 | 1.49 | 11.6 |
| Motors | MTR 434a | BRK'ADM - 00275 | Pan Motor | EEM - RI | 28 | 2 | 26 | 32 | 20 | 0 | 13 | 39 | 13 | 1.48 | 11.6 |
| Motors | MTR 8 | MTRPOOL - 00646 | AIRCOMP | EEM - RI | 28 | 2 | 26 | 32 | 20 | 0 | 13 | 39 | 13 | 1.48 | 11.6 |
| Motors | MTR 96 | WHS - 20001 | COOL | EEM - RI | 30 | 1 | 29 | 26 | 28 | 0 | 11 | 42 | 14 | 1.47 | 11.7 |
| Motors | MTR 455e | HOSPITL - 00166 | Pan Motor | VBD & EEM - RI | 43 | 0 | 43 | 34 | 47 | 0 | 17 | 64 | 21 | 1.47 | 11.7 |
| Motors | MTR 282 | MTRPOOL 00600 | EVAP | EEM - RI | 755 | 20 | 735 | 1,390 | 21 | 20 | 310 | 1,081 | 346 | 1.47 | 11.7 |
| Motors | MTR 99 | ADMIN 00152 | EVAP | EEM - RI | 28 | 2 | 26 | 29 | 20 | 0 | 10 | 38 | 12 | 1.45 | 11.8 |
| Motors | MTR 54a | ADMIN 00988 | COOL | EEM - RI | 32 | 2 | 30 | 33 | 22 | 0 | 11 | 43 | 13 | 1.45 | 11.9 |
| Motors | MTR 53a | ADMIN - 00988 | COOL | EEM - RI | 32 | 2 | 30 | 34 | 23 | 0 | 13 | 43 | 13 | 1.45 | 11.9 |
| Motors | MTR 55a | ADMIN 00988 | COOL | EEM - RI | 32 | 2 | 30 | 34 | 23 | 0 | 13 | 43 | 13 | 1.45 | 11.9 |
| Motors | MTR 83 | DINING 00222 | COOL | EEM - RI | 32 | 2 | 30 | 34 | 23 | 0 | 13 | 43 | 13 | 1.45 | 11.9 |
| Motors | MTR 84 | DINING - 00222 | COOL | EEM - RI | 22 | 0 | 22 | 17 | 24 | 0 | 10 | 31 | 9 | 1.43 | 12.0 |
| Motors | PMTR 29 | DGR 00308 | PMPMTR | EEM - RI | 22 | 0 | 22 | 17 | 24 | 0 | 10 | 31 | 9 | 1.43 | 12.0 |
| TAD | 62k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 32 | 2 | 30 | 29 | 24 | 0 | 11 | 42 | 13 | 1.43 | 12.0 |
| TAD | 83k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,087 | 0 | 1,087 | 513 | 165 | 0 | 869 | 1,547 | 459 | 1.42 | 12.1 |
| TAD | 67k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 5,262 | 0 | 5,262 | 2,525 | 821 | 0 | 4,009 | 7,414 | 2,152 | 1.41 | 12.1 |
| Motors | MTR-509 | BRK'ADM - 00251 | HEAT | EEM - RI | 1,087 | 0 | 1,087 | 468 | 139 | 0 | 869 | 1,476 | 389 | 1.36 | 12.2 |
| Motors | MTR-518 | BRK'ADM - 00252 | HEAT | EEM - RI | 315 | 0 | 315 | 451 | 77 | 0 | 103 | 425 | 110 | 1.35 | 12.7 |
| Motors | MTR 503 | BRK'ADM - 00250 | HEAT | EEM - RI | 315 | 0 | 315 | 451 | 77 | 0 | 103 | 425 | 110 | 1.35 | 12.8 |
| Motors | MTR-515 | BRK'ADM - 00252 | HEAT | EEM - RI | 315 | 0 | 315 | 451 | 77 | 0 | 103 | 425 | 110 | 1.35 | 12.8 |
| Motors | MTR-507 | BRK'ADM - 00251 | HEAT | EEM - RI | 174 | 0 | 174 | 249 | 43 | 0 | 57 | 234 | 61 | 1.35 | 12.8 |
| Motors | MTR-502 | BRK'ADM - 00250 | HEAT | EEM - RI | 174 | 0 | 174 | 249 | 43 | 0 | 57 | 234 | 61 | 1.35 | 12.8 |
| Motors | MTR-499 | BRK'ADM - 00249 | HEAT | EEM - RI | 174 | 0 | 174 | 249 | 43 | 0 | 57 | 234 | 61 | 1.35 | 12.8 |
| Motors | MTR 513 | BRK'ADM - 00251 | HEAT | EEM - RI | 174 | 0 | 174 | 249 | 43 | 0 | 57 | 234 | 61 | 1.35 | 12.8 |
| Motors | MTR-520 | BRK'ADM 00252 | HEAT | EEM - RI | 43 | 0 | 43 | 62 | 11 | 0 | 14 | 59 | 15 | 1.35 | 12.8 |
| Motors | MTR-504 | BRK'ADM - 00250 | HEAT | EEM - RI | 43 | 0 | 43 | 62 | 11 | 0 | 14 | 59 | 15 | 1.35 | 12.8 |
| Motors | MTR-498 | BRK'ADM - 00249 | HEAT | EEM - RI | 43 | 0 | 43 | 62 | 11 | 0 | 14 | 59 | 15 | 1.35 | 12.8 |
| Motors | MTR 495 | BRK'ADM - 00249 | HEAT | EEM - RI | 43 | 0 | 43 | 62 | 11 | 0 | 14 | 59 | 15 | 1.35 | 12.8 |
| Motors | MTR 516 | BRK'ADM - 00252 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-496 | BRK'ADM - 00249 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 510 | BRK'ADM - 00251 | HEAT | PPM - PI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-514 | BRK'ADM - 00252 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-505 | BRK'ADM - 00250 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-500 | BRK'ADM - 00250 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-501 | BRK'ADM 00250 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-506 | BRK'ADM - 00250 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-511 | BRK'ADM - 00251 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 493 | BRK'ADM - 00249 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 517 | BRK'ADM - 00252 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 508 | BRK'ADM - 00251 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-512 | BRK'ADM - 00251 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR-519 | BRK'ADM - 00252 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 497 | BRK'ADM - 00249 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 521 | MTRPOOL - 00681 | HEAT | EEM - RI | 11 | 0 | 11 | 16 | 3 | 0 | 4 | 15 | 4 | 1.35 | 12.8 |
| Motors | MTR 50a | WHHCLD - 00862 | CONDMTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 3 | 15 | 4 | 1.35 | 12.8 |
| TAD | 45k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 64 | 5 | 59 | 58 | 44 | 0 | 23 | 79 | 20 | 1.34 | 12.9 |
| Motors | MTR 494 | BRK'ADM - 00249 | HEAT | EEM - RI | 1,475 | 0 | 1,475 | 577 | 195 | 0 | 1,188 | 1,960 | 485 | 1.33 | 13.0 |
| Motors | MTR 491 | BRK'ADM - 00110 | HEAT | EEM - RI | 315 | 0 | 315 | 453 | 77 | 0 | 114 | 417 | 103 | 1.33 | 13.0 |
| Motors | MTR 492 | BRK'ADM - 00111 | HEAT | EEM - RI | 217 | 0 | 217 | 313 | 53 | 0 | 78 | 288 | 71 | 1.33 | 13.0 |
| Motors | MTR 490 | BRK'ADM - 00108 | HEAT | EEM - RI | 174 | 0 | 174 | 250 | 43 | 0 | 63 | 230 | 57 | 1.33 | 13.0 |
| Motors | MTR 489 | BRK'ADM 00107 | HEAT | EEM - RI | 174 | 0 | 174 | 250 | 43 | 0 | 63 | 230 | 57 | 1.33 | 13.0 |
| Motors | MTR 488 | BRK'ADM - 00106 | HEAT | EEM - RI | 174 | 0 | 174 | 250 | 43 | 0 | 63 | 230 | 57 | 1.33 | 13.0 |
| Motors | MTR 487 | BRK'ADM 00105 | HEAT | EEM - RI | 174 | 0 | 174 | 250 | 43 | 0 | 63 | 230 | 57 | 1.33 | 13.0 |
| TAD | 39k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 174 | 0 | 174 | 250 | 43 | 0 | 63 | 230 | 57 | 1.33 | 13.0 |
| TAD | 50k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 1,822 | 0 | 1,822 | 612 | 209 | 0 | 1,309 | 2,129 | 507 | 1.31 | 13.1 |
| TAD | 32k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 1,720 | 0 | 1,720 | 645 | 224 | 0 | 1,326 | 2,255 | 534 | 1.31 | 13.1 |
| | | | | | 1,256 | 0 | 1,256 | 464 | 157 | 0 | 1,015 | 1,636 | 380 | 1.30 | 13.2 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources

## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAD | 63b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 826 | 0 | 826 | 276 | 89 | 0 | 709 | 1,075 | 249 | 1.30 | 13.3 |
| TAD | 59b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 4,349 | 0 | 4,349 | 1,640 | 531 | 0 | 3,476 | 5,646 | 1,297 | 1.30 | 13.3 |
| TAD | 65b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 725 | 0 | 725 | 273 | 89 | 0 | 579 | 941 | 216 | 1.30 | 13.3 |
| TAD | 81b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,033 | 0 | 1,033 | 412 | 141 | 0 | 787 | 1,340 | 308 | 1.30 | 13.3 |
| Motors | MTR 30 | ADMIN 01322 | COMP/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 48 | ADMIN - 01322 | COND/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 47 | ADMIN 01322 | COND/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 31 | ADMIN 01322 | COMP/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 46 | ADMIN 01322 | COND/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 33 | ADMIN 01322 | COMP/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 32 | ADMIN - 01322 | COMP/MTR | EEM - RI | 11 | 0 | 11 | 15 | 3 | 0 | 4 | 14 | 3 | 1.30 | 13.3 |
| Motors | MTR 476 | PLT BLDG 00263 | Pan Motor | EEM - RI | 28 | 2 | 26 | 41 | 4 | 0 | 10 | 34 | 8 | 1.29 | 13.4 |
| TAD | 56b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,343 | 0 | 2,343 | 750 | 247 | 0 | 2,015 | 3,012 | 669 | 1.29 | 13.4 |
| TAD | 58b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 703 | 0 | 703 | 225 | 74 | 0 | 604 | 904 | 201 | 1.29 | 13.4 |
| TAD | 21b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 5,179 | 0 | 5,179 | 1,798 | 603 | 0 | 4,608 | 6,808 | 1,629 | 1.28 | 13.5 |
| TAD | 7b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,208 | 0 | 1,208 | 410 | 136 | 0 | 993 | 1,539 | 330 | 1.27 | 13.5 |
| TAD | 53b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 4,009 | 0 | 4,009 | 1,419 | 452 | 0 | 3,215 | 5,085 | 1,076 | 1.27 | 13.6 |
| TAD | 85b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,292 | 0 | 1,292 | 396 | 152 | 0 | 1,071 | 1,618 | 327 | 1.25 | 13.7 |
| TAD | 14b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 755 | 0 | 755 | 245 | 80 | 0 | 618 | 943 | 187 | 1.25 | 13.8 |
| Motors | MTR 13a | BRK/ADM 00273 | PMP/MTR | EEM - RI | 42 | 3 | 39 | 31 | 32 | 0 | 15 | 48 | 10 | 1.25 | 13.8 |
| TAD | 87f | | Transformer | Improvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROP | 25,141 | 0 | 25,141 | 5,853 | 3,492 | 0 | 22,013 | 31,358 | 6,216 | 1.25 | 13.8 |
| TAD | 46b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 560 | 0 | 560 | 155 | 53 | 0 | 483 | 691 | 131 | 1.23 | 14.0 |
| Motors | MTR 3a | ADMIN 00988 | PMP/MTR | VSD & EEM - RI | 286 | 5 | 280 | 424 | 42 | 10 | 112 | 345 | 65 | 1.23 | 14.0 |
| TAD | 40b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 352 | 0 | 352 | 94 | 32 | 0 | 304 | 430 | 78 | 1.22 | 14.1 |
| TAD | 51b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 560 | 0 | 560 | 149 | 52 | 0 | 483 | 683 | 123 | 1.22 | 14.1 |
| TAD | 33b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 477 | 0 | 477 | 125 | 42 | 0 | 412 | 579 | 102 | 1.21 | 14.2 |
| TAD | 60b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,652 | 0 | 1,652 | 441 | 143 | 0 | 1,417 | 2,001 | 349 | 1.21 | 14.2 |
| TAD | 29b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,512 | 0 | 2,512 | 762 | 242 | 0 | 2,031 | 3,035 | 523 | 1.21 | 14.3 |
| TAD | 37b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,256 | 0 | 1,256 | 381 | 121 | 0 | 1,015 | 1,518 | 262 | 1.21 | 14.3 |
| TAD | 35b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 419 | 0 | 419 | 127 | 40 | 0 | 338 | 506 | 87 | 1.21 | 14.3 |
| Motors | MTR 426a | ADMIN 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| Motors | MTR 430a | ADMIN 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| Motors | MTR 422a | ADMIN 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| Motors | MTR 429a | ADMIN 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| Motors | MTR 421a | ADMIN - 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| Motors | MTR 425a | ADMIN 00988 | Pan Motor | EEM - RI | 28 | 2 | 26 | 23 | 19 | 0 | 10 | 32 | 5 | 1.20 | 14.3 |
| TAD | 42b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 9,094 | 0 | 9,094 | 2,664 | 894 | 0 | 7,327 | 10,885 | 1,791 | 1.20 | 14.4 |
| TAD | 45b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 492 | 0 | 492 | 144 | 48 | 0 | 396 | 588 | 97 | 1.20 | 14.4 |
| TAD | 22b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,285 | 0 | 2,285 | 561 | 188 | 0 | 1,982 | 2,731 | 446 | 1.20 | 14.4 |
| TAD | 6b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,377 | 0 | 1,377 | 331 | 110 | 0 | 1,203 | 1,644 | 267 | 1.19 | 14.4 |
| TAD | 54b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 3,749 | 0 | 3,749 | 939 | 299 | 0 | 3,223 | 4,462 | 713 | 1.19 | 14.5 |
| TAD | 77b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 685 | 0 | 685 | 183 | 60 | 0 | 570 | 814 | 129 | 1.19 | 14.5 |
| TAD | 13b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,435 | 0 | 1,435 | 350 | 107 | 0 | 1,250 | 1,687 | 252 | 1.18 | 14.6 |
| TAD | 69b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 649 | 0 | 649 | 202 | 64 | 0 | 495 | 762 | 113 | 1.17 | 14.7 |
| TAD | 18b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 668 | 0 | 668 | 182 | 59 | 0 | 543 | 783 | 115 | 1.17 | 14.7 |
| TAD | 24b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 501 | 0 | 501 | 136 | 44 | 0 | 407 | 587 | 86 | 1.17 | 14.7 |
| TAD | 71b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,488 | 0 | 1,488 | 438 | 149 | 0 | 1,135 | 1,722 | 234 | 1.16 | 14.9 |
| TAD | 8b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,410 | 0 | 1,410 | 358 | 108 | 0 | 1,158 | 1,624 | 214 | 1.15 | 14.9 |
| TAD | 2b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,309 | 0 | 1,309 | 333 | 100 | 0 | 1,075 | 1,508 | 199 | 1.15 | 14.9 |
| TAD | 9b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 302 | 0 | 302 | 77 | 23 | 0 | 248 | 348 | 46 | 1.15 | 14.9 |
| TAD | 12b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,637 | 0 | 1,637 | 417 | 131 | 0 | 1,338 | 1,886 | 249 | 1.15 | 14.9 |
| TAD | 16b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,385 | 0 | 1,385 | 352 | 111 | 0 | 1,132 | 1,596 | 211 | 1.15 | 14.9 |
| TAD | 30b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,863 | 0 | 2,863 | 615 | 195 | 0 | 2,475 | 3,285 | 422 | 1.15 | 15.0 |
| TAD | 43b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,494 | 0 | 1,494 | 310 | 104 | 0 | 1,288 | 1,702 | 208 | 1.14 | 15.1 |
| TAD | 49b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 560 | 0 | 560 | 116 | 39 | 0 | 483 | 638 | 78 | 1.14 | 15.1 |
| TAD | 27b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,285 | 0 | 2,285 | 439 | 142 | 0 | 1,982 | 2,563 | 278 | 1.12 | 15.4 |
| TAD | 19b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 762 | 0 | 762 | 146 | 47 | 0 | 661 | 854 | 93 | 1.12 | 15.4 |
| TAD | 25b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 381 | 0 | 381 | 73 | 24 | 0 | 330 | 427 | 46 | 1.12 | 15.4 |
| TAD | 17b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,722 | 0 | 1,722 | 320 | 100 | 0 | 1,500 | 1,920 | 198 | 1.11 | 15.4 |
| TAD | 64b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 609 | 0 | 609 | 78 | 25 | 0 | 575 | 679 | 70 | 1.11 | 15.4 |
| TAD | 84b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 3,683 | 0 | 3,683 | 480 | 168 | 0 | 3,444 | 4,092 | 409 | 1.11 | 15.5 |
| TAD | 82b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 737 | 0 | 737 | 96 | 34 | 0 | 689 | 818 | 82 | 1.11 | 15.5 |
| TAD | 57b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 518 | 0 | 518 | 64 | 21 | 0 | 490 | 575 | 57 | 1.11 | 15.5 |
| TAD | 3b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 688 | 0 | 688 | 124 | 37 | 0 | 602 | 763 | 74 | 1.11 | 15.5 |
| TAD | 5b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 153 | 0 | 153 | 28 | 8 | 0 | 134 | 169 | 16 | 1.11 | 15.5 |
| TAD | 11b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 765 | 0 | 765 | 138 | 43 | 0 | 666 | 848 | 83 | 1.11 | 15.5 |
| TAD | 74b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 783 | 0 | 783 | 197 | 68 | 0 | 597 | 862 | 79 | 1.10 | 15.6 |
| Motors | MTR 111 | ADMIN - 00281 | BVAP | EEM - RI | 32 | 2 | 30 | 26 | 18 | 0 | -11 | 33 | 3 | 1.10 | 15.7 |
| TAD | 86b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 952 | 0 | 952 | 112 | 43 | 0 | 889 | 1,044 | 92 | 1.10 | 15.7 |
| TAD | 1b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 105 | 0 | 105 | 17 | 5 | 0 | 92 | 114 | 10 | 1.09 | 15.8 |
| TAD | 47b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 826 | 0 | 826 | 88 | 30 | 0 | 782 | 899 | 74 | 1.09 | 15.8 |
| Motors | MTR 12a | BRK/ADM - 00273 | PMP/MTR | EEM - RI | 42 | 3 | 39 | 28 | 29 | 0 | 15 | 42 | 3 | 1.09 | 15.8 |
| TAD | 41b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 519 | 0 | 519 | 53 | 18 | 0 | 492 | 563 | 44 | 1.08 | 15.9 |
| TAD | 52b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 826 | 0 | 826 | 84 | 29 | 0 | 782 | 895 | 70 | 1.08 | 15.9 |
| TAD | 34b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 352 | 0 | 352 | 35 | 12 | 0 | 333 | 380 | 29 | 1.08 | 15.9 |
| Motors | MTR 31a | DINING 00254 | PMP/MTR | EEM - RI | 85 | 7 | 78 | 43 | 71 | 0 | 30 | 84 | 6 | 1.08 | 15.9 |
| TAD | 61b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,232 | 0 | 2,232 | 229 | 74 | 0 | 2,110 | 2,413 | 181 | 1.08 | 15.9 |
| TAD | 78b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,313 | 0 | 2,313 | 251 | 86 | 0 | 2,163 | 2,500 | 187 | 1.08 | 15.9 |
| TAD | 80b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,157 | 0 | 1,157 | 125 | 43 | 0 | 1,082 | 1,250 | 93 | 1.08 | 15.9 |
| TAD | 23b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 561 | 0 | 561 | 53 | 18 | 0 | 533 | 605 | 42 | 1.07 | 16.0 |
| TAD | 55b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 3,971 | 0 | 3,971 | 382 | 122 | 0 | 3,737 | 4,260 | 289 | 1.07 | 16.1 |
| TAD | 76b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,514 | 0 | 1,514 | 156 | 51 | 0 | 1,416 | 1,623 | 109 | 1.07 | 16.1 |
| Motors | MTR 2*4 | GROCERY 00920 | EVAP | EEM - RI | 85 | 6 | 79 | 69 | 47 | 0 | 31 | 85 | 5 | 1.07 | 16.1 |
| TAD | 15b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 423 | 0 | 423 | 37 | 12 | 0 | 402 | 451 | 28 | 1.07 | 16.1 |
| TAD | 75b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,315 | 0 | 1,315 | 122 | 50 | 0 | 1,230 | 1,402 | 87 | 1.07 | 16.2 |
| TAD | 38b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 703 | 0 | 703 | 58 | 18 | 0 | 666 | 743 | 40 | 1.06 | 16.3 |
| TAD | 31b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 586 | 0 | 586 | 48 | 15 | 0 | 555 | 619 | 33 | 1.06 | 16.3 |
| TAD | 36b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 352 | 0 | 352 | 29 | 9 | 0 | 333 | 371 | 20 | 1.06 | 16.3 |
| TAD | 44b | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 2,339 | 0 | 2,339 | 194 | 63 | 0 | 2,215 | 2,464 | 125 | 1.05 | 16.3 |

# Table 3.9b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources
## Annualized Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 273 | GROCERY (0920 | EVAP | EEM - RI | 85 | 6 | 79 | 71 | 48 | 0 | 36 | 83 | 4 | 1.05 | 16.4 |
| TAD | 68h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 727 | 0 | 727 | 62 | 19 | 0 | 680 | 761 | 34 | 1.05 | 16.4 |
| TAD | 70h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 363 | 0 | 363 | 31 | 10 | 0 | 340 | 381 | 17 | 1.05 | 16.4 |
| TAD | 79h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 578 | 0 | 578 | 49 | 18 | 0 | 541 | 605 | 27 | 1.05 | 16.4 |
| TAD | 56h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 561 | 0 | 561 | 41 | 13 | 0 | 533 | 587 | 26 | 1.05 | 16.5 |
| TAD | 55h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 561 | 0 | 561 | 41 | 13 | 0 | 533 | 587 | 26 | 1.05 | 16.5 |
| TAD | 50h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 374 | 0 | 374 | 28 | 9 | 0 | 355 | 392 | 17 | 1.05 | 16.5 |
| TAD | 72h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 417 | 0 | 417 | 33 | 11 | 0 | 390 | 434 | 18 | 1.04 | 16.5 |
| TAD | 4h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 169 | 0 | 169 | 12 | 4 | 0 | 161 | 176 | 7 | 1.04 | 16.5 |
| TAD | 10h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 1,057 | 0 | 1,057 | 73 | 23 | 0 | 1,005 | 1,101 | 48 | 1.04 | 16.5 |
| Motors | MTR 472a | MWR 01322 | Pun Motor | EEM - RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 465a | MWR 01322 | Pun Motor | EEM - RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 468a | MWR 01322 | Pun Motor | EEM RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 463a | MWR - 01322 | Pun Motor | EEM - RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 470a | MWR 01322 | Pun Motor | EEM RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 471a | MWR - 01322 | Pun Motor | EEM RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| Motors | MTR 473a | MWR - 01322 | Pun Motor | EEM - RI | 30 | 1 | 29 | 31 | 10 | 0 | 11 | 50 | 1 | 1.03 | 16.7 |
| TAD | 73h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 3,506 | 0 | 3,506 | 240 | 83 | 0 | 3,279 | 3,602 | 96 | 1.03 | 16.8 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 253 | 250 ton chiller | Reset chilled and condenser water temps - RI | 334 | 450 | 334 | 450 | 201,183 | 6,707 11 | 6 707 11 | 0 0 |
| AC | 2 | Bldg 263 | 554 ton chiller | Reset chilled and condenser water temps - RI | 632 | 949 | 632 | 949 | 398,702 | 6,646 03 | 6 584 96 | 0 0 |
| AC | 3 | Bldg 273 | 200 ton chiller | Reset chilled and condenser water temps - RI | 935 | 1,129 | 935 | 1,129 | 537,789 | 5,976 43 | 4 637 24 | 0 0 |
| T&D | | Substation | Sub Transformers | Conservation Voltage Reduction - RI | 3,029 | 3,257 | 3,029 | 3,257 | 1,504,413 | 1,381 20 | 967 62 | 0 0 |
| HVAC | 6 | MtrPool | Programmable T-Stat | Night Setback - RI | 6,468 | 3,303 | 6,468 | 3,303 | 1,924,389 | 499 60 | 132 64 | 0 0 |
| Lighting | OS-8b | Highbay | T8 Lighting | T8 + Occupancy Controls - RI | 8,530 | 3,303 | 8,530 | 3,303 | 3,006,578 | 195 58 | 94 36 | 0 1 |
| Envelope | MT-12 | | Leaky | Weatherization - RI | 9,771 | 4,207 | 9,771 | 4,207 | 3,654,795 | 150 67 | 73 29 | 0 1 |
| HVAC | 4 | Comcatn | Programmable T-Stat | Night Setback - RI | 10,735 | 4,231 | 10,735 | 4,231 | 3,791,219 | 144 09 | 66 68 | 0 1 |
| HVAC | 3 | Clinic | Programmable T-Stat | Night Setback - RI | 11,379 | 4,259 | 11,379 | 4,259 | 3,903,763 | 137 62 | 55 18 | 0 1 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback - RI | 18,963 | 4,360 | 18,963 | 4,360 | 4,813,010 | 99 93 | 46 28 | 0 2 |
| Envelope | | Masonite Siding: post 1950 | | Weatherization - RI | 19,717 | 4,856 | 19,717 | 4,856 | 5,144,374 | 92 88 | 46 17 | 0 2 |
| Lighting | OS-7b | Hallway | T8 Lighting | T8 + Occupancy Controls - RI | 20,632 | 4,856 | 20,632 | 4,856 | 5,614,271 | 84 20 | 41 89 | 0 2 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback - RI | 20,907 | 4,861 | 20,907 | 4,861 | 5,650,239 | 83 46 | 35 63 | 0 2 |
| Envelope | | Metal Siding | | Weatherization - RI | 21,931 | 5,533 | 21,931 | 5,533 | 6,096,081 | 75 20 | 33 69 | 0 2 |
| Lighting | OS-4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 22,546 | 5,533 | 22,546 | 5,533 | 6,411,151 | 70 51 | 32 26 | 0 2 |
| Envelope | Other | U Shaped Bldgs: Other | | Weatherization - RI | 22,928 | 5,784 | 22,928 | 5,784 | 6,577,196 | 68 41 | 32 15 | 0 3 |
| Envelope | | Masonite Siding pre 1950 | | Weatherization - RI | 24,755 | 6,984 | 24,755 | 6,984 | 7,371,598 | 60 84 | 32 01 | 0 3 |
| Lighting | OS-3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 25,003 | 6,984 | 25,003 | 6,984 | 7,498,206 | 59 89 | 31 63 | 0 3 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Weatherization - RI | 25,560 | 7,349 | 25,560 | 7,349 | 7,739,278 | 57 80 | 27 99 | 0 3 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 26,115 | 7,369 | 26,115 | 7,369 | 7,830,645 | 56 91 | 24 99 | 0 3 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Weatherization - RI | 27,546 | 8,310 | 27,546 | 8,310 | 8,444,796 | 51 10 | 22 55 | 0 3 |
| Envelope | | Wood Siding | | Weatherization - RI | 27,633 | 8,366 | 27,633 | 8,366 | 8,481,829 | 50 78 | 21 45 | 0 3 |
| HVAC | 8 | Traing | Programmable T-Stat | Night Setback - RI | 28,046 | 8,411 | 28,046 | 8,411 | 8,596,283 | 49 77 | 20 45 | 0 3 |
| Envelope | Misc -pre 1980 | Concrete Block: Misc -pre 1980 | | Weatherization - RI | 28,263 | 8,553 | 28,263 | 8,553 | 8,688,400 | 48 91 | 19 11 | 0 4 |
| Envelope | | WHS | | Weatherization - RI | 28,367 | 8,621 | 28,367 | 8,621 | 8,732,522 | 48 51 | 18 79 | 0 4 |
| Envelope | Shop | SHOP | | Weatherization - RI | 28,565 | 8,752 | 28,565 | 8,752 | 8,816,978 | 47 75 | 18 67 | 0 4 |
| Envelope | Barracks | Concrete Block: Barracks | | Weatherization - RI | 28,975 | 9,021 | 28,975 | 9,021 | 8,990,255 | 46 18 | 17 70 | 0 4 |
| Envelope | Family Housing | 1964, 1965, 1966 | | Weatherization - RI | 30,178 | 9,811 | 30,178 | 9,811 | 9,498,712 | 42 21 | 17 14 | 0 4 |
| Lighting | OS-MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 30,325 | 9,811 | 30,325 | 9,811 | 9,571,703 | 41.71 | 16 83 | 0 4 |
| Lighting | OS-2b | Large Office/Room | T8 Lighting | T8 + Occupancy Controls - RI | 31,425 | 9,811 | 31,425 | 9,811 | 10,125,709 | 38 44 | 16 68 | 0 4 |
| Envelope | Family Housing | 1963 | | Weatherization - RI | 33,396 | 11,105 | 33,396 | 11,105 | 10,955,873 | 34 71 | 16 20 | 0 5 |
| Envelope | Dining | DINING MSIC | | Weatherization - RI | 33,599 | 11,239 | 33,599 | 11,239 | 11,041,197 | 34 38 | 15 77 | 0 5 |
| Envelope | Motorpool | MOTORPOOL | | Weatherization - RI | 33,661 | 11,279 | 33,661 | 11,279 | 11,067,310 | 34 27 | 15 46 | 0 5 |
| DHW & A/C | 13 | 00166 | CHILLER-air cooled | Install Desuperheater - RI | 35,840 | 11,909 | 35,840 | 11,909 | 11,432,796 | 32 84 | 14 84 | 0 5 |
| Envelope | Misc -post 1980 | Concrete Block: Misc -post 1980 | | Weatherization - RI | 36,139 | 12,106 | 36,139 | 12,106 | 11,557,537 | 32 35 | 13 97 | 0 5 |
| Envelope | Family Housing | 1961 | | Weatherization - RI | 37,942 | 13,290 | 37,942 | 13,290 | 12,306,882 | 29 71 | 13 50 | 0 6 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - RI | 37,998 | 13,313 | 37,998 | 13,313 | 12,322,859 | 29.66 | 12 96 | 0 6 |
| Motors | PMTR-43 | HOSPITL - 00166 | PMPMTR | EEM - RI | 38,026 | 13,324 | 38,026 | 13,324 | 12,330,847 | 29 64 | 12 96 | 0 6 |
| T&D | A | Substation | Capacitor Bank | Power Factor Correction to Unity - RI | 38,079 | 14,800 | 38,079 | 14,800 | 12,706,592 | 28 49 | 12 89 | 0 6 |
| DHW & A/C | 45 | 20018 | AIR CONDITIONER | Install Desuperheater - RI | 38,189 | 14,818 | 38,189 | 14,818 | 12,722,323 | 28 44 | 11 39 | 0 6 |
| Motors | MTR-485 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 38,202 | 14,823 | 38,202 | 14,823 | 12,726,305 | 28 42 | 11 37 | 0 6 |
| Motors | PMTR-71 | POOL-OT - 00328 | PMPMTR | EEM - RI | 38,209 | 14,826 | 38,209 | 14,826 | 12,728,295 | 28 42 | 11 37 | 0 6 |
| DHW & A/C | 21 | 00254 | PKG UNIT | Install Desuperheater - RI | 38,399 | 14,883 | 38,399 | 14,883 | 12,760,318 | 28 30 | 11 33 | 0 6 |
| Envelope | Admin | ADMIN: MISC post 1964 | | Weatherization - RI | 38,466 | 14,928 | 38,466 | 14,928 | 12,787,945 | 28 20 | 11 11 | 0 6 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 38,684 | 15,003 | 38,684 | 15,003 | 12,824,414 | 28 06 | 10 52 | 0 6 |
| DHW & A/C | 33 | 00920 | AIR CONDITIONER | Install Desuperheater - RI | 38,927 | 15,095 | 38,927 | 15,095 | 12,866,608 | 27 89 | 10 39 | 0 6 |
| Lighting | DLC-MT-2b | MT Large Office/Room | T8 Lighting | T8 + Daylighting Controls - RI | 39,126 | 15,095 | 39,126 | 15,095 | 12,974,554 | 27 46 | 10 07 | 0 6 |
| Motors | PMTR-42 | HOSPITL - 00166 | PMPMTR | EEM - RI | 39,159 | 15,108 | 39,159 | 15,108 | 12,983,436 | 27 42 | 9 67 | 0 6 |
| Envelope | Training | TRAINING | | Weatherization - RI | 39,241 | 15,162 | 39,241 | 15,162 | 13,016,309 | 27 27 | 9 06 | 0 6 |
| DHW & A/C | 9 | 00037 | PKG A/C | Install Desuperheater - RI | 39,400 | 15,234 | 39,400 | 15,234 | 13,045,906 | 27 14 | 9 03 | 0 6 |
| Envelope | Brk/Adm | BRK/ADM MISC | | Weatherization - RI | 39,446 | 15,265 | 39,446 | 15,265 | 13,064,469 | 27 05 | 9 01 | 0 6 |
| Heating | 13 | MTRPOOL - 00614 | Unit Heaters | Radiant Heat - RI | 39,724 | 15,316 | 39,724 | 15,316 | 13,100,967 | 26 89 | 8 93 | 0 6 |
| HVAC | 7 | Shop-Elc | Programmable T-Stat | Night Setback - RI | 39,776 | 15,320 | 39,776 | 15,320 | 13,111,913 | 26 84 | 8 90 | 0 6 |
| Motors | MTR-35c | REC - 00905 | COMPMTR | VSD & EEM - RI | 39,929 | 15,339 | 39,929 | 15,339 | 13,154,345 | 26 64 | 8 48 | 0 6 |
| DHW & A/C | 8 | 00037 | PKG A/C | Install Desuperheater - RI | 40,029 | 15,384 | 40,029 | 15,384 | 13,172,110 | 26 54 | 7 87 | 0 6 |
| DHW & A/C | 16 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 40,113 | 15,416 | 40,113 | 15,416 | 13,186,184 | 26 47 | 7 79 | 0 7 |
| Motors | PMTR-72 | POOL-OT - 00328 | PMPMTR | EEM - RI | 40,118 | 15,418 | 40,118 | 15,418 | 13,187,435 | 26 46 | 7 69 | 0 7 |
| Motors | PMTR-73 | POOL-OT - 00328 | PMPMTR | EEM - RI | 40,122 | 15,420 | 40,122 | 15,420 | 13,188,686 | 26 46 | 7 69 | 0 7 |
| Motors | PMTR-70 | POOL-OT - 00328 | PMPMTR | EEM - RI | 40,127 | 15,422 | 40,127 | 15,422 | 13,189,937 | 26 45 | 7 69 | 0 7 |
| DHW & A/C | 31 | 00905 | CHILLER-air cooled | Install Desuperheater - RI | 40,282 | 15,494 | 40,282 | 15,494 | 13,213,818 | 26 31 | 7 48 | 0 7 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 40,357 | 15,521 | 40,357 | 15,521 | 13,225,798 | 26 25 | 7 47 | 0 7 |
| DHW & A/C | 3 | 00021 | PKG UNIT | Install Desuperheater - RI | 40,431 | 15,548 | 40,431 | 15,548 | 13,237,778 | 26 18 | 7 47 | 0 7 |
| Envelope | Family Housing | 1983 | | Weatherization - RI | 41,177 | 16,037 | 41,177 | 16,037 | 13,527,497 | 24 70 | 7 43 | 0 7 |
| Motors | PMTR-94 | PUMP - 00044 | PMPMTR | EEM - RI | 41,274 | 16,076 | 41,274 | 16,076 | 13,548,621 | 24 60 | 7 37 | 0 7 |
| Motors | PMTR-93 | PUMP - 00044 | PMPMTR | EEM - RI | 41,371 | 16,115 | 41,371 | 16,115 | 13,569,745 | 24 50 | 7 37 | 0 7 |
| Envelope | MT-9 | | Single pane window | Shade Screens - SW side - RI | 41,408 | 16,184 | 41,408 | 16,184 | 13,602,371 | 24 35 | 7 31 | 0 7 |
| Envelope | | Metal Siding | | Window Screen - SW side - RI | 41,485 | 16,326 | 41,485 | 16,326 | 13,669,559 | 24 04 | 7 33 | 0 7 |
| Envelope | | Concrete Block Misc -post 1980 | | Window Screen - SW side - RI | 41,495 | 16,346 | 41,495 | 16,346 | 13,678,772 | 24 00 | 7 33 | 0 7 |
| Envelope | | Masonite Siding pre 1950 | | Window Screen - SW side - RI | 41,604 | 16,548 | 41,604 | 16,548 | 13,774,457 | 23 59 | 7 33 | 0 7 |
| Envelope | | ADMIN MISC post 1964 | | Window Screen - SW side - RI | 41,634 | 16,603 | 41,634 | 16,603 | 13,800,355 | 23 48 | 7 33 | 0 7 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | | U Shaped Bldgs: Other | | Window Screen - SW side - RI | 41,662 | 16,656 | 41,662 | 16,656 | 13,825,309 | 23 38 | 7 33 | 0 7 |
| Envelope | | BRK/ADM MISC | | Window Screen - SW side - RI | 41,678 | 16,685 | 41,678 | 16,685 | 13,839,387 | 23 32 | 7 33 | 0 7 |
| Envelope | | Wood Siding | | Window Screen - SW side - RI | 41,692 | 16,710 | 41,692 | 16,710 | 13,851,095 | 23 27 | 7 33 | 0 7 |
| Envelope | | TRAINING | | Window Screen - SW side - RI | 41,702 | 16,728 | 41,702 | 16,728 | 13,859,662 | 23 24 | 7 33 | 0 7 |
| Envelope | | WHS | | Window Screen - SW side - RI | 41,708 | 16,740 | 41,708 | 16,740 | 13,865,065 | 23 22 | 7 33 | 0 7 |
| Envelope | | Concrete Block: Barracks | | Window Screen - SW side - RI | 41,747 | 16,812 | 41,747 | 16,812 | 13,899,176 | 23 08 | 7 33 | 0 7 |
| Envelope | | MOTORPOOL | | Window Screen - SW side - RI | 41,777 | 16,867 | 41,777 | 16,867 | 13,925,578 | 22 98 | 7 33 | 0 7 |
| Envelope | | SHOP | | Window Screen - SW side - RI | 41,806 | 16,922 | 41,806 | 16,922 | 13,951,440 | 22 88 | 7 33 | 0 8 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - RI | 42,005 | 17,292 | 42,005 | 17,292 | 14,126,205 | 22 23 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | Window Screen - RI | 42,169 | 17,595 | 42,169 | 17,595 | 14,269,726 | 21 74 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | Window Screen - RI | 42,322 | 17,879 | 42,322 | 17,879 | 14,403,838 | 21 31 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | Window Screen - SW side - RI | 42,436 | 18,092 | 42,436 | 18,092 | 14,504,694 | 21 00 | 7 33 | 0 8 |
| Envelope | | DINING: MISC | | Window Screen - SW side - RI | 42,454 | 18,125 | 42,454 | 18,125 | 14,520,428 | 20 96 | 7 33 | 0 8 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screen - SW side - RI | 42,471 | 18,156 | 42,471 | 18,156 | 14,535,104 | 20 91 | 7 33 | 0 8 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screen - SW side - RI | 42,483 | 18,178 | 42,483 | 18,178 | 14,545,669 | 20 88 | 7 33 | 0 8 |
| Envelope | | SECURITY | | Window Screen - RI | 42,485 | 18,181 | 42,485 | 18,181 | 14,546,923 | 20 88 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen - RI | 42,635 | 18,460 | 42,635 | 18,460 | 14,679,030 | 20 50 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen - SW side - RI | 42,735 | 18,645 | 42,735 | 18,645 | 14,766,618 | 20 26 | 7 33 | 0 8 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SW side - RI | 42,779 | 18,727 | 42,779 | 18,727 | 14,804,967 | 20 16 | 7 33 | 0 9 |
| Envelope | | MWR | | Radiant Heat - RI | 42,786 | 18,739 | 42,786 | 18,739 | 14,811,086 | 20 15 | 7 33 | 0 9 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Weatherization - RI | 42,862 | 18,752 | 42,862 | 18,752 | 14,821 718 | 20 12 | 7 25 | 0 9 |
| Envelope | Family Housing | 1984 | | EEM - RI | 43,416 | 19,116 | 43,416 | 19,116 | 15,035,940 | 19 57 | 7 21 | 0 9 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - RI | 43,424 | 19,124 | 43,424 | 19,124 | 15,039,490 | 19 56 | 7 16 | 0 9 |
| Motors | MTR-469 | MWR - 01322 | Fan Motor | Radiant Heat - RI | 43,427 | 19,127 | 43,427 | 19,127 | 15,040,673 | 19 56 | 7 16 | 0 9 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | VSD & EEM - RI | 43,724 | 19,183 | 43,724 | 19,183 | 15,078,102 | 19 46 | 7 12 | 0 9 |
| Motors | MTR-34c | REC - 00905 | COMPMTR | EEM - RI | 43,855 | 19,200 | 43,855 | 19,200 | 15,113,215 | 19 38 | 7 08 | 0 9 |
| Motors | PMTR-66 | PLT-BLDG - 00253 | PMPMTR | T8 + Occupancy Controls - RI | 43,867 | 19,211 | 43,867 | 19,211 | 15,117,812 | 19 36 | 6 79 | 0 9 |
| Lighting | OS-6b | Restroom | T8 Lighting | EEM - RI | 44,173 | 19,211 | 44,173 | 19,211 | 15,256,394 | 19.00 | 6 68 | 0 9 |
| Motors | PMTR-88 | PUMP - 00044 | PMPMTR | T8 + Occupancy Controls - RI | 44,204 | 19,224 | 44,204 | 19,224 | 15,263,651 | 18 98 | 6 43 | 0.9 |
| Lighting | OS-5b | Copy Room | T8 Lighting | Install Desuperheater - RI | 44,254 | 19,224 | 44,254 | 19,224 | 15,285,800 | 18 92 | 6 40 | 0 9 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 44,412 | 19,404 | 44,412 | 19,404 | 15,329,271 | 18 80 | 6 38 | 0 9 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - RI | 44,472 | 19,431 | 44,472 | 19,431 | 15,339,149 | 18 77 | 6 33 | 0 9 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Radiant Heat - RI | 44,531 | 19,458 | 44,531 | 19,458 | 15,349,026 | 18 75 | 6.33 | 0 9 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | EEM - RI | 44,547 | 19,478 | 44,547 | 19,478 | 15,352,952 | 18 74 | 6.17 | 0.9 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - RI | 44,551 | 19,485 | 44,551 | 19,485 | 15,355,072 | 18 73 | 6.12 | 0.9 |
| Motors | MTR-439 | DGR - 00308 | Fan Motor | EEM - RI | 44,558 | 19,494 | 44,558 | 19,494 | 15,358,249 | 18 72 | 6.12 | 0 9 |
| Motors | MTR-475 | PLT-BLDG - 00253 | Fan Motor | EEM - RI | 44,562 | 19,501 | 44,562 | 19,501 | 15,360,367 | 18.72 | 6.12 | 0.9 |
| Motors | PMTR-117 | REC - 00905 | PMPMTR | EEM - RI | 44,564 | 19,504 | 44,564 | 19,504 | 15,361,426 | 18 71 | 6 12 | 0 9 |
| Motors | MTR-446 | DINING - 00254 | Fan Motor | EEM - RI | 44,567 | 19,507 | 44,567 | 19,507 | 15,362,485 | 18 71 | 6 12 | 0.9 |
| Vehicles | Conversion | Vehicles | | CNG Vehicles | 59,205 | 19,327 | 59,205 | 19,327 | 25,454,134 | 9.73 | 5 93 | 1 8 |
| Motors | PMTR-120 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 59,310 | 19,369 | 59,310 | 19,369 | 25,477,373 | 9.73 | 5 88 | 1.8 |
| Motors | PMTR-121 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 59,363 | 19,391 | 59,363 | 19,391 | 25,488,992 | 9 72 | 5 88 | 1 8 |
| Heating | 23 | MTRPOOL - 00847 | Unit Heaters | Radiant Heat - RI | 59,480 | 19,413 | 59,480 | 19,413 | 25,503,714 | 9 72 | 5 81 | 1 8 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | EEM - RI | 59,534 | 19,469 | 59,534 | 19,469 | 25,519,611 | 9 72 | 5 79 | 1.8 |
| Motors | PMTR-6c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 59,587 | 19,478 | 59,587 | 19,478 | 25,541,673 | 9 71 | 5 74 | 1 8 |
| Heating | 22 | MTRPOOL - 00830 | Unit Heaters | Radiant Heat - RI | 59,673 | 19,495 | 59,673 | 19,495 | 25,552,484 | 9 71 | 5 70 | 1.8 |
| DHW & A/C | 15 | 00202 | AIR CONDITIONER | Install Desuperheater - RI | 59,720 | 19,513 | 59,720 | 19,513 | 25,559,434 | 9.70 | 5.68 | 1 8 |
| Motors | PMTR-86 | PUMP - 00324 | PMPMTR | EEM - RI | 59,739 | 19,534 | 59,739 | 19,534 | 25,565,383 | 9.70 | 5 66 | 1 8 |
| DHW & A/C | 17 | 00222 | PKG UNIT | Install Desuperheater - RI | 59,815 | 19,621 | 59,815 | 19,621 | 25,585,233 | 9 70 | 5 65 | 1.8 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM - RI | 59,826 | 19,637 | 59,826 | 19,637 | 25,590,121 | 9 70 | 5 62 | 1.8 |
| Motors | MTR-484 | WHS - 00474 | Fan Motor | EEM - RI | 59,830 | 19,642 | 59,830 | 19,642 | 25,591,890 | 9 69 | 5 61 | 1 8 |
| Motors | PMTR-118 | REC - 00322 | PMPMTR | EEM - RI | 59,832 | 19,645 | 59,832 | 19,645 | 25,592,775 | 9 69 | 5 61 | 1 8 |
| Motors | MTR-482 | TRAING - 01202 | Fan Motor | EEM - RI | 59,834 | 19,648 | 59,834 | 19,648 | 25,593,659 | 9.69 | 5.61 | 1 8 |
| Motors | PMTR-119 | REC - 00362 | PMPMTR | EEM - RI | 59,836 | 19,650 | 59,836 | 19,650 | 25,594,344 | 9.69 | 5 61 | 1.8 |
| Motors | MTR-445 | DINING - 00254 | Fan Motor | EEM - RI | 59,838 | 19,653 | 59,838 | 19,653 | 25,595,429 | 9 69 | 5 61 | 1.8 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - RI | 59,840 | 19,656 | 59,840 | 19,656 | 25,596,313 | 9.69 | 5 61 | 1.8 |
| Motors | MTR-442 | DINING - 00254 | Fan Motor | EEM - RI | 59,851 | 19,672 | 59,851 | 19,672 | 25,601,621 | 9 69 | 5 61 | 1 8 |
| Heating | 35 | SHOP - 00367 | Unit Heaters | Radiant Heat - RI | 59,883 | 19,672 | 59,883 | 19,672 | 25,609,244 | 9 69 | 5 48 | 1 8 |
| Motors | MTR-6 | HOSPITL - 00166 | AIRCOMP | EEM - RI | 59,905 | 19,689 | 59,905 | 19,689 | 25,615,152 | 9 69 | 5.42 | 1 8 |
| Motors | PMTR-106 | PUMP - 00636 | PMPMTR | EEM - RI | 59,954 | 19,745 | 59,954 | 19,745 | 25,629,780 | 9.68 | 5 41 | 1 8 |
| Heating | 37 | SHOP - 00384 | Unit Heaters | Radiant Heat - RI | 59,962 | 19,745 | 59,962 | 19,745 | 25,631,609 | 9.68 | 5.35 | 1.8 |
| Envelope | MT-11a | | None | Crawl Space Insulation. R-19 - RI | 60,963 | 20,784 | 60,963 | 20,784 | 26,174,330 | 9 51 | 5 35 | 1.8 |
| Motors | PMTR-89 | PUMP - 00044 | PMPMTR | EEM - RI | 60,990 | 20,794 | 60,990 | 20,794 | 26,179,964 | 9.50 | 5 22 | 1 8 |
| Heating | 25 | MTRPOOL - 00646 | Unit Heaters | Radiant Heat - RI | 61,022 | 20,800 | 61,022 | 20,800 | 26,184,208 | 9 50 | 5 16 | 1 8 |
| DHW & A/C | 26 | 00323 | PKG UNIT | Install Desuperheater - RI | 61,056 | 20,841 | 61,056 | 20,841 | 26,194,120 | 9 50 | 5 13 | 1 8 |
| Motors | MTR-483 | TRAING - 01202 | Fan Motor | EEM - RI | 61,057 | 20,843 | 61,057 | 20,843 | 26,194,889 | 9 50 | 5 11 | 1 8 |
| Heating | 26 | MTRPOOL - 00832 | Unit Heaters | Radiant Heat - RI | 61,108 | 20,851 | 61,108 | 20,851 | 26,201,127 | 9 50 | 5 05 | 1 8 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 61,148 | 20,869 | 61,148 | 20,869 | 26,207,061 | 9 49 | 4 99 | 1 8 |
| DHW & A/C | 11 | 00130 | AIR CONDITIONER | Install Desuperheater - RI | 61,188 | 20,905 | 61,188 | 20,905 | 26,215,884 | 9 49 | 4 98 | 1 8 |
| Motors | PMTR-122 | WHS-CLD - 00862 | PMPMTR | EEM - RI | 61,192 | 20,911 | 61,192 | 20,911 | 26,217,392 | 9 49 | 4 93 | 1 8 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | PMTR-81 | PUMP - 00044 | PMPMTR | EEM - RI | 61,207 | 20,926 | 61,207 | 20,926 | 26,221,333 | 9 49 | 4 92 | 1 8 |
| Motors | MTR-457 | MWR - 01313 | Fan Motor | EEM - RI | 61,210 | 20,930 | 61,210 | 20,930 | 26,222,958 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-460 | MWR - 01313 | Fan Motor | EEM - RI | 61,212 | 20,932 | 61,212 | 20,932 | 26,223,671 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-461 | MWR - 01322 | Fan Motor | EEM - RI | 61,214 | 20,934 | 61,214 | 20,934 | 26,224,384 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM - RI | 61,216 | 20,935 | 61,216 | 20,935 | 26,225,097 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-464 | MWR - 01322 | Fan Motor | EEM - RI | 61,218 | 20,937 | 61,218 | 20,937 | 26,225,810 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-466 | MWR - 01322 | Fan Motor | EEM - RI | 61,219 | 20,939 | 61,219 | 20,939 | 26,226,522 | 9 49 | 4 81 | 1 8 |
| Motors | PMTR-100 | PUMP - 00700 | PMPMTR | EEM - RI | 61,270 | 20,959 | 61,270 | 20,959 | 26,236,202 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - RI | 61,320 | 20,980 | 61,320 | 20,980 | 26,245,881 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR-103 | PUMP - 00700 | PMPMTR | EEM - RI | 61,371 | 21,000 | 61,371 | 21,000 | 26,255,560 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR-102 | PUMP - 00700 | PMPMTR | EEM - RI | 61,421 | 21,020 | 61,421 | 21,020 | 26,265,239 | 9 47 | 4 81 | 1 8 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - RI | 61,461 | 21,092 | 61,461 | 21,092 | 26,278,736 | 9 47 | 4 66 | 1 8 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - RI | 61,567 | 21,108 | 61,567 | 21,108 | 26,292,617 | 9 46 | 4 63 | 1 8 |
| Motors | MTR-202 | BRK/ADM - 00261 | EVAP | EEM - RI | 61,568 | 21,110 | 61,568 | 21,110 | 26,293,367 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-199 | BRK/ADM - 00252 | EVAP | EEM - RI | 61,570 | 21,111 | 61,570 | 21,111 | 26,294,116 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-197 | BRK/ADM - 00251 | EVAP | EEM - RI | 61,571 | 21,113 | 61,571 | 21,113 | 26,294,865 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-200 | BRK/ADM - 00252 | EVAP | EEM - RI | 61,573 | 21,115 | 61,573 | 21,115 | 26,295,615 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-195 | BRK/ADM - 00250 | EVAP | EEM - RI | 61,575 | 21,116 | 61,575 | 21,116 | 26,296,364 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-198 | BRK/ADM - 00251 | EVAP | EEM - RI | 61,576 | 21,118 | 61,576 | 21,118 | 26,297,113 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-196 | BRK/ADM - 00250 | EVAP | EEM - RI | 61,578 | 21,119 | 61,578 | 21,119 | 26,297,862 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-193 | BRK/ADM - 00249 | EVAP | EEM - RI | 61,580 | 21,121 | 61,580 | 21,121 | 26,298,612 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-238 | BRK/ADM - 00534 | EVAP | EEM - RI | 61,589 | 21,131 | 61,589 | 21,131 | 26,303,104 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-192 | BRK/ADM - 00104 | EVAP | EEM - RI | 61,599 | 21,140 | 61,599 | 21,140 | 26,307,596 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-214 | BRK/ADM - 00416 | EVAP | EEM - RI | 61,609 | 21,150 | 61,609 | 21,150 | 26,312,087 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-222 | BRK/ADM - 00434 | EVAP | EEM - RI | 61,619 | 21,159 | 61,619 | 21,159 | 26,316,579 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-191 | BRK/ADM - 00103 | EVAP | EEM - RI | 61,628 | 21,169 | 61,628 | 21,169 | 26,321,071 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-223 | BRK/ADM - 00440 | EVAP | EEM - RI | 61,638 | 21,178 | 61,638 | 21,178 | 26,325,563 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-224 | BRK/ADM - 00448 | EVAP | EEM - RI | 61,648 | 21,188 | 61,648 | 21,188 | 26,330,055 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-231 | BRK/ADM - 00512 | EVAP | EEM - RI | 61,658 | 21,197 | 61,658 | 21,197 | 26,334,547 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-239 | BRK/ADM - 00540 | EVAP | EEM - RI | 61,667 | 21,207 | 61,667 | 21,207 | 26,339,039 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-232 | BRK/ADM - 00514 | EVAP | EEM - RI | 61,677 | 21,217 | 61,677 | 21,217 | 26,343,530 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-233 | BRK/ADM - 00516 | EVAP | EEM - RI | 61,687 | 21,226 | 61,687 | 21,226 | 26,348,022 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-234 | BRK/ADM - 00518 | EVAP | EEM - RI | 61,696 | 21,236 | 61,696 | 21,236 | 26,352,514 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-237 | BRK/ADM - 00530 | EVAP | EEM - RI | 61,706 | 21,245 | 61,706 | 21,245 | 26,357,006 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-190 | BRK/ADM - 00102 | EVAP | EEM - RI | 61,716 | 21,255 | 61,716 | 21,255 | 26,361,498 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-212 | BRK/ADM - 00413 | EVAP | EEM - RI | 61,722 | 21,261 | 61,722 | 21,261 | 26,364,492 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-194 | BRK/ADM - 00249 | EVAP | EEM - RI | 61,724 | 21,263 | 61,724 | 21,263 | 26,365,241 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-250 | CLUB - 00202 | EVAP | EEM - RI | 61,726 | 21,264 | 61,726 | 21,264 | 26,365,990 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-189 | BRK/ADM - 00098 | EVAP | EEM - RI | 61,727 | 21,266 | 61,727 | 21,266 | 26,366,738 | 9 43 | 4 62 | 1 8 |
| Motors | MTR-248 | CLUB - 00021 | EVAP | EEM - RI | 61,731 | 21,269 | 61,731 | 21,269 | 26,368,235 | 9 43 | 4 61 | 1 8 |
| Motors | MTR-188 | BRK/ADM - 00014 | EVAP | EEM - RI | 61,732 | 21,271 | 61,732 | 21,271 | 26,368,983 | 9 43 | 4 61 | 1 8 |
| Motors | MTR-230 | BRK/ADM - 00511 | EVAP | EEM - RI | 61,740 | 21,279 | 61,740 | 21,279 | 26,372,720 | 9 43 | 4 61 | 1 8 |
| Motors | MTR-236 | BRK/ADM - 00523 | EVAP | EEM - RI | 61,750 | 21,288 | 61,750 | 21,288 | 26,377,206 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-201 | BRK/ADM - 00261 | EVAP | EEM - RI | 61,752 | 21,290 | 61,752 | 21,290 | 26,377,953 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-203 | BRK/ADM - 00262 | EVAP | EEM - RI | 61,753 | 21,291 | 61,753 | 21,291 | 26,378,700 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-210 | BRK/ADM - 00267 | EVAP | EEM - RI | 61,755 | 21,293 | 61,755 | 21,293 | 26,379,447 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-204 | BRK/ADM - 00262 | EVAP | EEM - RI | 61,757 | 21,295 | 61,757 | 21,295 | 26,380,194 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-205 | BRK/ADM - 00264 | EVAP | EEM - RI | 61,758 | 21,296 | 61,758 | 21,296 | 26,380,941 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-206 | BRK/ADM - 00264 | EVAP | EEM - RI | 61,760 | 21,298 | 61,760 | 21,298 | 26,381,688 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-207 | BRK/ADM - 00265 | EVAP | EEM - RI | 61,761 | 21,299 | 61,761 | 21,299 | 26,382,435 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-208 | BRK/ADM - 00265 | EVAP | EEM - RI | 61,763 | 21,301 | 61,763 | 21,301 | 26,383,182 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-209 | BRK/ADM - 00267 | EVAP | EEM - RI | 61,765 | 21,302 | 61,765 | 21,302 | 26,383,929 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-211 | BRK/ADM - 00412 | EVAP | EEM - RI | 61,800 | 21,337 | 61,800 | 21,337 | 26,400,364 | 9 41 | 4 61 | 1 8 |
| Motors | PMTR-5c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 61,827 | 21,341 | 61,827 | 21,341 | 26,410,155 | 9 41 | 4 31 | 1 8 |
| Heating | 24 | MTRPOOL - 00639 | Unit Heaters | Radiant Heat - RI | 61,869 | 21,350 | 61,869 | 21,350 | 26,415,154 | 9 41 | 4 25 | 1 8 |
| Motors | PMTR-110 | PUMP - 05996 | PMPMTR | EEM - RI | 61,941 | 21,422 | 61,941 | 21,422 | 26,432,382 | 9 40 | 4 22 | 1 8 |
| Heating | 34 | SHOP - 20018 | Unit Heaters | Radiant Heat - RI | 61,957 | 21,443 | 61,957 | 21,443 | 26,436,229 | 9 40 | 4 21 | 1 8 |
| DHW & A/C | 20 | 00248 | PKG UNIT | Install Desuperheater - RI | 61,985 | 21,486 | 61,985 | 21,486 | 26,444,131 | 9 39 | 4 15 | 1 8 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - RI | 62,036 | 21,542 | 62,036 | 21,542 | 26,456,519 | 9 39 | 4 11 | 1 8 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - RI | 62,087 | 21,598 | 62,087 | 21,598 | 26,468,689 | 9 38 | 4 05 | 1 8 |
| Motors | MTR-428 | ADMIN - 00988 | Fan Motor | EEM - RI | 62,121 | 21,612 | 62,121 | 21,612 | 26,475,619 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR-40 | HOSPITL - 00166 | PMPMTR | EEM - RI | 62,135 | 21,617 | 62,135 | 21,617 | 26,478,391 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR-39 | HOSPITL - 00166 | PMPMTR | EEM - RI | 62,149 | 21,623 | 62,149 | 21,623 | 26,481,163 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR-41 | HOSPITL - 00166 | PMPMTR | EEM - RI | 62,155 | 21,625 | 62,155 | 21,625 | 26,482,549 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - RI | 62,157 | 21,627 | 62,157 | 21,627 | 26,483,134 | 9 37 | 4 05 | 1 8 |
| Lighting | DLC-1b | Small Office | T8 Lighting | T8 + Daylighting Controls - RI | 62,425 | 21,627 | 62,425 | 21,627 | 26,618,720 | 9 30 | 4 01 | 1 9 |
| Motors | PMTR-114 | PUMP - 00663 | PMPMTR | EEM - RI | 62,528 | 21,746 | 62,528 | 21,746 | 26,644,241 | 9 28 | 3 96 | 1 9 |
| Motors | MTR-39 | ADMIN - 00985 | CONDMTR | EEM - RI | 62,532 | 21,753 | 62,532 | 21,753 | 26,645,492 | 9 28 | 3 92 | 1 9 |
| Motors | MTR-38 | ADMIN - 00985 | CONDMTR | EEM - RI | 62,534 | 21,756 | 62,534 | 21,756 | 26,646,057 | 9 28 | 3 92 | 1 9 |
| Motors | PMTR-108 | PUMP - 00652 | PMPMTR | EEM - RI | 62,562 | 21,811 | 62,562 | 21,811 | 26,655,549 | 9 27 | 3 86 | 1 9 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-258 | DOR - 00909 | EVAP | EEM - RI | 62,564 | 21,813 | 62,564 | 21,813 | 26,656,141 | 9 27 | 3 86 | 1 9 |
| Motors | MTR-417 | WHS - 00934 | EVAP | EEM - RI | 62,567 | 21,818 | 62,567 | 21,818 | 26,657,909 | 9 27 | 3 85 | 1 9 |
| Motors | MTR-259 | DOR - 00909 | EVAP | EEM - RI | 62,569 | 21,821 | 62,569 | 21,821 | 26,659,084 | 9 27 | 3 84 | 1 9 |
| Motors | PMTR-30 | DOR - 00430 | PMPMTR | EEM - RI | 62,570 | 21,824 | 62,570 | 21,824 | 26,659,628 | 9 27 | 3 83 | 1 9 |
| Motors | MTR-424 | ADMIN - 00988 | Fan Motor | EEM - RI | 62,571 | 21,826 | 62,571 | 21,826 | 26,660,172 | 9 27 | 3 83 | 1 9 |
| Motors | MTR-431 | ADMIN - 00988 | Fan Motor | EEM - RI | 62,577 | 21,843 | 62,577 | 21,843 | 26,663,437 | 9 27 | 3 83 | 1 9 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side - RI | 62,602 | 21,889 | 62,602 | 21,889 | 26,680,799 | 9 26 | 3 83 | 1 9 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - NW Side - RI | 62,661 | 21,996 | 62,661 | 21,996 | 26,720,915 | 9 24 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Barracks | | Window Screen - NW Side - RI | 62,681 | 22,032 | 62,681 | 22,032 | 26,734,428 | 9 23 | 3 83 | 1 9 |
| Envelope | | U Shaped Bldgs: Other | | Window Screen - NW Side - RI | 62,690 | 22,047 | 62,690 | 22,047 | 26,740,156 | 9 22 | 3 83 | 1 9 |
| Envelope | | Masonite Siding, post 1950 | | Window Screen - NW Side - RI | 62,697 | 22,061 | 62,697 | 22,061 | 26,745,258 | 9 22 | 3 83 | 1 9 |
| Envelope | | TRAINING | | Window Screen - NW Side - RI | 62,699 | 22,064 | 62,699 | 22,064 | 26,746,398 | 9 22 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screen - RI | 62,812 | 22,267 | 62,812 | 22,267 | 26,822,769 | 9 18 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screen - RI | 62,917 | 22,458 | 62,917 | 22,458 | 26,894,134 | 9 14 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screen - RI | 63,020 | 22,644 | 63,020 | 22,644 | 26,963,937 | 9 10 | 3 83 | 1 9 |
| Envelope | | Metal Siding | | Window Screen - NW Side - RI | 63,075 | 22,743 | 63,075 | 22,743 | 27,001,047 | 9 08 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Misc -pre 1980 | | Window Screen - NW Side - RI | 63,084 | 22,758 | 63,084 | 22,758 | 27,006,669 | 9 07 | 3 83 | 1 9 |
| Envelope | | SHOP | | Window Screen - NW Side - RI | 63,089 | 22,767 | 63,089 | 22,767 | 27,010,109 | 9 07 | 3 83 | 1 9 |
| Envelope | | DINING MSIC | | Window Screen - NW Side - RI | 63,092 | 22,773 | 63,092 | 22,773 | 27,012,203 | 9 07 | 3 83 | 1 9 |
| Envelope | | BRK/ADM MISC | | Window Screen - NW Side - RI | 63,095 | 22,778 | 63,095 | 22,778 | 27,014,075 | 9 07 | 3 83 | 1 9 |
| Envelope | | Wood Siding | | Window Screen - NW Side - RI | 63,097 | 22,782 | 63,097 | 22,782 | 27,015,633 | 9 07 | 3 83 | 1 9 |
| Envelope | | MWR | | Window Screen - NW Side - RI | 63,098 | 22,784 | 63,098 | 22,784 | 27,016,447 | 9 07 | 3 83 | 1 9 |
| Envelope | | WHS | | Window Screen - NW Side - RI | 63,099 | 22,786 | 63,099 | 22,786 | 27,017,166 | 9 07 | 3 83 | 1 9 |
| Envelope | | SECURITY | | Window Screen - NW Side - RI | 63,099 | 22,786 | 63,099 | 22,786 | 27,017,332 | 9 07 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screen - RI | 63,179 | 22,929 | 63,179 | 22,929 | 27,071,001 | 9 04 | 3 83 | 1 9 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - NW Side - RI | 63,199 | 22,965 | 63,199 | 22,965 | 27,084,495 | 9 03 | 3 83 | 1 9 |
| Envelope | | MOTORPOOL | | Window Screen - NW Side - RI | 63,204 | 22,975 | 63,204 | 22,975 | 27,088,008 | 9 03 | 3 83 | 1 9 |
| Envelope | | ADMIN, MISC pre 1964 | | Window Screen - NW Side - RI | 63,207 | 22,980 | 63,207 | 22,980 | 27,089,960 | 9 03 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1964, 1965, 1966 Vintage | | Window Screen - RI | 63,275 | 23,104 | 63,275 | 23,104 | 27,136,568 | 9 00 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Misc -post 1980 | | Window Screen - NW Side - RI | 63,283 | 23,117 | 63,283 | 23,117 | 27,141,471 | 9 00 | 3 83 | 1 9 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screen - NW Side - RI | 63,288 | 23,127 | 63,288 | 23,127 | 27,144,916 | 9 00 | 3 83 | 1 9 |
| Motors | MTR-128 | ADMIN - 00441 | EVAP | EEM - RI | 63,290 | 23,130 | 63,290 | 23,130 | 27,146,087 | 9 00 | 3 83 | 1 9 |
| Motors | MTR-166 | ADMIN - 00544 | EVAP | EEM - RI | 63,292 | 23,133 | 63,292 | 23,133 | 27,147,258 | 9 00 | 3 83 | 1 9 |
| Motors | MTR-150 | ADMIN - 00504 | EVAP | EEM - RI | 63,294 | 23,136 | 63,294 | 23,136 | 27,148,429 | 9 00 | 3 83 | 1 9 |
| Motors | MTR-148 | ADMIN - 00499 | EVAP | EEM - RI | 63,297 | 23,139 | 63,297 | 23,139 | 27,149,600 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-132 | ADMIN - 00444 | EVAP | EEM - RI | 63,299 | 23,142 | 63,299 | 23,142 | 27,150,771 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-245 | CLINIC - 00242 | EVAP | EEM - RI | 63,301 | 23,146 | 63,301 | 23,146 | 27,151,941 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-156 | ADMIN - 00524 | EVAP | EEM - RI | 63,308 | 23,155 | 63,308 | 23,155 | 27,155,454 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-124 | ADMIN - 00436 | EVAP | EEM - RI | 63,311 | 23,160 | 63,311 | 23,160 | 27,157,210 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-246 | CLINIC - 00245 | EVAP | EEM - RI | 63,312 | 23,162 | 63,312 | 23,162 | 27,157,796 | 8.99 | 3 83 | 1 9 |
| Motors | MTR-347 | SECURTY - 00326 | EVAP | EEM - RI | 63,313 | 23,163 | 63,313 | 23,163 | 27,158,381 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-159 | ADMIN - 00528 | EVAP | EEM - RI | 63,314 | 23,165 | 63,314 | 23,165 | 27,158,967 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-163 | ADMIN - 00543 | EVAP | EEM - RI | 63,315 | 23,166 | 63,315 | 23,166 | 27,159,552 | 8.99 | 3 83 | 1 9 |
| Motors | MTR-130 | ADMIN - 00443 | EVAP | EEM - RI | 63,316 | 23,168 | 63,316 | 23,168 | 27,160,137 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-147 | ADMIN - 00498 | EVAP | EEM - RI | 63,318 | 23,170 | 63,318 | 23,170 | 27,160,723 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-155 | ADMIN - 00521 | EVAP | EEM - RI | 63,319 | 23,171 | 63,319 | 23,171 | 27,161,308 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-131 | ADMIN - 00443 | EVAP | EEM - RI | 63,320 | 23,173 | 63,320 | 23,173 | 27,161,894 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EEM - RI | 63,327 | 23,189 | 63,327 | 23,189 | 27,164,004 | 8.99 | 3 82 | 1 9 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EEM - RI | 63,335 | 23,187 | 63,335 | 23,187 | 27,166,115 | 8 99 | 3 82 | 1 9 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EEM - RI | 63,342 | 23,194 | 63,342 | 23,194 | 27,168,226 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EEM - RI | 63,350 | 23,201 | 63,350 | 23,201 | 27,170,337 | 8.98 | 3 82 | 1 9 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EEM - RI | 63,357 | 23,209 | 63,357 | 23,209 | 27,172,448 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EEM - RI | 63,363 | 23,214 | 63,363 | 23,214 | 27,174,031 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-103 | ADMIN - 00237 | EVAP | EEM - RI | 63,372 | 23,227 | 63,372 | 23,227 | 27,178,699 | 8.98 | 3 82 | 1 9 |
| Motors | MTR-411 | WHS - 00827 | EVAP | EEM - RI | 63,375 | 23,231 | 63,375 | 23,231 | 27,180,450 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-105 | ADMIN - 00241 | EVAP | EEM - RI | 63,379 | 23,236 | 63,379 | 23,236 | 27,182,201 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-304 | MTRPOOL - 00680 | EVAP | EEM - RI | 63,381 | 23,239 | 63,381 | 23,239 | 27,183,368 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-306 | MTRPOOL - 00681 | EVAP | EEM - RI | 63,383 | 23,243 | 63,383 | 23,243 | 27,184,535 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-254 | DOR - 00308 | EVAP | EEM - RI | 63,385 | 23,246 | 63,385 | 23,246 | 27,185,703 | 8 98 | 3 82 | 1 9 |
| Motors | MTR-412 | WHS - 00827 | EVAP | EEM - RI | 63,386 | 23,247 | 63,386 | 23,247 | 27,186,286 | 8 97 | 3 82 | 1 9 |
| Motors | MTR-410 | WHS - 00827 | EVAP | EEM - RI | 63,387 | 23,249 | 63,387 | 23,249 | 27,186,870 | 8 97 | 3 82 | 1 9 |
| Motors | MTR-256 | DOR - 00404 | EVAP | EEM - RI | 63,388 | 23,251 | 63,388 | 23,251 | 27,187,453 | 8 97 | 3 82 | 1 9 |
| Motors | MTR-261 | DINING - 00254 | EVAP | EEM - RI | 63,390 | 23,252 | 63,390 | 23,252 | 27,188,035 | 8 97 | 3 81 | 1 9 |
| Motors | MTR-336 | PLT-BLDG - 00253 | EVAP | EEM - RI | 63,391 | 23,254 | 63,391 | 23,254 | 27,188,617 | 8 97 | 3 81 | 1 9 |
| Motors | MTR-335 | PLT-BLDG - 00253 | EVAP | EEM - RI | 63,392 | 23,255 | 63,392 | 23,255 | 27,189,199 | 8 97 | 3 81 | 1 9 |
| Motors | MTR-260 | DINING - 00254 | EVAP | EEM - RI | 63,393 | 23,257 | 63,393 | 23,257 | 27,189,781 | 8 97 | 3 81 | 1 9 |
| Motors | MTR-354 | SHOP - 00367 | EVAP | EEM - RI | 63,398 | 23,265 | 63,398 | 23,265 | 27,192,681 | 8 97 | 3 80 | 1 9 |
| Motors | MTR-153 | ADMIN - 00513 | EVAP | EEM - RI | 63,403 | 23,271 | 63,403 | 23,271 | 27,195,001 | 8 97 | 3 80 | 1 9 |
| Motors | MTR-171 | ADMIN - 00570 | EVAP | EEM - RI | 63,407 | 23,278 | 63,407 | 23,278 | 27,197,322 | 8 97 | 3 80 | 1 9 |
| Motors | MTR-361 | SHOP-ELC - 00581 | EVAP | EEM - RI | 63,412 | 23,284 | 63,412 | 23,284 | 27,199,642 | 8 97 | 3 80 | 1 9 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-401 | WHS - 00517 | EVAP | EEM - RI | 63,416 | 23,290 | 63,416 | 23,290 | 27,201,963 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-357 | SHOP - 00384 | EVAP | EEM - RI | 63,420 | 23,297 | 63,420 | 23,297 | 27,204,283 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-382 | WHS - 00342 | EVAP | EEM - RI | 63,425 | 23,303 | 63,425 | 23,303 | 27,206,603 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-160 | ADMIN - 00528 | EVAP | EEM - RI | 63,427 | 23,306 | 63,427 | 23,306 | 27,207,763 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-384 | WHS - 00352 | EVAP | EEM - RI | 63,429 | 23,309 | 63,429 | 23,309 | 27,208,924 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-386 | WHS - 00364 | EVAP | EEM - RI | 63,431 | 23,313 | 63,431 | 23,313 | 27,210,084 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-154 | ADMIN - 00520 | EVAP | EEM - RI | 63,434 | 23,316 | 63,434 | 23,316 | 27,211,244 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-175 | ADMIN - 00583 | EVAP | EEM - RI | 63,436 | 23,319 | 63,436 | 23,319 | 27,212,404 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-157 | ADMIN - 00526 | EVAP | EEM - RI | 63,438 | 23,322 | 63,438 | 23,322 | 27,213,564 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-118 | ADMIN - 00415 | EVAP | EEM - RI | 63,440 | 23,325 | 63,440 | 23,325 | 27,214,724 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-97 | 01315 | EVAP | EEM - RI | 63,442 | 23,329 | 63,442 | 23,329 | 27,215,885 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-362 | SHOP-ELC - 00616 | EVAP | EEM - RI | 63,445 | 23,332 | 63,445 | 23,332 | 27,217,045 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-294 | MTRPOOL - 00621 | EVAP | EEM - RI | 63,447 | 23,335 | 63,447 | 23,335 | 27,218,205 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-381 | WHS - 00342 | EVAP | EEM - RI | 63,449 | 23,338 | 63,449 | 23,338 | 27,219,365 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-355 | SHOP - 00367 | EVAP | EEM - RI | 63,451 | 23,341 | 63,451 | 23,341 | 27,220,525 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-415 | WHS - 00860 | EVAP | EEM - RI | 63,453 | 23,344 | 63,453 | 23,344 | 27,221,686 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-296 | MTRPOOL - 00623 | EVAP | EEM - RI | 63,456 | 23,348 | 63,456 | 23,348 | 27,222,846 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-383 | WHS - 00344 | EVAP | EEM - RI | 63,458 | 23,351 | 63,458 | 23,351 | 27,224,006 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-262 | DINING - 00431 | EVAP | EEM - RI | 63,460 | 23,354 | 63,460 | 23,354 | 27,225,166 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-380 | WHS - 00333 | EVAP | EEM - RI | 63,462 | 23,357 | 63,462 | 23,357 | 27,226,326 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-242 | CHAPEL - 00315 | EVAP | EEM - RI | 63,465 | 23,360 | 63,465 | 23,360 | 27,227,486 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-350 | SHOP - 00356 | EVAP | EEM - RI | 63,467 | 23,364 | 63,467 | 23,364 | 27,228,647 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-376 | WHS - 00318 | EVAP | EEM - RI | 63,469 | 23,367 | 63,469 | 23,367 | 27,229,807 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-162 | ADMIN - 00539 | EVAP | EEM - RI | 63,471 | 23,370 | 63,471 | 23,370 | 27,230,967 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-114 | ADMIN - 00372 | EVAP | EEM - RI | 63,473 | 23,373 | 63,473 | 23,373 | 27,232,127 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-116 | ADMIN - 00408 | EVAP | EEM - RI | 63,476 | 23,376 | 63,476 | 23,376 | 27,233,287 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-317 | MTRPOOL - 00850 | EVAP | EEM - RI | 63,478 | 23,379 | 63,478 | 23,379 | 27,234,448 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-286 | MTRPOOL - 00605 | EVAP | EEM - RI | 63,480 | 23,383 | 63,480 | 23,383 | 27,235,608 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-119 | ADMIN - 00425 | EVAP | EEM - RI | 63,482 | 23,386 | 63,482 | 23,386 | 27,236,768 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-133 | ADMIN - 00445 | EVAP | EEM - RI | 63,484 | 23,389 | 63,484 | 23,389 | 27,237,928 | 8.95 | 3.80 | 1.9 |
| Motors | PMTR-28 | DGR - 00430 | PMPMTR | EEM - RI | 63,487 | 23,392 | 63,487 | 23,392 | 27,239,088 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-320 | MTRPOOL - 00941 | EVAP | EEM - RI | 63,489 | 23,395 | 63,489 | 23,395 | 27,240,248 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-291 | MTRPOOL - 00612 | EVAP | EEM - RI | 63,491 | 23,399 | 63,491 | 23,399 | 27,241,409 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-394 | WHS - 00470 | EVAP | EEM - RI | 63,493 | 23,402 | 63,493 | 23,402 | 27,242,569 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-141 | ADMIN - 00464 | EVAP | EEM - RI | 63,495 | 23,405 | 63,495 | 23,405 | 27,243,729 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-292 | MTRPOOL - 00614 | EVAP | EEM - RI | 63,498 | 23,408 | 63,498 | 23,408 | 27,244,889 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-340 | PUMP - 00044 | EVAP | EEM - RI | 63,500 | 23,411 | 63,500 | 23,411 | 27,246,049 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-388 | WHS - 00364 | EVAP | EEM - RI | 63,502 | 23,414 | 63,502 | 23,414 | 27,247,210 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-280 | MTRPOOL - 00600 | EVAP | EEM - RI | 63,504 | 23,418 | 63,504 | 23,418 | 27,248,370 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-137 | ADMIN - 00453 | EVAP | EEM - RI | 63,506 | 23,421 | 63,506 | 23,421 | 27,249,530 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-344 | REC - 00338 | EVAP | EEM - RI | 63,509 | 23,424 | 63,509 | 23,424 | 27,250,690 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-240 | CHAPEL - 00212 | EVAP | EEM - RI | 63,511 | 23,427 | 63,511 | 23,427 | 27,251,850 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-310 | MTRPOOL - 00837 | EVAP | EEM - RI | 63,512 | 23,429 | 63,512 | 23,429 | 27,252,430 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-309 | MTRPOOL - 00832 | EVAP | EEM - RI | 63,513 | 23,430 | 63,513 | 23,430 | 27,253,010 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-358 | SHOP - 00842 | EVAP | EEM - RI | 63,514 | 23,432 | 63,514 | 23,432 | 27,253,591 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-311 | MTRPOOL - 00840 | EVAP | EEM - RI | 63,515 | 23,434 | 63,515 | 23,434 | 27,254,171 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-359 | SHOP - 00842 | EVAP | EEM - RI | 63,516 | 23,435 | 63,516 | 23,435 | 27,254,751 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-407 | WHS - 00584 | EVAP | EEM - RI | 63,517 | 23,437 | 63,517 | 23,437 | 27,255,331 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-333 | MWR - 01322 | EVAP | EEM - RI | 63,519 | 23,438 | 63,519 | 23,438 | 27,255,911 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-342 | PUMP - 00838 | EVAP | EEM - RI | 63,520 | 23,440 | 63,520 | 23,440 | 27,256,491 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-360 | SHOP-ELC - 00581 | EVAP | EEM - RI | 63,521 | 23,442 | 63,521 | 23,442 | 27,257,071 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-405 | WHS - 00545 | EVAP | EEM - RI | 63,522 | 23,443 | 63,522 | 23,443 | 27,257,651 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-416 | WHS - 00860 | EVAP | EEM - RI | 63,523 | 23,445 | 63,523 | 23,445 | 27,258,231 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-399 | WHS - 00486 | EVAP | EEM - RI | 63,524 | 23,446 | 63,524 | 23,446 | 27,258,811 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-392 | WHS - 00462 | EVAP | EEM - RI | 63,525 | 23,448 | 63,525 | 23,448 | 27,259,391 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-393 | WHS - 00462 | EVAP | EEM - RI | 63,526 | 23,450 | 63,526 | 23,450 | 27,259,972 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-385 | WHS - 00360 | EVAP | EEM - RI | 63,527 | 23,451 | 63,527 | 23,451 | 27,260,552 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-379 | WHS - 00333 | EVAP | EEM - RI | 63,528 | 23,453 | 63,528 | 23,453 | 27,261,132 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-377 | WHS - 00318 | EVAP | EEM - RI | 63,530 | 23,454 | 63,530 | 23,454 | 27,261,712 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-363 | SHOP-WPN - 07602 | EVAP | EEM - RI | 63,531 | 23,456 | 63,531 | 23,456 | 27,262,292 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-413 | WHS - 00844 | EVAP | EEM - RI | 63,532 | 23,457 | 63,532 | 23,457 | 27,262,872 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-371 | WHS - 00234 | EVAP | EEM - RI | 63,533 | 23,459 | 63,533 | 23,459 | 27,263,452 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-367 | TRAING - 00496 | EVAP | EEM - RI | 63,534 | 23,461 | 63,534 | 23,461 | 27,264,032 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-368 | TRAING - 00496 | EVAP | EEM - RI | 63,535 | 23,462 | 63,535 | 23,462 | 27,264,612 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-370 | WHS - 00024 | EVAP | EEM - RI | 63,536 | 23,464 | 63,536 | 23,464 | 27,265,192 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-387 | WHS - 00364 | EVAP | EEM - RI | 63,537 | 23,465 | 63,537 | 23,465 | 27,265,772 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-374 | WHS - 00318 | EVAP | EEM - RI | 63,538 | 23,467 | 63,538 | 23,467 | 27,266,353 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-375 | WHS - 00318 | EVAP | EEM - RI | 63,539 | 23,469 | 63,539 | 23,469 | 27,266,933 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-414 | WHS - 00860 | EVAP | EEM - RI | 63,541 | 23,470 | 63,541 | 23,470 | 27,267,513 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-406 | WHS - 00558 | EVAP | EEM - RI | 63,542 | 23,472 | 63,542 | 23,472 | 27,268,093 | 8.93 | 3.80 | 1.9 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-396 | WHS - 00470 | EVAP | EEM - RI | 63,543 | 23,473 | 63,543 | 23,473 | 27,268,673 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-270 | DINING - 00560 | EVAP | EEM - RI | 63,544 | 23,475 | 63,544 | 23,475 | 27,269,253 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-324 | MWR - 00410 | EVAP | EEM - RI | 63,545 | 23,477 | 63,545 | 23,477 | 27,269,833 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-308 | MTRPOOL - 00832 | EVAP | EEM - RI | 63,546 | 23,478 | 63,546 | 23,478 | 27,270,413 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-300 | MTRPOOL - 00646 | EVAP | EEM - RI | 63,547 | 23,480 | 63,547 | 23,480 | 27,270,993 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-352 | SHOP - 00357 | EVAP | EEM - RI | 63,548 | 23,481 | 63,548 | 23,481 | 27,271,573 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-331 | MWR - 01322 | EVAP | EEM - RI | 63,549 | 23,483 | 63,549 | 23,483 | 27,272,153 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-323 | MWR - 00340 | EVAP | EEM - RI | 63,550 | 23,485 | 63,550 | 23,485 | 27,272,734 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-325 | MWR - 00480 | EVAP | EEM - RI | 63,552 | 23,486 | 63,552 | 23,486 | 27,273,314 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-400 | WHS - 00486 | EVAP | EEM - RI | 63,553 | 23,488 | 63,553 | 23,488 | 27,273,894 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-326 | MWR - 00556 | EVAP | EEM - RI | 63,554 | 23,489 | 63,554 | 23,489 | 27,274,474 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-408 | WHS - 00585 | EVAP | EEM - RI | 63,555 | 23,491 | 63,555 | 23,491 | 27,275,054 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-353 | SHOP - 00357 | EVAP | EEM - RI | 63,556 | 23,492 | 63,556 | 23,492 | 27,275,634 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-332 | MWR - 01322 | EVAP | EEM - RI | 63,557 | 23,494 | 63,557 | 23,494 | 27,276,214 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-283 | MTRPOOL - 00600 | EVAP | EEM - RI | 63,558 | 23,496 | 63,558 | 23,496 | 27,276,794 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-267 | DINING - 00449 | EVAP | EEM - RI | 63,559 | 23,497 | 63,559 | 23,497 | 27,277,374 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-255 | DOR - 00404 | EVAP | EEM - RI | 63,560 | 23,499 | 63,560 | 23,499 | 27,277,954 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-402 | WHS - 00531 | EVAP | EEM - RI | 63,562 | 23,500 | 63,562 | 23,500 | 27,278,534 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-403 | WHS - 00531 | EVAP | EEM - RI | 63,563 | 23,502 | 63,563 | 23,502 | 27,279,115 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-356 | SHOP - 00384 | EVAP | EEM - RI | 63,564 | 23,504 | 63,564 | 23,504 | 27,279,695 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-351 | SHOP - 00357 | EVAP | EEM - RI | 63,565 | 23,505 | 63,565 | 23,505 | 27,280,275 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-298 | MTRPOOL - 00639 | EVAP | EEM - RI | 63,566 | 23,507 | 63,566 | 23,507 | 27,280,855 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-313 | MTRPOOL - 00840 | EVAP | EEM - RI | 63,567 | 23,508 | 63,567 | 23,508 | 27,281,435 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-164 | ADMIN - 00543 | EVAP | EEM - RI | 63,568 | 23,510 | 63,568 | 23,510 | 27,282,015 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-151 | ADMIN - 00508 | EVAP | EEM - RI | 63,569 | 23,512 | 63,569 | 23,512 | 27,282,595 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-152 | ADMIN - 00510 | EVAP | EEM - RI | 63,570 | 23,513 | 63,570 | 23,513 | 27,283,175 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-158 | ADMIN - 00527 | EVAP | EEM - RI | 63,571 | 23,515 | 63,571 | 23,515 | 27,283,755 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-161 | ADMIN - 00529 | EVAP | EEM - RI | 63,573 | 23,516 | 63,573 | 23,516 | 27,284,335 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-169 | ADMIN - 00554 | EVAP | EEM - RI | 63,574 | 23,518 | 63,574 | 23,518 | 27,284,915 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-146 | ADMIN - 00497 | EVAP | EEM - RI | 63,575 | 23,520 | 63,575 | 23,520 | 27,285,496 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-172 | ADMIN - 00578 | EVAP | EEM - RI | 63,576 | 23,521 | 63,576 | 23,521 | 27,286,076 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-173 | ADMIN - 00579 | EVAP | EEM - RI | 63,577 | 23,523 | 63,577 | 23,523 | 27,286,656 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-174 | ADMIN - 00580 | EVAP | EEM - RI | 63,578 | 23,524 | 63,578 | 23,524 | 27,287,236 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-176 | ADMIN - 00604 | EVAP | EEM - RI | 63,579 | 23,526 | 63,579 | 23,526 | 27,287,816 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-149 | ADMIN - 00504 | EVAP | EEM - RI | 63,580 | 23,527 | 63,580 | 23,527 | 27,288,396 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-145 | ADMIN - 00483 | EVAP | EEM - RI | 63,581 | 23,529 | 63,581 | 23,529 | 27,288,976 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-186 | ADMIN - 06201 | EVAP | EEM - RI | 63,582 | 23,531 | 63,582 | 23,531 | 27,289,556 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-115 | ADMIN - 00372 | EVAP | EEM - RI | 63,584 | 23,532 | 63,584 | 23,532 | 27,290,136 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-101 | ADMIN - 00157 | EVAP | EEM - RI | 63,585 | 23,534 | 63,585 | 23,534 | 27,290,716 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-104 | ADMIN - 00237 | EVAP | EEM - RI | 63,586 | 23,535 | 63,586 | 23,535 | 27,291,296 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-112 | ADMIN - 00320 | EVAP | EEM - RI | 63,587 | 23,537 | 63,587 | 23,537 | 27,291,876 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-113 | ADMIN - 00372 | EVAP | EEM - RI | 63,588 | 23,539 | 63,588 | 23,539 | 27,292,457 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-121 | ADMIN - 00428 | EVAP | EEM - RI | 63,589 | 23,540 | 63,589 | 23,540 | 27,293,037 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-144 | ADMIN - 00479 | EVAP | EEM - RI | 63,590 | 23,542 | 63,590 | 23,542 | 27,293,617 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-125 | ADMIN - 00437 | EVAP | EEM - RI | 63,591 | 23,543 | 63,591 | 23,543 | 27,294,197 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-138 | ADMIN - 00454 | EVAP | EEM - RI | 63,592 | 23,545 | 63,592 | 23,545 | 27,294,777 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-140 | ADMIN - 00458 | EVAP | EEM - RI | 63,593 | 23,547 | 63,593 | 23,547 | 27,295,357 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-142 | ADMIN - 00464 | EVAP | EEM - RI | 63,595 | 23,548 | 63,595 | 23,548 | 27,295,937 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-162 | ADMIN - 00988 | EVAP | EEM - RI | 63,596 | 23,550 | 63,596 | 23,550 | 27,296,517 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-177 | ADMIN - 00604 | EVAP | EEM - RI | 63,597 | 23,551 | 63,597 | 23,551 | 27,297,097 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-187 | ADMIN - 07600 | EVAP | EEM - RI | 63,598 | 23,553 | 63,598 | 23,553 | 27,297,677 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-297 | MTRPOOL - 00626 | EVAP | EEM - RI | 63,599 | 23,555 | 63,599 | 23,555 | 27,298,257 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-284 | MTRPOOL - 00605 | EVAP | EEM - RI | 63,600 | 23,556 | 63,600 | 23,556 | 27,298,838 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-272 | FUELDSP - 00950 | EVAP | EEM - RI | 63,601 | 23,558 | 63,601 | 23,558 | 27,299,418 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-283 | MTRPOOL - 00605 | EVAP | EEM - RI | 63,602 | 23,559 | 63,602 | 23,559 | 27,299,998 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-265 | DINING - 00447 | EVAP | EEM - RI | 63,603 | 23,561 | 63,603 | 23,561 | 27,300,578 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-287 | MTRPOOL - 00605 | EVAP | EEM - RI | 63,605 | 23,563 | 63,605 | 23,563 | 27,301,158 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-295 | MTRPOOL - 00621 | EVAP | EEM - RI | 63,606 | 23,564 | 63,606 | 23,564 | 27,301,738 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-314 | MTRPOOL - 00847 | EVAP | EEM - RI | 63,607 | 23,566 | 63,607 | 23,566 | 27,302,318 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-288 | MTRPOOL - 00608 | EVAP | EEM - RI | 63,608 | 23,567 | 63,608 | 23,567 | 27,302,898 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-289 | MTRPOOL - 00608 | EVAP | EEM - RI | 63,609 | 23,569 | 63,609 | 23,569 | 27,303,478 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-293 | MTRPOOL - 00620 | EVAP | EEM - RI | 63,610 | 23,570 | 63,610 | 23,570 | 27,304,058 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-290 | MTRPOOL - 00612 | EVAP | EEM - RI | 63,611 | 23,572 | 63,611 | 23,572 | 27,304,638 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-299 | MTRPOOL - 00642 | EVAP | EEM - RI | 63,612 | 23,574 | 63,612 | 23,574 | 27,305,219 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-316 | MTRPOOL - 00850 | EVAP | EEM - RI | 63,613 | 23,575 | 63,613 | 23,575 | 27,305,799 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-271 | FUELDSP - 00836 | EVAP | EEM - RI | 63,614 | 23,577 | 63,614 | 23,577 | 27,306,379 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-315 | MTRPOOL - 00847 | EVAP | EEM - RI | 63,616 | 23,578 | 63,616 | 23,578 | 27,306,959 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-302 | MTRPOOL - 00650 | EVAP | EEM - RI | 63,617 | 23,580 | 63,617 | 23,580 | 27,307,539 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-247 | CLINIC - 00245 | EVAP | EEM - RI | 63,618 | 23,582 | 63,618 | 23,582 | 27,308,119 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-268 | DINING - 00468 | EVAP | EEM - RI | 63,624 | 23,591 | 63,624 | 23,591 | 27,311,6[illegible] | 8.91 | 3.80 | 1.9 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-135 | ADMIN - 00452 | EVAP | EEM - RI | 63,631 | 23,601 | 63,631 | 23,601 | 27,315,080 | 8 91 | 3 80 | 1 9 |
| Motors | MTR-257 | DGR - 00430 | EVAP | EEM - RI | 63,638 | 23,610 | 63,638 | 23,610 | 27,318,561 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-170 | ADMIN - 00564 | EVAP | EEM - RI | 63,641 | 23,615 | 63,641 | 23,615 | 27,320,301 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-120 | ADMIN - 00426 | EVAP | EEM - RI | 63,644 | 23,620 | 63,644 | 23,620 | 27,322,041 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-165 | ADMIN - 00544 | EVAP | EEM - RI | 63,647 | 23,625 | 63,647 | 23,625 | 27,323,781 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-312 | MTRPOOL - 00840 | EVAP | EEM - RI | 63,651 | 23,629 | 63,651 | 23,629 | 27,325,522 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-127 | ADMIN - 00439 | EVAP | EEM - RI | 63,654 | 23,634 | 63,654 | 23,634 | 27,327,262 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-307 | MTRPOOL - 00830 | EVAP | EEM - RI | 63,657 | 23,639 | 63,657 | 23,639 | 27,329,002 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-123 | ADMIN - 00433 | EVAP | EEM - RI | 63,661 | 23,644 | 63,661 | 23,644 | 27,330,743 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-139 | ADMIN - 00458 | EVAP | EEM - RI | 63,664 | 23,648 | 63,664 | 23,648 | 27,332,483 | 8 90 | 3 80 | 1 9 |
| Motors | MTR-185 | ADMIN - 06201 | EVAP | EEM - RI | 63,666 | 23,652 | 63,666 | 23,652 | 27,333,637 | 8 90 | 3 79 | 1 9 |
| Motors | MTR-98 | ADMIN - 00101 | EVAP | EEM - RI | 63,673 | 23,661 | 63,673 | 23,661 | 27,337,099 | 8 89 | 3 79 | 1 9 |
| Motors | MTR-334 | OTHER - 00992 | EVAP | EEM - RI | 63,674 | 23,663 | 63,674 | 23,663 | 27,337,676 | 8 89 | 3 79 | 1 9 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - RI | 63,930 | 23,702 | 63,930 | 23,702 | 27,363,200 | 8 88 | 3 78 | 1 9 |
| Motors | MTR-339 | PLT-BLDG - 00263 | EVAP | EEM - RI | 63,932 | 23,705 | 63,932 | 23,705 | 27,364,351 | 8 88 | 3 78 | 1 9 |
| Motors | MTR-338 | PLT-BLDG - 00263 | EVAP | EEM - RI | 63,934 | 23,706 | 63,934 | 23,706 | 27,364,927 | 8.88 | 3 78 | 1 9 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - RI | 63,975 | 23,714 | 63,975 | 23,714 | 27,370,776 | 8 88 | 3 76 | 1 9 |
| Motors | PMTR-84 | PUMP - 18005 | PMPMTR | EEM - RI | 64,053 | 23,804 | 64,053 | 23,804 | 27,389,411 | 8 87 | 3 75 | 1 9 |
| Motors | MTR-420 | ADMIN - 00439 | Fan Motor | EEM - RI | 64,054 | 23,805 | 64,054 | 23,805 | 27,389,925 | 8 87 | 3 75 | 1 9 |
| Motors | MTR-419 | ADMIN - 00433 | Fan Motor | EEM - RI | 64,055 | 23,807 | 64,055 | 23,807 | 27,390,438 | 8 87 | 3 75 | 1 9 |
| Lighting | OS-MT-5b | MT Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 64,086 | 23,807 | 64,086 | 23,807 | 27,402,053 | 8 86 | 3 72 | 1 9 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater - RI | 64,108 | 23,834 | 64,108 | 23,834 | 27,407,066 | 8 86 | 3 71 | 1 9 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - RI | 64,441 | 23,886 | 64,441 | 23,886 | 27,440,062 | 8 84 | 3 70 | 1 9 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - RI | 64,775 | 23,938 | 64,775 | 23,938 | 27,473,059 | 8 82 | 3 70 | 2 0 |
| Heating | 42 | SHOP - HDSDS | Unit Heaters | Radiant Heat - RI | 64,936 | 23,938 | 64,936 | 23,938 | 27,503,957 | 8 80 | 3 69 | 2 0 |
| DHW & A/C | 30 | 00857 | Chiller-air cooled | Install Desuperheater - RI | 64,948 | 24,010 | 64,948 | 24,010 | 27,513,669 | 8 80 | 3 64 | 2 0 |
| Wells | 1 | | Well Pumps | Add New 500 kgal Tank - RI | 64,948 | 25,107 | 64,948 | 25,107 | 28,068,151 | 8 51 | 3 63 | 2 0 |
| Motors | PMTR-67 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 64,955 | 25,114 | 64,955 | 25,114 | 28,070,241 | 8 51 | 3 63 | 2 0 |
| Motors | PMTR-91 | PUMP - 00042 | PMPMTR | EEM - RI | 64,967 | 25,125 | 64,967 | 25,125 | 28,073,003 | 8 51 | 3 61 | 2 0 |
| Motors | PMTR-90 | PUMP - 00044 | PMPMTR | EEM - RI | 64,980 | 25,135 | 64,980 | 25,135 | 28,075,766 | 8 50 | 3 61 | 2 0 |
| Motors | MTR-183 | ADMIN - 00988 | EVAP | EEM - RI | 64,980 | 25,137 | 64,980 | 25,137 | 28,076,265 | 8 50 | 3 60 | 2 0 |
| Central Chillers | 2 | | Existing Chillers | Connect B'253 & B'263, Add TES - RI | 66,080 | 27,246 | 66,080 | 27,246 | 28,969,451 | 8 07 | 3 52 | 2 1 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - RI | 66,081 | 27,248 | 66,081 | 27,248 | 28,969,921 | 8 07 | 3 51 | 2 1 |
| Motors | MTR-15 | CLUB - 00202 | COMPMTR | EEM - RI | 66,088 | 27,255 | 66,088 | 27,255 | 28,971,801 | 8 07 | 3 51 | 2 1 |
| Motors | MTR-17 | CLUB - 00202 | COMPMTR | EEM - RI | 66,094 | 27,263 | 66,094 | 27,263 | 28,973,682 | 8 07 | 3 51 | 2 1 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - RI | 66,097 | 27,266 | 66,097 | 27,266 | 28,974,622 | 8 07 | 3 51 | 2 1 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 66,109 | 27,320 | 66,109 | 27,320 | 28,981,960 | 8 07 | 3 49 | 2 1 |
| Motors | MTR-42 | CLUB - 00202 | CONDMTR | EEM - RI | 66,110 | 27,322 | 66,110 | 27,322 | 28,982,425 | 8 07 | 3 49 | 2 1 |
| Motors | MTR-184 | ADMIN - 00988 | EVAP | EEM - RI | 66,112 | 27,325 | 66,112 | 27,325 | 28,983,376 | 8 07 | 3 47 | 2 1 |
| Motors | MTR-301 | MTRPOOL - 00646 | EVAP | EEM - RI | 66,114 | 27,327 | 66,114 | 27,327 | 28,984,326 | 8 07 | 3 47 | 2 1 |
| Motors | PMTR-37 | GROCERY - 00920 | PMPMTR | EEM - RI | 66,115 | 27,329 | 66,115 | 27,329 | 28,984,801 | 8 07 | 3 47 | 2 1 |
| Motors | MTR-181 | ADMIN - 00988 | EVAP | EEM - RI | 66,116 | 27,330 | 66,116 | 27,330 | 28,985,276 | 8 07 | 3 47 | 2 1 |
| Motors | PMTR-35 | GROCERY - 00920 | PMPMTR | EEM - RI | 66,117 | 27,331 | 66,117 | 27,331 | 28,985,751 | 8 07 | 3 47 | 2 1 |
| DHW & A/C | 28 | 00488 | PKG A/C | Install Desuperheater - RI | 66,127 | 27,403 | 66,127 | 27,403 | 28,994,737 | 8 06 | 3 44 | 2 1 |
| Motors | MTR-456 | MTRPOOL - 00857 | Fan Motor | EEM - RI | 66,139 | 27,415 | 66,139 | 27,415 | 28,997,840 | 8 06 | 3 43 | 2 1 |
| Motors | PMTR-83 | PUMP - 18005 | PMPMTR | EEM - RI | 66,205 | 27,504 | 66,205 | 27,504 | 29,013,750 | 8 05 | 3 35 | 2 1 |
| Motors | MTR-37 | WHS-CLD - 00862 | COMPMTR | EEM - RI | 66,206 | 27,506 | 66,206 | 27,506 | 29,014,187 | 8 05 | 3 34 | 2 1 |
| Motors | PMTR-17c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 66,264 | 27,517 | 66,264 | 27,517 | 29,031,904 | 8 04 | 3 32 | 2 1 |
| Motors | PMTR-16c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 66,322 | 27,528 | 66,322 | 27,528 | 29,049,621 | 8 04 | 3 32 | 2 1 |
| Motors | PMTR-15c | BRK/ADM - 00273 | PMPMTR | VSD & EEM - RI | 66,351 | 27,533 | 66,351 | 27,533 | 29,058,480 | 8 03 | 3 32 | 2 1 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 66,383 | 27,539 | 66,383 | 27,539 | 29,062,051 | 8 03 | 3 32 | 2 1 |
| Motors | PMTR-19 | BRK/ADM - 00099 | PMPMTR | EEM - RI | 66,384 | 27,541 | 66,384 | 27,541 | 29,062,483 | 8 03 | 3 31 | 2 1 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - RI | 66,386 | 27,547 | 66,386 | 27,547 | 29,063,370 | 8 03 | 3 31 | 2 1 |
| Motors | PMTR-7c | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 66,413 | 27,551 | 66,413 | 27,551 | 29,072,270 | 8 02 | 3 31 | 2 1 |
| DHW & A/C | 1 | 00013 | CHILLER-air cooled | Install Desuperheater - RI | 66,419 | 27,614 | 66,419 | 27,614 | 29,079,905 | 8 02 | 3 30 | 2 1 |
| Motors | PMTR-18 | BRK/ADM - 00110 | PMPMTR | EEM - RI | 66,420 | 27,616 | 66,420 | 27,616 | 29,080,330 | 8 02 | 3 27 | 2 1 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - RI | 66,470 | 27,688 | 66,470 | 27,688 | 29,092,407 | 8 01 | 3 26 | 2 1 |
| DHW & A/C | 32 | 00903 | PKG UNIT | Install Desuperheater - RI | 66,499 | 27,702 | 66,499 | 27,702 | 29,095,297 | 8 01 | 3 22 | 2 1 |
| Motors | PMTR-65 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 66,507 | 27,710 | 66,507 | 27,710 | 29,097,554 | 8 01 | 3 20 | 2 1 |
| Motors | PMTR-69 | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 66,515 | 27,718 | 66,515 | 27,718 | 29,099,810 | 8 01 | 3 20 | 2 1 |
| Envelope | MWR | MWR | | Weatherization - RI | 66,525 | 27,724 | 66,525 | 27,724 | 29,102,771 | 8 01 | 3 17 | 2 2 |
| Motors | MTR-526 | Fan Housing | Heat System Fan | EEM - RI | 68,264 | 29,191 | 68,264 | 29,191 | 29,765,108 | 7 68 | 3 16 | 2 2 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - RI | 68,314 | 29,231 | 68,314 | 29,231 | 29,788,390 | 7 67 | 3 15 | 2 2 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - RI | 68,548 | 29,270 | 68,548 | 29,270 | 29,795,426 | 7 66 | 3 12 | 2 2 |
| Motors | PMTR-92 | PUMP - 00044 | PMPMTR | EEM - RI | 68,581 | 29,309 | 68,581 | 29,309 | 29,802,396 | 7 66 | 3 10 | 2 2 |
| Controls | MT-1 | | Thermostat | Night Setback - RI | 70,089 | 31,495 | 70,089 | 31,495 | 30,116,521 | 7 51 | 3 09 | 2 3 |
| Motors | PMTR-99 | PUMP - 00324 | PMPMTR | EEM - RI | 70,099 | 31,506 | 70,099 | 31,506 | 30,118,691 | 7 51 | 3 05 | 2 3 |
| Motors | PMTR-2a | ADMIN - 00988 | PMPMTR | EEM - RI | 70,101 | 31,509 | 70,101 | 31,509 | 30,119,612 | 7 51 | 3 03 | 2 3 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 70,333 | 31,509 | 70,333 | 31,509 | 30,157,532 | 7 49 | 2 98 | 2 3 |
| Motors | PMTR-60e | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 70,366 | 31,521 | 70,366 | 31,521 | 30,168,513 | 7 48 | 2 81 | 2 3 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - RI | 70,588 | 31,561 | 70,588 | 31,561 | 30,188,095 | 7 47 | 2 81 | 2 3 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 70,608 | 31,570 | 70,608 | 31,570 | 30,190,084 | 7 47 | 2 78 | 2 3 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 70,612 | 31,570 | 70,612 | 31,570 | 30,191,008 | 7 47 | 2 78 | 2 3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 70,644 | 31,576 | 70,644 | 31,576 | 30,193,964 | 7 47 | 2 74 | 2 3 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 70,676 | 31,583 | 70,676 | 31,583 | 30,196,919 | 7 47 | 2 74 | 2 3 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - RI | 70,677 | 31,585 | 70,677 | 31,585 | 30,197,242 | 7.47 | 2 68 | 2 3 |
| Motors | MTR-449 | GROCERY - 00920 | Fan Motor | EEM - RI | 70,684 | 31,597 | 70,684 | 31,597 | 30,199,343 | 7.47 | 2 65 | 2 3 |
| Motors | MTR-9 | MTRPOOL - 00873 | AIRCOMP | EEM - RI | 70,688 | 31,610 | 70,688 | 31,610 | 30,201,073 | 7.47 | 2 64 | 2 3 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM - RI | 70,692 | 31,624 | 70,692 | 31,624 | 30,202,804 | 7.46 | 2 64 | 2 3 |
| Motors | PMTR-80 | PUMP - 05590 | PMPMTR | EEM - RI | 70,743 | 31,743 | 70,743 | 31,743 | 30,216,630 | 7.46 | 2 60 | 2 3 |
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - RI | 70,776 | 31,771 | 70,776 | 31,771 | 30,221,938 | 7.45 | 2 60 | 2 3 |
| DHW & A/C | 36 | 01313 | PKG UNIT | Install Desuperheater - RI | 70,785 | 31,792 | 70,785 | 31,792 | 30,224,508 | 7.45 | 2 57 | 2 3 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat - RI | 70,814 | 31,797 | 70,814 | 31,797 | 30,228 526 | 7 45 | 2 57 | 2 3 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 70,848 | 31,802 | 70,848 | 31,802 | 30,232,510 | 7.44 | 2 56 | 2 3 |
| Envelope | w/ SE win only | Concrete Block: w/ SE win only | | Weatherization - RI | 70,871 | 31,817 | 70,871 | 31,817 | 30,238,984 | 7.44 | 2 54 | 2 3 |
| Motors | MTR-22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 70,875 | 31,821 | 70,875 | 31,821 | 30,239,677 | 7.44 | 2 53 | 2 3 |
| Motors | MTR-447 | GROCERY - 00920 | Fan Motor | EEM - RI | 70,882 | 31,831 | 70,882 | 31,831 | 30,241,647 | 7 44 | 2 47 | 2 3 |
| Motors | MTR-436a | CLINIC - 00171 | Fan Motor | EEM - RI | 70,886 | 31,837 | 70,886 | 31,837 | 30,242,632 | 7 44 | 2 47 | 2 3 |
| Motors | MTR-450 | GROCERY - 00920 | Fan Motor | EEM - RI | 70,890 | 31,842 | 70,890 | 31,842 | 30,243,616 | 7.44 | 2 47 | 2 3 |
| Motors | MTR-481 | REC - 00905 | Fan Motor | EEM - RI | 70,892 | 31,846 | 70,892 | 31,846 | 30,244,367 | 7.44 | 2.47 | 2 3 |
| Motors | MTR-477 | PUMP - 00324 | Fan Motor | EEM - RI | 70,895 | 31,850 | 70,895 | 31,850 | 30,245,117 | 7.44 | 2 47 | 2 3 |
| Motors | MTR-467a | MWR - 01322 | Fan Motor | EEM - RI | 70,898 | 31,853 | 70,898 | 31,853 | 30,245,781 | 7 44 | 2 46 | 2 3 |
| Motors | PMTR-59c | PLT-BLDG - 00253 | PMPMTR | VSD & EEM - RI | 70,937 | 31,863 | 70,937 | 31,863 | 30,257,047 | 7.43 | 2 46 | 2.3 |
| Motors | MTR-524a | DOR - 00308 | VENTLTR | EEM - RI | 70,940 | 31,867 | 70,940 | 31,867 | 30,257,782 | 7.43 | 2 44 | 2 3 |
| Motors | MTR-438a | CLINIC - 00171 | Fan Motor | EEM - RI | 70,949 | 31,881 | 70,949 | 31,881 | 30,260,115 | 7.42 | 2 41 | 2 3 |
| DHW & A/C | 34 | 00983 | PKG A/C | Install Desuperheater - RI | 70,956 | 31,908 | 70,956 | 31,908 | 30,262,719 | 7.42 | 2 41 | 2 3 |
| Motors | PMTR-85 | PUMP - 18005 | PMPMTR | EEM - RI | 70,995 | 31,998 | 70,995 | 31,998 | 30,272,192 | 7.42 | 2.40 | 2 3 |
| Motors | PMTR-4c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 71,004 | 32,000 | 71,004 | 32,000 | 30,274,822 | 7.41 | 2.39 | 2 3 |
| Motors | PMTR-77 | PUMP - 00324 | PMPMTR | EEM - RI | 71,012 | 32,006 | 71,012 | 32,006 | 30,276,287 | 7.41 | 2.39 | 2 3 |
| Motors | PMTR-105 | PUMP - 00652 | PMPMTR | EEM - RI | 71,015 | 32,009 | 71,015 | 32,009 | 30,276,910 | 7 41 | 2 37 | 2 3 |
| DHW & A/C | 29 | 00826 | PKG UNIT | Install Desuperheater - RI | 71,027 | 32,025 | 71,027 | 32,025 | 30,278,793 | 7 41 | 2.37 | 2 3 |
| HVAC | MT-3 | | Heat pump | 2-speed compressor - RI | 72,159 | 33,443 | 72,159 | 33,443 | 30,607,022 | 7.17 | 2.36 | 2 4 |
| Heating | 15 | MTRPOOL - 00605 | Unit Heaters | Radiant Heat - RI | 72,202 | 33,449 | 72,202 | 33,449 | 30,607,022 | 7 16 | 2.33 | 2 4 |
| Motors | PMTR-58 | PLT-BLDG - 00109 | PMPMTR | EEM - RI | 72,202 | 33,450 | 72,202 | 33,450 | 30,611,330 | 7.16 | 2 32 | 2 4 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EEM - RI | 72,211 | 33,461 | 72,211 | 33,461 | 30,613,085 | 7.16 | 2.31 | 2.4 |
| Motors | MTR-20 | GROCERY - 00920 | COMPMTR | EEM - RI | 72,216 | 33,466 | 72,216 | 33,466 | 30,613,962 | 7.16 | 2.31 | 2 4 |
| Motors | MTR-18 | GROCERY - 00920 | COMPMTR | EEM - RI | 72,221 | 33,471 | 72,221 | 33,471 | 30,614,839 | 7.16 | 2 31 | 2 4 |
| Motors | PMTR-24 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 72,221 | 33,473 | 72,221 | 33,473 | 30,615,090 | 7 16 | 2 31 | 2.4 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EEM - RI | 72,281 | 33,540 | 72,281 | 33,540 | 30,626,445 | 7 15 | 2.30 | 2.4 |
| Motors | MTR-329 | MWR - 01322 | EVAP | EEM - RI | 72,282 | 33,541 | 72,282 | 33,541 | 30,626,685 | 7.15 | 2.29 | 2.4 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - RI | 72,323 | 33,547 | 72,323 | 33,547 | 30,630,609 | 7.15 | 2 28 | 2 4 |
| Motors | MTR-49 | WHS-CLD - 00862 | CONDMTR | EEM - RI | 72,324 | 33,548 | 72,324 | 33,548 | 30,630,848 | 7.15 | 2 28 | 2.4 |
| Motors | MTR-43 | GROCERY - 00920 | CONDMTR | EEM - RI | 72,334 | 33,557 | 72,334 | 33,557 | 30,632,527 | 7 15 | 2 26 | 2 4 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EEM - RI | 72,341 | 33,579 | 72,341 | 33,579 | 30,635.172 | 7.14 | 2.25 | 2 4 |
| Motors | PMTR-27 | CLINIC - 00171 | PMPMTR | EEM - RI | 72,349 | 33,601 | 72,349 | 33,601 | 30,637,817 | 7.14 | 2.25 | 2 4 |
| Envelope | MT-5 | | Black EDPM | Reflective roof - RI | 72,915 | 34,285 | 72,915 | 34,285 | 30,915,465 | 6 93 | 2 24 | 2 5 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EEM - RI | 72,953 | 34,404 | 72,953 | 34,404 | 30,925,223 | 6 92 | 2 13 | 2 5 |
| Motors | PMTR-53a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 72,957 | 34,416 | 72,957 | 34,416 | 30,927,097 | 6 92 | 2 13 | 2 5 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater - RI | 72,962 | 34,439 | 72,962 | 34,439 | 30,929,005 | 6.92 | 2 13 | 2.5 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 72,968 | 34,462 | 72,968 | 34,462 | 30,930,912 | 6 92 | 2.13 | 2.5 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - RI | 73,013 | 34,468 | 73,013 | 34,468 | 30,934,319 | 6 92 | 2 11 | 2 5 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - RI | 73,055 | 34,473 | 73,055 | 34,473 | 30,937,721 | 6 91 | 2.11 | 2 5 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - RI | 73,096 | 34,479 | 73,096 | 34,479 | 30,941,123 | 6 91 | 2 11 | 2 5 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EEM - RI | 73,097 | 34,480 | 73,097 | 34,480 | 30,941,329 | 6.91 | 2.10 | 2 5 |
| Motors | MTR-87 | HOSPITL - 00166 | COOL | EEM - RI | 73,098 | 34,481 | 73,098 | 34,481 | 30,941,534 | 6 91 | 2.10 | 2 5 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EEM - RI | 73,099 | 34,482 | 73,099 | 34,482 | 30,941,740 | 6 91 | 2 10 | 2.5 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EEM - RI | 73,099 | 34,483 | 73,099 | 34,483 | 30,941,945 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EEM - RI | 73,100 | 34,484 | 73,100 | 34,484 | 30,942,150 | 6.91 | 2 10 | 2 5 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EEM - RI | 73,101 | 34,485 | 73,101 | 34,485 | 30,942,356 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-89 | HOTEL - 00901 | COOL | EEM - RI | 73,102 | 34,485 | 73,102 | 34,485 | 30,942,561 | 6.91 | 2.10 | 2 5 |
| Motors | MTR-90 | HOTEL - 00902 | COOL | EEM - RI | 73,103 | 34,486 | 73,103 | 34,486 | 30,942,767 | 6.91 | 2 10 | 2 5 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 73,565 | 34,554 | 73,565 | 34,554 | 30,972,909 | 6.88 | 2.10 | 2 5 |
| Motors | PMTR-107 | PUMP - 00636 | PMPMTR | EEM - RI | 73,570 | 34,610 | 73,570 | 34,610 | 30,976,528 | 6 88 | 2 09 | 2 5 |
| Lighting | OS-MT-4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls - RI | 73,621 | 34,610 | 73,621 | 34,610 | 30,991,005 | 6 87 | 2 04 | 2 5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 73,627 | 34,631 | 73,627 | 34,631 | 30,992,671 | 6 87 | 2 02 | 2 5 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 73,632 | 34,653 | 73,632 | 34,653 | 30,994,337 | 6 87 | 2 02 | 2 5 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 73,699 | 34,661 | 73,699 | 34,661 | 30,998,967 | 6 86 | 2 01 | 2 5 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EEM - RI | 73,703 | 34,678 | 73,703 | 34,678 | 31,000,560 | 6 86 | 2 00 | 2 5 |
| Motors | PMTR-79 | PUMP - 05590 | PMPMTR | EEM - RI | 73,733 | 34,797 | 73,733 | 34,797 | 31,009,076 | 6 85 | 1 99 | 2 5 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 73,859 | 34,814 | 73,859 | 34,814 | 31,018,113 | 6 84 | 1 98 | 2 5 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | MT-8 | | Single pane window | Shade Screens - SE side - RI | 73,896 | 34,837 | 73,896 | 34,837 | 31,023,134 | 6 84 | 1 97 | 2 5 |
| Envelope | | Metal Siding | | Window Screen - SE side - RI | 73,972 | 34,883 | 73,972 | 34,883 | 31,033,473 | 6 83 | 1 97 | 2 5 |
| Envelope | | Concrete Block Barracks | | Window Screen - SE side - RI | 74,000 | 34,900 | 74,000 | 34,900 | 31,037,378 | 6 83 | 1 97 | 2 5 |
| Envelope | | Concrete Block Misc -post 1980 | | Window Screen - SE side - RI | 74,011 | 34,907 | 74,011 | 34,907 | 31,038,796 | 6 82 | 1 97 | 2 5 |
| Envelope | | MOTORPOOL | | Window Screen - SE side - RI | 74,018 | 34,911 | 74,018 | 34,911 | 31,039,812 | 6 82 | 1 97 | 2 5 |
| Envelope | | TRAINING | | Window Screen - SE side - RI | 74,021 | 34,913 | 74,021 | 34,913 | 31,040,141 | 6 82 | 1 97 | 2 5 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screen - RI | 74,425 | 35,159 | 74,425 | 35,159 | 31,095,356 | 6 77 | 1 97 | 2 5 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screen - RI | 74,804 | 35,389 | 74,804 | 35,389 | 31,146,952 | 6 73 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screen - RI | 75,173 | 35,614 | 75,173 | 35,614 | 31,197,397 | 6 68 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screen - RI | 75,458 | 35,788 | 75,458 | 35,788 | 31,236,198 | 6 65 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 75,705 | 35,938 | 75,705 | 35,938 | 31 269,895 | 6 62 | 1 97 | 2 6 |
| Envelope | | U Shaped Bldgs Barracks | | Window Screen - SE side - RI | 75,902 | 36,058 | 75,902 | 36,058 | 31,296,789 | 6 59 | 1 97 | 2 6 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SE side - RI | 75,936 | 36,079 | 75,936 | 36,079 | 31,301,418 | 6 59 | 1 97 | 2 6 |
| Envelope | | U Shaped Bldgs: Other | | Window Screen - SE side - RI | 75,964 | 36,096 | 75,964 | 36,096 | 31,305,219 | 6 59 | 1 97 | 2 6 |
| Envelope | | Concrete Block w/ SE win only | | Window Screen - SE side - RI | 75,982 | 36,107 | 75,982 | 36,107 | 31,307,745 | 6 59 | 1 97 | 2 6 |
| Envelope | | Concrete Block Misc -pre 1980 | | Window Screen - SE side - RI | 75,994 | 36,114 | 75,994 | 36,114 | 31,309,371 | 6 58 | 1 97 | 2 6 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SE side - RI | 76,006 | 36,121 | 76,006 | 36,121 | 31,310,902 | 6 58 | 1 97 | 2 6 |
| Envelope | | SHOP | | Window Screen - SE side - RI | 76,013 | 36,125 | 76,013 | 36,125 | 31,311,896 | 6 58 | 1 97 | 2 6 |
| Envelope | | DINING MSIC | | Window Screen - SE side - RI | 76,017 | 36,128 | 76,017 | 36,128 | 31,312,902 | 6 58 | 1 97 | 2 6 |
| Envelope | | ADMIN MISC pre 1964 | | Window Screen - SE side - RI | 76,021 | 36,131 | 76,021 | 36,131 | 31,313,066 | 6 58 | 1 97 | 2 6 |
| Envelope | | BRK/ADM MISC | | Window Screen - SE side - RI | 76,025 | 36,133 | 76,025 | 36,133 | 31,313,608 | 6 58 | 1 97 | 2 6 |
| Envelope | | Wood Siding | | Window Screen - SE side - RI | 76,029 | 36,135 | 76,029 | 36,135 | 31,314,058 | 6 58 | 1 97 | 2 6 |
| Envelope | | MWR | | Window Screen - SE side - RI | 76,030 | 36,136 | 76,030 | 36,136 | 31,314,294 | 6 58 | 1 97 | 2 6 |
| Envelope | | WHS | | Window Screen - SE side - RI | 76,032 | 36,137 | 76,032 | 36,137 | 31,314,502 | 6 58 | 1 97 | 2 6 |
| Envelope | | SECURITY | | Window Screen - SE side - RI | 76,032 | 36,137 | 76,032 | 36,137 | 31,314,550 | 6 58 | 1 97 | 2 6 |
| Envelope | | ADMIN MISC post 1964 | | Window Screen - SE side - RI | 76,040 | 36,142 | 76 040 | 36,142 | 31,315,546 | 6 58 | 1 97 | 2 6 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 76,122 | 36,153 | 76,122 | 36,153 | 31,321,373 | 6 57 | 1 95 | 2 6 |
| Motors | PMTR-52a | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 76,123 | 36,157 | 76,123 | 36,157 | 31,321,988 | 6 57 | 1 92 | 2 6 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - ROF | 76,123 | 36,157 | 76,135 | 36,163 | 31,323,096 | 6 57 | 1 92 | 2 6 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - RI | 76,201 | 36,167 | 76,213 | 36,173 | 31,327,893 | 6 57 | 1 89 | 2 6 |
| Heating | 39 | SHOP-HVY - BD005 | Unit Heaters | Radiant Heat - ROF | 76,201 | 36,167 | 76,231 | 36,182 | 31,329,671 | 6.57 | 1 89 | 2 6 |
| Motors | MTR-444a | DINING - 00254 | Fan Motor | EEM - RI | 76,209 | 36,178 | 76,239 | 36,193 | 31,331,259 | 6 56 | 1 87 | 2 6 |
| Motors | MTR-486 | WHS-CLD - 00862 | Fan Motor | EEM - RI | 76,212 | 36,184 | 76,243 | 36,199 | 31,332,053 | 6 56 | 1 87 | 2 6 |
| Motors | MTR-453c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 76,363 | 36,192 | 76,394 | 36,208 | 31,349,171 | 6 55 | 1 87 | 2 6 |
| Motors | MTR-522a | DGR - 00308 | VENTLTR | EEM - RI | 76,365 | 36,195 | 76,396 | 36,210 | 31,349,565 | 6 55 | 1 87 | 2 6 |
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - RI | 76,404 | 36,201 | 76,434 | 36,216 | 31,352,219 | 6 54 | 1 87 | 2 6 |
| Motors | MTR-523a | DGR - 00308 | VENTLTR | EEM - RI | 76,405 | 36,203 | 76,436 | 36,219 | 31,352,612 | 6 54 | 1 86 | 2 6 |
| T&D | 66g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - RI | 76,461 | 36,307 | 76,491 | 36,322 | 31,369,044 | 6 53 | 1 85 | 2 6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat - RI | 76,931 | 36,387 | 76,962 | 36,403 | 31,394,690 | 6 50 | 1 79 | 2 6 |
| Motors | MTR-527 | Fam Housing | Cool System Fan | EEM - RI | 77,680 | 37,854 | 77,710 | 37,869 | 31,625,010 | 6 26 | 1 75 | 2 8 |
| Motors | MTR-62 | BRK/ADM - 00226 | COOL | EEM - RI | 77,714 | 37,921 | 77,745 | 37,937 | 31,635,569 | 6 25 | 1 75 | 2 8 |
| Motors | MTR-60 | BRK/ADM - 00110 | COOL | EEM - RI | 77,723 | 37,939 | 77,754 | 37,955 | 31,638,384 | 6 25 | 1 75 | 2 8 |
| Motors | MTR-59 | BRK/ADM - 00108 | COOL | EEM - RI | 77,731 | 37,954 | 77,761 | 37,969 | 31,640,637 | 6 24 | 1 75 | 2 8 |
| Motors | MTR-56 | BRK/ADM - 00105 | COOL | EEM - RI | 77,738 | 37,968 | 77,768 | 37,983 | 31,642,889 | 6 24 | 1 75 | 2 8 |
| Motors | MTR-61 | BRK/ADM - 00111 | COOL | EEM - RI | 77,745 | 37,982 | 77,776 | 37,998 | 31,645,142 | 6 24 | 1 75 | 2 8 |
| Motors | MTR-57 | BRK/ADM - 00106 | COOL | EEM - RI | 77,753 | 37,997 | 77,783 | 38,012 | 31,647,395 | 6 24 | 1 75 | 2 8 |
| Motors | MTR-58 | BRK/ADM - 00107 | COOL | EEM - RI | 77,760 | 38,011 | 77,790 | 38,026 | 31,649,647 | 6 24 | 1 75 | 2 8 |
| Motors | MTR-82 | CLUB - 20018 | COOL | EEM - RI | 77,760 | 38,012 | 77,791 | 38,027 | 31,649,788 | 6 24 | 1 75 | 2 8 |
| Fam. Htg. HVAC | 2b | | | High Eff. Grnd Source HP - RI | 154,439 | 53,237 | 154,469 | 53,253 | 36,894,651 | 3 81 | 1 74 | 4 5 |
| Motors | MTR-479a | REC - 00905 | Fan Motor | EEM - RI | 154,441 | 53,239 | 154,471 | 53,254 | 36,894,986 | 3 81 | 1 74 | 4 5 |
| Motors | MTR-480a | REC - 00905 | Fan Motor | EEM - RI | 154,443 | 53,240 | 154,473 | 53,256 | 36,895,322 | 3 81 | 1 74 | 4 5 |
| Motors | MTR-478a | REC - 00905 | Fan Motor | EEM - RI | 154,445 | 53,242 | 154,475 | 53,257 | 36,895,657 | 3 81 | 1 74 | 4 5 |
| Motors | MTR-451c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 154,727 | 53,252 | 154,757 | 53,268 | 36,924,234 | 3 80 | 1 74 | 4 5 |
| Motors | MTR-79 | BRK/ADM - 00275 | COOL | EEM - RI | 154,730 | 53,259 | 154,761 | 53,274 | 36,925,192 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-63 | BRK/ADM - 00226 | COOL | EEM - RI | 154,733 | 53,265 | 154,764 | 53,280 | 36,926,150 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-66 | BRK/ADM - 00261 | COOL | EEM - RI | 154,734 | 53,266 | 154,764 | 53,281 | 36,926,287 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-78 | BRK/ADM - 00275 | COOL | EEM - RI | 154,768 | 53,333 | 154,798 | 53,348 | 36,936,554 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-77 | BRK/ADM - 00273 | COOL | EEM - RI | 154,803 | 53,400 | 154,833 | 53,416 | 36,946,820 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-76 | BRK/ADM - 00273 | COOL | EEM - RI | 154,803 | 53,402 | 154,834 | 53,418 | 36,947,094 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-64 | BRK/ADM - 00226 | COOL | EEM - RI | 154,804 | 53,404 | 154,835 | 53,419 | 36,947,368 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-80 | BRK/ADM - 00275 | COOL | EEM - RI | 154,805 | 53,406 | 154,836 | 53,421 | 36,947,642 | 3 80 | 1 73 | 4 5 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | EEM - RI | 154,818 | 53,445 | 154,848 | 53,460 | 36,950,051 | 3 80 | 1 73 | 4 5 |
| Motors | MTR-452c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 155,008 | 53,452 | 155,039 | 53,467 | 36,969,050 | 3 79 | 1 72 | 4 5 |
| Motors | MTR-29 | MTRPOOL - 00857 | COMPMTR | EEM - RI | 155,023 | 53,463 | 155,053 | 53,478 | 36,970,881 | 3 79 | 1 72 | 4 5 |
| Motors | MTR-44 | MTRPOOL - 00857 | CONDMTR | EEM - RI | 155,037 | 53,481 | 155,067 | 53,496 | 36,972,781 | 3 79 | 1 71 | 4 5 |
| Motors | MTR-75 | BRK/ADM - 00273 | COOL | EEM - RI | 155,040 | 53,487 | 155 070 | 53,502 | 36,973,687 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-74 | BRK/ADM - 00267 | COOL | EEM - RI | 155,041 | 53,488 | 155,071 | 53,503 | 36,973,816 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-69 | BRK/ADM - 00264 | COOL | EEM - RI | 155,041 | 53,489 | 155,071 | 53,504 | 36,973,946 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-68 | BRK/ADM - 00262 | COOL | EEM - RI | 155,042 | 53,490 | 155,072 | 53,505 | 36,974,075 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-72 | BRK/ADM - 00265 | COOL | EEM - RI | 155,042 | 53,491 | 155,072 | 53,506 | 36,974,205 | 3 79 | 1 69 | 4 5 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-70 | BRK/ADM - 00264 | COOL | EEM - RI | 155,074 | 53,554 | 155,105 | 53,570 | 36,983,394 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-67 | BRK/ADM - 00262 | COOL | EEM - RI | 155,107 | 53,618 | 155,137 | 53,633 | 36,992,584 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-71 | BRK/ADM - 00265 | COOL | EEM - RI | 155,139 | 53,682 | 155,170 | 53,697 | 37,001,773 | 3 79 | 1 69 | 4 5 |
| Motors | MTR-73 | BRK/ADM - 00267 | COOL | EEM - RI | 155,172 | 53,745 | 155,202 | 53,761 | 37,010,963 | 3 78 | 1 69 | 4 6 |
| Motors | MTR-65 | BRK/ADM - 00261 | COOL | EEM - RI | 155,204 | 53,809 | 155,235 | 53,824 | 37,020,153 | 3 78 | 1 69 | 4.6 |
| Motors | MTR-454c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 155,572 | 53,820 | 155,602 | 53,836 | 37,055,550 | 3 77 | 1 69 | 4.6 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | EEM - RI | 155,575 | 53,831 | 155,606 | 53,846 | 37,056,392 | 3.77 | 1 63 | 4 6 |
| Motors | PMTR-34 | GROCERY - 00920 | power vents | EEM - RI | 155,578 | 53,839 | 155,608 | 53,854 | 37,057,031 | 3 77 | 1 62 | 4 6 |
| Motors | PMTR-55a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 155,583 | 53,854 | 155,614 | 53,869 | 37,058,613 | 3 77 | 1 62 | 4 6 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 155,589 | 53,869 | 155,619 | 53,885 | 37,060,195 | 3 77 | 1 62 | 4 6 |
| DHW & A/C | 27 | 00323 | PKG UNIT | Install Desuperheater - RI | 155,596 | 53,878 | 155,627 | 53,894 | 37,060,877 | 3.77 | 1 61 | 4 6 |
| Motors | PMTR-74 | PUMP - 00042 | PMPMTR | EEM - RI | 155,601 | 53,884 | 155,631 | 53,899 | 37,061,428 | 3 77 | 1 61 | 4.6 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | EEM - RI | 155,603 | 53,887 | 155,634 | 53,902 | 37,061,704 | 3 77 | 1 61 | 4 6 |
| DHW & A/C | 37 | 01322 | AIR CONDITIONER | Install Desuperheater - RI | 155,608 | 53,901 | 155,638 | 53,916 | 37,062,504 | 3 77 | 1 60 | 4.6 |
| DHW & A/C | 43 | 01322 | PKG UNIT | Install Desuperheater - RI | 155,612 | 53,915 | 155,643 | 53,931 | 37,063,305 | 3.77 | 1 60 | 4 6 |
| Motors | MTR-409 | WHS - 00818 | EVAP | EEM - RI | 155,616 | 53,921 | 155,647 | 53,936 | 37,064,034 | 3 77 | 1 57 | 4 6 |
| Motors | PMTR-25 | BRK/ADM - 00273 | PMPMTR | EEM - RI | 155,617 | 53,922 | 155,647 | 53,938 | 37,064,141 | 3.77 | 1 56 | 4 6 |
| Motors | MTR-94 | MTRPOOL - 00680 | COOL | EEM - RI | 155,617 | 53,923 | 155,647 | 53,939 | 37,064,243 | 3 77 | 1 54 | 4 6 |
| Motors | PMTR-61c | PLT-BLDG - 00109 | PMPMTR | VSD & EEM - RI | 155,631 | 53,927 | 155,661 | 53,943 | 37,066,309 | 3 77 | 1 53 | 4 6 |
| Motors | MTR-85 | DINING - 00254 | COOL | EEM - RI | 155,631 | 53,928 | 155,661 | 53,944 | 37,066,406 | 3 77 | 1 52 | 4 6 |
| Motors | PMTR-38 | HOSPITL - 00166 | PMPMTR | EEM - RI | 155,637 | 53,931 | 155,667 | 53,946 | 37,066,840 | 3 77 | 1 51 | 4 6 |
| Motors | MTR-81 | CLINIC - 00171 | COOL | EEM - RI | 155,637 | 53,931 | 155,667 | 53,947 | 37,066,933 | 3 77 | 1 50 | 4 6 |
| Motors | MTR-95 | MTRPOOL - 00857 | COOL | EEM - RI | 155,637 | 53,932 | 155,668 | 53,948 | 37,067,026 | 3 77 | 1 50 | 4 6 |
| Motors | MTR-432a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 155,639 | 53,935 | 155,669 | 53,950 | 37,067,247 | 3.77 | 1 49 | 4 6 |
| Motors | MTR-433a | BRK/ADM - 00273 | Fan Motor | EEM - RI | 155,640 | 53,938 | 155,670 | 53,953 | 37,067,469 | 3.77 | 1 49 | 4.6 |
| Motors | MTR-12 | SHOP - 00367 | AIRCOMP | EEM - RI | 155,643 | 53,949 | 155,674 | 53,964 | 37,068,092 | 3 77 | 1 49 | 4 6 |
| Motors | MTR-435a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 155,645 | 53,952 | 155,675 | 53,967 | 37,068,310 | 3 77 | 1 48 | 4 6 |
| Motors | MTR-434a | BRK/ADM - 00275 | Fan Motor | EEM - RI | 155,646 | 53,955 | 155,677 | 53,970 | 37,068,528 | 3.77 | 1.48 | 4 6 |
| Motors | MTR-8 | MTRPOOL - 00646 | AIRCOMP | EEM - RI | 155,647 | 53,958 | 155,678 | 53,974 | 37,068,764 | 3.77 | 1 47 | 4 6 |
| Motors | MTR-96 | WHS - 20001 | COOL | EEM - RI | 155,649 | 53,962 | 155,679 | 53,977 | 37,069,118 | 3 77 | 1 47 | 4 6 |
| Motors | MTR-455c | HOSPITL - 00166 | Fan Motor | VSD & EEM - RI | 155,730 | 53,965 | 155,760 | 53,980 | 37,075,073 | 3 77 | 1 47 | 4 6 |
| Motors | MTR-282 | MTRPOOL - 00600 | EVAP | EEM - RI | 155,731 | 53,967 | 155,761 | 53,982 | 37,075,279 | 3 77 | 1 45 | 4 6 |
| Motors | MTR-99 | ADMIN - 00152 | EVAP | EEM - RI | 155,732 | 53,969 | 155,762 | 53,984 | 37,075,511 | 3 77 | 1.45 | 4 6 |
| Motors | MTR-54a | ADMIN - 00988 | COOL | EEM - RI | 155,733 | 53,971 | 155,764 | 53,986 | 37,075,740 | 3 77 | 1 45 | 4 6 |
| Motors | MTR-53a | ADMIN - 00988 | COOL | EEM - RI | 155,735 | 53,973 | 155,765 | 53,988 | 37,075,969 | 3 77 | 1 45 | 4 6 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | EEM - RI | 155,736 | 53,975 | 155,767 | 53,990 | 37,076,198 | 3 77 | 1 45 | 4 6 |
| Motors | MTR-83 | DINING - 00222 | COOL | EEM - RI | 155,737 | 53,976 | 155,767 | 53,992 | 37,076,359 | 3 77 | 1.43 | 4 6 |
| Motors | MTR-84 | DINING - 00222 | COOL | EEM - RI | 155,737 | 53,978 | 155,768 | 53,994 | 37,076,520 | 3.77 | 1 43 | 4 6 |
| Motors | PMTR-29 | DOR - 00308 | PMPMTR | EEM - RI | 155,739 | 53,982 | 155,769 | 53,997 | 37,076,739 | 3.77 | 1.43 | 4.6 |
| T&D | 62h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 155,739 | 53,982 | 155,800 | 54,021 | 37,084,652 | 3 76 | 1 42 | 4 6 |
| T&D | 83h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 155,739 | 53,982 | 155,950 | 54,147 | 37,121,710 | 3.75 | 1 41 | 4 6 |
| T&D | 67h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 155,739 | 53,982 | 155,978 | 54,168 | 37,128,405 | 3 74 | 1 36 | 4 6 |
| Motors | MTR-509 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,770 | 54,008 | 156,009 | 54,194 | 37,130,300 | 3.74 | 1 35 | 4.6 |
| Motors | MTR-518 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,800 | 54,034 | 156,039 | 54,220 | 37,132,195 | 3 74 | 1.35 | 4.6 |
| Motors | MTR-503 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,831 | 54,060 | 156,070 | 54,246 | 37,134,090 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-515 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,848 | 54,074 | 156,087 | 54,260 | 37,135,135 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-507 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,865 | 54,089 | 156,104 | 54,274 | 37,136,180 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-502 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,882 | 54,103 | 156,121 | 54,289 | 37,137,226 | 3.74 | 1 35 | 4.6 |
| Motors | MTR-499 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,899 | 54,117 | 156,138 | 54,303 | 37,138,271 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-513 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,904 | 54,121 | 156,142 | 54,307 | 37,138,533 | 3.74 | 1 35 | 4.6 |
| Motors | MTR-520 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,908 | 54,124 | 156,147 | 54,310 | 37,138,794 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-504 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,912 | 54,128 | 156,151 | 54,314 | 37,139,055 | 3.74 | 1 35 | 4.6 |
| Motors | MTR-498 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,916 | 54,132 | 156,155 | 54,317 | 37,139,317 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-495 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,917 | 54,133 | 156,156 | 54,318 | 37,139,382 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-516 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,918 | 54,133 | 156,157 | 54,319 | 37,139,447 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-496 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,919 | 54,134 | 156,158 | 54,320 | 37,139,513 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-510 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,921 | 54,135 | 156,159 | 54,321 | 37,139,578 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-514 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,922 | 54,136 | 156,161 | 54,322 | 37,139,643 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-505 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,923 | 54,137 | 156,162 | 54,323 | 37,139,709 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-500 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,924 | 54,138 | 156,163 | 54,324 | 37,139,774 | 3.74 | 1 35 | 4.6 |
| Motors | MTR-501 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,925 | 54,139 | 156,164 | 54,325 | 37,139,839 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-506 | BRK/ADM - 00250 | HEAT | EEM - RI | 155,926 | 54,140 | 156,165 | 54,326 | 37,139,905 | 3 74 | 1.35 | 4 6 |
| Motors | MTR-511 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,927 | 54,141 | 156,166 | 54,326 | 37,139,970 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-493 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,928 | 54,141 | 156,167 | 54,327 | 37,140,035 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-517 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,929 | 54,142 | 156,168 | 54,328 | 37,140,101 | 3 74 | 1 35 | 4.6 |
| Motors | MTR-508 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,930 | 54,143 | 156,169 | 54,329 | 37,140,166 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-512 | BRK/ADM - 00251 | HEAT | EEM - RI | 155,931 | 54,144 | 156,170 | 54,330 | 37,140,231 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-519 | BRK/ADM - 00252 | HEAT | EEM - RI | 155,932 | 54,145 | 156,171 | 54,331 | 37,140,297 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-497 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,933 | 54,146 | 156,172 | 54,332 | 37,140,362 | 3 74 | 1 35 | 4 6 |
| Motors | MTR-521 | MTRPOOL - 00681 | HEAT | EEM - RI | 155,934 | 54,147 | 156,173 | 54,333 | 37,140,427 | 3 74 | 1 35 | 4 6 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-50a | WHS-CLD - 00862 | CONDMTR | EEM - RI | 155,939 | 54,151 | 156,178 | 54,337 | 37,140,771 | 3 74 | 1 34 | 4 6 |
| T&D | 45h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 155,939 | 54,151 | 156,212 | 54,365 | 37,149,128 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-494 | BRK/ADM - 00249 | HEAT | EEM - RI | 155,970 | 54,177 | 156,243 | 54,391 | 37,150,893 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-491 | BRK/ADM - 00110 | HEAT | EEM - RI | 155,991 | 54,195 | 156,264 | 54,409 | 37,152,111 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-492 | BRK/ADM - 00111 | HEAT | EEM - RI | 156,008 | 54,209 | 156,281 | 54,423 | 37,153,085 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-490 | BRK/ADM - 00108 | HEAT | EEM - RI | 156,025 | 54,223 | 156,298 | 54,437 | 37,154,059 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-489 | BRK/ADM - 00107 | HEAT | EEM - RI | 156,042 | 54,238 | 156,315 | 54,452 | 37,155,033 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-488 | BRK/ADM - 00106 | HEAT | EEM - RI | 156,059 | 54,252 | 156,332 | 54,466 | 37,156,006 | 3 73 | 1 33 | 4 6 |
| Motors | MTR-487 | BRK/ADM - 00105 | HEAT | EEM - RI | 156,076 | 54,267 | 156,349 | 54,480 | 37,156,980 | 3 73 | 1 33 | 4 6 |
| T&D | 39h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,386 | 54,510 | 37,165,711 | 3 72 | 1 31 | 4 6 |
| T&D | 50h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,424 | 54,543 | 37,174,910 | 3 72 | 1 31 | 4 6 |
| T&D | 32h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,452 | 54,565 | 37,181,445 | 3 72 | 1 30 | 4 6 |
| T&D | 63h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,482 | 54,589 | 37,185,703 | 3 71 | 1 30 | 4 6 |
| T&D | 59h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,580 | 54,666 | 37,208,040 | 3 70 | 1 30 | 4 7 |
| T&D | 65h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,596 | 54,679 | 37,211,763 | 3 70 | 1 30 | 4 7 |
| T&D | 81h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,076 | 54,267 | 156,621 | 54,699 | 37,217,059 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-30 | MWR - 01322 | COMPMTR | EEM - RI | 156,077 | 54,267 | 156,622 | 54,700 | 37,217,114 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-48 | MWR - 01322 | CONDMTR | EEM - RI | 156,078 | 54,268 | 156,623 | 54,701 | 37,217,170 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-47 | MWR - 01322 | CONDMTR | EEM - RI | 156,079 | 54,269 | 156,624 | 54,702 | 37,217,225 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-31 | MWR - 01322 | COMPMTR | EEM - RI | 156,080 | 54,270 | 156,625 | 54,702 | 37,217,281 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - RI | 156,081 | 54,271 | 156,626 | 54,703 | 37,217,336 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-33 | MWR - 01322 | COMPMTR | EEM - RI | 156,082 | 54,272 | 156,627 | 54,704 | 37,217,392 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-32 | MWR - 01322 | COMPMTR | EEM - RI | 156,083 | 54,273 | 156,628 | 54,705 | 37,217,447 | 3 69 | 1 30 | 4 7 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - RI | 156,085 | 54,274 | 156,630 | 54,706 | 37,217,577 | 3 69 | 1 29 | 4 7 |
| T&D | 56h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,713 | 54,773 | 37,229,093 | 3 69 | 1 29 | 4 7 |
| T&D | 58h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,738 | 54,793 | 37,232,548 | 3 69 | 1 29 | 4 7 |
| T&D | 21h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,845 | 54,879 | 37,257,150 | 3 67 | 1 28 | 4 7 |
| T&D | 7h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,869 | 54,899 | 37,262,841 | 3 67 | 1 27 | 4 7 |
| T&D | 53h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,954 | 54,965 | 37,281,374 | 3 65 | 1 27 | 4 7 |
| T&D | 85h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 156,997 | 55,005 | 37,286,996 | 3 65 | 1 25 | 4 7 |
| T&D | 14h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,085 | 54,274 | 157,012 | 55,016 | 37,290,222 | 3 65 | 1 25 | 4 7 |
| Motors | PMTR-13a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 156,087 | 54,277 | 157,014 | 55,019 | 37,290,388 | 3 65 | 1 25 | 4 7 |
| T&D | 87f | | Transformer | Imprvd Silicon Steel Windings (No Load & Load Loss Reduction) - ROF | 156,087 | 54,277 | 157,643 | 55,916 | 37,397,437 | 3 58 | 1 25 | 4 8 |
| T&D | 46h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,087 | 54,277 | 157,660 | 55,930 | 37,399,686 | 3 58 | 1 23 | 4 8 |
| Motors | PMTR-3c | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 156,101 | 54,281 | 157,675 | 55,934 | 37,400,798 | 3 57 | 1 23 | 4 8 |
| T&D | 40h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,685 | 55,942 | 37,402,141 | 3 57 | 1 22 | 4 8 |
| T&D | 51h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,702 | 55,956 | 37,404,262 | 3 57 | 1 22 | 4 8 |
| T&D | 33h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,716 | 55,967 | 37,406,021 | 3 57 | 1 21 | 4 8 |
| T&D | 60h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,765 | 56,006 | 37,412,032 | 3 57 | 1 21 | 4 8 |
| T&D | 29h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,810 | 56,041 | 37,421,040 | 3 56 | 1 21 | 4 8 |
| T&D | 37h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,833 | 56,058 | 37,425,544 | 3 56 | 1 21 | 4 8 |
| T&D | 35h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,101 | 54,281 | 157,840 | 56,064 | 37,427,045 | 3 55 | 1 21 | 4 8 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,102 | 54,283 | 157,841 | 56,067 | 37,427,138 | 3 55 | 1 20 | 4 8 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,103 | 54,286 | 157,842 | 56,070 | 37,427,230 | 3 55 | 1 20 | 4 8 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,104 | 54,289 | 157,843 | 56,072 | 37,427,323 | 3 55 | 1 20 | 4 8 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,105 | 54,292 | 157,844 | 56,075 | 37,427,416 | 3 55 | 1 20 | 4 8 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,106 | 54,294 | 157,845 | 56,078 | 37,427,509 | 3 55 | 1 20 | 4 8 |
| Motors | MTR-425a | ADMIN - 00988 | Fan Motor | EEM - RI | 156,107 | 54,297 | 157,846 | 56,081 | 37,427,602 | 3 55 | 1 20 | 4 8 |
| T&D | 42h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,005 | 56,209 | 37,458,442 | 3 53 | 1 20 | 4 9 |
| T&D | 48h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,013 | 56,216 | 37,460,109 | 3 53 | 1 20 | 4 9 |
| T&D | 22h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,075 | 56,267 | 37,467,798 | 3 52 | 1 20 | 4 9 |
| T&D | 6h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,112 | 56,296 | 37,472,391 | 3 52 | 1 19 | 4 9 |
| T&D | 54h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,216 | 56,377 | 37,484,669 | 3 51 | 1 19 | 4 9 |
| T&D | 77h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,236 | 56,393 | 37,486,885 | 3 51 | 1 19 | 4 9 |
| T&D | 13h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,273 | 56,422 | 37,491,226 | 3 50 | 1 18 | 4 9 |
| T&D | 69h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,285 | 56,431 | 37,493,167 | 3 50 | 1 17 | 4 9 |
| T&D | 18h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,296 | 56,439 | 37,495,146 | 3 50 | 1 17 | 4 9 |
| T&D | 24h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,304 | 56,446 | 37,496,630 | 3 50 | 1.17 | 4 9 |
| T&D | 71h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,330 | 56,467 | 37,500,662 | 3 49 | 1 16 | 4 9 |
| T&D | 8h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,351 | 56,483 | 37,504,356 | 3 49 | 1.15 | 4 9 |
| T&D | 2h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,371 | 56,497 | 37,507,786 | 3 49 | 1.15 | 4 9 |
| T&D | 9h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,376 | 56,501 | 37,508,577 | 3 49 | 1 15 | 4 9 |
| T&D | 12h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,401 | 56,520 | 37,512,866 | 3 48 | 1 15 | 4 9 |
| T&D | 16h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,422 | 56,536 | 37,516,495 | 3 48 | 1 15 | 5 0 |
| T&D | 30h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,490 | 56,588 | 37,523,768 | 3 47 | 1 15 | 5 0 |
| T&D | 43h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,524 | 56,616 | 37,527,358 | 3 47 | 1 14 | 5 0 |
| T&D | 49h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,537 | 56,627 | 37,528,704 | 3 46 | 1 14 | 5 0 |
| T&D | 27h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,586 | 56,665 | 37,533,499 | 3 46 | 1 12 | 5 0 |
| T&D | 19h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,602 | 56,677 | 37,535,097 | 3 46 | 1 12 | 5 0 |
| T&D | 25h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,610 | 56,684 | 37,535,896 | 3 46 | 1 12 | 5 0 |

# Table 3.10. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Annual Energy and Demand Reductions

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative First Year Energy Savings (MBtu) | Cumulative First Year Demand Savings (kW-mo) | Cumulative Full Implementation Energy Savings (MBtu) | Cumulative Full Implementation Demand Savings (kW-mo) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 17h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,646 | 56,711 | 37,539,304 | 3 45 | 1 11 | 5 0 |
| T&D | 64h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,676 | 56,735 | 37,540,507 | 3 45 | 1 11 | 5 0 |
| T&D | 84h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,864 | 56,893 | 37,547,547 | 3 44 | 1 11 | 5 0 |
| T&D | 82h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,901 | 56,924 | 37,548,955 | 3 44 | 1.11 | 5 0 |
| T&D | 57h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,926 | 56,944 | 37,549,931 | 3 44 | 1 11 | 5 0 |
| T&D | 3h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,940 | 56,954 | 37,551,210 | 3 43 | 1.11 | 5 0 |
| T&D | 5h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,943 | 56,956 | 37,551,494 | 3 43 | 1.11 | 5 0 |
| T&D | 11h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,958 | 56,968 | 37,552,915 | 3 43 | 1 11 | 5 0 |
| T&D | 74h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,107 | 54,297 | 158,970 | 56,978 | 37,554,284 | 3 43 | 1.10 | 5 0 |
| Motors | MTR-111 | ADMIN - 00281 | EVAP | EEM - RI | 156,108 | 54,299 | 158,971 | 56,980 | 37,554,334 | 3 43 | 1.10 | 5 0 |
| T&D | 86h | | Transformer | Amorphous Core/Imprvd Windings (No Load &.Load Loss Reduction) - ROF | 156,108 | 54,299 | 159,015 | 57,020 | 37,555,921 | 3 43 | 1.10 | 5 0 |
| T&D | 1h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,108 | 54,299 | 159,017 | 57,021 | 37,556,088 | 3 43 | 1 09 | 5 0 |
| T&D | 47h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,108 | 54,299 | 159,051 | 57,049 | 37,557,358 | 3 42 | 1.09 | 5.0 |
| Motors | PMTR-12a | BRK/ADM - 00273 | PMPMTR | EEM - RI | 156,110 | 54,301 | 159,052 | 57,052 | 37,557,418 | 3 42 | 1.09 | 5.0 |
| T&D | 41h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,110 | 54,301 | 159,073 | 57,069 | 37,558,176 | 3 42 | 1 08 | 5 0 |
| T&D | 52h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,110 | 54,301 | 159,106 | 57,097 | 37,559,374 | 3 42 | 1 08 | 5 0 |
| T&D | 34h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,110 | 54,301 | 159,120 | 57,108 | 37,559,871 | 3 42 | 1 08 | 5 0 |
| Motors | PMTR-31a | DINING - 00254 | PMPMTR | EEM - RI | 156,111 | 54,312 | 159,122 | 57,118 | 37,559,979 | 3 42 | 1 08 | 5 0 |
| T&D | 61h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,211 | 57,189 | 37,563,090 | 3 41 | 1.08 | 5 0 |
| T&D | 78h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,309 | 57,270 | 37,566,308 | 3 41 | 1.08 | 5.1 |
| T&D | 80h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,358 | 57,311 | 37,567,918 | 3 41 | 1 08 | 5 1 |
| T&D | 23h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,379 | 57,327 | 37,568,641 | 3 40 | 1.07 | 5.1 |
| T&D | 55h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,529 | 57,443 | 37,573,623 | 3 39 | 1.07 | 5 1 |
| T&D | 76h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,111 | 54,312 | 159,590 | 57,492 | 37,575,499 | 3 39 | 1.07 | 5 1 |
| Motors | MTR-274 | GROCERY - 00920 | EVAP | EEM - RI | 156,114 | 54,316 | 159,592 | 57,496 | 37,575,592 | 3 39 | 1.07 | 5 1 |
| T&D | 15h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,607 | 57,507 | 37,576,082 | 3 39 | 1.07 | 5 1 |
| T&D | 75h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,654 | 57,554 | 37,577,577 | 3 39 | 1.07 | 5 1 |
| T&D | 38h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,677 | 57,572 | 37,578,261 | 3 38 | 1.06 | 5 1 |
| T&D | 31h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,696 | 57,586 | 37,578,831 | 3 38 | 1.06 | 5 1 |
| T&D | 36h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,707 | 57,595 | 37,579,173 | 3 38 | 1 06 | 5 1 |
| T&D | 44h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,114 | 54,316 | 159,780 | 57,654 | 37,581,324 | 3 38 | 1.05 | 5.1 |
| Motors | MTR-273 | GROCERY - 00920 | EVAP | EEM - RI | 156,117 | 54,320 | 159,783 | 57,658 | 37,581,393 | 3 38 | 1 05 | 5.1 |
| T&D | 68h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,807 | 57,677 | 37,581,982 | 3 37 | 1.05 | 5.1 |
| T&D | 70h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,819 | 57,686 | 37,582,276 | 3 37 | 1.05 | 5.1 |
| T&D | 79h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,838 | 57,703 | 37,582,744 | 3 37 | 1.05 | 5.1 |
| T&D | 26h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,854 | 57,716 | 37,583,195 | 3 37 | 1 05 | 5.1 |
| T&D | 28h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,870 | 57,728 | 37,583,645 | 3 37 | 1.05 | 5 1 |
| T&D | 20h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,881 | 57,737 | 37,583,946 | 3 37 | 1.05 | 5 1 |
| T&D | 72h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,894 | 57,747 | 37,584,251 | 3 37 | 1.04 | 5.1 |
| T&D | 4h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,898 | 57,751 | 37,584,372 | 3 37 | 1.04 | 5.1 |
| T&D | 10h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,117 | 54,320 | 159,927 | 57,773 | 37,585,123 | 3 36 | 1.04 | 5 1 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - RI | 156,119 | 54,322 | 159,929 | 57,774 | 37,585,137 | 3 36 | 1.03 | 5.1 |
| Motors | MTR-465a | MWR - 01322 | Fan Motor | EEM - RI | 156,120 | 54,323 | 159,930 | 57,776 | 37,585,152 | 3 36 | 1.03 | 5.1 |
| Motors | MTR-468a | MWR - 01322 | Fan Motor | EEM - RI | 156,122 | 54,325 | 159,932 | 57,777 | 37,585,167 | 3 36 | 1.03 | 5.1 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - RI | 156,123 | 54,326 | 159,933 | 57,779 | 37,585,182 | 3 36 | 1.03 | 5.1 |
| Motors | MTR-470a | MWR - 01322 | Fan Motor | EEM - RI | 156,125 | 54,328 | 159,935 | 57,781 | 37,585,197 | 3 36 | 1.03 | 5 1 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - RI | 156,127 | 54,330 | 159,937 | 57,782 | 37,585,212 | 3 36 | 1.03 | 5 1 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - RI | 156,128 | 54,331 | 159,938 | 57,784 | 37,585,227 | 3 36 | 1 03 | 5 1 |
| T&D | 73h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 156,128 | 54,331 | 160,032 | 57,862 | 37,586,884 | 3.35 | 1.03 | 5.1 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 1 | Bldg 353 | 250 ton chiller | Reset chilled and condenser water temps RI | 30 | 0 | 30 | 116,678 | 85,052 | 517 | 0 | 201,213 | 201,183 | 6,707 11 | 6,707 11 | 0 0 |
| AC | 2 | Bldg 363 | 554 ton chiller | Reset chilled and condenser water temps RI | 60 | 0 | 60 | 220,506 | 179,290 | 1,033 | 0 | 398,762 | 398,702 | 6,646 03 | 6,584 96 | 0 0 |
| AC | 3 | Bldg 373 | 300 ton chiller | Reset chilled and condenser water temps RI | 90 | 0 | 90 | 326,119 | 213,310 | 1,550 | 0 | 537,879 | 537,789 | 5,976 43 | 4,637 24 | 0 0 |
| T&D | | Substation | Sub Transformers | Conservation Voltage Reduction RI | 1,090 | 0 | 1,090 | 998,445 | 508,608 | 1,550 | 0 | 1,505,503 | 1,504,413 | 1,381 20 | 967 62 | 0 0 |
| HVAC | 6 | MtnPool | Programmable T-Stat | Night Setback RI | 3,860 | 0 | 3,860 | 1,420,324 | 510,729 | 1,550 | 1,255 | 1,928,249 | 1,924,389 | 499 60 | 152 64 | 0 0 |
| Lighting | OS 8b | Highbay | T8 Lighting | T8 + Occupancy Controls RI | 20,420 | 4,968 | 15,452 | 2,285,003 | 510,729 | 227,552 | 1,255 | 3,022,029 | 3,006,578 | 195 58 | 94 36 | 0 1 |
| Envelope | MT-12 | | Leaky | Weatherization RI | 29,387 | 4,968 | 24,419 | 2,738,989 | 713,927 | 227,552 | 1,255 | 3,679,214 | 3,654,795 | 150 67 | 73 29 | 0 1 |
| HVAC | 4 | Concrete | Programmable T-Stat | Night Setback RI | 31,464 | 4,968 | 26,496 | 2,877,342 | 715,017 | 227,552 | 2,195 | 3,817,715 | 3,791,219 | 144 09 | 66 68 | 0 1 |
| HVAC | 3 | Clinic | Programmable T-Stat | Night Setback RI | 33,541 | 4,968 | 28,573 | 2,991,591 | 716,359 | 227,552 | 3,136 | 3,932,336 | 3,903,763 | 137 62 | 55 18 | 0 1 |
| HVAC | 1 | Admin | Programmable T-Stat | Night Setback RI | 53,620 | 4,968 | 48,652 | 3,925,341 | 721,002 | 227,552 | 12,232 | 4,861,663 | 4,813,010 | 99 93 | 46 28 | 0 2 |
| Envelope | | Masonite Siding: post 1950 | | Weatherization - RI | 60,956 | 4,968 | 55,988 | 4,143,478 | 841,563 | 227,552 | 12,232 | 5,200,362 | 5,144,374 | 92 88 | 46 17 | 0 2 |
| Lighting | OS 7b | Hallway | T8 Lighting | T8 + Occupancy Controls RI | 77,372 | 9,893 | 67,479 | 4,527,204 | 841,563 | 325,215 | 12,232 | 5,681,750 | 5,614,271 | 84 20 | 41 89 | 0 2 |
| HVAC | 2 | Chapel | Programmable T-Stat | Night Setback RI | 78,411 | 9,893 | 68,518 | 4,564,451 | 841,794 | 325,215 | 12,702 | 5,718,757 | 5,650,239 | 83 46 | 35 63 | 0 2 |
| Envelope | | Metal Siding | | Weatherization - RI | 92,048 | 9,893 | 82,155 | 4,860,376 | 1,005,348 | 325,215 | 12,702 | 6,178,246 | 6,096,081 | 75 20 | 33 69 | 0 2 |
| Lighting | OS 4b | Lunchroom | T8 Lighting | T8 + Occupancy Controls RI | 106,448 | 14,213 | 92,235 | 5,118,343 | 1,005,348 | 392,398 | 12,702 | 6,503,387 | 6,411,151 | 70 51 | 32 26 | 0 2 |
| Envelope | Other | U Shaped Bldgs: Other | | Weatherization - RI | 111,778 | 14,213 | 97,565 | 5,228,716 | 1,066,350 | 392,398 | 12,702 | 6,674,762 | 6,577,196 | 68 41 | 32 15 | 0 3 |
| Envelope | | Masonite Siding: pre 1950 | | Weatherization - RI | 137,395 | 14,213 | 123,183 | 5,756,845 | 1,358,239 | 392,398 | 12,702 | 7,494 780 | 7,371,598 | 60 84 | 32 01 | 0 3 |
| Lighting | OS-3b | Conference | T8 Lighting | T8 + Occupancy Controls - RI | 143,259 | 15,984 | 127,315 | 5,860,881 | 1,358,239 | 419,103 | 12,702 | 7,625,521 | 7,498,206 | 59 89 | 31 63 | 0 3 |
| Envelope | Admin | ADMIN: MISC pre 1964 | | Weatherization - RI | 152,230 | 15,984 | 136,246 | 6,021,895 | 1,447,229 | 419,103 | -12,702 | 7,875,525 | 7,739,278 | 57 80 | 27 99 | 0 3 |
| HVAC | 5 | DGR | Programmable T-Stat | Night Setback - RI | 156,039 | 15,984 | 140,055 | 6,117,873 | 1,448,151 | 419,103 | 14,427 | 7,970,699 | 7,830,645 | 56 91 | 24 99 | 0 3 |
| Envelope | Barracks | U Shaped Bldgs: Barracks | | Weatherization RI | 184,543 | 15,984 | 168,559 | 6,531,772 | 1,676,907 | 419,103 | 14,427 | 8,633,355 | 8,464,796 | 51 10 | 22 55 | 0 3 |
| Envelope | | Wood Siding | | Weatherization - RI | 186,354 | 15,984 | 170,370 | 6,556,790 | 1,690,734 | 419,103 | 14,427 | 8,652,199 | 8,481,829 | 50 78 | 21 45 | 0 3 |
| HVAC | 8 | Trning | Programmable T-Stat | Night Setback - RI | 192,240 | 15,984 | 176,256 | 6,677,320 | 1,692,788 | 419,103 | 16,672 | 8,772,539 | 8,596,283 | 49 77 | 20 45 | 0 3 |
| Envelope | Misc -pre 1980 | Concrete Block: Misc -pre 1980 | | Weatherization - RI | 197,327 | 15,984 | 181,343 | 6,739,925 | 1,727,388 | 419,103 | 16,672 | 8,869,744 | 8,688,400 | 48 91 | 19 11 | 0 4 |
| Envelope | | WHS | | Weatherization - RI | 199,807 | 15,984 | 183,823 | 6,769,938 | 1,743,976 | 419,103 | 16,672 | 8,916,345 | 8,732,522 | 48 51 | 18 79 | 0 4 |
| Envelope | Shop | SHOP | | Weatherization - RI | 204,587 | 15,984 | 188,603 | 6,827,410 | 1,775,740 | 419,103 | 16,672 | 9,005,581 | 8,816,978 | 47 75 | 18 67 | 0 4 |
| Envelope | Barracks | Concrete Block: Barracks | | Weatherization - RI | 214,965 | 15,984 | 198,981 | 6,945,692 | 1,841,113 | 419,103 | 16,672 | 9,180,236 | 8,990,255 | 46 18 | 17 70 | 0 4 |
| Envelope | Family Housing | 1964, 1965, 1966 | T8 Lighting | T8 + Occupancy Controls - RI | 246,466 | 15,984 | 230,482 | 7,293,450 | 2,033,314 | 419,103 | 16,672 | 9,729,195 | 9,498,712 | 42 21 | 17 14 | 0 4 |
| Lighting | OS MT-3b | MT Conference | T8 Lighting | T8 + Occupancy Controls - RI | 252,370 | 17,277 | 235,094 | 7,355,129 | 2,033,314 | 435,027 | -16,672 | 9,806,797 | 9,571,703 | 41 71 | 16 83 | 0 4 |
| Lighting | OS-2b | Large Office/Room | | Weatherization - RI | 297,370 | 26,948 | 270,422 | 7,816,554 | 2,033,314 | 562,935 | 16,672 | 10,396,131 | 10,125,709 | 38 44 | 16 68 | 0 4 |
| Envelope | Family Housing | 1963 | | Weatherization RI | 351,978 | 26,948 | 325,030 | 8,386,387 | 2,348,253 | 562,935 | 16,672 | 11,280,903 | 10,955,873 | 34 71 | 16 20 | 0 5 |
| Envelope | Dining | DINING: MISC | | Weatherization - RI | 357,755 | 26,948 | 330,807 | 8,445,060 | 2,380,681 | 562,935 | 16,672 | 11,372,004 | 11,041,197 | 34 38 | 15 77 | 0 5 |
| Envelope | Motorpool | MOTORPOOL | CHILLER-air cooled | Install Desuperheater RI | 359,562 | 26,948 | 332,614 | 8,463,042 | 2,390,619 | 562,935 | 16,672 | 11,399,924 | 11,067,310 | 34 27 | 15 46 | 0 5 |
| DHW & A/C | 13 | 00166 | | Weatherization - RI | 385,977 | 26,948 | 359,029 | 8,748,697 | 2,509,692 | 562,074 | -28,638 | 11,791,825 | 11,432,796 | 32 84 | 14 84 | 0 5 |
| Envelope | Misc -post 1980 | Concrete Block: Misc post 1980 | | Weatherization RI | 395,598 | 26,948 | 368,650 | 8,835,232 | 2,557,518 | 562,074 | 28,638 | 11,926,187 | 11,557,537 | 32 35 | 13 97 | 0 5 |
| Envelope | Family Housing | 1961 | PMPMTR | EEM - RI | 455,557 | 26,948 | 428,609 | 9,356,460 | 2,845,594 | 562,074 | -28,638 | 12,735,491 | 12,306,882 | 29 71 | 13 50 | 0 6 |
| Motors | PMTR-44 | HOSPITL - 00166 | PMPMTR | EEM - RI | 457,013 | 27,068 | 429,945 | 9,371,376 | 2,848,499 | 562,074 | -29,146 | 12,752,803 | 12,322,859 | 29 66 | 12 96 | 0 6 |
| Motors | PMTR 43 | HOSPITL - 00166 | Capacitor Bank | Power Factor Correction to Unity RI | 457,741 | 27,128 | 430,613 | 9,378,834 | 2,849,952 | 562,074 | 29,400 | 12,761,460 | 12,330,847 | 29 64 | 12 96 | 0 6 |
| T&D | A | Substation | AIR CONDITIONER | Install Desuperheater - RI | 489,331 | 27,128 | 462,203 | 9,395,766 | 3,240,463 | 561,966 | -29,400 | 13,168,794 | 12,706,592 | 28 49 | 12 89 | 0 6 |
| DHW & A/C | 45 | 20018 | Fan Motor | EEM - RI | 490,816 | 27,128 | 463,688 | 9,411,115 | 3,243,865 | 561,105 | 30,073 | 13,186,012 | 12,722,323 | 28 44 | 11 59 | 0 6 |
| Motors | MTR-48S | WHS-CLD - 00862 | PMPMTR | EEM - RI | 491,230 | 27,158 | 464,072 | 9,414,895 | 3,244,601 | 561,105 | 30,223 | 13,190,377 | 12,726,305 | 28 42 | 11 57 | 0 6 |
| Motors | PMTR-71 | POOL-OT - 00328 | PKG UNIT | Install Desuperheater - RI | 491,437 | 27,173 | 464,264 | 9,416,785 | 3,244,969 | 561,105 | 30,298 | 13,192,560 | 12,728,295 | 28 42 | 11 57 | 0 6 |
| DHW & A/C | 21 | 00254 | | Weatherization RI | 494,536 | 27,173 | 467,363 | 9,443,284 | 3,255,855 | 560,244 | 31,702 | 13,227,681 | 12,760,318 | 28 30 | 11 53 | 0 6 |
| Envelope | Admin | ADMIN: MISC post 1964 | AIR CONDITIONER | Install Desuperheater - RI | 497,268 | 27,173 | 470,095 | 9,462,837 | 3,266,662 | 560,244 | 31,702 | 13,258,040 | 12,787,945 | 28 20 | 11 11 | 0 6 |
| DHW & A/C | 14 | 00171 | AIR CONDITIONER | Install Desuperheater - RI | 501,100 | 27,173 | 473,927 | 9,491,445 | 3,280,951 | 559,382 | 33,438 | 13,298,341 | 12,824,414 | 28 06 | 10 52 | 0 6 |
| DHW & A/C | 33 | 00920 | T8 Lighting | T8 + Daylighting Controls RI | 505,592 | 27,173 | 478,419 | 9,523,676 | 3,298,301 | 558,521 | 35,472 | 13,345,027 | 12,866,608 | 27 89 | 10 39 | 0 6 |
| Lighting | DLC-MT-2b | MT Large Office/Room | PMPMTR | EEM - RI | 522,592 | 32,273 | 490,319 | 9,606,861 | 3,298,301 | 595,182 | -35,472 | 13,464,873 | 12,974,554 | 27 46 | 10 07 | 0 6 |
| Motors | PMTR-42 | HOSPITL - 00166 | | Weatherization RI | 523,696 | 32,353 | 491,343 | 9,615,480 | 3,299,980 | 595,182 | -35,863 | 13,474,779 | 12,983,436 | 27 42 | 9 67 | 0 6 |
| Envelope | Training | TRAINING | PKG A/C | Install Desuperheater - RI | 527,776 | 32,353 | 495,423 | 9,639,279 | 3,313,134 | 595,182 | -35,863 | 13,511,732 | 13,016,309 | 27 27 | 9 06 | 0 6 |
| DHW & A/C | 9 | 00037 | | Weatherization - RI | 531,461 | 32,353 | 499,108 | 9,661,483 | 3,326,742 | 594,321 | 37,532 | 13,545,014 | 13,045,906 | 27 14 | 9 03 | 0 6 |
| Envelope | Brk/Adm | BRK/ADM MISC | Unit Heaters | Radiant Heat - RI | 533,779 | 32,353 | 501,426 | 9,674,931 | 3,334,174 | 594,321 | -37,532 | 13,565,894 | 13,064,469 | 27 05 | 9 01 | 0 6 |
| Heating | 13 | MTRPOOL - 00614 | Programmable T-Stat | Night Setback - RI | 538,379 | 32,353 | 506,026 | 9,711,443 | 3,336,977 | 594,321 | 35,749 | 13,606,992 | 13,100,967 | 26 89 | 8 93 | 0 6 |
| HVAC | 7 | Shop-Ele | COMPMTR | VSD & EEM - RI | 539,764 | 32,353 | 507,410 | 9,724,225 | 3,337,153 | 594,321 | 36,376 | 13,619,323 | 13,111,913 | 26 84 | 8 90 | 0 6 |
| Motors | MTR 35o | REC - 00905 | PKG A/C | Install Desuperheater - RI | 545,618 | 33,537 | 513,081 | 9,772,382 | 3,339,222 | 594,149 | 38,327 | 13,657,426 | 13,154,345 | 26 64 | 8 48 | 0 6 |
| DHW & A/C | 8 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 549,203 | 33,537 | 515,666 | 9,786,259 | 3,347,727 | 593,288 | 39,498 | 13,687,776 | 13,172,110 | 26 54 | 7 87 | 0 6 |
| DHW & A/C | 16 | 00202 | PMPMTR | EEM - RI | 551,275 | 33,537 | 517,739 | 9,798,081 | 3,353,851 | 592,427 | 40,437 | 13,700,923 | 13,183,184 | 26 47 | 7 79 | 0 7 |
| Motors | PMTR-72 | POOL-OT - 00328 | PMPMTR | EEM - RI | 551,462 | 33,537 | 517,926 | 9,799,341 | 3,354,097 | 592,427 | -40,504 | 13,705,361 | 13,187,435 | 26 46 | 7 69 | 0 7 |
| Motors | PMTR-73 | POOL-OT - 00328 | PMPMTR | EEM - RI | 551,649 | 33,537 | 518,113 | 9,800,602 | 3,354,342 | 592,427 | 40,572 | 13,706,799 | 13,188,686 | 26 46 | 7 69 | 0 7 |
| Motors | PMTR-70 | POOL-OT - 00328 | CHILLER air cooled | Install Desuperheater - RI | 551,836 | 33,537 | 518,300 | 9,801,862 | 3,354,588 | 592,427 | -40,639 | 13,708,237 | 13,189,937 | 26 45 | 7 69 | 0 7 |
| DHW & A/C | 31 | 00905 | PKG UNIT | Install Desuperheater - RI | 555,521 | 33,537 | 521,985 | 9,818,350 | 3,368,196 | 591,566 | 42,308 | 13,735,803 | 13,213,818 | 26 31 | 7 48 | 0 7 |
| DHW & A/C | 2 | 00021 | PKG UNIT | Install Desuperheater - RI | 557,374 | 33,537 | 523,837 | 9,828,779 | 3,373,299 | 590,705 | 43,147 | 13,749,635 | 13,225,798 | 26 25 | 7 47 | 0 7 |
| DHW & A/C | 3 | 00021 | | Weatherization - RI | 559,226 | 33,537 | 525,689 | 9,839,208 | 3,378,402 | 589,844 | -43,986 | 13,763,467 | 13,237,778 | 26 18 | 7 47 | 0 7 |
| Envelope | Family Housing | 1983 | PMPMTR | EEM - RI | 604,296 | 33,537 | 570,759 | 10,054,827 | 3,497,572 | 589,844 | 43,986 | 14,098,256 | 13,527,497 | 24 70 | 7 43 | 0 7 |
| Motors | PMTR-94 | PUMP - 00044 | PMPMTR | EEM - RI | 607,844 | 33,807 | 574,077 | 10,076,360 | 3,501,766 | 589,844 | 45,271 | 14,122,698 | 13,548,621 | 24 60 | 7 37 | 0 7 |
| Motors | PMTR-93 | PUMP - 00044 | | | 611,472 | 34,077 | 577,395 | 10,097,893 | 3,505,960 | 589,844 | -46,556 | 14,147,140 | 13,569,745 | 24 50 | 7 37 | 0 7 |
| Envelope | MT-9 | | | | 617,610 | 35,059 | 582,551 | 10,120,568 | 3,527,384 | 589,844 | -52,873 | 14,184,923 | 13,602,371 | 24 35 | 7 33 | 0 7 |
| Envelope | | Metal Siding | | | 630,250 | 37,081 | 593,169 | 10,167,262 | 3,571,503 | 589,844 | -65,881 | 14,262,728 | 13,669,559 | 24 04 | 7 33 | 0 7 |
| Envelope | | Concrete Block: Misc -post 1980 | | | 631,984 | 37,358 | 594,625 | 10,173,665 | 3,577,554 | 589,844 | -67,665 | 14,273,398 | 13,678,772 | 24 00 | 7 33 | 0 7 |
| Envelope | | Masonite Siding: pre 1950 | | | 649,985 | 40,239 | 609,746 | 10,240,164 | 3,640,386 | 589,844 | 86,190 | 14,384,203 | 13,774,457 | 23 59 | 7 33 | 0 7 |
| Envelope | | ADMIN: MISC post 1964 | | | 654,857 | 41,018 | 613,839 | 10,258,163 | 3,657,392 | 589,844 | 91,204 | 14,414,194 | 13,800,355 | 23 48 | 7 33 | 0 7 |
| Envelope | | U Shaped Bldgs: Other | | | 659,552 | 41,769 | 617,783 | 10,275,505 | 3,673,779 | 589,844 | -96,036 | 14,440,092 | 13,822,309 | 23 38 | 7 33 | 0 7 |
| Envelope | | BRK/ADM MISC | | | 662,201 | 42,193 | 620,008 | 10,285,289 | 3,681,023 | 589,844 | -98,761 | 14,459,394 | 13,839,387 | 23 32 | 7 33 | 0 7 |
| Envelope | | Wood Siding | | | 664,403 | 42,546 | 621,858 | 10,293,426 | 3,690,711 | 589,844 | 101,028 | 14,472,952 | 13,851,095 | 23 27 | 7 33 | 0 7 |
| Envelope | | TRAINING | | | 666,015 | 42,803 | 623,212 | 10,299,380 | 3,696,337 | 589,844 | 102,687 | 14,482,874 | 13,859,662 | 23 24 | 7 33 | 0 7 |
| Envelope | | WHS | | | 667,031 | 42,966 | 624,065 | 10,303,135 | 3,699,885 | 589,844 | -103,733 | 14,489,130 | 13,865,065 | 23 22 | 7 33 | 0 7 |
| Envelope | | Concrete Block: Barracks | | | 673,449 | 43,993 | 629,456 | 10,326,841 | 3,722,284 | 589,844 | 110,337 | 14,528,632 | 13,899,176 | 23 08 | 7 33 | 0 7 |
| Envelope | | MOTORPOOL | | | 678,416 | 44,788 | 633,629 | 10,345,191 | 3,739,622 | 589,844 | 115,449 | 14,559,207 | 13,925,578 | 22 98 | 7 33 | 0 7 |
| Envelope | | SHOP | | | 683,282 | 45,566 | 637,716 | 10,363,164 | 3,756,604 | 589,844 | 120,456 | 14,589,156 | 13,951,440 | 22 88 | 7 33 | 0 8 |
| Envelope | | U Shaped Bldgs: Barracks | | | 716,161 | 50,827 | 665,334 | 10,484,623 | 3,871,366 | 589,844 | 154,292 | 14,791,539 | 14,126,205 | 22 23 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1963 Vintage | | | 743,162 | 55,147 | 688,015 | 10,584,367 | 3,965,610 | 589,844 | 182,080 | 14,957,741 | 14,269,726 | 21 74 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1983 Vintage | | | 768,393 | 59,184 | 709,209 | 10,677,572 | 4,053,676 | 589,844 | 208,045 | 15,113,047 | 14,403,838 | 21 31 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1984 Vintage | | | 787,368 | 62,220 | 725,148 | 10,747,665 | 4,119,905 | 589,844 | 227,572 | 15,229,842 | 14,504,694 | 21 00 | 7 33 | 0 8 |
| Envelope | | DINING: MISC | | | 790,328 | 62,693 | 727,634 | 10,758,600 | 4,130,237 | 589,844 | 230,618 | 15,248,062 | 14,520,428 | 20 96 | 7 33 | 0 8 |
| Envelope | | ADMIN: MISC pre 1964 | | | 793,089 | 63,135 | 729,954 | 10,768,800 | 4,139,874 | 589,844 | 233,459 | 15,265,058 | 14,535,104 | 20 91 | 7 33 | 0 8 |
| Envelope | | Concrete Block: Misc pre 1980 | | | 795,076 | 63,453 | 731,623 | 10,776,142 | 4,146,811 | 589,844 | 235,505 | 15,277,292 | 14,545,669 | 20 88 | 7 33 | 0 8 |
| | | | Single pane window | Shade Screens - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen - RI | | | | | | | | | | | | |
| | | | | Window Screen - RI | | | | | | | | | | | | |
| | | | | Window Screen - SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen SW side - RI | | | | | | | | | | | | |
| | | | | Window Screen SW side RI | | | | | | | | | | | | |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Envelope | | SECURITY | | Window Screen SW side - RI | 795,312 | 63,491 | 731,821 | 10,777,013 | 4,147,634 | 589,844 | -235,748 | 15,278,744 | 14,546,923 | 20 88 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1961 Vintage | | Window Screen - RI | 820,166 | 67,468 | 752,699 | 10,868,826 | 4,234,385 | 589,844 | -261,325 | 15,431,729 | 14,679,030 | 20 50 | 7 33 | 0 8 |
| Envelope | Family Housing | Southwest, 1964, 1965, 1966 Vintage | | Window Screen RI | 836,646 | 70,104 | 766,540 | 10,929,698 | 4,291,900 | 589,844 | -278,283 | 15,533,159 | 14,766,618 | 20 26 | 7 33 | 0 8 |
| Envelope | | Manmade Subdiv: post 1950 | | Window Screen SW side RI | 843,859 | 71,258 | 772,601 | 10,956,349 | 4,317,082 | 589,844 | -285,708 | 15,577,568 | 14,804,967 | 20 16 | 7 33 | 0 8 |
| Envelope | | MWR | | Window Screen SW side RI | 845,010 | 71,443 | 773,568 | 10,960,602 | 4,321,101 | 589,844 | -286,892 | 15,584,654 | 14,811,086 | 20 15 | 7 33 | 0 9 |
| Heating | 20 | MTRPOOL - 00612 | Unit Heaters | Radiant Heat - RI | 846,710 | 71,443 | 775,268 | 10,970,598 | 4,321,793 | 589,844 | -285,249 | 15,596,985 | 14,821,718 | 20 12 | 7 25 | 0 9 |
| Envelope | Family Housing | 1984 | | Weatherization - RI | 881,190 | 71,443 | 809,747 | 11,130,773 | 4,410,319 | 589,844 | -285,249 | 15,845,687 | 15,035,940 | 19 57 | 7 21 | 0 9 |
| Motors | MTR-474 | MWR - 01322 | Fan Motor | EEM - RI | 881,811 | 71,488 | 810,323 | 11,134,020 | 4,411,423 | 589,844 | -285,474 | 15,849,813 | 15,039,490 | 19 56 | 7 16 | 0 9 |
| Motors | MTR 469 | MWR - 01322 | Fan Motor | EEM - RI | 882,018 | 71,503 | 810,515 | 11,135,103 | 4,411,791 | 589,844 | -285,549 | 15,851,188 | 15,040,673 | 19 56 | 7 16 | 0 9 |
| Heating | 17 | MTRPOOL - 00840 | Unit Heaters | Radiant Heat - RI | 882,138 | 71,503 | 816,635 | 11,174,196 | 4,414,906 | 589,844 | -284,208 | 15,894,737 | 15,078,102 | 19 46 | 7 12 | 0 9 |
| Motors | MTR-34c | REC - 00905 | COMPMTR | VSD & EEM - RI | 894,992 | 72,542 | 822,450 | 11,215,473 | 4,416,679 | 589,844 | -285,159 | 15,935,665 | 15,113,215 | 19 38 | 7 04 | 0 9 |
| Motors | PMTR 66 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 895,856 | 72,612 | 823,244 | 11,219,723 | 4,418,128 | 589,671 | -286,477 | 15,941,056 | 15,117,812 | 19 36 | 6 79 | 0 9 |
| Lighting | OS-6b | Restroom | T8 Lighting | T8 + Occupancy Controls - RI | 922,928 | 75,306 | 847,622 | 11,348,281 | 4,418,128 | 624,084 | -286,477 | 16,104,016 | 15,256,394 | 19 00 | 6 68 | 0 9 |
| Motors | PMTR 88 | PUMP - 00044 | PMPMTR | EEM - RI | 924,384 | 75,426 | 848,958 | 11,355,898 | 4,419,612 | 624,084 | -286,985 | 16,112,609 | 15,263,651 | 18 98 | 6 43 | 0 9 |
| Lighting | OS-5b | Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 928,920 | 75,864 | 853,056 | 11,376,792 | 4,419,612 | 629,437 | -286,985 | 16,138,856 | 15,285,800 | 18 92 | 6 40 | 0 9 |
| DHW & A/C | 18 | 00222 | PKG UNIT | Install Desuperheater - RI | 937,005 | 75,864 | 861,140 | 11,398,850 | 4,453,632 | 628,576 | -290,648 | 16,190,412 | 15,329,271 | 18 80 | 6 38 | 0 9 |
| DHW & A/C | 10 | 00037 | PKG A/C | Install Desuperheater - RI | 938,857 | 75,864 | 862,993 | 11,407,177 | 4,458,736 | 627,715 | -291,487 | 16,202,141 | 15,339,149 | 18 77 | 6 33 | 0 9 |
| DHW & A/C | 5 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 940,709 | 75,864 | 864,845 | 11,415,503 | 4,463,819 | 626,854 | -292,326 | 16,213,871 | 15,349,055 | 18 75 | 6 33 | 0 9 |
| Heating | 41 | SHOP - 00501 | Unit Heaters | Radiant Heat - RI | 941,469 | 75,864 | 865,605 | 11,419,090 | 4,464,964 | 626,854 | -292,352 | 16,218,556 | 15,352,952 | 18 74 | 6 17 | 0 9 |
| Motors | MTR-440 | DGR - 00308 | Fan Motor | EEM - RI | 941,915 | 75,896 | 866,019 | 11,420,851 | 4,465,791 | 626,854 | -292,405 | 16,221,091 | 15,355,072 | 18 73 | 6 12 | 0 9 |
| Motors | MTR 439 | DGR - 00308 | Fan Motor | EEM - RI | 942,584 | 75,944 | 866,640 | 11,423,601 | 4,467,083 | 626,854 | -292,648 | 16,224,889 | 15,358,240 | 18 72 | 6 12 | 0 9 |
| Motors | MTR-475 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 943,030 | 75,976 | 867,054 | 11,425,434 | 4,467,944 | 626,854 | -292,811 | 16,227,421 | 15,360,367 | 18 72 | 6 12 | 0 9 |
| Motors | PMTR-117 | REC - 00905 | Fan Motor | EEM - RI | 943,253 | 75,992 | 867,261 | 11,426,350 | 4,468,374 | 626,854 | -292,892 | 16,228,687 | 15,361,456 | 18 71 | 6 12 | 0 9 |
| Motors | MTR 446 | DINING - 00254 | | CNG Vehicles | 943,476 | 76,008 | 867,468 | 11,427,267 | 4,468,805 | 626,854 | -292,973 | 16,229,953 | 15,362,485 | 18 71 | 6 12 | 0 9 |
| Vehicles | Conversion | Vehicles | refrigeration unit | EEM - RI | 2,990,476 | 76,008 | 2,914,468 | 17,115,687 | 4,443,243 | 7,102,645 | -292,973 | 28,368,602 | 25,454,134 | 9 73 | 5 93 | 1 8 |
| Motors | PMTR-120 | WHS-CLD - 00862 | refrigeration unit | EEM - RI | 2,995,660 | 76,428 | 2,919,232 | 17,140,723 | 4,448,119 | 7,102,645 | -294,883 | 28,196,604 | 25,277,373 | 9 73 | 5 88 | 1 8 |
| Motors | PMTR-121 | WHS-CLD - 00862 | Unit Heaters | Radiant Heat - RI | 2,998,252 | 76,638 | 2,921,614 | 17,153,241 | 4,450,557 | 7,102,645 | -295,818 | 28,410,605 | 25,488,992 | 9 72 | 5 88 | 1 8 |
| Heating | 23 | MTRPOOL - 00847 | PMPMTR | EEM - RI | 3,001,312 | 76,638 | 2,924,674 | 17,168,586 | 4,451,803 | 7,102,645 | -294,646 | 28,428,387 | 25,503,714 | 9 72 | 5 81 | 1 8 |
| Motors | PMTR-109 | PUMP - 00636 | PMPMTR | VSD & EEM - RI | 3,004,900 | 76,908 | 2,927,992 | 17,182,265 | 4,458,629 | 7,102,645 | -295,936 | 28,447,603 | 25,519,611 | 9 72 | 5 79 | 1 8 |
| Motors | PMTR-6c | ADMIN - 00988 | Unit Heaters | Radiant Heat - RI | 3,009,878 | 77,229 | 2,932,650 | 17,208,883 | 4,460,373 | 7,102,473 | -297,406 | 28,474,323 | 25,541,673 | 9 71 | 5 74 | 1 8 |
| Heating | 22 | MTRPOOL - 00850 | AIR CONDITIONER | Install Desuperheater - RI | 3,012,178 | 77,229 | 2,934,950 | 17,220,168 | 4,461,307 | 7,102,473 | -296,514 | 28,487,434 | 25,552,484 | 9 71 | 5 70 | 1 8 |
| DHW & A/C | 15 | 00202 | PMPMTR | EEM - RI | 3,013,664 | 77,229 | 2,936,435 | 17,226,736 | 4,464,709 | 7,101,612 | -297,187 | 28,495,869 | 25,559,434 | 9 70 | 5 68 | 1 8 |
| Motors | PMTR-86 | PUMP - 00324 | PKG UNIT | Install Desuperheater - RI | 3,015,061 | 77,349 | 2,937,712 | 17,231,764 | 4,467,388 | 7,101,612 | -297,668 | 28,503,095 | 25,565,383 | 9 70 | 5 66 | 1 8 |
| DHW & A/C | 17 | 00222 | Fan Motor | EEM - RI | 3,019,333 | 77,349 | 2,941,984 | 17,242,351 | 4,483,718 | 7,100,751 | -299,603 | 28,527,217 | 25,585,233 | 9 70 | 5 65 | 1 8 |
| Motors | MTR-437a | CLINIC - 00171 | Fan Motor | EEM - RI | 3,020,480 | 77,439 | 2,943,041 | 17,246,668 | 4,485,746 | 7,100,751 | 300,002 | 28,533,162 | 25,590,121 | 9 70 | 5 62 | 1 8 |
| Motors | MTR-484 | WHS - 00474 | PMPMTR | EEM - RI | 3,020,894 | 77,469 | 2,943,425 | 17,248,235 | 4,486,482 | 7,100,751 | 300,152 | 28,535,315 | 25,591,890 | 9 69 | 5 61 | 1 8 |
| Motors | PMTR-118 | REC - 00322 | Fan Motor | EEM - RI | 3,021,101 | 77,484 | 2,943,617 | 17,249,018 | 4,485,850 | 7,100,751 | -300,227 | 28,536,392 | 25,592,775 | 9 69 | 5 61 | 1 8 |
| Motors | MTR-482 | TRAING - 01202 | PMPMTR | EEM - RI | 3,021,308 | 77,499 | 2,943,809 | 17,249,802 | 4,487,218 | 7,100,751 | 300,302 | 28,537,468 | 25,593,659 | 9 69 | 5 61 | 1 8 |
| Motors | PMTR-119 | REC - 00362 | Fan Motor | EEM - RI | 3,021,515 | 77,514 | 2,944,001 | 17,250,586 | 4,487,586 | 7,100,751 | 300,377 | 28,538,545 | 25,594,544 | 9 69 | 5 61 | 1 8 |
| Motors | MTR-485 | DINING - 00254 | PMPMTR | EEM - RI | 3,021,722 | 77,529 | 2,944,193 | 17,251,369 | 4,487,954 | 7,100,751 | -300,452 | 28,539,622 | 25,595,429 | 9 69 | 5 61 | 1 8 |
| Motors | MTR-441 | DGR - 00308 | Fan Motor | EEM - RI | 3,021,929 | 77,544 | 2,944,385 | 17,252,153 | 4,488,322 | 7,100,751 | 300,527 | 28,540,698 | 25,596,313 | 9 69 | 5 61 | 1 8 |
| Motors | MTR-442 | DINING - 00254 | Unit Heaters | Radiant Heat - RI | 3,023,171 | 77,634 | 2,945,537 | 17,256,854 | 4,490,530 | 7,100,751 | -300,977 | 28,547,158 | 25,601,621 | 9 69 | 5 61 | 1 8 |
| Heating | 35 | SHOP - 00367 | AIRCOMP | EEM - RI | 3,024,871 | 77,634 | 2,947,237 | 17,264,535 | 4,490,530 | 7,100,751 | -299,334 | 28,556,482 | 25,609,244 | 9 69 | 5 48 | 1 8 |
| Motors | MTR-6 | HOSPITL - 00166 | PMPMTR | EEM - RI | 3,026,327 | 77,754 | 2,948,573 | 17,270,113 | 4,492,703 | 7,100,751 | 299,843 | 28,563,725 | 25,615,152 | 9 69 | 5 42 | 1 8 |
| Motors | PMTR-106 | PUMP - 00636 | Unit Heaters | Radiant Heat - RI | 3,029,915 | 78,024 | 2,951,891 | 17,282,524 | 4,499,529 | 7,100,751 | -301,132 | 28,581,671 | 25,629,780 | 9 68 | 5 41 | 1 8 |
| Heating | 37 | SHOP - 00384 | None | Crawl Space Insulation- R-19 - RI | 3,030,335 | 78,024 | 2,952,311 | 17,284,359 | 4,499,529 | 7,100,751 | -300,719 | 28,583,920 | 25,631,609 | 9 68 | 5 35 | 1 8 |
| Envelope | MT-11a | | PMPMTR | EEM - RI | 3,155,104 | 78,024 | 3,077,081 | 17,705,587 | 4,745,793 | 7,100,751 | -300,719 | 29,251,411 | 26,174,330 | 9 51 | 5 35 | 1 8 |
| Motors | PMTR 89 | PUMP - 00044 | Unit Heaters | Radiant Heat - RI | 3,156,560 | 78,144 | 3,078,417 | 17,711,846 | 4,747,012 | 7,100,751 | -301,228 | 29,258,380 | 26,179,964 | 9 50 | 5 22 | 1 8 |
| Heating | 25 | MTRPOOL - 00646 | PKG UNIT | Install Desuperheater - RI | 3,157,580 | 78,144 | 3,079,437 | 17,716,055 | 4,747,323 | 7,100,751 | -300,483 | 29,263,645 | 26,184,208 | 9 50 | 5 16 | 1 8 |
| DHW & A/C | 26 | 00923 | Fan Motor | EEM - RI | 3,159,982 | 78,144 | 3,081,839 | 17,722,663 | 4,754,978 | 7,099,889 | -301,571 | 29,275,959 | 26,194,120 | 9 50 | 5 13 | 1 8 |
| Motors | MTR-483 | TRAING - 01202 | Unit Heaters | Radiant Heat - RI | 3,160,169 | 78,144 | 3,082,026 | 17,723,359 | 4,755,305 | 7,099,889 | 301,639 | 29,276,915 | 26,194,889 | 9 50 | 5 11 | 1 8 |
| Heating | 26 | MTRPOOL - 00852 | AIR CONDITIONER | Install Desuperheater - RI | 3,161,709 | 78,144 | 3,083,566 | 17,730,080 | 4,755,772 | 7,099,889 | -301,047 | 29,284,693 | 26,201,127 | 9 50 | 5 05 | 1 8 |
| DHW & A/C | 7 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 3,163,195 | 78,144 | 3,085,052 | 17,735,631 | 4,759,174 | 7,099,028 | -301,720 | 29,292,112 | 26,207,061 | 9 49 | 4 99 | 1 8 |
| DHW & A/C | 11 | 00130 | PMPMTR | EEM - RI | 3,165,414 | 78,144 | 3,087,270 | 17,741,734 | 4,765,978 | 7,098,167 | -302,725 | 29,303,154 | 26,215,884 | 9 49 | 4 98 | 1 8 |
| Motors | PMTR-122 | WHS-CLD - 00862 | PMPMTR | EEM - RI | 3,165,828 | 78,174 | 3,087,654 | 17,743,040 | 4,766,714 | 7,098,167 | -302,875 | 29,305,046 | 26,217,392 | 9 49 | 4 93 | 1 8 |
| Motors | PMTR-81 | PUMP - 00044 | Fan Motor | EEM - RI | 3,166,975 | 78,264 | 3,088,711 | 17,745,691 | 4,768,660 | 7,098,167 | -303,274 | 29,310,244 | 26,221,533 | 9 49 | 4 92 | 1 8 |
| Motors | MTR 457 | MWR - 01313 | Fan Motor | EEM - RI | 3,167,349 | 78,264 | 3,089,085 | 17,748,135 | 4,769,151 | 7,098,167 | -303,409 | 29,312,044 | 26,222,958 | 9 49 | 4 81 | 1 8 |
| Motors | MTR 460 | MWR - 01313 | Fan Motor | EEM - RI | 3,167,536 | 78,264 | 3,089,272 | 17,748,857 | 4,769,396 | 7,098,167 | -303,477 | 29,312,944 | 26,223,671 | 9 49 | 4 81 | 1 8 |
| Motors | MTR 461 | MWR - 01322 | Fan Motor | EEM - RI | 3,167,723 | 78,264 | 3,089,459 | 17,749,579 | 4,769,641 | 7,098,167 | 303,544 | 29,313,843 | 26,224,326 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-462 | MWR - 01322 | Fan Motor | EEM - RI | 3,167,910 | 78,264 | 3,089,646 | 17,750,300 | 4,769,887 | 7,098,167 | -303,611 | 29,314,743 | 26,225,097 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-464 | MWR - 01323 | Fan Motor | EEM - RI | 3,168,097 | 78,264 | 3,089,833 | 17,751,022 | 4,770,132 | 7,098,167 | 303,679 | 29,315,643 | 26,225,810 | 9 49 | 4 81 | 1 8 |
| Motors | MTR-466 | MWR - 01322 | PMPMTR | EEM - RI | 3,168,284 | 78,264 | 3,090,020 | 17,751,744 | 4,770,378 | 7,098,167 | 303,746 | 29,316,543 | 26,226,522 | 9 49 | 4 81 | 1 8 |
| Motors | PMTR 100 | PUMP - 00700 | PMPMTR | EEM - RI | 3,171,027 | 78,464 | 3,092,563 | 17,762,800 | 4,772,531 | 7,098,167 | -304,733 | 29,328,765 | 26,236,202 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR-101 | PUMP - 00700 | PMPMTR | EEM - RI | 3,173,770 | 78,664 | 3,095,106 | 17,773,855 | 4,774,684 | 7,098,167 | -305,720 | 29,340,987 | 26,245,881 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR-103 | PUMP - 00700 | PMPMTR | EEM - RI | 3,176,513 | 78,864 | 3,097,649 | 17,784,911 | 4,776,838 | 7,098,167 | -306,707 | 29,353,209 | 26,255,560 | 9 48 | 4 81 | 1 8 |
| Motors | PMTR 102 | PUMP - 00700 | PMPMTR | EEM - RI | 3,179,256 | 79,064 | 3,100,192 | 17,795,967 | 4,778,991 | 7,098,167 | 307,694 | 29,365,432 | 26,265,239 | 9 47 | 4 81 | 1 8 |
| DHW & A/C | 35 | 00988 | CHILLER | Install Desuperheater - RI | 3,182,941 | 79,064 | 3,103,878 | 17,802,071 | 4,792,599 | 7,097,306 | 309,363 | 29,382,613 | 26,278,736 | 9 47 | 4 66 | 1 8 |
| Heating | 1 | HANGAR - 06203 | Unit Heaters | Radiant Heat - RI | 3,186,761 | 79,064 | 3,107,698 | 17,815,186 | 4,793,486 | 7,097,306 | 305,664 | 29,400,315 | 26,292,617 | 9 46 | 4 63 | 1 8 |
| Motors | MTR 202 | BRE/ADM - 00261 | BVAP | EEM - RI | 3,186,984 | 79,080 | 3,107,905 | 17,815,868 | 4,793,834 | 7,097,306 | -305,738 | 29,401,271 | 26,293,367 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-199 | BRE/ADM - 00252 | BVAP | EEM - RI | 3,187,207 | 79,096 | 3,108,112 | 17,816,551 | 4,794,182 | 7,097,306 | -305,812 | 29,402,228 | 26,294,116 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-197 | BRE/ADM - 00251 | BVAP | EEM - RI | 3,187,430 | 79,112 | 3,108,319 | 17,817,234 | 4,794,529 | 7,097,306 | -305,886 | 29,403,184 | 26,294,865 | 9 46 | 4 62 | 1 8 |
| Motors | MTR 200 | BRE/ADM - 00252 | BVAP | EEM - RI | 3,187,653 | 79,128 | 3,108,526 | 17,817,916 | 4,794,877 | 7,097,306 | -305,959 | 29,404,140 | 26,295,615 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-195 | BRE/ADM - 00250 | BVAP | EEM - RI | 3,187,876 | 79,144 | 3,108,733 | 17,818,599 | 4,795,225 | 7,097,306 | -306,033 | 29,405,097 | 26,296,364 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-198 | BRE/ADM - 00251 | BVAP | EEM - RI | 3,188,099 | 79,160 | 3,108,940 | 17,819,282 | 4,795,572 | 7,097,306 | -306,107 | 29,406,053 | 26,297,113 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-196 | BRE/ADM - 00250 | BVAP | EEM - RI | 3,188,322 | 79,176 | 3,109,147 | 17,819,964 | 4,795,920 | 7,097,306 | -306,181 | 29,407,009 | 26,297,862 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-193 | BRE/ADM - 00249 | BVAP | EEM - RI | 3,188,545 | 79,192 | 3,109,354 | 17,820,647 | 4,796,268 | 7,097,306 | -306,255 | 29,407,905 | 26,298,612 | 9 46 | 4 62 | 1 8 |
| Motors | MTR 238 | BRE/ADM - 00534 | BVAP | EEM - RI | 3,189,883 | 79,288 | 3,110,595 | 17,824,768 | 4,798,366 | 7,097,306 | -306,742 | 29,413,699 | 26,303,104 | 9 46 | 4 62 | 1 8 |
| Motors | MTR-192 | BRE/ADM - 00104 | BVAP | EEM - RI | 3,191,221 | 79,384 | 3,111,838 | 17,828,890 | 4,800,465 | 7,097,306 | -307,228 | 29,419,433 | 26,307,596 | 9 45 | 4 62 | 1 8 |
| Motors | MTR 214 | BRE/ADM - 00416 | BVAP | EEM - RI | 3,192,559 | 79,480 | 3,113,080 | 17,833,011 | 4,802,564 | 7,097,306 | -307,714 | 29,425,167 | 26,312,087 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-222 | BRE/ADM - 00434 | BVAP | EEM - RI | 3,193,897 | 79,576 | 3,114,322 | 17,837,133 | 4,804,663 | 7,097,306 | 308,201 | 29,430,901 | 26,316,579 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-191 | BRE/ADM - 00103 | BVAP | EEM - RI | 3,195,235 | 79,672 | 3,115,564 | 17,841,254 | 4,806,761 | 7,097,306 | -308,687 | 29,436,635 | 26,321,071 | 9 45 | 4 62 | 1 8 |
| Motors | MTR 223 | BRE/ADM - 00440 | BVAP | EEM - RI | 3,196,573 | 79,768 | 3,116,806 | 17,845,376 | 4,808,860 | 7,097,306 | 309,173 | 29,442,369 | 26,325,563 | 9 45 | 4 62 | 1 8 |
| Motors | MTR-224 | BRE/ADM - 00448 | BVAP | EEM - RI | 3,197,911 | 79,864 | 3,118,048 | 17,849,497 | 4,810,959 | 7,097,306 | -309,660 | 29,448,102 | 26,330,055 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-231 | BRE/ADM - 00512 | BVAP | EEM - RI | 3,199,249 | 79,960 | 3,119,290 | 17,853,618 | 4,813,058 | 7,097,306 | 310,146 | 29,453,836 | 26,334,547 | 9 44 | 4 62 | 1 8 |
| Motors | MTR-239 | BRE/ADM - 00540 | BVAP | EEM - RI | 3,200,587 | 80,056 | 3,120,532 | 17,857,740 | 4,815,156 | 7,097,306 | 310,632 | 29,459,570 | 26,339,019 | 9 44 | 4 62 | 1 8 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| Fuel Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 232 | BRE/ADM 00514 | BVAP | EEM - RI | 3,201,925 | 80,152 | 3,121,774 | 17,861,861 | 4,817,255 | 7,097,305 | 311,119 | 29,405,304 | 26,143,530 | 9 44 | 4 62 | 1 8 |
| Motors | MTR 233 | BRE/ADM 00516 | BVAP | EEM RI | 3,203,263 | 80,248 | 3,123,016 | 17,865,981 | 4,819,354 | 7,097,305 | 311,605 | 29,471,058 | 26,148,022 | 9 44 | 4 62 | 1 8 |
| Motors | MTR 234 | BRE/ADM 00518 | BVAP | EEM RI | 3,204,601 | 80,344 | 3,124,258 | 17,870,104 | 4,821,453 | 7,097,305 | 312,091 | 29,476,772 | 26,152,514 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 237 | BRE/ADM 00530 | BVAP | EEM RI | 3,205,939 | 80,440 | 3,125,500 | 17,874,226 | 4,823,552 | 7,097,305 | 312,578 | 29,482,506 | 26,157,006 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 190 | BRE/ADM 00102 | BVAP | EEM RI | 3,207,277 | 80,536 | 3,126,742 | 17,878,347 | 4,825,650 | 7,097,305 | 313,064 | 29,488,240 | 26,161,498 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 212 | BRE/ADM 00413 | BVAP | EEM RI | 3,208,169 | 80,600 | 3,127,570 | 17,881,095 | 4,827,050 | 7,097,305 | 313,388 | 29,492,062 | 26,164,492 | 9 41 | 4 62 | 1 8 |
| Motors | MTR-194 | BRE/ADM 00249 | BVAP | EEM - RI | 3,208,392 | 80,616 | 3,127,777 | 17,881,781 | 4,827,199 | 7,097,305 | 313,469 | 29,491,018 | 26,163,241 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 250 | CLUB 00202 | BVAP | EEM RI | 3,208,615 | 80,632 | 3,127,984 | 17,882,468 | 4,827,349 | 7,097,305 | 313,550 | 29,493,973 | 26,165,990 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 189 | BRE/ADM 00098 | BVAP | EEM RI | 3,208,838 | 80,648 | 3,128,191 | 17,883,155 | 4,828,099 | 7,097,305 | 313,632 | 29,494,929 | 26,166,738 | 9 41 | 4 62 | 1 8 |
| Motors | MTR 248 | CLUB 00021 | BVAP | EEM RI | 3,209,284 | 80,680 | 3,128,605 | 17,884,537 | 4,828,803 | 7,097,305 | 313,807 | 29,496,819 | 26,168,215 | 9 41 | 4 61 | 1 8 |
| Motors | MTR-188 | BRE/ADM 00014 | BVAP | EEM RI | 3,209,507 | 80,696 | 3,128,812 | 17,885,229 | 4,829,155 | 7,097,305 | 313,895 | 29,497,794 | 26,168,983 | 9 41 | 4 61 | 1 8 |
| Motors | MTR 230 | BRE/ADM 00511 | BVAP | EEM - RI | 3,210,622 | 80,776 | 3,129,847 | 17,888,704 | 4,830,925 | 7,097,305 | 314,368 | 29,502,567 | 26,172,720 | 9 41 | 4 61 | 1 8 |
| Motors | MTR 236 | BRE/ADM 00523 | BVAP | EEM RI | 3,211,960 | 80,872 | 3,131,089 | 17,892,875 | 4,833,049 | 7,097,305 | 314,935 | 29,508,294 | 26,177,206 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-201 | BRE/ADM - 00261 | BVAP | EEM RI | 3,212,183 | 80,888 | 3,131,296 | 17,891,574 | 4,833,405 | 7,097,305 | 315,036 | 29,509,248 | 26,177,953 | 9 42 | 4 61 | 1 8 |
| Motors | MTR 203 | BRE/ADM 00262 | BVAP | EEM RI | 3,212,406 | 80,904 | 3,131,503 | 17,894,273 | 4,833,760 | 7,097,305 | 315,137 | 29,510,202 | 26,178,700 | 9 42 | 4 61 | 1 8 |
| Motors | MTR 210 | BRE/ADM 00267 | BVAP | EEM - RI | 3,212,629 | 80,920 | 3,131,710 | 17,894,972 | 4,834,116 | 7,097,305 | 315,238 | 29,511,156 | 26,179,447 | 9 42 | 4 61 | 1 8 |
| Motors | MTR 204 | BRE/ADM 00262 | BVAP | EEM - RI | 3,212,852 | 80,936 | 3,131,917 | 17,895,671 | 4,834,472 | 7,097,305 | 315,339 | 29,512,111 | 26,180,194 | 9 42 | 4 61 | 1 8 |
| Motors | MTR 205 | BRE/ADM 00264 | BVAP | EEM RI | 3,213,075 | 80,952 | 3,132,124 | 17,896,370 | 4,834,828 | 7,097,305 | 315,441 | 29,513,065 | 26,180,941 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-206 | BRE/ADM 00264 | BVAP | EEM RI | 3,213,298 | 80,968 | 3,132,331 | 17,897,069 | 4,835,184 | 7,097,305 | 315,542 | 29,514,019 | 26,181,688 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-207 | BRE/ADM 00265 | BVAP | EEM - RI | 3,213,521 | 80,984 | 3,132,538 | 17,897,768 | 4,835,540 | 7,097,305 | 315,643 | 29,514,973 | 26,182,435 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-208 | BRE/ADM 00265 | BVAP | EEM - RI | 3,213,744 | 81,000 | 3,132,745 | 17,898,467 | 4,835,896 | 7,097,305 | -315,744 | 29,515,927 | 26,183,182 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-209 | BRE/ADM - 00267 | BVAP | EEM RI | 3,213,967 | 81,016 | 3,132,952 | 17,899,166 | 4,836,252 | 7,097,305 | 315,845 | 29,516,881 | 26,183,929 | 9 42 | 4 61 | 1 8 |
| Motors | MTR-211 | BRE/ADM - 00412 | BVAP | EEM - RI | 3,218,873 | 81,368 | 3,137,506 | 17,914,546 | 4,844,084 | 7,097,305 | 318,067 | 29 537,869 | 26,400,364 | 9 41 | 4 61 | 1 8 |
| Motors | PMTR 5a | ADMIN 00985 | PMPMTR | VSD & EEM - RI | 3,222,005 | 81,539 | 3,140,466 | 17,927,764 | 4,844,744 | 7,097,134 | 319,021 | 29,559,621 | 26,419,155 | 9 41 | 4 31 | 1 8 |
| Heating | 24 | MTRPOOL - 00619 | Unit Heaters | Radiant Heat RI | 3,223,545 | 81,539 | 3,142,006 | 17,933,244 | 4,845,212 | 7,097,134 | 318,430 | 29,557,160 | 26,415,154 | 9 41 | 4 25 | 1 8 |
| Motors | PMTR 110 | PUMP 05996 | PMPMTR | EEM - RI | 3,229,340 | 81,989 | 3,147,351 | 17,949,936 | 4,853,276 | 7,097,134 | 320,614 | 29,579,733 | 26,432,382 | 9 40 | 4 22 | 1 8 |
| Heating | 34 | SHOP 20018 | Unit Heaters | Radiant Heat - RI | 3,230,540 | 81,989 | 3,148,551 | 17,953,702 | 4,854,457 | 7,097,134 | 320,513 | 29,584,780 | 26,436,229 | 9 40 | 4 21 | 1 8 |
| DHW & A/C | 20 | 00548 | PKG UNIT | Install Desuperheater RI | 3,233,052 | 81,989 | 3,151,063 | 17,957,950 | 4,862,622 | 7,096,273 | 321,651 | 29,595,194 | 26,444,131 | 9 39 | 4 15 | 1 8 |
| Motors | PMTR-113 | PUMP - 00319 | PMPMTR | EEM - RI | 3,237,356 | 82,309 | 3,155,047 | 17,969,740 | 4,868,788 | 7,096,273 | -323,236 | 29,611,566 | 26,456,519 | 9 39 | 4 11 | 1 8 |
| Motors | PMTR-112 | PUMP - 00319 | PMPMTR | EEM - RI | 3,241,660 | 82,629 | 3,159,031 | 17,981,313 | 4,874,955 | 7,096,273 | 324,821 | 29,627,750 | 26,468,689 | 9 38 | 4 05 | 1 8 |
| Motors | MTR-428 | ADMIN - 00985 | Fan Motor | EEM - RI | 3,244,105 | 82,804 | 3,161,301 | 17,989,760 | 4,876,600 | 7,096,273 | 325,714 | 29,636,920 | 26,475,619 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR 40 | HOSPITL 00166 | PMPMTR | EEM - RI | 3,245,083 | 82,874 | 3,162,209 | 17,993,139 | 4,877,258 | 7,096,273 | 326,070 | 29,640,600 | 26,478,391 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR 39 | HOSPITL 00166 | PMPMTR | EEM - RI | 3,245,061 | 82,944 | 3,163,117 | 17,996,518 | 4,877,916 | 7,096,273 | 326,427 | 29,644,279 | 26,481,163 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR 41 | HOSPITL 00166 | PMPMTR | EEM - RI | 3,245,550 | 82,979 | 3,163,571 | 17,998,207 | 4,878,245 | 7,096,273 | 326,606 | 29,646,119 | 26,482,549 | 9 37 | 4 05 | 1 8 |
| Motors | PMTR-82 | PUMP - 00324 | PMPMTR | EEM - RI | 3,245,757 | 82,994 | 3,163,763 | 17,998,991 | 4,878,314 | 7,096,273 | 326,681 | 29,646,897 | 26,483,134 | 9 37 | 4 05 | 1 8 |
| Lighting | DLC-1b | Small Office | T8 Lighting | T8 + Daylighting Controls RI | 3,306,896 | 98,140 | 3,208,756 | 18,111,452 | 4,878,314 | 7,164,392 | 326,681 | 29,827,477 | 26,618,720 | 9 30 | 4 01 | 1 9 |
| Motors | PMTR-114 | PUMP - 00953 | PMPMTR | EEM - RI | 3,316,070 | 98,690 | 3,217,380 | 18,135,354 | 4,891,787 | 7,164,392 | 329,911 | 29,861,621 | 26,644,241 | 9 28 | 3 96 | 1 9 |
| Motors | MTR-39 | ADMIN 00985 | CONDMTR | EEM - RI | 3,316,516 | 98,722 | 3,217,794 | 18,136,280 | 4,892,648 | 7,164,392 | 330,073 | 29,863,246 | 26,645,452 | 9 28 | 3 92 | 1 9 |
| Motors | MTR-38 | ADMIN 00985 | CONDMTR | EEM - RI | 3,316,739 | 98,738 | 3,218,001 | 18,136,743 | 4,893,078 | 7,164,392 | 330,154 | 29,864,059 | 26,646,057 | 9 28 | 3 92 | 1 9 |
| Motors | PMTR-108 | PUMP - 00952 | PMPMTR | EEM - RI | 3,320,327 | 99,008 | 3,221,319 | 18,144,017 | 4,899,904 | 7,164,392 | 331,444 | 29,876,869 | 26,655,549 | 9 27 | 3 86 | 1 9 |
| Motors | MTR-258 | DGR - 00909 | BVAP | EEM - RI | 3,320,550 | 99,024 | 3,221,526 | 18,144,514 | 4,900,240 | 7,164,392 | 331,479 | 29,877,667 | 26,656,141 | 9 27 | 3 86 | 1 9 |
| Motors | MTR-417 | WHS 00934 | BVAP | EEM - RI | 3,321,219 | 99,072 | 3,222,147 | 18,146,019 | 4,901,255 | 7,164,392 | 331,609 | 29,880,056 | 26,657,909 | 9 27 | 3 85 | 1 9 |
| Motors | MTR-259 | DGR 00909 | BVAP | EEM - RI | 3,321,665 | 99,104 | 3,222,561 | 18,147,029 | 4,901,937 | 7,164,392 | -331,712 | 29,881,645 | 26 659,084 | 9 27 | 3 84 | 1 9 |
| Motors | PMTR-30 | DGR - 00430 | PMPMTR | EEM - RI | 3,321,872 | 99,119 | 3,222,753 | 18,147,472 | 4,902,305 | 7,164,392 | -331,787 | 29,882,381 | 26,659,628 | 9 27 | 3 83 | 1 9 |
| Motors | MTR-424 | ADMIN - 00985 | Fan Motor | EEM - RI | 3,322,079 | 99,134 | 3,222,945 | 18,147,915 | 4,902,673 | 7,164,392 | -331,862 | 29,883,118 | 26,660,172 | 9 27 | 3 83 | 1 9 |
| Motors | MTR-431 | ADMIN 00985 | Fan Motor | EEM - RI | 3,323,321 | 99,224 | 3,224,097 | 18,150,574 | 4,904,881 | 7,164,392 | 332,313 | 29,887,534 | 26,663,437 | 9 27 | 3 83 | 1 9 |
| Envelope | MT-10 | | Single pane window | Shade Screens - NW side RI | 3,329,459 | 99,224 | 3,230,235 | 18,165,951 | 4,919,320 | 7,164,392 | -338,629 | 29,911,034 | 26,680,799 | 9 26 | 3 83 | 1 9 |
| Envelope | | U Shaped Bldgs Barracks | | Window Screens NW Side - RI | 3,343,643 | 99,224 | 3,244,419 | 18,201,483 | 4,952,684 | 7,164,392 | 353,225 | 29,965,334 | 26,720,915 | 9 24 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Barracks | | Window Screens - NW Side - RI | 3,348,420 | 99,224 | 3,249,196 | 18,213,452 | 4,963,923 | 7,164,392 | -358,142 | 29,983,624 | 26,734,428 | 9 23 | 3 83 | 1 9 |
| Envelope | | U Shaped Bldgs: Other | | Window Screens NW Side - RI | 3,350,445 | 99,224 | 3,251,221 | 18,218,525 | 4,968,687 | 7,164,392 | -360,226 | 29,991,378 | 26,740,156 | 9 22 | 3 83 | 1 9 |
| Envelope | | Masonite Siding: post 1950 | | Window Screens NW Side - RI | 3,352,249 | 99,224 | 3,253,025 | 18,223,044 | 4,972,930 | 7,164,392 | -362,082 | 29,998,283 | 26,745,258 | 9 22 | 3 83 | 1 9 |
| Envelope | | TRAINING | | Window Screens NW Side - RI | 3,352,652 | 99,224 | 3,253,428 | 18,224,053 | 4,973,878 | 7,164,392 | -362,497 | 29,999,826 | 26,746,398 | 9 22 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1963 Vintage | | Window Screens - RI | 3,379,653 | 99,224 | 3,280,429 | 18,291,696 | 5,037,304 | 7,164,392 | 390,284 | 30,103,199 | 26,822,769 | 9 18 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1983 Vintage | | Window Screens RI | 3,404,884 | 99,224 | 3,305,660 | 18,354,905 | 5,096,747 | 7,164,392 | 416,249 | 30,199,794 | 26,894,134 | 9 14 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1961 Vintage | | Window Screens RI | 3,429,563 | 99,224 | 3,330,339 | 18,416,731 | 5,154,801 | 7,164,392 | 441,647 | 30,294,277 | 26,963,937 | 9 10 | 3 83 | 1 9 |
| Envelope | | Metal Siding | | Window Screens - NW Side RI | 3,442,683 | 99,224 | 3,343,459 | 18,449,599 | 5,185,664 | 7,164,392 | 455,149 | 30,344,507 | 27,001,047 | 9 08 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Misc pre 1980 | | Window Screens - NW Side - RI | 3,444,671 | 99,224 | 3,345,447 | 18,454,579 | 5,190,340 | 7,164,392 | -457,194 | 30,352,116 | 27,006,669 | 9 07 | 3 83 | 1 9 |
| Envelope | | SHOP | | Window Screens - NW Side - RI | 3,445,887 | 99,224 | 3,346,663 | 18,457,626 | 5,193,201 | 7,164,392 | 458,446 | 30,356,773 | 27,010,109 | 9 07 | 3 83 | 1 9 |
| Envelope | | DINING: MISC | | Window Screens - NW Side - RI | 3,446,627 | 99,224 | 3,347,403 | 18,459,480 | 5,194,942 | 7,164,392 | 459,208 | 30,359,606 | 27,012,203 | 9 07 | 3 83 | 1 9 |
| Envelope | | BRE/ADM MISC | | Window Screens - NW Side - RI | 3,447,289 | 99,224 | 3,348,065 | 18,461,138 | 5,196,499 | 7,164,392 | 459,889 | 30,362,141 | 27,014,075 | 9 07 | 3 83 | 1 9 |
| Envelope | | Wood Siding | | Window Screens NW Side - RI | 3,447,840 | 99,224 | 3,348,616 | 18,462,518 | 5,197,795 | 7,164,392 | -460,456 | 30,364,249 | 27,015,633 | 9 07 | 3 83 | 1 9 |
| Envelope | | MWR | | Window Screens NW Side - RI | 3,448,128 | 99,224 | 3,348,904 | 18,463,239 | 5,198,472 | 7,164,392 | -460,752 | 30,365,351 | 27,016,447 | 9 07 | 3 83 | 1 9 |
| Envelope | | WHS | | Window Screens - NW Side - RI | 3,448,382 | 99,224 | 3,349,158 | 18,463,876 | 5,199,069 | 7,164,392 | -461,013 | 30,366,324 | 27,017,166 | 9 07 | 3 83 | 1 9 |
| Envelope | | SECURITY | | Window Screens - NW Side RI | 3,448,441 | 99,224 | 3,349,217 | 18,464,023 | 5,199,208 | 7,164,392 | 461,074 | 30,366,549 | 27,017,332 | 9 07 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1984 Vintage | | Window Screens RI | 3,467,416 | 99,224 | 3,368,192 | 18,511,558 | 5,243,843 | 7,164,392 | 480,601 | 30,439,192 | 27,071,001 | 9 04 | 3 83 | 1 9 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screens - NW Side - RI | 3,472,187 | 99,224 | 3,372,963 | 18,523,510 | 5,255,066 | 7,164,392 | 485,511 | 30,457,458 | 27,084,495 | 9 03 | 3 83 | 1 9 |
| Envelope | | MOTORPOOL | | Window Screens NW Side - RI | 3,473,428 | 99,224 | 3,374,204 | 18,526,621 | 5,257,987 | 7,164,392 | 486,789 | 30,462,212 | 27,088,008 | 9 03 | 3 83 | 1 9 |
| Envelope | | ADMIN MISC pre 1954 | | Window Screens - NW Side RI | 3,474,119 | 99,224 | 3,374,895 | 18,528,351 | 5,259,611 | 7,164,392 | 487,499 | 30,464,855 | 27,089,960 | 9 03 | 3 83 | 1 9 |
| Envelope | Family Housing | Northwest, 1954, 1965, 1966 Vintage | | Window Screens RI | 3,490,597 | 99,224 | 3,391,373 | 18,569,632 | 5,298,374 | 7,164,392 | -504,457 | 30,527,941 | 27,136,568 | 9 00 | 3 83 | 1 9 |
| Envelope | | Concrete Block: Misc post 1980 | | Window Screens NW Side - RI | 3,492,330 | 99,224 | 3,393,106 | 18,573,974 | 5,302,452 | 7,164,392 | 506,241 | 30,534,577 | 27,141,471 | 9 00 | 3 83 | 1 9 |
| Envelope | | ADMIN MISC post 1964 | | Window Screens NW Side - RI | 3,493,548 | 99,224 | 3,394,324 | 18,577,026 | 5,305,317 | 7,164,392 | 507,494 | 30,539,241 | 27,144,916 | 9 00 | 3 83 | 1 9 |
| Motors | MTR 128 | ADMIN 00441 | BVAP | EEM - RI | 3,493,994 | 99,256 | 3,394,738 | 18,578,043 | 5,306,003 | 7,164,392 | 507,613 | 30,540,826 | 27,146,087 | 9 00 | 3 83 | 1 9 |
| Motors | MTR 166 | ADMIN 00544 | BVAP | EEM - RI | 3,494,440 | 99,288 | 3,395,152 | 18,579,060 | 5,306,690 | 7,164,392 | -507,731 | 30,542,410 | 27,147,258 | 9 00 | 3 83 | 1 9 |
| Motors | MTR-150 | ADMIN 00504 | BVAP | EEM - RI | 3,494,886 | 99,320 | 3,395,566 | 18,580,077 | 5,307,376 | 7,164,392 | 507,849 | 30,543,995 | 27,148,429 | 9 00 | 3 83 | 1 9 |
| Motors | MTR 148 | ADMIN 00499 | BVAP | EEM - RI | 3,495,332 | 99,352 | 3,395,980 | 18,581,094 | 5,308,062 | 7,164,392 | 507,968 | 30,545,580 | 27,149,600 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 132 | ADMIN 00444 | BVAP | EEM - RI | 3,495,778 | 99,384 | 3,396,394 | 18,582,111 | 5,308,748 | 7,164,392 | 508,086 | 30,547,165 | 27,150,771 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 245 | CLINIC 00242 | BVAP | EEM - RI | 3,496,224 | 99,416 | 3,396,808 | 18,583,128 | 5,309,435 | 7,164,392 | 508,205 | 30,548,750 | 27,151,941 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-156 | ADMIN 00524 | BVAP | EEM RI | 3,497,562 | 99,512 | 3,398,050 | 18,586,179 | 5,311,494 | 7,164,392 | 508,560 | 30,553,504 | 27,155,454 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-124 | ADMIN 00436 | BVAP | EEM RI | 3,498,231 | 99,560 | 3,398,671 | 18,587,704 | 5,312,523 | 7,164,392 | 508,737 | 30,555,882 | 27,157,210 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 246 | CLINIC 00245 | BVAP | EEM RI | 3,498,454 | 99,576 | 3,398,878 | 18,588,212 | 5,312,866 | 7,164,392 | 508,796 | 30,556,674 | 27,157,795 | 8 99 | 3 83 | 1 9 |
| Motors | MTR-347 | SECURTY 00336 | BVAP | EEM RI | 3,498,677 | 99,592 | 3,399,085 | 18,588,721 | 5,313,209 | 7,164,392 | 508,856 | 30,557,467 | 27,158,381 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 159 | ADMIN 00528 | BVAP | EEM RI | 3,498,900 | 99,608 | 3,399,292 | 18,589,229 | 5,313,552 | 7,164,392 | 508,915 | 30,558,259 | 27,158,967 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 163 | ADMIN 00543 | BVAP | EEM RI | 3,499,123 | 99,624 | 3,399,499 | 18,589,738 | 5,313,895 | 7,164,392 | 508,974 | 30,559,051 | 27,159,552 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 130 | ADMIN 00443 | BVAP | EEM RI | 3,499,346 | 99,640 | 3,399,706 | 18,590,246 | 5,314,239 | 7,164,392 | 509,033 | 30,559,844 | 27,160,137 | 8 99 | 3 83 | 1 9 |
| Motors | MTR 147 | ADMIN 00492 | BVAP | EEM RI | 3,499,569 | 99,656 | 3,399,913 | 18,590,755 | 5,314,582 | 7,164,392 | 509,092 | 30,560,636 | 27,160,723 | 8 99 | 3 83 | 1 9 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost ($1994 $) | Cumulative Value of Rebate ($1994 $) | Cumulative Value of Net Installed Cost ($1994 $) | Cumulative Value of Energy Savings ($1994 $) | Cumulative Value of Demand Savings ($1994 $) | Cumulative Value of O&M Savings ($1994 $) | Cumulative Value of Replacement Savings ($1994 $) | Cumulative Value of Total Savings ($1994 $) | Cumulative Net Savings ($1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-155 | ADMIN - 00521 | HVAP | EFM - RI | 3,499,792 | 99,672 | 3,400,120 | 18,591,263 | 5,314,925 | 7,164,392 | -509,152 | 30,561,429 | 27,161,308 | 8.99 | 3.83 | 1.9 |
| Motors | MTR-131 | ADMIN - 00443 | HVAP | EFM - RI | 3,500,015 | 99,688 | 3,400,327 | 18,591,772 | 5,315,268 | 7,164,392 | -509,211 | 30,562,221 | 27,161,894 | 8.99 | 3.83 | 1.9 |
| Motors | MTR-25 | HOTEL - 00902 | COMPMTR | EFM - RI | 3,500,763 | 99,688 | 3,401,075 | 18,593,919 | 5,316,250 | 7,164,392 | -509,480 | 30,565,080 | 27,164,094 | 8.99 | 3.82 | 1.9 |
| Motors | MTR-23 | HOTEL - 00900 | COMPMTR | EFM - RI | 3,501,511 | 99,688 | 3,401,823 | 18,596,065 | 5,317,231 | 7,164,392 | -509,750 | 30,567,939 | 27,166,115 | 8.99 | 3.82 | 1.9 |
| Motors | MTR-24 | HOTEL - 00901 | COMPMTR | EFM - RI | 3,502,259 | 99,688 | 3,402,571 | 18,598,212 | 5,318,213 | 7,164,392 | -510,020 | 30,570,797 | 27,168,226 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-26 | HOTEL - 00903 | COMPMTR | EFM - RI | 3,503,007 | 99,688 | 3,403,319 | 18,600,359 | 5,319,195 | 7,164,392 | -510,290 | 30,573,656 | 27,170,337 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-28 | HOTEL - 00906 | COMPMTR | EFM - RI | 3,503,755 | 99,688 | 3,404,067 | 18,602,506 | 5,320,177 | 7,164,392 | -510,559 | 30,576,515 | 27,172,448 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-27 | HOTEL - 00904 | COMPMTR | EFM - RI | 3,504,316 | 99,688 | 3,404,628 | 18,604,116 | 5,320,913 | 7,164,392 | -510,762 | 30,578,659 | 27,174,031 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-103 | ADMIN - 00237 | HVAP | EFM - RI | 3,506,100 | 99,816 | 3,406,284 | 18,608,211 | 5,323,676 | 7,164,392 | -511,295 | 30,584,984 | 27,178,699 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-411 | WHS - 00827 | HVAP | EFM - RI | 3,506,769 | 99,864 | 3,406,905 | 18,609,746 | 5,324,713 | 7,164,392 | -511,495 | 30,587,356 | 27,180,450 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-105 | ADMIN - 00241 | HVAP | EFM - RI | 3,507,438 | 99,912 | 3,407,526 | 18,611,282 | 5,325,749 | 7,164,392 | -511,695 | 30,589,727 | 27 182,201 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-304 | MTRPOOL - 00680 | HVAP | EFM - RI | 3,507,884 | 99,944 | 3,407,940 | 18,612,306 | 5,326,440 | 7,164,392 | -511,829 | 30,591,109 | 27,183,368 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-306 | MTRPOOL - 00681 | HVAP | EFM - RI | 3,508,330 | 99,976 | 3,408,354 | 18,613,329 | 5,327,131 | 7,164,392 | -511,962 | 30,592,490 | 27,184,535 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-254 | DOR - 00908 | HVAP | EFM - RI | 3,508,776 | 100,008 | 3,408,768 | 18,614,353 | 5,327,821 | 7,164,392 | -512,096 | 30,594,471 | 27,185,703 | 8.98 | 3.82 | 1.9 |
| Motors | MTR-412 | WHS - 00827 | HVAP | EFM - RI | 3,508,999 | 100,024 | 3,408,975 | 18,614,865 | 5,328,167 | 7,164,392 | -512,162 | 30,595,262 | 27,186,286 | 8.97 | 3.82 | 1.9 |
| Motors | MTR 410 | WHS - 00827 | HVAP | EFM - RI | 3,509,222 | 100,040 | 3,409,182 | 18,615,377 | 5,328,512 | 7,164,392 | -512,229 | 30,596,052 | 27,186,870 | 8.97 | 3.82 | 1.9 |
| Motors | MTR 256 | DOR - 00404 | HVAP | EFM - RI | 3,509,445 | 100,056 | 3,409,389 | 18,615,889 | 5,328,858 | 7,164,392 | -512,296 | 30,596,843 | 27,187,453 | 8.97 | 3.82 | 1.9 |
| Motors | MTR-261 | DINING - 00254 | HVAP | EFM - RI | 3,509,668 | 100,072 | 3,409,596 | 18,616,404 | 5,329,205 | 7,164,392 | -512,370 | 30,597,632 | 27,188,035 | 8.97 | 3.81 | 1.9 |
| Motors | MTR-336 | PLT-BLDG - 00253 | HVAP | EFM - RI | 3,509,891 | 100,088 | 3,409,803 | 18,616,919 | 5,329,553 | 7,164,392 | -512,444 | 30,598,420 | 27,188,617 | 8.97 | 3.81 | 1.9 |
| Motors | MTR-335 | PLT-BLDG - 00253 | HVAP | EFM - RI | 3,510,114 | 100,104 | 3,410,010 | 18,617,434 | 5,329,901 | 7,164,392 | -512,518 | 30,599,209 | 27,189,199 | 8.97 | 3.81 | 1.9 |
| Motors | MTR 260 | DINING - 00254 | HVAP | EFM - RI | 3,510,337 | 100,120 | 3,410,217 | 18,617,949 | 5,330,248 | 7,164,392 | -512,592 | 30,599,998 | 27,189,781 | 8.97 | 3.81 | 1.9 |
| Motors | MTR-354 | SHOP - 00367 | HVAP | EFM - RI | 3,511,452 | 100,200 | 3,411,252 | 18,620,541 | 5,331,997 | 7,164,392 | -512,997 | 30,603,933 | 27,192,681 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-153 | ADMIN - 00513 | HVAP | EFM - RI | 3,512,344 | 100,264 | 3,412,080 | 18,622,614 | 5,333,396 | 7,164,392 | -513,321 | 30,607,082 | 27,195,001 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-171 | ADMIN - 00570 | HVAP | EFM - RI | 3,513,236 | 100,328 | 3,412,908 | 18,624,688 | 5,334,796 | 7,164,392 | -513,645 | 30,610,230 | 27,197,322 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-361 | SHOP ELC - 00581 | HVAP | EFM - RI | 3,514,128 | 100,392 | 3,413,736 | 18,626,761 | 5,336,195 | 7,164,392 | -513,969 | 30,613,379 | 27,199,642 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-401 | WHS - 00517 | HVAP | EFM - RI | 3,515,020 | 100,456 | 3,414,564 | 18,628,835 | 5,337,594 | 7,164,392 | -514,294 | 30,616,527 | 27,201,963 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-357 | SHOP - 00384 | HVAP | EFM - RI | 3,515,912 | 100,520 | 3,415,392 | 18,630,908 | 5,338,993 | 7,164,392 | -514,618 | 30,619,675 | 27,204,283 | 8.97 | 3.80 | 1.9 |
| Motors | MTR-382 | WHS - 00342 | HVAP | EFM - RI | 3,516,804 | 100,584 | 3,416,220 | 18,632,981 | 5,340,392 | 7,164,392 | -514,942 | 30,622,824 | 27,206,603 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-160 | ADMIN - 00528 | HVAP | EFM - RI | 3,517,250 | 100,616 | 3,416,634 | 18,634,018 | 5,341,092 | 7,164,392 | -515,104 | 30,624,398 | 27,207,763 | 8.96 | 3.80 | 1.9 |
| Motors | MTR 384 | WHS - 00352 | HVAP | EFM - RI | 3,517,696 | 100,648 | 3,417,048 | 18,635,055 | 5,341,791 | 7,164,392 | -515,266 | 30,625,972 | 27,208,924 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-386 | WHS - 00364 | HVAP | EFM - RI | 3,518,142 | 100,680 | 3,417,462 | 18,636,092 | 5,342,491 | 7,164,392 | -515,429 | 30,627,546 | 27,210,084 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-154 | ADMIN - 00520 | HVAP | EFM - RI | 3,518,588 | 100,712 | 3,417,876 | 18,637,128 | 5,343,191 | 7,164,392 | -515,591 | 30,629,120 | 27,211,244 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-175 | ADMIN - 00583 | HVAP | EFM - RI | 3,519,034 | 100,744 | 3,418,290 | 18,638,165 | 5,343,890 | 7,164,392 | -515,753 | 30,630,695 | 27,212,404 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-157 | ADMIN - 00526 | HVAP | EFM - RI | 3,519,480 | 100,776 | 3,418,704 | 18,639,202 | 5,344,590 | 7,164,392 | -515,915 | 30,632,269 | 27,213,564 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-118 | ADMIN - 00415 | HVAP | EFM - RI | 3,519,926 | 100,808 | 3,419,118 | 18,640,238 | 5,345,289 | 7,164,392 | -516,077 | 30,633,843 | 27,214,724 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-97 | 01315 | HVAP | EFM - RI | 3,520,372 | 100,840 | 3,419,532 | 18,641,275 | 5,345,989 | 7,164,392 | -516,239 | 30,635,417 | 27,215,885 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-362 | SHOP-ELC - 00616 | HVAP | EFM - RI | 3,520,818 | 100,872 | 3,419,946 | 18,642,312 | 5,346,689 | 7,164,392 | -516,401 | 30,636,991 | 27,217,045 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-294 | MTRPOOL - 00621 | HVAP | EFM - RI | 3,521,264 | 100,904 | 3,420,360 | 18,643,349 | 5,347,388 | 7,164,392 | -516,563 | 30,638,565 | 27,218,205 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-381 | WHS - 00342 | HVAP | EFM - RI | 3,521,710 | 100,936 | 3,420,774 | 18,644,385 | 5,348,088 | 7,164,392 | -516,725 | 30,640,140 | 27,219,365 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-355 | SHOP - 00367 | HVAP | EFM - RI | 3,522,156 | 100,968 | 3,421,188 | 18,645,422 | 5,348,787 | 7,164,392 | -516,888 | 30,641,714 | 27,220,525 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-415 | WHS - 00860 | HVAP | EFM - RI | 3,522,602 | 101,000 | 3,421,602 | 18,646,459 | 5,349,487 | 7,164,392 | -517,050 | 30,643,288 | 27,221,686 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-296 | MTRPOOL - 00623 | HVAP | EFM - RI | 3,523,048 | 101,032 | 3,422,016 | 18,647,495 | 5,350,187 | 7,164,392 | -517,212 | 30,644,862 | 27,222,846 | 8.96 | 3.80 | 1.9 |
| Motors | MTR-383 | WHS - 00344 | HVAP | EFM - RI | 3,523,494 | 101,064 | 3,422,430 | 18,648,532 | 5,350,886 | 7,164,392 | -517,374 | 30,646,436 | 27,224,006 | 8.95 | 3.80 | 1.9 |
| Motors | MTR 262 | DINING - 00431 | HVAP | EFM - RI | 3,523,940 | 101,096 | 3,422,844 | 18,649,569 | 5,351,586 | 7,164,392 | -517,536 | 30,648,011 | 27,225,166 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-380 | WHS - 00333 | HVAP | EFM - RI | 3,524,386 | 101,128 | 3,423,258 | 18,650,605 | 5,352,285 | 7,164,392 | -517,698 | 30,649,585 | 27,226,326 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-242 | CHAPEL - 00315 | HVAP | EFM - RI | 3,524,832 | 101,160 | 3,423,672 | 18,651,642 | 5,352,985 | 7,164,392 | -517,860 | 30,651,159 | 27,227,486 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-350 | SHOP - 00356 | HVAP | EFM - RI | 3,525,278 | 101,192 | 3,424,086 | 18,652,679 | 5,353,684 | 7,164,392 | -518,022 | 30,652,733 | 27,228,647 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-376 | WHS - 00318 | HVAP | EFM - RI | 3,525,724 | 101,224 | 3,424,500 | 18,653,716 | 5,354,384 | 7,164,392 | 518,184 | 30,654,307 | 27,229,807 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-162 | ADMIN - 00539 | HVAP | EFM - RI | 3,526,170 | 101,256 | 3,424,914 | 18,654,752 | 5,355,084 | 7,164,392 | -518,347 | 30,655,881 | 27,230,967 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-114 | ADMIN - 00372 | HVAP | EFM - RI | 3,526,616 | 101,288 | 3,425,328 | 18,655,789 | 5,355,783 | 7,164,392 | -518,509 | 30,657,456 | 27,232,127 | 8.95 | 3.80 | 1.9 |
| Motors | MTR 116 | ADMIN - 00408 | HVAP | EFM - RI | 3,527,062 | 101,320 | 3,425,742 | 18,656,826 | 5,356,483 | 7,164,392 | -518,671 | 30,659,030 | 27,233,287 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-317 | MTRPOOL - 00850 | HVAP | EFM - RI | 3,527,508 | 101,352 | 3,426,156 | 18,657,862 | 5,357,182 | 7,164,392 | -518,833 | 30,660,604 | 27,234,448 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-286 | MTRPOOL - 00605 | HVAP | EFM - RI | 3,527,954 | 101,384 | 3,426,570 | 18,658,899 | 5,357,882 | 7,164,392 | -518,995 | 30,662,178 | 27,235,608 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-119 | ADMIN - 00425 | HVAP | EFM - RI | 3,528,400 | 101,416 | 3,426,984 | 18,659,936 | 5,358,582 | 7,164,392 | 519,157 | 30,663,752 | 27,236,768 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-133 | ADMIN - 00445 | HVAP | EFM - RI | 3,528,846 | 101,448 | 3,427,398 | 18,660,972 | 5,359,281 | 7,164,392 | -519,319 | 30,665,326 | 27,237,928 | 8.95 | 3.80 | 1.9 |
| Motors | PMTR-28 | DGR - 00430 | PMPMTR | EFM - RI | 3,529,292 | 101,480 | 3,427,812 | 18,662,009 | 5,359,981 | 7,164,392 | 519,481 | 30,666,901 | 27,239,088 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-320 | MTRPOOL - 00941 | HVAP | EFM - RI | 3,529,738 | 101,512 | 3,428,226 | 18,663,046 | 5,360,680 | 7,164,392 | -519,643 | 30,668,475 | 27,240,248 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-291 | MTRPOOL - 00612 | HVAP | EFM - RI | 3,530,184 | 101,544 | 3,428,640 | 18,664,083 | 5,361,380 | 7,164,392 | 519,806 | 30,670,049 | 27,241,409 | 8.95 | 3.80 | 1.9 |
| Motors | MTR-394 | WHS - 00470 | HVAP | EFM - RI | 3,530,630 | 101,576 | 3,429,054 | 18,665,119 | 5,362,080 | 7,164,392 | -519,968 | 30,671,623 | 27,242,569 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-141 | ADMIN - 00464 | HVAP | EFM - RI | 3,531,076 | 101,608 | 3,429,468 | 18,666,156 | 5,362,779 | 7,164,392 | -520,130 | 30,673,197 | 27,243,729 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-292 | MTRPOOL - 00614 | HVAP | EFM - RI | 3,531,522 | 101,640 | 3,429,882 | 18,667,193 | 5,363,479 | 7,164,392 | -520,292 | 30,674,772 | 27,244,889 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-340 | PUMP - 00044 | HVAP | EFM - RI | 3,531,968 | 101,672 | 3,430,296 | 18,668,229 | 5,364,178 | 7,164,392 | -520,454 | 30,676,346 | 27,246,049 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-388 | WHS - 00364 | HVAP | EFM - RI | 3,532,414 | 101,704 | 3,430,710 | 18,669,266 | 5,364,878 | 7,164,392 | -520,616 | 30,677,920 | 27,247,210 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-280 | MTRPOOL - 00600 | HVAP | EFM - RI | 3,532,860 | 101,736 | 3,431,124 | 18,670,303 | 5,365,578 | 7,164,392 | 520,778 | 30,679,494 | 27,248,370 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-137 | ADMIN - 00453 | HVAP | EFM - RI | 3,533,306 | 101,768 | 3,431,538 | 18,671,339 | 5,366,277 | 7,164,392 | 520,940 | 30,681,068 | 27,249,530 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 344 | RDC - 00338 | HVAP | EFM - RI | 3,533,752 | 101,800 | 3,431,952 | 18,672,376 | 5,366,977 | 7,164,392 | -521,102 | 30,682,642 | 27,250,690 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-240 | CHAPEL - 00212 | HVAP | EFM - RI | 3,534,198 | 101,832 | 3,432,366 | 18,673,413 | 5,367,676 | 7,164,392 | 521,203 | 30,684,217 | 27,251,850 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-310 | MTRPOOL - 00837 | HVAP | EFM - RI | 3,534,421 | 101,848 | 3,432,573 | 18,673,931 | 5,368,026 | 7,164,392 | 521,146 | 30,685,004 | 27,252,430 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-309 | MTRPOOL - 00832 | HVAP | EFM - RI | 3,534,644 | 101,864 | 3,432,780 | 18,674,450 | 5,368,376 | 7,164,392 | 521,427 | 30,685,791 | 27,253,010 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-358 | SHOP - 00842 | HVAP | EFM - RI | 3,534,867 | 101,880 | 3,432,987 | 18,674,968 | 5,368,726 | 7,164,392 | -521,508 | 30,686,578 | 27,253,591 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-311 | MTRPOOL - 00840 | HVAP | EFM - RI | 3,535,090 | 101,896 | 3,433,194 | 18,675,486 | 5,369,076 | 7,164,392 | 521,589 | 30,687,365 | 27,254,171 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-359 | SHOP - 00842 | HVAP | EFM - RI | 3,535,313 | 101,912 | 3,433,401 | 18,676,005 | 5,369,425 | 7,164,392 | 521,670 | 30,688,152 | 27,254,751 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-407 | WHS - 00584 | HVAP | EFM - RI | 3,535,536 | 101,928 | 3,433,608 | 18,676,523 | 5,369,775 | 7,164,392 | 521,751 | 30,688,939 | 27,255,331 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-333 | MWR - 01322 | HVAP | EFM - RI | 3,535,759 | 101,944 | 3,433,815 | 18,677,041 | 5,370,125 | 7,164,392 | 521,832 | 30,689,726 | 27,255,911 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 342 | PUMP - 00838 | HVAP | EFM - RI | 3,535,982 | 101,960 | 3,434,022 | 18,677,560 | 5,370,475 | 7,164,392 | 521,913 | 30,690,513 | 27,256,491 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 360 | SHOP ELC - 00581 | HVAP | EFM - RI | 3,536,205 | 101,976 | 3,434,229 | 18,678,078 | 5,370,824 | 7,164,392 | -521,994 | 30,691,300 | 27,257,071 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 405 | WHS - 00545 | HVAP | EFM - RI | 3,536,428 | 101,992 | 3,434,436 | 18,678,596 | 5,371,174 | 7,164,392 | 522,075 | 30,692,088 | 27,257,651 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 416 | WHS - 00860 | HVAP | EFM - RI | 3,536,651 | 102,008 | 3,434,643 | 18,679,115 | 5,371,524 | 7,164,392 | 522,156 | 30,692,875 | 27,258,231 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-399 | WHS - 00486 | HVAP | EFM - RI | 3,536,874 | 102,024 | 3,434,850 | 18,679,633 | 5,371,874 | 7,164,392 | 522,237 | 30,693,662 | 27,258,811 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-392 | WHS - 00462 | HVAP | EFM - RI | 3,537,097 | 102,040 | 3,435,057 | 18,680,151 | 5,372,224 | 7,164,392 | -522,318 | 30,694,449 | 27,259,391 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 393 | WHS - 00462 | HVAP | EFM - RI | 3,537,320 | 102,056 | 3,435,264 | 18,680,670 | 5,372,573 | 7,164,392 | -522,399 | 30,695,236 | 27,259,972 | 8.94 | 3.80 | 1.9 |
| Motors | MTR 385 | WHS - 00360 | HVAP | EFM - RI | 3,537,543 | 102,072 | 3,435,471 | 18,681,188 | 5,372,923 | 7,164,392 | 522,480 | 30,696,023 | 27,260,552 | 8.94 | 3.80 | 1.9 |
| Motors | MTR-379 | WHS - 00333 | HVAP | EFM - RI | 3,537,766 | 102,088 | 3,435,678 | 18,681,706 | 5,373,273 | 7,164,392 | 522,561 | 30,696,810 | 27,261,132 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 377 | WHS - 00318 | HVAP | EFM - RI | 3,537,989 | 102,104 | 3,435,885 | 18,682,225 | 5,373,623 | 7,164,392 | 522,642 | 30,697,597 | 27,261,712 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-363 | SHOP-WPN - 07602 | HVAP | EFM - RI | 3,538,212 | 102,120 | 3,436,092 | 18,682,743 | 5,373,973 | 7,164,392 | 522,724 | 30,698,384 | 27,262,292 | 8.93 | 3.80 | 1.9 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 413 | WHS 00844 | BVAP | EEM - RI | 3,538,435 | 102,136 | 3,436,299 | 18,683,261 | 5,374,322 | 7,164,392 | 522,805 | 30,699,171 | 27,262,872 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 371 | WHS 00234 | BVAP | EEM - RI | 3,538,658 | 102,152 | 3,436,506 | 18,683,780 | 5,374,672 | 7,164,392 | -522,896 | 30,699,958 | 27,263,452 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 367 | TRAING - 00496 | BVAP | EEM - RI | 3,538,881 | 102,168 | 3,436,713 | 18,684,298 | 5,375,022 | 7,164,392 | 522,967 | 30,700,746 | 27,264,032 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 368 | TRAING - 00496 | BVAP | EEM - RI | 3,539,104 | 102,184 | 3,436,920 | 18,684,817 | 5,375,372 | 7,164,392 | 523,048 | 30,701,533 | 27,264,612 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 370 | WHS - 00024 | BVAP | EEM - RI | 3,539,327 | 102,200 | 3,437,127 | 18,685,335 | 5,375,722 | 7,164,392 | 523,129 | 30,702,320 | 27,265,192 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 387 | WHS - 00364 | BVAP | EEM - RI | 3,539,550 | 102,216 | 3,437,334 | 18,685,853 | 5,376,071 | 7,164,392 | 523,210 | 30,703,107 | 27,265,772 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 374 | WHS - 00318 | BVAP | EEM - RI | 3,539,773 | 102,232 | 3,437,541 | 18,686,372 | 5,376,421 | 7,164,392 | -523,291 | 30,703,894 | 27,266,353 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 375 | WHS - 00318 | BVAP | EEM - RI | 3,539,996 | 102,248 | 3,437,748 | 18,686,890 | 5,376,771 | 7,164,392 | 523,372 | 30,704,681 | 27,266,933 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 414 | WHS - 00860 | BVAP | EEM - RI | 3,540,219 | 102,264 | 3,437,955 | 18,687,408 | 5,377,121 | 7,164,392 | 523,453 | 30,705,468 | 27,267,513 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 406 | WHS - 00558 | BVAP | EEM - RI | 3,540,442 | 102,280 | 3,438,162 | 18,687,927 | 5,377,471 | 7,164,392 | 523,534 | 30,706,255 | 27,268,093 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 395 | WHS - 00470 | BVAP | EEM - RI | 3,540,665 | 102,296 | 3,438,369 | 18,688,445 | 5,377,820 | 7,164,392 | 523,615 | 30,707,042 | 27,268,673 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 270 | DINING - 00560 | BVAP | EEM - RI | 3,540,888 | 102,312 | 3,438,576 | 18,688,963 | 5,378,170 | 7,164,392 | 523,696 | 30,707,829 | 27,269,253 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 324 | MWR - 00410 | BVAP | EEM - RI | 3,541,111 | 102,328 | 3,438,783 | 18,689,482 | 5,378,520 | 7,164,392 | -523,777 | 30,708,616 | 27,269,833 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 308 | MTRPOOL - 00832 | BVAP | EEM - RI | 3,541,334 | 102,344 | 3,438,990 | 18,690,000 | 5,378,870 | 7,164,392 | 523,858 | 30,709,404 | 27,270,413 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-300 | MTRPOOL - 00646 | BVAP | EEM - RI | 3,541,557 | 102,360 | 3,439,197 | 18,690,518 | 5,379,220 | 7,164,392 | 523,939 | 30,710,191 | 27,270,993 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 352 | SHOP - 00357 | BVAP | EEM - RI | 3,541,780 | 102,376 | 3,439,404 | 18,691,037 | 5,379,569 | 7,164,392 | 524,020 | 30,710,978 | 27,271,573 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-331 | MWR - 01322 | BVAP | EEM - RI | 3,542,003 | 102,392 | 3,439,611 | 18,691,555 | 5,379,919 | 7,164,392 | 524,101 | 30,711,765 | 27,272,153 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 323 | MWR - 00340 | BVAP | EEM - RI | 3,542,226 | 102,408 | 3,439,818 | 18,692,073 | 5,380,269 | 7,164,392 | 524,183 | 30,712,552 | 27,272,734 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-325 | MWR - 00480 | BVAP | EEM - RI | 3,542,449 | 102,424 | 3,440,025 | 18,692,592 | 5,380,619 | 7,164,392 | 524,264 | 30,713,339 | 27,273,314 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-400 | WHS - 00486 | BVAP | EEM - RI | 3,542,672 | 102,440 | 3,440,232 | 18,693,110 | 5,380,969 | 7,164,392 | 524,345 | 30,714,126 | 27,273,894 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 326 | MWR - 00556 | BVAP | EEM - RI | 3,542,895 | 102,456 | 3,440,439 | 18,693,628 | 5,381,318 | 7,164,392 | 524,426 | 30,714,913 | 27,274,474 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-408 | WHS - 00585 | BVAP | EEM - RI | 3,543,118 | 102,472 | 3,440,646 | 18,694,147 | 5,381,668 | 7,164,392 | -524,507 | 30,715,700 | 27,275,054 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-353 | SHOP - 00357 | BVAP | EEM - RI | 3,543,341 | 102,488 | 3,440,853 | 18,694,665 | 5,382,018 | 7,164,392 | 524,588 | 30,716,487 | 27,275,634 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-332 | MWR - 01322 | BVAP | EEM - RI | 3,543,564 | 102,504 | 3,441,060 | 18,695,184 | 5,382,368 | 7,164,392 | 524,669 | 30,717,274 | 27,276,214 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-283 | MTRPOOL - 00600 | BVAP | EEM - RI | 3,543,787 | 102,520 | 3,441,267 | 18,695,702 | 5,382,718 | 7,164,392 | 524,750 | 30,718,062 | 27,276,794 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 267 | DINING - 00449 | BVAP | EEM - RI | 3,544,010 | 102,536 | 3,441,474 | 18,696,220 | 5,383,067 | 7,164,392 | 524,831 | 30,718,849 | 27,277,374 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-255 | DOR - 00404 | BVAP | EEM - RI | 3,544,233 | 102,552 | 3,441,681 | 18,696,739 | 5,383,417 | 7,164,392 | 524,912 | 30,719,636 | 27,277,954 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 402 | WHS - 00531 | BVAP | EEM - RI | 3,544,456 | 102,568 | 3,441,888 | 18,697,257 | 5,383,767 | 7,164,392 | 524,993 | 30,720,423 | 27,278,534 | 8.93 | 3.80 | 1.9 |
| Motors | MTR 403 | WHS - 00531 | BVAP | EEM - RI | 3,544,679 | 102,584 | 3,442,095 | 18,697,775 | 5,384,117 | 7,164,392 | 525,074 | 30,721,210 | 27,279,115 | 8.93 | 3.80 | 1.9 |
| Motors | MTR-356 | SHOP - 00384 | BVAP | EEM - RI | 3,544,902 | 102,600 | 3,442,302 | 18,698,294 | 5,384,467 | 7,164,392 | -525,155 | 30,721,997 | 27,279,695 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-351 | SHOP - 00357 | BVAP | EEM - RI | 3,545,125 | 102,616 | 3,442,509 | 18,698,812 | 5,384,816 | 7,164,392 | 525,236 | 30,722,784 | 27,280,275 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-298 | MTRPOOL - 00639 | BVAP | EEM - RI | 3,545,348 | 102,632 | 3,442,716 | 18,699,330 | 5,385,166 | 7,164,392 | 525,317 | 30,723,571 | 27,280,855 | 8.92 | 3.80 | 1.9 |
| Motors | MTR 313 | MTRPOOL - 00840 | BVAP | EEM - RI | 3,545,571 | 102,648 | 3,442,923 | 18,699,849 | 5,385,516 | 7,164,392 | 525,398 | 30,724,358 | 27,281,435 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-164 | ADMIN - 00543 | BVAP | EEM - RI | 3,545,794 | 102,664 | 3,443,130 | 18,700,367 | 5,385,866 | 7,164,392 | 525,479 | 30,725,145 | 27,282,015 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-151 | ADMIN - 00508 | BVAP | EEM - RI | 3,546,017 | 102,680 | 3,443,337 | 18,700,885 | 5,386,216 | 7,164,392 | 525,560 | 30,725,932 | 27,282,595 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-152 | ADMIN - 00510 | BVAP | EEM - RI | 3,546,240 | 102,696 | 3,443,544 | 18,701,404 | 5,386,565 | 7,164,392 | 525,642 | 30,726,720 | 27,283,175 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-158 | ADMIN - 00527 | BVAP | EEM - RI | 3,546,463 | 102,712 | 3,443,751 | 18,701,922 | 5,386,915 | 7,164,392 | 525,723 | 30,727,507 | 27,283,755 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-161 | ADMIN - 00529 | BVAP | EEM - RI | 3,546,686 | 102,728 | 3,443,958 | 18,702,440 | 5,387,265 | 7,164,392 | 525,804 | 30,728,294 | 27,284,335 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-169 | ADMIN - 00554 | BVAP | EEM - RI | 3,546,909 | 102,744 | 3,444,165 | 18,702,959 | 5,387,615 | 7,164,392 | 525,885 | 30,729,081 | 27,284,915 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-146 | ADMIN - 00497 | BVAP | EEM - RI | 3,547,132 | 102,760 | 3,444,372 | 18,703,477 | 5,387,964 | 7,164,392 | 525,966 | 30,729,868 | 27,285,496 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-172 | ADMIN - 00578 | BVAP | EEM - RI | 3,547,355 | 102,776 | 3,444,579 | 18,703,995 | 5,388,314 | 7,164,392 | 526,047 | 30,730,655 | 27,286,076 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-173 | ADMIN - 00579 | BVAP | EEM - RI | 3,547,578 | 102,792 | 3,444,786 | 18,704,514 | 5,388,664 | 7,164,392 | 526,128 | 30,731,442 | 27,286,656 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-174 | ADMIN - 00580 | BVAP | EEM - RI | 3,547,801 | 102,808 | 3,444,993 | 18,705,032 | 5,389,014 | 7,164,392 | 526,209 | 30,732,229 | 27,287,236 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-176 | ADMIN - 00604 | BVAP | EEM - RI | 3,548,024 | 102,824 | 3,445,200 | 18,705,551 | 5,389,364 | 7,164,392 | 526,290 | 30,733,016 | 27,287,816 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-149 | ADMIN - 00504 | BVAP | EEM - RI | 3,548,247 | 102,840 | 3,445,407 | 18,706,069 | 5,389,713 | 7,164,392 | 526,371 | 30,733,803 | 27,288,396 | 8.92 | 3.80 | 1.9 |
| Motors | MTR 145 | ADMIN - 00483 | BVAP | EEM - RI | 3,548,470 | 102,856 | 3,445,614 | 18,706,587 | 5,390,063 | 7,164,392 | 526,452 | 30,734,590 | 27,288,976 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-186 | ADMIN - 00201 | BVAP | EEM - RI | 3,548,693 | 102,872 | 3,445,821 | 18,707,105 | 5,390,413 | 7,164,392 | 526,533 | 30,735,378 | 27,289,556 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-115 | ADMIN - 00372 | BVAP | EEM - RI | 3,548,916 | 102,888 | 3,446,028 | 18,707,624 | 5,390,763 | 7,164,392 | 526,614 | 30,736,165 | 27,290,136 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-101 | ADMIN - 00157 | BVAP | EEM - RI | 3,549,139 | 102,904 | 3,446,235 | 18,708,142 | 5,391,113 | 7,164,392 | 526,695 | 30,736,952 | 27,290,716 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-104 | ADMIN - 00237 | BVAP | EEM - RI | 3,549,362 | 102,920 | 3,446,442 | 18,708,661 | 5,391,462 | 7,164,392 | 526,776 | 30,737,739 | 27,291,296 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-112 | ADMIN - 00320 | BVAP | EEM - RI | 3,549,585 | 102,936 | 3,446,649 | 18,709,179 | 5,391,812 | 7,164,392 | 526,857 | 30,738,526 | 27,291,876 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-113 | ADMIN - 00372 | BVAP | EEM - RI | 3,549,808 | 102,952 | 3,446,856 | 18,709,697 | 5,392,162 | 7,164,392 | 526,938 | 30,739,313 | 27,292,457 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-121 | ADMIN - 00428 | BVAP | EEM - RI | 3,550,031 | 102,968 | 3,447,063 | 18,710,216 | 5,392,512 | 7,164,392 | 527,019 | 30,740,100 | 27,293,037 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-144 | ADMIN - 00479 | BVAP | EEM - RI | 3,550,254 | 102,984 | 3,447,270 | 18,710,734 | 5,392,862 | 7,164,392 | 527,101 | 30,740,887 | 27,293,617 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-125 | ADMIN - 00437 | BVAP | EEM - RI | 3,550,477 | 103,000 | 3,447,477 | 18,711,252 | 5,393,211 | 7,164,392 | -527,182 | 30,741,674 | 27,294,197 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-138 | ADMIN - 00454 | BVAP | EEM - RI | 3,550,700 | 103,016 | 3,447,684 | 18,711,771 | 5,393,561 | 7,164,392 | 527,263 | 30,742,461 | 27,294,777 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-140 | ADMIN - 00458 | BVAP | EEM - RI | 3,550,923 | 103,032 | 3,447,891 | 18,712,289 | 5,393,911 | 7,164,392 | -527,344 | 30,743,248 | 27,295,357 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-142 | ADMIN - 00464 | BVAP | EEM - RI | 3,551,146 | 103,048 | 3,448,098 | 18,712,807 | 5,394,261 | 7,164,392 | 527,425 | 30,744,036 | 27,295,937 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-182 | ADMIN - 00988 | BVAP | EEM - RI | 3,551,369 | 103,064 | 3,448,305 | 18,713,326 | 5,394,611 | 7,164,392 | 527,506 | 30,744,823 | 27,296,517 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-177 | ADMIN - 00604 | BVAP | EEM - RI | 3,551,592 | 103,080 | 3,448,512 | 18,713,844 | 5,394,960 | 7,164,392 | 527,587 | 30,745,610 | 27,297,097 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-187 | ADMIN - 07600 | BVAP | EEM - RI | 3,551,815 | 103,096 | 3,448,719 | 18,714,363 | 5,395,310 | 7,164,392 | -527,668 | 30,746,397 | 27,297,677 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-297 | MTRPOOL - 00626 | BVAP | EEM - RI | 3,552,038 | 103,112 | 3,448,926 | 18,714,881 | 5,395,660 | 7,164,392 | -527,749 | 30,747,184 | 27,298,257 | 8.92 | 3.80 | 1.9 |
| Motors | MTR-284 | MTRPOOL - 00605 | BVAP | EEM - RI | 3,552,261 | 103,128 | 3,449,133 | 18,715,399 | 5,396,010 | 7,164,392 | -527,830 | 30,747,971 | 27,298,838 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-272 | FUELDSP - 00950 | BVAP | EEM - RI | 3,552,484 | 103,144 | 3,449,340 | 18,715,918 | 5,396,360 | 7,164,392 | -527,911 | 30,748,758 | 27,299,418 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 285 | MTRPOOL - 00605 | BVAP | EEM - RI | 3,552,707 | 103,160 | 3,449,547 | 18,716,436 | 5,396,709 | 7,164,392 | -527,992 | 30,749,545 | 27,299,998 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-265 | DINING - 00447 | BVAP | EEM - RI | 3,552,930 | 103,176 | 3,449,754 | 18,716,954 | 5,397,059 | 7,164,392 | -528,073 | 30,750,332 | 27,300,578 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-287 | MTRPOOL - 00605 | BVAP | EEM - RI | 3,553,153 | 103,192 | 3,449,961 | 18,717,473 | 5,397,409 | 7,164,392 | -528,154 | 30,751,119 | 27,301,158 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-295 | MTRPOOL - 00621 | BVAP | EEM - RI | 3,553,376 | 103,208 | 3,450,168 | 18,717,991 | 5,397,759 | 7,164,392 | 528,235 | 30,751,906 | 27,301,738 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 314 | MTRPOOL - 00847 | BVAP | EEM - RI | 3,553,599 | 103,224 | 3,450,375 | 18,718,509 | 5,398,109 | 7,164,392 | -528,316 | 30,752,694 | 27,302,318 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-288 | MTRPOOL - 00608 | BVAP | EEM - RI | 3,553,822 | 103,240 | 3,450,582 | 18,719,028 | 5,398,458 | 7,164,392 | 528,397 | 30,753,481 | 27,302,898 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-289 | MTRPOOL - 00608 | BVAP | EEM - RI | 3,554,045 | 103,256 | 3,450,789 | 18,719,546 | 5,398,808 | 7,164,392 | 528,478 | 30,754,268 | 27,303,478 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 293 | MTRPOOL - 00620 | BVAP | EEM - RI | 3,554,268 | 103,272 | 3,450,996 | 18,720,064 | 5,399,158 | 7,164,392 | -528,560 | 30,755,055 | 27,304,058 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-290 | MTRPOOL - 00612 | BVAP | EEM - RI | 3,554,491 | 103,288 | 3,451,203 | 18,720,583 | 5,399,508 | 7,164,392 | -528,641 | 30,755,842 | 27,304,638 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 299 | MTRPOOL - 00642 | BVAP | EEM - RI | 3,554,714 | 103,304 | 3,451,410 | 18,721,101 | 5,399,858 | 7,164,392 | -528,722 | 30,756,629 | 27,305,219 | 8.91 | 3.80 | 1.9 |
| Motors | MTR-316 | MTRPOOL - 00850 | BVAP | EEM - RI | 3,554,937 | 103,320 | 3,451,617 | 18,721,619 | 5,400,207 | 7,164,392 | -528,803 | 30,757,416 | 27,305,799 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 271 | FUELDSP - 00836 | BVAP | EEM - RI | 3,555,160 | 103,336 | 3,451,824 | 18,722,138 | 5,400,557 | 7,164,392 | 528,884 | 30,758,203 | 27,306,379 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 315 | MTRPOOL - 00847 | BVAP | EEM - RI | 3,555,383 | 103,352 | 3,452,031 | 18,722,656 | 5,400,907 | 7,164,392 | 528,965 | 30,758,990 | 27,306,959 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 302 | MTRPOOL - 00650 | BVAP | EEM - RI | 3,555,606 | 103,368 | 3,452,238 | 18,723,174 | 5,401,257 | 7,164,392 | 529,046 | 30,759,777 | 27,307,539 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 247 | CLINIC - 00245 | BVAP | EEM - RI | 3,555,829 | 103,384 | 3,452,445 | 18,723,693 | 5,401,607 | 7,164,392 | 529,127 | 30,760,564 | 27,308,119 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 268 | DINING 00468 | BVAP | EEM - RI | 3,557,167 | 103,480 | 3,453,687 | 18,726,803 | 5,403,705 | 7,164,392 | 529,613 | 30,765,287 | 27,311,600 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 135 | ADMIN 00452 | BVAP | EEM - RI | 3,558,505 | 103,576 | 3,454,929 | 18,729,913 | 5,405,804 | 7,164,392 | 530,100 | 30,770,010 | 27,315,080 | 8.91 | 3.80 | 1.9 |
| Motors | MTR 257 | DGR 00430 | BVAP | EEM - RI | 3,559,843 | 103,672 | 3,456,171 | 18,733,023 | 5,407,903 | 7,164,392 | 530,586 | 30,774,732 | 27,318,561 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 170 | ADMIN - 00564 | BVAP | EEM - RI | 3,560,512 | 103,720 | 3,456,792 | 18,734,578 | 5,408,952 | 7,164,392 | 530,829 | 30,777,093 | 27,320,301 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 120 | ADMIN - 00426 | BVAP | EEM - RI | 3,561,181 | 103,768 | 3,457,413 | 18,736,133 | 5,410,002 | 7,164,392 | 531,072 | 30,779,455 | 27,322,041 | 8.90 | 3.80 | 1.9 |
| Motors | MTR-165 | ADMIN 00544 | BVAP | EEM - RI | 3,561,850 | 103,816 | 3,458,034 | 18,737,688 | 5,411,051 | 7,164,392 | 531,315 | 30,781,816 | 27,323,781 | 8.90 | 3.80 | 1.9 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 312 | MTRPOOL - 00840 | BVAP | EEM RI | 3,562,519 | 103,864 | 3,458,655 | 18,739,243 | 5,412,100 | 7,164,392 | 531,559 | 30,784,177 | 27,325,522 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 127 | ADMIN - 00439 | BVAP | EEM RI | 3,563,188 | 103,912 | 3,459,276 | 18,740,798 | 5,413,150 | 7,164,392 | -531,802 | 30,786,538 | 27,327,262 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 307 | MTRPOOL - 00830 | BVAP | EEM RI | 3,563,857 | 103,960 | 3,459,897 | 18,742,353 | 5,414,199 | 7,164,392 | 532,045 | 30,788,900 | 27,329,002 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 123 | ADMIN - 00433 | BVAP | EEM RI | 3,564,526 | 104,008 | 3,460,518 | 18,743,908 | 5,415,249 | 7,164,392 | 532,288 | 30,791,261 | 27,330,743 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 185 | ADMIN - 06201 | BVAP | EEM RI | 3,565,195 | 104,056 | 3,461,139 | 18,745,464 | 5,416,298 | 7,164,392 | 532,531 | 30,793,622 | 27,332,483 | 8.90 | 3.80 | 1.9 |
| Motors | MTR 98 | ADMIN - 00101 | BVAP | EEM RI | 3,565,641 | 104,088 | 3,461,553 | 18,746,513 | 5,417,006 | 7,164,392 | 532,720 | 30,795,190 | 27,333,637 | 8.90 | 3.79 | 1.9 |
| Motors | MTR-334 | OTHER - 00992 | BVAP | EEM RI | 3,566,979 | 104,184 | 3,462,795 | 18,749,660 | 5,419,130 | 7,164,392 | 533,288 | 30,799,894 | 27,337,099 | 8.89 | 3.79 | 1.9 |
| Heating | 3 | HANGAR - BD008 | Unit Heaters | Radiant Heat - RI | 3,567,302 | 104,200 | 3,463,002 | 18,750,185 | 5,419,484 | 7,164,392 | 533,382 | 30,800,678 | 27,337,676 | 8.89 | 3.79 | 1.9 |
| Motors | MTR 339 | PLT-BLDG - 00263 | BVAP | EEM - RI | 3,576,382 | 104,200 | 3,472,182 | 18,782,049 | 5,421,613 | 7,164,392 | 532,672 | 30,835,383 | 27,363,200 | 8.88 | 3.78 | 1.9 |
| Motors | MTR 338 | PLT-BLDG - 00263 | BVAP | EEM RI | 3,576,828 | 104,232 | 3,472,596 | 18,783,105 | 5,422,325 | 7,164,392 | 532,874 | 30,836,947 | 27,364,351 | 8.88 | 3.78 | 1.9 |
| Heating | 19 | MTRPOOL - 00650 | Unit Heaters | Radiant Heat - RI | 3,577,051 | 104,248 | 3,472,803 | 18,783,632 | 5,422,681 | 7,164,392 | 532,975 | 30,837,730 | 27,364,927 | 8.88 | 3.78 | 1.9 |
| Motors | PMTR-84 | PUMP - 18005 | PMPMTR | EEM RI | 3,579,171 | 104,248 | 3,474,923 | 18,789,112 | 5,423,114 | 7,164,392 | 530,919 | 30,845,699 | 27,370,776 | 8.88 | 3.76 | 1.9 |
| Motors | MTR 420 | ADMIN - 00439 | Fan Motor | EEM RI | 3,586,451 | 104,748 | 3,481,703 | 18,807,205 | 5,433,218 | 7,164,392 | 533,700 | 30,871,115 | 27,389,411 | 8.87 | 3.75 | 1.9 |
| Motors | MTR 419 | ADMIN - 00433 | Fan Motor | EEM - RI | 3,586,638 | 104,748 | 3,481,890 | 18,807,727 | 5,433,464 | 7,164,392 | 533,768 | 30,871,815 | 27,389,925 | 8.87 | 3.75 | 1.9 |
| Lighting | OS MT 56 | MT Copy Room | T8 Lighting | T8 + Occupancy Controls - RI | 3,586,825 | 104,748 | 3,482,077 | 18,808,250 | 5,433,709 | 7,164,392 | 533,835 | 30,872,516 | 27,390,438 | 8.87 | 3.75 | 1.9 |
| DHW & A/C | 19 | 00237 | AIR CONDITIONER | Install Desuperheater - RI | 3,591,361 | 105,013 | 3,486,349 | 18,820,885 | 5,433,709 | 7,167,643 | 533,835 | 30,888,402 | 27,402,053 | 8.86 | 3.72 | 1.9 |
| Heating | 2 | HANGAR - BD007 | Unit Heaters | Radiant Heat - RI | 3,593,214 | 105,013 | 3,488,201 | 18,824,346 | 5,434,812 | 7,166,782 | 534,674 | 30,895,267 | 27,407,066 | 8.86 | 3.71 | 1.9 |
| Heating | 4 | HANGAR - BD009 | Unit Heaters | Radiant Heat - RI | 3,606,454 | 105,013 | 3,500,441 | 18,863,797 | 5,441,651 | 7,166,782 | 533,728 | 30,940,503 | 27,440,062 | 8.84 | 3.70 | 1.9 |
| Heating | 42 | SHOP HDSD8 | Unit Heaters | Radiant Heat - RI | 3,617,694 | 105,013 | 3,512,681 | 18,907,247 | 5,444,491 | 7,166,782 | -532,781 | 30,985,739 | 27,473,059 | 8.82 | 3.70 | 2.0 |
| DHW & A/C | 30 | 00857 | Chiller-air cooled | Install Desuperheater - RI | 3,629,174 | 105,013 | 3,524,161 | 18,945,159 | 5,444,491 | 7,166,782 | -528,314 | 31,028,118 | 27,503,957 | 8.80 | 3.69 | 2.0 |
| Wells | 1 | | Well Pumps | Add New 500 kgal Tank - RI | 3,632,859 | 105,013 | 3,527,846 | 18,947,479 | 5,458,099 | 7,165,921 | -529,984 | 31,041,515 | 27,513,669 | 8.80 | 3.64 | 2.0 |
| Motors | PMTR 67 | PLT-BLDG - 00253 | PMPMTR | EEM RI | 3,843,359 | 105,013 | 3,738,346 | 19,389,778 | 5,733,956 | 7,161,616 | 478,853 | 31,806,497 | 28,068,151 | 8.51 | 3.61 | 2.0 |
| Motors | PMTR 91 | PUMP 00042 | PMPMTR | EEM - RI | 3,844,223 | 105,083 | 3,739,140 | 19,392,168 | 5,734,769 | 7,161,616 | 479,171 | 31,809,381 | 28,070,241 | 8.51 | 3.63 | 2.0 |
| Motors | PMTR 90 | PUMP 00044 | PMPMTR | EEM - RI | 3,845,370 | 105,173 | 3,740,197 | 19,395,125 | 5,736,030 | 7,161,616 | -479,570 | 31,813,200 | 28,073,003 | 8.51 | 3.61 | 2.0 |
| Motors | MTR 183 | ADMIN - 00988 | BVAP | EEM RI | 3,846,517 | 105,263 | 3,741,254 | 19,398,082 | 5,737,290 | 7,161,616 | 479,969 | 31,817,050 | 28,075,766 | 8.50 | 3.61 | 2.0 |
| Central Chillers | 2 | | Existing Chillers | Connect B/253 & B/263, Add TES RI | 3,846,724 | 105,278 | 3,741,446 | 19,398,509 | 5,737,579 | 7,161,616 | 479,993 | 31,817,711 | 28,076,265 | 8.50 | 3.60 | 2.0 |
| Motors | MTR-14 | CLUB - 00202 | COMPMTR | EEM - RI | 4,278,724 | 183,278 | 4,095,446 | 20,146,674 | 6,262,431 | 7,135,785 | 479,993 | 33,054,897 | 28,969,451 | 8.07 | 3.52 | 2.1 |
| Motors | MTR 15 | CLUB 00202 | COMPMTR | EEM - RI | 4,278,911 | 183,278 | 4,095,633 | 20,147,153 | 6,262,676 | 7,135,785 | 480,061 | 33,055,554 | 28,969,921 | 8.07 | 3.51 | 2.1 |
| Motors | MTR 17 | CLUB - 00202 | COMPMTR | EEM - RI | 4,279,659 | 183,278 | 4,096,381 | 20,149,070 | 6,263,658 | 7,135,785 | 480,330 | 33,058,182 | 28,971,801 | 8.07 | 3.51 | 2.1 |
| Motors | MTR-16 | CLUB - 00202 | COMPMTR | EEM - RI | 4,280,407 | 183,278 | 4,097,129 | 20,150,986 | 6,264,640 | 7,135,785 | 480,600 | 33,060,811 | 28,973,682 | 8.07 | 3.51 | 2.1 |
| DHW & A/C | 44 | 20001 | AIR CONDITIONER | Install Desuperheater - RI | 4,280,781 | 183,278 | 4,097,503 | 20,151,945 | 6,265,131 | 7,135,785 | 480,735 | 33,062,125 | 28,974,622 | 8.07 | 3.51 | 2.1 |
| Motors | MTR 42 | CLUB 00202 | CONDMTR | EEM - RI | 4,283,733 | 183,278 | 4,100,455 | 20,154,227 | 6,275,317 | 7,134,924 | 482,072 | 33,082,416 | 28,981,960 | 8.07 | 3.49 | 2.1 |
| Motors | MTR 184 | ADMIN - 00988 | BVAP | EEM - RI | 4,283,920 | 183,278 | 4,100,642 | 20,154,701 | 6,275,582 | 7,134,924 | 482,139 | 33,083,067 | 28,982,425 | 8.07 | 3.49 | 2.1 |
| Motors | MTR-301 | MTRPOOL - 00646 | BVAP | EEM - RI | 4,284,334 | 183,308 | 4,101,026 | 20,155,587 | 6,276,180 | 7,134,924 | 482,290 | 33,084,402 | 28,983,376 | 8.07 | 3.47 | 2.1 |
| Motors | PMTR 37 | GROCERY - 00920 | PMPMTR | EEM - RI | 4,284,748 | 183,338 | 4,101,410 | 20,156,473 | 6,276,778 | 7,134,924 | 482,440 | 33,085,736 | 28,984,326 | 8.07 | 3.47 | 2.1 |
| Motors | MTR-181 | ADMIN - 00988 | BVAP | EEM - RI | 4,284,955 | 183,353 | 4,101,602 | 20,156,916 | 6,277,077 | 7,134,924 | 482,515 | 33,086,403 | 28,984,801 | 8.07 | 3.47 | 2.1 |
| Motors | PMTR 35 | GROCERY - 00920 | PMPMTR | EEM - RI | 4,285,162 | 183,368 | 4,101,794 | 20,157,359 | 6,277,377 | 7,134,924 | 482,590 | 33,087,070 | 28,985,276 | 8.07 | 3.47 | 2.1 |
| DHW & A/C | 28 | 00488 | PKG A/C | Install Desuperheater RI | 4,285,369 | 183,383 | 4,101,986 | 20,157,803 | 6,277,676 | 7,134,924 | 482,665 | 33,087,737 | 28,985,751 | 8.07 | 3.47 | 2.1 |
| Motors | MTR-456 | MTRPOOL - 00857 | Fan Motor | EEM - RI | 4,289,054 | 183,383 | 4,105,671 | 20,159,396 | 6,291,284 | 7,134,063 | -484,334 | 33,100,409 | 28,994,737 | 8.06 | 3.44 | 2.1 |
| Motors | PMTR-83 | PUMP - 18005 | PMPMTR | EEM - RI | 4,290,451 | 183,503 | 4,106,948 | 20,163,023 | 6,292,517 | 7,134,063 | 484,815 | 33,104,788 | 28,997,840 | 8.06 | 3.43 | 2.1 |
| Motors | MTR-37 | WHS CLD - 00862 | COMPMTR | EEM - RI | 4,297,731 | 184,003 | 4,113,728 | 20,178,389 | 6,302,622 | 7,134,063 | 487,596 | 33,127,478 | 29,013,750 | 8.05 | 3.35 | 2.1 |
| Motors | PMTR-17e | BRE/ADM - 00273 | PMPMTR | VSD & EEM - RI | 4,297,918 | 184,003 | 4,113,915 | 20,178,836 | 6,302,867 | 7,134,063 | 487,663 | 33,128,102 | 29,014,187 | 8.05 | 3.34 | 2.1 |
| Motors | PMTR-16e | BRE/ADM - 00273 | PMPMTR | VSD & EEM - RI | 4,305,950 | 184,405 | 4,121,545 | 20,204,836 | 6,304,916 | 7,133,718 | 490,021 | 33,153,449 | 29,031,904 | 8.04 | 3.32 | 2.1 |
| Motors | PMTR-15e | BRE/ADM - 00273 | PMPMTR | VSD & EEM RI | 4,313,982 | 184,807 | 4,129,175 | 20,230,837 | 6,306,964 | 7,133,374 | 492,379 | 33,178,795 | 29,049,621 | 8.04 | 3.32 | 2.1 |
| Heating | 21 | MTRPOOL - 00945 | Unit Heaters | Radiant Heat - RI | 4,317,998 | 185,008 | 4,132,990 | 20,243,837 | 6,307,988 | 7,133,202 | 493,558 | 33,191,470 | 29,058,480 | 8.03 | 3.32 | 2.1 |
| Motors | PMTR-19 | BRE/ADM - 00099 | PMPMTR | EEM - RI | 4,319,538 | 185,008 | 4,134,530 | 20,248,046 | 6,308,300 | 7,133,202 | 492,966 | 33,196,581 | 29,062,051 | 8.03 | 3.32 | 2.1 |
| Motors | MTR-13 | WHS - 00552 | AIRCOMP | EEM - RI | 4,319,725 | 185,008 | 4,134,717 | 20,248,405 | 6,308,627 | 7,133,202 | 493,034 | 33,197,200 | 29,062,483 | 8.03 | 3.31 | 2.1 |
| Motors | PMTR-7e | ADMIN - 00985 | PMPMTR | VSD & EEM - RI | 4,320,139 | 185,038 | 4,135,101 | 20,249,089 | 6,309,363 | 7,133,202 | 493,184 | 33,198,471 | 29,063,370 | 8.03 | 3.31 | 2.1 |
| DHW & A/C | 1 | 00013 | CHILLER air cooled | Install Desuperheater - RI | 4,324,179 | 185,222 | 4,138,957 | 20,262,654 | 6,310,120 | 7,132,857 | 494,404 | 33,211,228 | 29,072,370 | 8.02 | 3.31 | 2.1 |
| Motors | PMTR-18 | BRE/ADM - 00110 | PMPMTR | EEM - RI | 4,327,498 | 185,222 | 4,142,276 | 20,264,065 | 6,322,027 | 7,131,996 | 495,008 | 33,222,181 | 29,079,905 | 8.02 | 3.30 | 2.1 |
| Motors | PMTR-111 | PUMP - 05997 | PMPMTR | EEM - RI | 4,327,685 | 185,222 | 4,142,463 | 20,264,420 | 6,322,351 | 7,131,996 | 495,075 | 33,222,793 | 29,080,330 | 8.02 | 3.27 | 2.1 |
| DHW & A/C | 32 | 00905 | PKG UNIT | Install Desuperheater - RI | 4,333,480 | 185,672 | 4,147,808 | 20,275,961 | 6,330,416 | 7,131,996 | 498,159 | 33,240,215 | 29,092,407 | 8.01 | 3.26 | 2.1 |
| Motors | PMTR 65 | PLT-BLDG - 00253 | PMPMTR | EEM - RI | 4,334,782 | 185,672 | 4,149,110 | 20,279,053 | 6,332,968 | 7,131,135 | 498,749 | 33,244,407 | 29,095,297 | 8.01 | 3.22 | 2.1 |
| Motors | PMTR 69 | PLT-BLDG - 00263 | PMPMTR | EEM - RI | 4,335,886 | 185,752 | 4,150,134 | 20,281,792 | 6,333,900 | 7,131,135 | 499,140 | 33,247,688 | 29,097,554 | 8.01 | 3.20 | 2.1 |
| Envelope | MWR | MWR | | Weatherization RI | 4,336,990 | 185,832 | 4,151,158 | 20,284,532 | 6,334,831 | 7,131,135 | 499,530 | 33,250,968 | 29,099,810 | 8.01 | 3.19 | 2.2 |
| Motors | MTR 526 | Fam Housing | Heat System Fan | EEM - RI | 4,338,356 | 185,832 | 4,152,524 | 20,287,319 | 6,336,371 | 7,131,135 | 499,530 | 33,255,295 | 29,102,771 | 8.01 | 3.17 | 2.2 |
| Heating | 7 | MTRPOOL - 00681 | Unit Heaters | Radiant Heat - RI | 4,644,288 | 185,832 | 4,458,456 | 20,725,548 | 6,965,707 | 7,131,135 | 599,826 | 34,223,565 | 29,765,108 | 7.68 | 3.16 | 2.2 |
| Motors | PMTR-115 | PUMP - 00043 | PMPMTR | EEM - RI | 4,655,118 | 185,832 | 4,469,286 | 20,758,429 | 6,968,912 | 7,131,135 | -600,800 | 34,257,676 | 29,788,390 | 7.67 | 3.15 | 2.2 |
| Motors | PMTR 92 | PUMP - 00044 | PMPMTR | EEM - RI | 4,658,706 | 186,102 | 4,472,604 | 20,765,874 | 6,973,106 | 7,131,135 | 602,085 | 34,268,040 | 29,795,436 | 7.66 | 3.12 | 2.2 |
| Controls | MT-1 | | Thermostat | Night Setback - RI | 4,662,294 | 186,372 | 4,475,922 | 20,773,253 | 6,977,300 | 7,131,135 | 603,370 | 34,278,318 | 29,802,396 | 7.66 | 3.10 | 2.2 |
| Motors | PMTR 99 | PUMP - 00324 | PMPMTR | EEM - RI | 4,812,694 | 186,372 | 4,626,322 | 21,200,923 | 7,082,282 | 7,131,135 | -671,497 | 34,742,843 | 30,116,521 | 7.51 | 3.09 | 2.3 |
| Motors | PMTR-2e | ADMIN - 00988 | PMPMTR | EEM - RI | 4,813,841 | 186,462 | 4,627,379 | 21,203,289 | 7,083,542 | 7,131,135 | -671,896 | 34,746,071 | 30,118,691 | 7.51 | 3.05 | 2.3 |
| Heating | 40 | SHOP - HDSDT | Unit Heaters | Radiant Heat - RI | 4,814,330 | 186,497 | 4,627,833 | 21,204,216 | 7,084,168 | 7,131,135 | 672,075 | 34,747,445 | 30,119,612 | 7.51 | 3.03 | 2.3 |
| Motors | PMTR-60e | PLT-BLDG - 00263 | PMPMTR | VSD & EEM - RI | 4,833,450 | 186,497 | 4,646,953 | 21,258,812 | 7,084,168 | 7,131,135 | 669,629 | 34,804,486 | 30,157,532 | 7.49 | 2.98 | 2.3 |
| Heating | 8 | MTRPOOL - 00680 | Unit Heaters | Radiant Heat - RI | 4,839,364 | 186,756 | 4,653,008 | 21,275,493 | 7,086,561 | 7,130,963 | 671,496 | 34,821,521 | 30,168,513 | 7.48 | 2.81 | 2.3 |
| DHW & A/C | 6 | 00037 | AIR CONDITIONER | Install Desuperheater - RI | 4,850,594 | 186,756 | 4,663,838 | 21,304,676 | 7,088,765 | 7,130,963 | 672,471 | 34,851,933 | 30,188,095 | 7.47 | 2.81 | 2.3 |
| Heating | 36 | SHOP - 00357 | Unit Heaters | Radiant Heat - RI | 4,851,713 | 186,756 | 4,664,957 | 21,307,451 | 7,090,466 | 7,130,107 | -672,978 | 34,855,041 | 30,190,084 | 7.47 | 2.78 | 2.3 |
| Heating | 10 | MTRPOOL - 00626 | Unit Heaters | Radiant Heat - RI | 4,852,233 | 186,756 | 4,665,477 | 21,308,527 | 7,090,466 | 7,130,102 | -672,610 | 34,856,485 | 30,191,008 | 7.47 | 2.78 | 2.3 |
| Heating | 11 | MTRPOOL - 00623 | Unit Heaters | Radiant Heat - RI | 4,853,933 | 186,756 | 4,667,177 | 21,312,736 | 7,090,812 | 7,130,102 | -672,510 | 34,861,141 | 30,193,964 | 7.47 | 2.74 | 2.3 |
| Motors | PMTR-32 | DINING - 00254 | PMPMTR | EEM - RI | 4,855,633 | 186,756 | 4,668,877 | 21,316,945 | 7,091,159 | 7,130,102 | 672,409 | 34,865,796 | 30,196,919 | 7.47 | 2.74 | 2.3 |
| Motors | MTR 449 | GROCERY - 00920 | Fan Motor | EEM - RI | 4,855,840 | 186,771 | 4,669,069 | 21,317,166 | 7,091,527 | 7,130,102 | 672,484 | 34,866,311 | 30,197,242 | 7.47 | 2.68 | 2.3 |
| Motors | MTR-9 | MTRPOOL - 00873 | AIRCOMP | EEM RI | 4,857,237 | 186,891 | 4,670,346 | 21,319,792 | 7,092,760 | 7,130,102 | 672,965 | 34,869,689 | 30,199,343 | 7.47 | 2.65 | 2.3 |
| Motors | MTR-11 | PUMP - 00652 | AIRCOMP | EEM RI | 4,858,384 | 186,981 | 4,671,403 | 21,321,327 | 7,094,411 | 7,130,102 | -673,364 | 34,872,476 | 30,201,073 | 7.47 | 2.64 | 2.3 |
| Motors | PMTR 80 | PUMP - 05590 | PMPMTR | EEM - RI | 4,859,531 | 187,071 | 4,672,460 | 21,322,863 | 7,095,061 | 7,130,102 | -673,763 | 34,875,264 | 30,202,804 | 7.46 | 2.64 | 2.3 |
| Motors | PMTR-104 | PUMP - 00700 | PMPMTR | EEM - RI | 4,868,705 | 187,621 | 4,681,084 | 21,335,071 | 7,109,534 | 7,130,102 | 676,993 | 34,897,714 | 30,216,630 | 7.46 | 2.60 | 2.3 |
| DHW & A/C | 36 | 01313 | PKG UNIT | Install Desuperheater - RI | 4,872,293 | 187,891 | 4,684,402 | 21,342,005 | 7,112,490 | 7,130,102 | -678,257 | 34,906,340 | 30,221,938 | 7.45 | 2.60 | 2.3 |
| Heating | 18 | MTRPOOL - 00608 | Unit Heaters | Radiant Heat RI | 4,873,926 | 187,891 | 4,686,034 | 21,343,725 | 7,116,572 | 7,129,241 | -678,997 | 34,910,542 | 30,224,508 | 7.45 | 2.57 | 2.3 |
| Heating | 29 | MTRPOOL - 00941 | Unit Heaters | Radiant Heat - RI | 4,876,486 | 187,891 | 4,688,594 | 21,347,584 | 7,116,832 | 7,129,241 | -676,537 | 34,917,120 | 30,228,526 | 7.45 | 2.57 | 2.3 |
| Envelope | w/ SB win only | Concrete Block: w/ SB win only | | Weatherization - RI | 4,879,046 | 187,891 | 4,691,154 | 21,352,012 | 7,117,092 | 7,129,241 | -674,680 | 34,923,654 | 30,232,510 | 7.44 | 2.56 | 2.3 |
| Motors | MTR 22 | HOSPITL - 00166 | COMPMTR | EEM - RI | 4,883,241 | 187,891 | 4,695,349 | 21,358,853 | 7,120,889 | 7,129,241 | 674,680 | 34,934,333 | 30,238,984 | 7.44 | 2.54 | 2.3 |
| Motors | MTR 447 | GROCERY - 00920 | Fan Motor | EEM - RI | 4,883,730 | 187,926 | 4,695,803 | 21,359,792 | 7,121,305 | 7,129,241 | -674,858 | 34,935,480 | 30,239,677 | 7.44 | 2.53 | 2.3 |
| Motors | MTR 436a | CLINIC - 00171 | Fan Motor | EEM RI | 4,885,186 | 188,046 | 4,697,139 | 21,362,187 | 7,122,524 | 7,129,241 | -675,367 | 34,938,786 | 30,241,647 | 7.44 | 2.47 | 2.3 |
| Motors | MTR 450 | GROCERY - 00920 | Fan Motor | EEM RI | 4,885,914 | 188,106 | 4,697,807 | 21,363,685 | 7,123,134 | 7,129,241 | -675,621 | 34,940,439 | 30,242,632 | 7.44 | 2.47 | 2.3 |
| Motors | MTR 481 | REC - 00905 | Fan Motor | EEM - RI | 4,886,642 | 188,166 | 4,698,475 | 21,364,983 | 7,123,743 | 7,129,241 | 675,875 | 34,942,092 | 30,243,616 | 7.44 | 2.47 | 2.3 |
| | | | | | 4,887,194 | 188,206 | 4,698,987 | 21,365,974 | 7,124,509 | 7,129,241 | 676,070 | 34,943,354 | 30,244,367 | 7.44 | 2.47 | 2.3 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| Bad Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR 477 | PUMP - 00324 | Fan Motor | EFM - RI | 4,887,745 | 188,246 | 4,699,499 | 21,366,966 | 7,124,675 | 7,129,241 | 676,265 | 34,944,616 | 30,245,117 | 7 44 | 2 47 | 2 1 |
| Motors | MTR 467a | MWR - 01322 | Fan Motor | EFM - RI | 4,888,235 | 188,281 | 4,699,953 | 21,367,934 | 7,125,004 | 7,129,241 | 676,444 | 34,945,735 | 30,245,781 | 7 44 | 2 46 | 2 1 |
| Motors | PMTR 59e | PLT-BLDG - 00253 | PMPMTR | VSD & EFM RI | 4,896,267 | 188,612 | 4,707,655 | 21,387,554 | 7,127,052 | 7,128,897 | 678,802 | 34,964,701 | 30,257,047 | 7 43 | 2 46 | 2 1 |
| Motors | MTR 524a | DOR - 00308 | VENTLTR | EFM RI | 4,896,819 | 188,652 | 4,708,167 | 21,388,509 | 7,127,501 | 7,128,897 | 678,958 | 34,965,948 | 30,257,782 | 7 43 | 2 44 | 2 1 |
| Motors | MTR-418a | CLINIC - 00171 | Fan Motor | EFM RI | 4,898,613 | 188,787 | 4,709,826 | 21,391,655 | 7,128,979 | 7,128,897 | 679,590 | 34,969,941 | 30,260,115 | 7 42 | 2 41 | 2 1 |
| DHW & A/C | 34 | 00983 | PKG A/C | Install Desuperheater - RI | 4,900,465 | 188,787 | 4,711,678 | 21,392,708 | 7,134,082 | 7,128,036 | 680,429 | 34,974,396 | 30,262,719 | 7 42 | 2 41 | 2 1 |
| Motors | PMTR 85 | PUMP - 18005 | PMPMTR | EFM - RI | 4,907,745 | 189,287 | 4,718,458 | 21,401,639 | 7,144,186 | 7,128,036 | 681,210 | 34,990,650 | 30,272,192 | 7 42 | 2 40 | 2 1 |
| Motors | PMTR 4e | ADMIN - 00928 | PMPMTR | VSD & EFM RI | 4,909,702 | 189,353 | 4,720,349 | 21,406,328 | 7,144,812 | 7,127,863 | 683,832 | 34,995,171 | 30,274,822 | 7 41 | 2 39 | 2 1 |
| Motors | PMTR 77 | PUMP - 00324 | PMPMTR | EFM - RI | 4,910,849 | 189,443 | 4,721,406 | 21,409,012 | 7,145,048 | 7,127,863 | 684,231 | 34,997,692 | 30,276,287 | 7 41 | 2 39 | 2 1 |
| Motors | PMTR 105 | PUMP - 00652 | PMPMTR | EFM - RI | 4,911,338 | 189,478 | 4,721,860 | 21,409,822 | 7,145,494 | 7,127,863 | 684,409 | 34,998,769 | 30,276,910 | 7 41 | 2 37 | 2 1 |
| DHW & A/C | 29 | 00826 | PKG UNIT | Install Desuperheater RI | 4,912,714 | 189,478 | 4,723,235 | 21,411,673 | 7,148,385 | 7,127,002 | 685,032 | 35,002,028 | 30,278,793 | 7 41 | 2 37 | 2 1 |
| HVAC | MT 3 | | Heat pump | 2-speed compressor RI | 5,153,220 | 189,478 | 4,963,742 | 21,754,664 | 7,483,072 | 7,127,002 | 793,975 | 35,570,763 | 30,607,022 | 7 17 | 2 36 | 2 4 |
| Heating | 15 | MTRPOOL 00605 | Unit Heaters | Radiant Heat RI | 5,156,280 | 189,478 | 4,966,802 | 21,760,276 | 7,483,384 | 7,127,002 | 792,784 | 35,577,878 | 30,611,076 | 7 16 | 2 33 | 2 4 |
| Motors | PMTR 58 | PLT-BLDG - 00109 | PMPMTR | EFM - RI | 5,156,487 | 189,493 | 4,966,994 | 21,760,497 | 7,483,683 | 7,127,002 | 792,859 | 35,578,324 | 30,611,330 | 7 16 | 2 32 | 2 4 |
| Motors | MTR-19 | GROCERY - 00920 | COMPMTR | EFM - RI | 5,157,943 | 189,613 | 4,968,330 | 21,762,877 | 7,484,902 | 7,127,002 | 793,367 | 35,581,414 | 30,613,085 | 7 16 | 2 31 | 2 4 |
| Motors | MTR 20 | GROCERY - 00920 | COMPMTR | EFM - RI | 5,158,671 | 189,673 | 4,968,998 | 21,764,067 | 7,485,512 | 7,127,002 | 793,621 | 35,582,960 | 30,613,962 | 7 16 | 2 31 | 2 4 |
| Motors | MTR-18 | GROCERY - 00920 | COMPMTR | EFM - RI | 5,159,399 | 189,733 | 4,969,666 | 21,765,257 | 7,486,121 | 7,127,002 | 793,876 | 35,584,505 | 30,614,839 | 7 16 | 2 31 | 2 4 |
| Motors | PMTR 24 | BRK/ADM - 00273 | PMPMTR | EFM - RI | 5,159,606 | 189,748 | 4,969,858 | 21,765,390 | 7,486,506 | 7,127,002 | 793,951 | 35,584,948 | 30,615,090 | 7 16 | 2 31 | 2 4 |
| Motors | MTR-21 | GROCERY - 00920 | COMPMTR | EFM - RI | 5,168,990 | 190,428 | 4,978,562 | 21,780,850 | 7,494,425 | 7,127,002 | 797,270 | 35,605,007 | 30,626,445 | 7 15 | 2 30 | 2 4 |
| Motors | MTR-329 | MWR 01322 | HVAP | EFM - RI | 5,169,177 | 190,428 | 4,978,749 | 21,781,145 | 7,494,624 | 7,127,002 | 797,338 | 35,605,414 | 30,626,685 | 7 15 | 2 29 | 2 4 |
| Heating | 12 | MTRPOOL - 00621 | Unit Heaters | Radiant Heat - RI | 5,172,237 | 190,428 | 4,981,809 | 21,786,625 | 7,494,936 | 7,127,002 | 796,146 | 35,612,417 | 30,630,609 | 7 15 | 2 28 | 2 4 |
| Motors | MTR 49 | WHS CLD - 00862 | CONDMTR | EFM - RI | 5,172,424 | 190,428 | 4,981,996 | 21,786,889 | 7,495,166 | 7,127,002 | 796,214 | 35,612,844 | 30,630,848 | 7 15 | 2 28 | 2 4 |
| Motors | MTR-43 | GROCERY - 00920 | CONDMTR | EFM - RI | 5,173,880 | 190,548 | 4,983,332 | 21,789,269 | 7,496,309 | 7,127,002 | 796,722 | 35,615,858 | 30,632,527 | 7 15 | 2 26 | 2 4 |
| Motors | PMTR-26 | CLINIC - 00171 | PMPMTR | EFM - RI | 5,176,174 | 190,728 | 4,985,446 | 21,792,305 | 7,498,830 | 7,127,002 | 797,550 | 35,620,618 | 30,635,172 | 7 14 | 2 25 | 2 4 |
| Motors | PMTR 27 | CLINIC - 00171 | PMPMTR | EFM - RI | 5,178,468 | 190,908 | 4,987,560 | 21,795,341 | 7,501,351 | 7,127,002 | 798,317 | 35,625,377 | 30,637,817 | 7 14 | 2 25 | 2 4 |
| Envelope | MT-5 | | Block BDPM | Reflective roof - RI | 5,402,388 | 190,908 | 5,211,480 | 22,071,126 | 7,727,133 | 7,127,002 | 798,317 | 36,126,944 | 30,915,465 | 6 93 | 2 24 | 2 5 |
| Motors | PMTR-78 | PUMP - 05590 | PMPMTR | EFM - RI | 5,411,562 | 191,458 | 5,220,104 | 22,078,635 | 7,738,719 | 7,127,002 | 799,029 | 36,145,327 | 30,925,223 | 6 92 | 2 13 | 2 5 |
| Motors | PMTR 53a | PLT-BLDG - 00263 | PMPMTR | EFM - RI | 5,413,356 | 191,593 | 5,221,763 | 22,080,407 | 7,741,111 | 7,127,002 | 799,661 | 36,148,860 | 30,927,097 | 6 92 | 2 13 | 2 5 |
| DHW & A/C | 23 | 00255 | PKG UNIT | Install Desuperheater RI | 5,415,047 | 191,593 | 5,223,454 | 22,081,278 | 7,745,466 | 7,126,141 | -800,427 | 36,152,458 | 30,929,005 | 6 92 | 2 13 | 2 5 |
| DHW & A/C | 25 | 00258 | PKG UNIT | Install Desuperheater - RI | 5,416,738 | 191,593 | 5,225,145 | 22,082,148 | 7,749,821 | 7,125,280 | 801,193 | 36,156,057 | 30,930,912 | 6 92 | 2 13 | 2 5 |
| Heating | 27 | MTRPOOL - 00893 | Unit Heaters | Radiant Heat - RI | 5,419,798 | 191,593 | 5,228,205 | 22,088,067 | 7,750,132 | 7,125,280 | 800,956 | 36,162,523 | 30,934,319 | 6 92 | 2 11 | 2 5 |
| Heating | 16 | MTRPOOL - 00850 | Unit Heaters | Radiant Heat - RI | 5,422,858 | 191,593 | 5,231,265 | 22,093,547 | 7,750,444 | 7,125,280 | 800,285 | 36,168,986 | 30,937,721 | 6 91 | 2 11 | 2 5 |
| Heating | 14 | MTRPOOL - 00620 | Unit Heaters | Radiant Heat - RI | 5,425,918 | 191,593 | 5,234,325 | 22,099,027 | 7,750,755 | 7,125,280 | 799,615 | 36,175,448 | 30,941,123 | 6 91 | 2 11 | 2 5 |
| Motors | MTR-92 | HOTEL - 00904 | COOL | EFM - RI | 5,426,105 | 191,593 | 5,234,512 | 22,099,297 | 7,750,956 | 7,125,280 | 799,694 | 36,175,840 | 30,941,329 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-87 | HOSPITL - 00165 | COOL | EFM - RI | 5,426,292 | 191,593 | 5,234,699 | 22,099,568 | 7,751,158 | 7,125,280 | 799,773 | 36,176,233 | 30,941,534 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-93 | HOTEL - 00906 | COOL | EFM - RI | 5,426,479 | 191,593 | 5,234,886 | 22,099,838 | 7,751,359 | 7,125,280 | 799,852 | 36,176,625 | 30,941,740 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-91 | HOTEL - 00903 | COOL | EFM - RI | 5,426,666 | 191,593 | 5,235,073 | 22,100,108 | 7,751,561 | 7,125,280 | -799,931 | 36,177,018 | 30,941,945 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-86 | HOSPITL - 00166 | COOL | EFM - RI | 5,426,853 | 191,593 | 5,235,260 | 22,100,378 | 7,751,762 | 7,125,280 | 800,010 | 36,177,410 | 30,942,150 | 6 91 | 2 10 | 2 5 |
| Motors | MTR-88 | HOTEL - 00900 | COOL | EFM - RI | 5,427,040 | 191,593 | 5,235,447 | 22,100,648 | 7,751,964 | 7,125,280 | 800,090 | 36,177,803 | 30,942,356 | 6 91 | 2 10 | 2 5 |
| Motors | MTR 89 | HOTEL - 00901 | COOL | EFM - RI | 5,427,227 | 191,593 | 5,235,634 | 22,100,918 | 7,752,165 | 7,125,280 | 800,169 | 36,178,195 | 30,942,561 | 6 91 | 2 10 | 2 5 |
| Motors | MTR 90 | HOTEL - 00902 | COOL | EFM - RI | 5,427,414 | 191,593 | 5,235,821 | 22,101,188 | 7,752,367 | 7,125,280 | 800,248 | 36,178,587 | 30,942,767 | 6 91 | 2 10 | 2 5 |
| Heating | 6 | MTRPOOL - 00873 | Unit Heaters | Radiant Heat - RI | 5,454,894 | 191,593 | 5,263,301 | 22,162,008 | 7,756,097 | 7,125,280 | 807,176 | 36,236,209 | 30,972,909 | 6 88 | 2 10 | 2 5 |
| Motors | PMTR 107 | PUMP - 00636 | PMPMTR | EFM - RI | 5,458,482 | 191,863 | 5,266,619 | 22,163,409 | 7,762,923 | 7,125,280 | 808,465 | 36,240,147 | 30,976,528 | 6 88 | 2 09 | 2 5 |
| Lighting | OS MT-4b | MT Lunchroom | T8 Lighting | T8 + Occupancy Controls RI | 5,472,882 | 192,313 | 5,280,569 | 22,184,851 | 7,762,923 | 7,132,266 | 808,465 | 36,271,574 | 30,991,005 | 6 87 | 2 04 | 2 5 |
| DHW & A/C | 22 | 00255 | PKG UNIT | Install Desuperheater - RI | 5,474,514 | 192,313 | 5,282,201 | 22,185,667 | 7,767,005 | 7,131,405 | 809,205 | 36,274,872 | 30,992,671 | 6 87 | 2 02 | 2 5 |
| DHW & A/C | 24 | 00258 | PKG UNIT | Install Desuperheater - RI | 5,476,147 | 192,313 | 5,283,834 | 22,186,483 | 7,771,088 | 7,130,544 | 809,944 | 36,278,170 | 30,994,337 | 6 87 | 2 02 | 2 5 |
| Heating | 30 | MTRPOOL - 00825 | Unit Heaters | Radiant Heat - RI | 5,480,747 | 192,313 | 5,288,434 | 22,195,251 | 7,771,555 | 7,130,544 | 809,950 | 36,287,400 | 30,998,967 | 6 86 | 2 01 | 2 5 |
| Motors | MTR-2 | CLINIC - 00171 | AIRCOMP | EFM - RI | 5,482,475 | 192,453 | 5,290,022 | 22,197,091 | 7,773,533 | 7,130,544 | 810,586 | 36,290,582 | 31,000,560 | 6 86 | 2 00 | 2 5 |
| Motors | PMTR-79 | PUMP - 05590 | PMPMTR | EFM - RI | 5,491,649 | 193,003 | 5,298,646 | 22,203,989 | 7,787,006 | 7,130,544 | 813,817 | 36,307,722 | 31,009,076 | 6 85 | 1 99 | 2 5 |
| Heating | 31 | MTRPOOL - 00694 | Unit Heaters | Radiant Heat - RI | 5,500,829 | 193,003 | 5,307,826 | 22,220,561 | 7,787,940 | 7,130,544 | 813,107 | 36,325,939 | 31,018,113 | 6 84 | 1 98 | 2 5 |
| Envelope | MT-8 | | Single pane window | Shade Screens - SB side - RI | 5,505,967 | 193,985 | 5,312,982 | 22,232,562 | 7,792,433 | 7,130,544 | 819,423 | 36,336,116 | 31,023,134 | 6 84 | 1 97 | 2 5 |
| Envelope | | Metal Siding | | Window Screen - SB side - RI | 5,519,607 | 196,007 | 5,323,600 | 22,257,274 | 7,801,686 | 7,130,544 | -832,431 | 36,357,073 | 31,033,473 | 6 83 | 1 97 | 2 5 |
| Envelope | | Concrete Block: Barracks | | Window Screen - SB side - RI | 5,524,380 | 196,771 | 5,327,609 | 22,266,607 | 7,805,180 | 7,130,544 | 837,344 | 36,364,987 | 31,037,378 | 6 83 | 1 97 | 2 5 |
| Envelope | | Concrete Block: Misc post 1980 | | Window Screen - SB side - RI | 5,526,114 | 197,048 | 5,329,065 | 22,269,996 | 7,805,449 | 7,130,544 | 839,128 | 36,367,861 | 31,038,796 | 6 82 | 1 97 | 2 5 |
| Envelope | | MOTORPOOL | | Window Screen - SB side - RI | 5,527,355 | 197,247 | 5,330,108 | 22,272,423 | 7,807,358 | 7,130,544 | 840,406 | 36,369,920 | 31,039,812 | 6 82 | 1 97 | 2 5 |
| Envelope | | TRAINING | | Window Screen - SB side - RI | 5,527,758 | 197,312 | 5,330,447 | 22,273,211 | 7,807,653 | 7,130,544 | -840,820 | 36,370,588 | 31,040,141 | 6 82 | 1 97 | 2 5 |
| Envelope | Family Housing | Southeast, 1963 Vintage | | Window Screen - RI | 5,595,261 | 208,112 | 5,387,149 | 22,405,184 | 7,857,066 | 7,130,544 | -910,288 | 36,482,506 | 31,095,356 | 6 77 | 1 97 | 2 5 |
| Envelope | Family Housing | Southeast, 1983 Vintage | | Window Screen - RI | 5,658,339 | 218,204 | 5,440,135 | 22,528,505 | 7,903,239 | 7,130,544 | -975,202 | 36,587,086 | 31,146,952 | 6 73 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1961 Vintage | | Window Screen - RI | 5,720,010 | 228,072 | 5,491,938 | 22,649,076 | 7,948,383 | 7,130,544 | -1,038,668 | 36,689,335 | 31,197,397 | 6 68 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1984 Vintage | | Window Screen - RI | 5,767,446 | 235,662 | 5,531,785 | 22,741,817 | 7,983,107 | 7,130,544 | -1,087,485 | 36,767,983 | 31,236,198 | 6 65 | 1 97 | 2 6 |
| Envelope | Family Housing | Southeast, 1964, 1965, 1966 Vintage | | Window Screen - RI | 5,808,642 | 242,253 | 5,566,389 | 22,822,357 | 8,013,263 | 7,130,544 | -1,129,880 | 36,836,284 | 31,269,895 | 6 62 | 1 97 | 2 6 |
| Envelope | | U Shaped Bldgs: Barracks | | Window Screen - SB side RI | 5,841,522 | 247,514 | 5,594,008 | 22,886,638 | 8,037,331 | 7,130,544 | -1,163,716 | 36,890,797 | 31,296,789 | 6 59 | 1 97 | 2 6 |
| Envelope | | Masonite Siding: pre 1950 | | Window Screen - SB side - RI | 5,847,181 | 248,419 | 5,598,762 | 22,897,703 | 8,041,474 | 7,130,544 | -1,169,540 | 36,900,180 | 31,301,418 | 6 59 | 1 97 | 2 6 |
| Envelope | | U Shaped Bldgs: Other | | Window Screen - SB side - RI | 5,851,876 | 249,170 | 5,602,705 | 22,905,881 | 8,044,910 | 7,130,544 | -1,174,372 | 36,907,964 | 31,305,259 | 6 59 | 1 97 | 2 6 |
| Envelope | | Concrete Block: w/ SB win only | | Window Screen - SB side - RI | 5,854,916 | 249,657 | 5,605,259 | 22,912,825 | 8,047,156 | 7,130,544 | -1,177,500 | 36,913,004 | 31,307,745 | 6 59 | 1 97 | 2 6 |
| Envelope | | Concrete Block: Misc pre 1980 | | Window Screen - SB side - RI | 5,856,903 | 249,975 | 5,606,928 | 22,916,710 | 8,048,591 | 7,130,544 | -1,179,546 | 36,916,299 | 31,309,371 | 6 58 | 1 97 | 2 6 |
| Envelope | | Masonite Siding: post 1950 | | Window Screen - SB side RI | 5,858,774 | 250,274 | 5,608,500 | 22,920,369 | 8,049,960 | 7,130,544 | -1,181,471 | 36,919,402 | 31,310,902 | 6 58 | 1 97 | 2 6 |
| Envelope | | SHOP | | Window Screen - SB side - RI | 5,859,991 | 250,469 | 5,609,522 | 22,922,747 | 8,050,851 | 7,130,544 | -1,182,723 | 36,921,418 | 31,311,896 | 6 58 | 1 97 | 2 6 |
| Envelope | | DINING: MSIC | | Window Screen - SB side - RI | 5,860,731 | 250,587 | 5,610,144 | 22,924,193 | 8,051,392 | 7,130,544 | -1,183,485 | 36,922,645 | 31,312,502 | 6 58 | 1 97 | 2 6 |
| Envelope | | ADMIN: MISC pre 1964 | | Window Screen - SB side RI | 5,861,421 | 250,698 | 5,610,723 | 22,925,543 | 8,051,898 | 7,130,544 | -1,184,195 | 36,923,790 | 31,313,066 | 6 58 | 1 97 | 2 6 |
| Envelope | | BRK/ADM MISC | | Window Screen - SB side - RI | 5,862,083 | 250,803 | 5,611,280 | 22,926,837 | 8,052,382 | 7,130,544 | -1,184,876 | 36,924,888 | 31,313,608 | 6 58 | 1 97 | 2 6 |
| Envelope | | Wood Siding | | Window Screen - SB side - RI | 5,862,634 | 250,892 | 5,611,742 | 22,927,914 | 8,052,786 | 7,130,544 | -1,185,443 | 36,925,801 | 31,314,058 | 6 58 | 1 97 | 2 6 |
| Envelope | | MWR | | Window Screen SB side - RI | 5,862,922 | 250,938 | 5,611,984 | 22,928,477 | 8,052,996 | 7,130,544 | -1,185,739 | 36,926,278 | 31,314,294 | 6 58 | 1 97 | 2 6 |
| Envelope | | WHS | | Window Screen - SB side - RI | 5,863,176 | 250,978 | 5,612,197 | 22,928,973 | 8,053,182 | 7,130,544 | -1,186,001 | 36,926,699 | 31,314,502 | 6 58 | 1 97 | 2 6 |
| Envelope | | SECURITY | | Window Screen - SB side - RI | 5,863,235 | 250,988 | 5,612,247 | 22,929,089 | 8,053,225 | 7,130,544 | -1,186,061 | 36,926,797 | 31,314,550 | 6 58 | 1 97 | 2 6 |
| Envelope | | ADMIN: MISC post 1964 | | Window Screen - SB side RI | 5,864,453 | 251,183 | 5,613,270 | 22,931,470 | 8,054,117 | 7,130,544 | -1,187,315 | 36,928,816 | 31,315,546 | 6 58 | 1 97 | 2 6 |
| Heating | 28 | MTRPOOL - 00892 | Unit Heaters | Radiant Heat - RI | 5,870,573 | 251,183 | 5,619,390 | 22,942,321 | 8,054,740 | 7,130,544 | -1,186,842 | 36,940,763 | 31,321,373 | 6 57 | 1 95 | 2 6 |
| Motors | PMTR 52a | PLT-BLDG - 00263 | PMPMTR | EFM - RI | 5,871,301 | 251,243 | 5,620,058 | 22,942,975 | 8,055,623 | 7,130,544 | -1,187,096 | 36,942,046 | 31,321,988 | 6 57 | 1 92 | 2 6 |
| Heating | 38 | SHOP-AIR - BD006 | Unit Heaters | Radiant Heat - ROP | 5,872,507 | 251,243 | 5,621,264 | 22,944,084 | 8,055,811 | 7,130,544 | -1,186,079 | 36,944,360 | 31,323,096 | 6 57 | 1 92 | 2 6 |
| Heating | 33 | MTRPOOL - 00835 | Unit Heaters | Radiant Heat - RI | 5,877,867 | 251,243 | 5,626,624 | 22,954,277 | 8,056,356 | 7,130,544 | -1,186,660 | 36,954,517 | 31,327,893 | 6 57 | 1 89 | 2 6 |
| Heating | 39 | SHOP-HVY - BD005 | Unit Heaters | Radiant Heat - ROP | 5,879,872 | 251,243 | 5,628,630 | 22,956,051 | 8,056,670 | 7,130,544 | -1,184,966 | 36,958,300 | 31,329,671 | 6 57 | 1 89 | 2 6 |
| Motors | MTR 444a | DINING - 00254 | Fan Motor | EFM - RI | 5,881,828 | 251,343 | 5,630,446 | 22,958,853 | 8,057,987 | 7,130,544 | -1,185,680 | 36,961,705 | 31,331,259 | 6 56 | 1 87 | 2 6 |
| Motors | MTR-436 | WHS CLD 00862 | Fan Motor | EFM - RI | 5,882,806 | 251,453 | 5,631,354 | 22,960,254 | 8,058,645 | 7,130,544 | -1,186,036 | 36,963,407 | 31,332,053 | 6 56 | 1 87 | 2 6 |
| Motors | MTR 453e | HOSPITL - 00166 | Fan Motor | VSD & EFM - RI | 5,903,134 | 252,063 | 5,651,071 | 23,004,979 | 8,059,731 | 7,130,372 | -1,194,839 | 37,000,243 | 31,349,171 | 6 55 | 1 87 | 2 6 |
| Motors | MTR 522a | DOR - 00308 | VENTLTR | EFM - RI | 5,903,623 | 252,098 | 5,651,525 | 23,005,656 | 8,060,049 | 7,130,372 | -1,194,987 | 37,001,091 | 31,349,565 | 6 55 | 1 87 | 2 6 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg. Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 32 | MTRPOOL - 00837 | Unit Heaters | Radiant Heat - RI | 5,906,683 | 252,098 | 5,654,585 | 23,010,698 | 8,060,361 | 7,130,372 | -1,194,626 | 37,006,805 | 31,352,219 | 6.54 | 1.87 | 2.6 |
| Motors | MTR 523e | DGR 00308 | VENTLTR | HEM - RI | 5,907,172 | 252,133 | 5,655,039 | 23,011,363 | 8,060,673 | 7,130,372 | -1,194,757 | 37,007,651 | 31,352,612 | 6.54 | 1.86 | 2.6 |
| T&D | 65g | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) RI | 5,926,477 | 252,133 | 5,674,345 | 23,029,226 | 8,074,523 | 7,130,372 | -1,190,733 | 37,043,388 | 31,369,044 | 6.53 | 1.85 | 2.6 |
| Heating | 5 | MTRPOOL - 00879 | Unit Heaters | Radiant Heat RI | 5,958,967 | 252,133 | 5,706,835 | 23,091,147 | 8,078,932 | 7,130,372 | -1,198,926 | 37,101,524 | 31,394,690 | 6.50 | 1.79 | 2.6 |
| Motors | MTR-527 | Fan Housing | Cool System Fan | HEM RI | 6,264,899 | 252,133 | 6,012,767 | 23,411,469 | 8,405,171 | 7,130,372 | -1,309,235 | 37,637,777 | 31,625,010 | 6.26 | 1.75 | 2.8 |
| Motors | MTR-62 | BRE/ADM - 00226 | COOL | HEM RI | 6,278,924 | 252,133 | 6,026,792 | 23,426,154 | 8,420,127 | 7,130,372 | -1,314,292 | 37,662,360 | 31,635,569 | 6.25 | 1.75 | 2.8 |
| Motors | MTR 60 | BRE/ADM - 00110 | COOL | HEM RI | 6,282,664 | 252,133 | 6,030,532 | 23,430,070 | 8,424,115 | 7,130,372 | -1,315,641 | 37,668,916 | 31,638,384 | 6.25 | 1.75 | 2.8 |
| Motors | MTR 59 | BRE/ADM - 00108 | COOL | HEM RI | 6,285,656 | 252,133 | 6,033,524 | 23,433,203 | 8,427,306 | 7,130,372 | -1,316,720 | 37,674,160 | 31,640,637 | 6.24 | 1.75 | 2.8 |
| Motors | MTR-56 | BRE/ADM - 00105 | COOL | HEM RI | 6,288,648 | 252,133 | 6,036,516 | 23,436,335 | 8,430,496 | 7,130,372 | -1,317,798 | 37,679,405 | 31,642,889 | 6.24 | 1.75 | 2.8 |
| Motors | MTR 61 | BRE/ADM - 00111 | COOL | HEM - RI | 6,291,640 | 252,133 | 6,039,508 | 23,439,468 | 8,433,687 | 7,130,372 | -1,318,877 | 37,684,650 | 31,645,142 | 6.24 | 1.75 | 2.8 |
| Motors | MTR-57 | BRE/ADM - 00106 | COOL | HEM - RI | 6,294,632 | 252,133 | 6,042,500 | 23,442,601 | 8,436,877 | 7,130,372 | -1,319,956 | 37,689,894 | 31,647,395 | 6.24 | 1.75 | 2.8 |
| Motors | MTR 58 | BRE/ADM - 00107 | COOL | HEM - RI | 6,297,624 | 252,133 | 6,045,492 | 23,445,734 | 8,440,068 | 7,130,372 | -1,321,035 | 37,695,139 | 31,649,647 | 6.24 | 1.75 | 2.8 |
| Motors | MTR 82 | CLUB 20018 | COOL | HEM - RI | 6,297,811 | 252,133 | 6,045,679 | 23,445,929 | 8,440,267 | 7,130,372 | -1,321,102 | 37,695,466 | 31,649,788 | 6.24 | 1.75 | 2.8 |
| Fan, Htg, HVAC | 2h | | | 16gh Eff. Grad Source HP RI | 13,384,728 | 252,133 | 13,132,595 | 31,700,096 | 12,477,972 | 7,412,275 | -1,563,096 | 50,027,246 | 36,894,651 | 3.81 | 1.74 | 4.5 |
| Motors | MTR-479a | RDC - 00905 | Fan Motor | HEM RI | 13,385,217 | 252,168 | 13,133,049 | 31,700,796 | 12,478,239 | 7,412,275 | -1,563,274 | 50,028,036 | 36,894,986 | 3.81 | 1.74 | 4.5 |
| Motors | MTR 480a | RDC - 00905 | Fan Motor | HEM - RI | 13,385,706 | 252,203 | 13,133,503 | 31,701,497 | 12,478,506 | 7,412,275 | -1,563,453 | 50,028,825 | 36,895,322 | 3.81 | 1.74 | 4.5 |
| Motors | MTR 478a | RDC - 00905 | Fan Motor | HEM - RI | 13,386,195 | 252,238 | 13,133,957 | 31,702,197 | 12,478,774 | 7,412,275 | -1,563,631 | 50,029,615 | 36,895,657 | 3.81 | 1.74 | 4.5 |
| Motors | MTR 451e | HOSPITL - 00166 | Fan Motor | VSD & HEM RI | 13,426,111 | 253,413 | 13,172,698 | 31,785,867 | 12,480,034 | 7,412,103 | -1,581,072 | 50,096,932 | 36,924,234 | 3.80 | 1.74 | 4.5 |
| Motors | MTR 79 | BRE/ADM - 00275 | COOL | HEM - RI | 13,427,420 | 253,413 | 13,174,007 | 31,787,244 | 12,481,437 | 7,412,103 | -1,581,585 | 50,099,199 | 36,925,192 | 3.80 | 1.73 | 4.5 |
| Motors | MTR 63 | BRE/ADM - 00226 | COOL | HEM RI | 13,428,729 | 253,413 | 13,175,316 | 31,788,622 | 12,482,841 | 7,412,103 | -1,582,099 | 50,101,466 | 36,926,150 | 3.80 | 1.73 | 4.5 |
| Motors | MTR 66 | BRE/ADM - 00261 | COOL | HEM RI | 13,428,916 | 253,413 | 13,175,503 | 31,788,819 | 12,483,041 | 7,412,103 | -1,582,172 | 50,101,790 | 36,926,287 | 3.80 | 1.73 | 4.5 |
| Motors | MTR-78 | BRE/ADM - 00275 | COOL | HEM - RI | 13,442,941 | 253,413 | 13,189,528 | 31,803,579 | 12,498,074 | 7,412,103 | -1,587,674 | 50,126,082 | 36,936,554 | 3.80 | 1.73 | 4.5 |
| Motors | MTR-77 | BRE/ADM - 00273 | COOL | HEM - RI | 13,456,966 | 253,413 | 13,203,553 | 31,818,340 | 12,513,108 | 7,412,103 | 1,593,177 | 50,150,374 | 36,946,820 | 3.80 | 1.73 | 4.5 |
| Motors | MTR-76 | BRE/ADM - 00272 | COOL | HEM - RI | 13,457,340 | 253,413 | 13,203,927 | 31,818,734 | 12,513,508 | 7,412,103 | -1,593,323 | 50,151,021 | 36,947,094 | 3.80 | 1.73 | 4.5 |
| Motors | MTR 64 | BRE/ADM - 00256 | COOL | HEM RI | 13,457,714 | 253,413 | 13,204,301 | 31,819,127 | 12,513,909 | 7,412,103 | 1,593,470 | 50,151,669 | 36,947,368 | 3.80 | 1.73 | 4.5 |
| Motors | MTR-80 | BRE/ADM - 00275 | COOL | HEM - RI | 13,458,088 | 253,413 | 13,204,675 | 31,819,521 | 12,514,310 | 7,412,103 | -1,593,617 | 50,152,317 | 36,947,642 | 3.80 | 1.73 | 4.5 |
| Motors | PMTR-116 | PUMP - 00043 | PMPMTR | HEM - RI | 13,461,676 | 253,683 | 13,207,993 | 31,822,340 | 12,518,504 | 7,412,103 | 1,594,902 | 50,158,045 | 36,950,051 | 3.80 | 1.73 | 4.5 |
| Motors | MTR-452e | HOSPITL - 00166 | Fan Motor | VSD & HEM - RI | 13,488,708 | 254,487 | 13,234,222 | 31,878,706 | 12,519,317 | 7,411,930 | 1,605,682 | 50,203,272 | 36,969,050 | 3.79 | 1.72 | 4.5 |
| Motors | MTR 29 | MTRPOOL - 00857 | COMPMTR | HEM - RI | 13,491,502 | 254,727 | 13,236,776 | 31,882,048 | 12,521,321 | 7,411,930 | 1,607,643 | 50,207,656 | 36,970,881 | 3.79 | 1.72 | 4.5 |
| Motors | MTR-44 | MTRPOOL - 00857 | CONDMTR | HEM - RI | 13,494,414 | 254,967 | 13,239,448 | 31,885,352 | 12,523,607 | 7,411,930 | -1,608,660 | 50,212,228 | 36,972,781 | 3.79 | 1.71 | 4.5 |
| Motors | MTR-75 | BRE/ADM - 00273 | COOL | HEM - RI | 13,495,723 | 254,967 | 13,240,757 | 31,886,743 | 12,525,033 | 7,411,930 | -1,609,253 | 50,214,443 | 36,973,687 | 3.79 | 1.69 | 4.5 |
| Motors | MTR 74 | BRE/ADM - 00267 | COOL | HEM - RI | 13,495,910 | 254,967 | 13,240,944 | 31,886,941 | 12,525,226 | 7,411,930 | -1,609,338 | 50,214,760 | 36,973,816 | 3.79 | 1.69 | 4.5 |
| Motors | MTR 69 | BRE/ADM - 00264 | COOL | HEM - RI | 13,496,097 | 254,967 | 13,241,131 | 31,887,140 | 12,525,428 | 7,411,930 | -1,609,423 | 50,215,076 | 36,973,946 | 3.79 | 1.69 | 4.5 |
| Motors | MTR 68 | BRE/ADM - 00262 | COOL | HEM - RI | 13,496,284 | 254,967 | 13,241,318 | 31,887,339 | 12,525,631 | 7,411,930 | -1,609,507 | 50,215,393 | 36,974,075 | 3.79 | 1.69 | 4.5 |
| Motors | MTR-72 | BRE/ADM - 00265 | COOL | HEM - RI | 13,496,471 | 254,967 | 13,241,505 | 31,887,538 | 12,525,833 | 7,411,930 | -1,609,592 | 50,215,709 | 36,974,205 | 3.79 | 1.69 | 4.5 |
| Motors | MTR-70 | BRE/ADM - 00264 | COOL | HEM RI | 13,509,748 | 254,967 | 13,254,782 | 31,901,648 | 12,540,204 | 7,411,930 | -1,615,606 | 50,238,176 | 36,983,394 | 3.79 | 1.69 | 4.5 |
| Motors | MTR 67 | BRE/ADM - 00262 | COOL | HEM RI | 13,523,025 | 254,967 | 13,268,059 | 31,915,758 | 12,554,574 | 7,411,930 | -1,621,620 | 50,260,642 | 36,992,584 | 3.79 | 1.69 | 4.5 |
| Motors | MTR-71 | BRE/ADM - 00265 | COOL | HEM - RI | 13,536,302 | 254,967 | 13,281,336 | 31,929,868 | 12,568,945 | 7,411,930 | -1,627,634 | 50,282,109 | 37,001,773 | 3.79 | 1.69 | 4.5 |
| Motors | MTR-73 | BRE/ADM - 00267 | COOL | HEM - RI | 13,549,579 | 254,967 | 13,294,613 | 31,943,978 | 12,583,316 | 7,411,930 | -1,633,648 | 50,305,576 | 37,010,963 | 3.78 | 1.69 | 4.6 |
| Motors | MTR 65 | BRE/ADM - 00261 | COOL | HEM - RI | 13,562,856 | 254,967 | 13,307,890 | 31,958,088 | 12,597,686 | 7,411,930 | -1,639,663 | 50,328,042 | 37,020,153 | 3.78 | 1.69 | 4.6 |
| Motors | MTR 454e | HOSPITL - 00166 | Fan Motor | VSD & HEM RI | 13,615,734 | 256,527 | 13,359,207 | 32,066,909 | 12,598,920 | 7,411,758 | -1,662,830 | 50,414,757 | 37,055,550 | 3.77 | 1.69 | 4.6 |
| Motors | MTR-423a | ADMIN - 00988 | Fan Motor | HEM - RI | 13,617,190 | 256,647 | 13,360,543 | 32,068,376 | 12,600,139 | 7,411,758 | -1,663,338 | 50,416,935 | 37,056,392 | 3.77 | 1.63 | 4.6 |
| Motors | PMTR 34 | GROCERY - 00920 | power vents | HEM - RI | 13,618,294 | 256,727 | 13,361,567 | 32,069,498 | 12,601,070 | 7,411,758 | -1,663,729 | 50,418,598 | 37,057,031 | 3.77 | 1.62 | 4.6 |
| Motors | PMTR 55a | PLT-BLDG - 00253 | PMPMTR | HEM - RI | 13,621,088 | 256,967 | 13,364,121 | 32,071,667 | 12,603,998 | 7,411,758 | -1,664,690 | 50,422,734 | 37,058,613 | 3.77 | 1.62 | 4.6 |
| Motors | PMTR-56a | PLT-BLDG - 00253 | PMPMTR | HEM - RI | 13,623,882 | 257,207 | 13,366,675 | 32,073,837 | 12,606,926 | 7,411,758 | -1,665,652 | 50,426,869 | 37,060,195 | 3.77 | 1.62 | 4.6 |
| DHW & A/C | 27 | 00323 | PKG UNIT | Install Desuperheater RI | 13,625,001 | 257,267 | 13,367,794 | 32,075,305 | 12,608,627 | 7,410,897 | -1,666,159 | 50,428,671 | 37,060,877 | 3.77 | 1.61 | 4.6 |
| Motors | PMTR-74 | PUMP - 00042 | PMPMTR | HEM - RI | 13,625,979 | 257,277 | 13,368,702 | 32,076,463 | 12,609,285 | 7,410,897 | -1,666,515 | 50,430,130 | 37,061,428 | 3.77 | 1.61 | 4.6 |
| Motors | PMTR-75 | PUMP - 00044 | PMPMTR | HEM - RI | 13,626,468 | 257,312 | 13,369,156 | 32,077,042 | 12,609,614 | 7,410,897 | -1,666,694 | 50,430,860 | 37,061,704 | 3.77 | 1.61 | 4.6 |
| DHW & A/C | 37 | 01322 | AIR CONDITIONER | Install Desuperheater RI | 13,627,807 | 257,312 | 13,370,495 | 32,077,927 | 12,612,336 | 7,410,036 | -1,667,300 | 50,432,999 | 37,062,504 | 3.77 | 1.60 | 4.6 |
| DHW & A/C | 43 | 01322 | PKG UNIT | Install Desuperheater RI | 13,629,146 | 257,312 | 13,371,834 | 32,078,813 | 12,615,058 | 7,409,175 | -1,667,907 | 50,435,139 | 37,063,305 | 3.77 | 1.60 | 4.6 |
| Motors | MTR-409 | WHS - 00818 | BVAP | HEM - RI | 13,630,543 | 257,432 | 13,373,111 | 32,080,298 | 12,616,060 | 7,409,175 | -1,668,388 | 50,437,145 | 37,064,034 | 3.77 | 1.57 | 4.6 |
| Motors | PMTR-25 | BRE/ADM - 00273 | PMPMTR | HEM RI | 13,630,750 | 257,447 | 13,373,303 | 32,080,431 | 12,616,301 | 7,409,175 | -1,668,463 | 50,437,444 | 37,064,141 | 3.77 | 1.56 | 4.6 |
| Motors | MTR-94 | MTRPOOL - 00680 | COOL | HEM - RI | 13,630,937 | 257,447 | 13,373,490 | 32,080,577 | 12,616,498 | 7,409,175 | -1,668,518 | 50,437,733 | 37,064,243 | 3.77 | 1.54 | 4.6 |
| Motors | PMTR 61e | PLT-BLDG - 00109 | PMPMTR | VSD & HEM - RI | 13,634,977 | 257,579 | 13,377,398 | 32,087,359 | 12,617,255 | 7,408,831 | -1,669,738 | 50,443,707 | 37,066,309 | 3.77 | 1.53 | 4.6 |
| Motors | MTR-85 | DINING - 00254 | COOL | HEM RI | 13,635,164 | 257,579 | 13,377,585 | 32,087,506 | 12,617,454 | 7,408,831 | -1,669,799 | 50,443,991 | 37,066,406 | 3.77 | 1.52 | 4.6 |
| Motors | PMTR 38 | HOSPITL - 00166 | PMPMTR | HEM - RI | 13,636,054 | 257,615 | 13,378,439 | 32,088,857 | 12,617,717 | 7,408,831 | -1,670,126 | 50,445,279 | 37,066,840 | 3.77 | 1.51 | 4.6 |
| Motors | MTR 81 | CLINIC - 00171 | COOL | HEM - RI | 13,636,241 | 257,615 | 13,378,626 | 32,089,005 | 12,617,916 | 7,408,831 | -1,670,193 | 50,445,559 | 37,066,933 | 3.77 | 1.50 | 4.6 |
| Motors | MTR 95 | MTRPOOL - 00857 | COOL | HEM - RI | 13,636,428 | 257,615 | 13,378,813 | 32,089,153 | 12,618,116 | 7,408,831 | -1,670,261 | 50,445,839 | 37,067,026 | 3.77 | 1.50 | 4.6 |
| Motors | MTR-432e | BRE/ADM - 00273 | Fan Motor | HEM - RI | 13,636,917 | 257,650 | 13,379,267 | 32,089,678 | 12,618,445 | 7,408,831 | -1,670,439 | 50,446,514 | 37,067,247 | 3.77 | 1.49 | 4.6 |
| Motors | MTR-433a | BRE/ADM - 00273 | Fan Motor | FEM - RI | 13,637,406 | 257,685 | 13,379,721 | 32,090,203 | 12,618,774 | 7,408,831 | -1,670,617 | 50,447,190 | 37,067,469 | 3.77 | 1.49 | 4.6 |
| Motors | MTR-12 | SHOP - 00967 | AIRCOMP | HEM - RI | 13,638,803 | 257,805 | 13,380,998 | 32,091,350 | 12,620,007 | 7,408,831 | -1,671,098 | 50,449,090 | 37,068,092 | 3.77 | 1.49 | 4.6 |
| Motors | MTR-435e | BRE/ADM - 00275 | Fan Motor | HEM - RI | 13,639,292 | 257,840 | 13,381,452 | 32,091,899 | 12,620,352 | 7,408,831 | -1,671,320 | 50,449,762 | 37,068,310 | 3.77 | 1.48 | 4.6 |
| Motors | MTR-434e | BRE/ADM - 00275 | Fan Motor | HEM - RI | 13,639,781 | 257,875 | 13,381,906 | 32,092,449 | 12,620,696 | 7,408,831 | -1,671,541 | 50,450,434 | 37,068,528 | 3.77 | 1.48 | 4.6 |
| Motors | MTR 8 | MTRPOOL - 00646 | AIRCOMP | HEM - RI | 13,640,297 | 257,895 | 13,382,402 | 32,092,895 | 12,621,176 | 7,408,831 | -1,671,735 | 50,451,166 | 37,068,764 | 3.77 | 1.47 | 4.6 |
| Motors | MTR 96 | WHS - 20001 | COOL | HEM - RI | 13,641,045 | 257,895 | 13,383,150 | 32,093,489 | 12,621,977 | 7,408,831 | -1,672,029 | 50,452,268 | 37,069,118 | 3.77 | 1.47 | 4.6 |
| Motors | MTR-455e | HOSPITL - 00166 | Fan Motor | VSD & HEM RI | 13,654,053 | 258,246 | 13,395,807 | 32,117,434 | 12,622,335 | 7,408,486 | -1,677,375 | 50,470,881 | 37,075,073 | 3.77 | 1.47 | 4.6 |
| Motors | MTR 282 | MTRPOOL - 00600 | BVAP | HEM RI | 13,654,542 | 258,281 | 13,396,261 | 32,117,934 | 12,622,673 | 7,408,486 | -1,677,553 | 50,471,541 | 37,075,279 | 3.77 | 1.45 | 4.6 |
| Motors | MTR-99 | ADMIN - 00152 | BVAP | HEM RI | 13,655,094 | 258,321 | 13,396,773 | 32,118,495 | 12,623,052 | 7,408,486 | -1,677,749 | 50,472,285 | 37,075,511 | 3.77 | 1.45 | 4.6 |
| Motors | MTR 54a | ADMIN - 00988 | COOL | HEM - RI | 13,655,646 | 258,361 | 13,397,285 | 32,119,076 | 12,623,444 | 7,408,486 | -1,677,981 | 50,473,025 | 37,075,740 | 3.77 | 1.45 | 4.6 |
| Motors | MTR 53a | ADMIN - 00988 | COOL | HEM RI | 13,656,198 | 258,401 | 13,397,797 | 32,119,657 | 12,623,836 | 7,408,486 | -1,678,213 | 50,473,766 | 37,075,969 | 3.77 | 1.45 | 4.6 |
| Motors | MTR-55a | ADMIN - 00988 | COOL | HEM RI | 13,656,750 | 258,441 | 13,398,309 | 32,120,238 | 12,624,228 | 7,408,486 | -1,678,446 | 50,474,507 | 37,076,198 | 3.77 | 1.45 | 4.6 |
| Motors | MTR-83 | DINING - 00222 | COOL | HEM - RI | 13,657,124 | 258,441 | 13,398,683 | 32,120,538 | 12,624,433 | 7,408,486 | -1,678,615 | 50,475,042 | 37,076,359 | 3.77 | 1.43 | 4.6 |
| Motors | MTR-84 | DINING - 00222 | COOL | HEM RI | 13,657,498 | 258,441 | 13,399,057 | 32,120,838 | 12,625,037 | 7,408,486 | -1,678,784 | 50,475,577 | 37,076,520 | 3.77 | 1.43 | 4.6 |
| Motors | PMTR 29 | DOR - 00308 | PMPMTR | HEM - RI | 13,658,050 | 258,481 | 13,399,569 | 32,121,344 | 12,625,458 | 7,408,486 | -1,678,980 | 50,476,309 | 37,076,739 | 3.77 | 1.43 | 4.6 |
| T&D | 62h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 13,676,775 | 258,481 | 13,418,294 | 32,130,175 | 12,628,301 | 7,408,486 | -1,664,016 | 50,502,946 | 37,084,652 | 3.76 | 1.42 | 4.6 |
| T&D | 63h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 13,767,396 | 258,481 | 13,508,915 | 32,173,652 | 12,643,466 | 7,408,486 | 1,594,979 | 50,630,625 | 37,121,710 | 3.75 | 1.41 | 4.6 |
| T&D | 67h | | Transformer | Amorphous Core/Imprvd Windings (No Load & Load Loss Reduction) - ROF | 13,785,120 | 258,481 | 13,527,640 | 32,181,712 | 12,645,862 | 7,408,486 | -1,580,016 | 50,656,045 | 37,128,405 | 3.74 | 1.36 | 4.6 |
| Motors | MTR 509 | BRE/ADM - 00251 | HEAT | HEM - RI | 13,791,543 | 258,481 | 13,533,063 | 32,189,480 | 12,647,189 | 7,408,486 | -1,581,794 | 50,663,363 | 37,130,300 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 518 | BRE/ADM - 00253 | HEAT | HEM RI | 13,796,966 | 258,481 | 13,538,486 | 32,197,249 | 12,648,517 | 7,408,486 | -1,583,571 | 50,670,680 | 37,132,195 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 503 | BRE/ADM - 00250 | HEAT | HEM RI | 13,802,389 | 258,481 | 13,543,909 | 32,205,017 | 12,649,845 | 7,408,486 | -1,585,349 | 50,677,998 | 37,134,090 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 515 | BRE/ADM - 00252 | HEAT | HEM RI | 13,805,381 | 258,481 | 13,546,901 | 32,209,303 | 12,650,577 | 7,408,486 | -1,586,330 | 50,682,036 | 37,135,135 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 507 | BRE/ADM - 00251 | HEAT | HEM RI | 13,808,373 | 258,481 | 13,549,893 | 32,213,588 | 12,651,309 | 7,408,486 | -1,587,311 | 50,686,073 | 37,136,180 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 502 | BRE/ADM - 00250 | HEAT | HEM RI | 13,811,365 | 258,481 | 13,552,885 | 32,217,874 | 12,652,042 | 7,408,486 | -1,588,292 | 50,690,110 | 37,137,226 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 499 | BRE/ADM - 00249 | HEAT | HEM RI | 13,814,357 | 258,481 | 13,555,877 | 32,222,160 | 12,652,774 | 7,408,486 | -1,589,273 | 50,694,148 | 37,138,271 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 513 | BRE/ADM 00251 | HEAT | HEM RI | 13,815,105 | 258,481 | 13,556,625 | 32,223,232 | 12,652,957 | 7,408,486 | -1,589,518 | 50,695,157 | 37,138,531 | 3.74 | 1.35 | 4.6 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Motors | MTR-550 | BRE/ADM - 00252 | IEMT | EEM - RI | 13,815,853 | 258,481 | 13,557,373 | 32,224,303 | 12,653,141 | 7,408,486 | 1,589,763 | 50,666,167 | 37,138,794 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 504 | BRE/ADM - 00250 | IEMT | EEM - RI | 13,816,601 | 258,481 | 13,558,121 | 32,225,374 | 12,653,324 | 7,408,486 | 1,590,008 | 50,667,176 | 37,139,055 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 498 | BRE/ADM - 00249 | IEMT | EEM - RI | 13,817,349 | 258,481 | 13,558,869 | 32,226,446 | 12,653,507 | 7,408,486 | 1,590,254 | 50,668,185 | 37,139,317 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 495 | BRE/ADM - 00249 | IEMT | EEM - RI | 13,817,536 | 258,481 | 13,559,056 | 32,226,714 | 12,653,553 | 7,408,486 | 1,590,315 | 50,668,438 | 37,139,382 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 516 | BRE/ADM - 00252 | IEMT | EEM - RI | 13,817,723 | 258,481 | 13,559,243 | 32,226,982 | 12,653,598 | 7,408,486 | 1,590,376 | 50,668,690 | 37,139,447 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 496 | BRE/ADM - 00249 | IEMT | EEM - RI | 13,817,910 | 258,481 | 13,559,430 | 32,227,250 | 12,653,644 | 7,408,486 | 1,590,438 | 50,668,942 | 37,139,513 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 510 | BRE/ADM - 00251 | IEMT | EEM - RI | 13,818,097 | 258,481 | 13,559,617 | 32,227,517 | 12,653,690 | 7,408,486 | -1,590,499 | 50,699,195 | 37,139,578 | 3.74 | 1.35 | 4.6 |
| Motors | MTR-514 | BRE/ADM - 00252 | IEMT | EEM - RI | 13,818,284 | 258,481 | 13,559,804 | 32,227,785 | 12,653,736 | 7,408,486 | 1,590,560 | 50,699,447 | 37,139,643 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 505 | BRE/ADM - 00250 | IEMT | EEM - RI | 13,818,471 | 258,481 | 13,559,991 | 32,228,053 | 12,653,781 | 7,408,486 | 1,590,622 | 50,699,699 | 37,139,709 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 500 | BRE/ADM - 00250 | IEMT | EEM - RI | 13,818,658 | 258,481 | 13,560,178 | 32,228,321 | 12,653,827 | 7,408,486 | 1,590,683 | 50,699,952 | 37,139,774 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 501 | BRE/ADM - 00250 | IEMT | EEM - RI | 13,818,845 | 258,481 | 13,560,365 | 32,228,589 | 12,653,873 | 7,408,486 | 1,590,744 | 50,700,204 | 37,139,839 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 506 | BRE/ADM - 00250 | IEMT | EEM - RI | 13,819,032 | 258,481 | 13,560,552 | 32,228,857 | 12,653,919 | 7,408,486 | 1,590,805 | 50,700,456 | 37,139,905 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 511 | BRE/ADM - 00251 | IEMT | EEM - RI | 13,819,219 | 258,481 | 13,560,739 | 32,229,125 | 12,653,964 | 7,408,486 | 1,590,867 | 50,700,709 | 37,139,970 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 493 | BRE/ADM - 00249 | IEMT | EEM - RI | 13,819,406 | 258,481 | 13,560,926 | 32,229,392 | 12,654,010 | 7,408,486 | 1,590,928 | 50,700,961 | 37,140,035 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 517 | BRE/ADM - 00252 | IEMT | EEM - RI | 13,819,593 | 258,481 | 13,561,113 | 32,229,660 | 12,654,056 | 7,408,486 | 1,590,989 | 50,701,213 | 37,140,101 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 508 | BRE/ADM - 00251 | IEMT | EEM - RI | 13,819,780 | 258,481 | 13,561,300 | 32,229,928 | 12,654,102 | 7,408,486 | 1,591,051 | 50,701,466 | 37,140,166 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 512 | BRE/ADM - 00251 | IEMT | EEM - RI | 13,819,967 | 258,481 | 13,561,487 | 32,230,196 | 12,654,148 | 7,408,486 | 1,591,112 | 50,701,718 | 37,140,231 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 519 | BRE/ADM - 00252 | IEMT | EEM - RI | 13,820,154 | 258,481 | 13,561,674 | 32,230,464 | 12,654,193 | 7,408,486 | 1,591,173 | 50,701,970 | 37,140,297 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 497 | BRE/ADM - 00249 | IEMT | EEM - RI | 13,820,341 | 258,481 | 13,561,861 | 32,230,732 | 12,654,239 | 7,408,486 | 1,591,235 | 50,702,223 | 37,140,362 | 3.74 | 1.35 | 4.6 |
| Motors | MTR 521 | MTRPOOL 00681 | IEMT | EEM - RI | 13,820,528 | 258,481 | 13,562,048 | 32,230,993 | 12,654,285 | 7,408,486 | 1,591,290 | 50,702,474 | 37,140,427 | 3.74 | 1.35 | 4.6 |
| Motors | MTR-50s | WHS CLD 00862 | CONDMTR | EEM - RI | 13,821,632 | 258,561 | 13,563,072 | 32,231,995 | 12,655,042 | 7,408,486 | 1,591,680 | 50,703,842 | 37,140,771 | 3.74 | 1.34 | 4.6 |
| T&D | 45k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 13,847,028 | 258,561 | 13,588,467 | 32,241,923 | 12,658,406 | 7,408,486 | 1,571,220 | 50,737,595 | 37,149,128 | 3.73 | 1.33 | 4.6 |
| Motors | MTR-494 | BRE/ADM 00249 | IEMT | EEM - RI | 13,852,451 | 258,561 | 13,593,890 | 32,249,732 | 12,659,741 | 7,408,486 | -1,573,176 | 50,744,783 | 37,150,893 | 3.73 | 1.33 | 4.6 |
| Motors | MTR-491 | BRE/ADM 00110 | IEMT | EEM - RI | 13,856,191 | 258,561 | 13,597,630 | 32,255,117 | 12,660,661 | 7,408,486 | 1,574,524 | 50,749,741 | 37,152,111 | 3.73 | 1.33 | 4.6 |
| Motors | MTR-492 | BRE/ADM 00111 | IEMT | EEM - RI | 13,859,183 | 258,561 | 13,600,622 | 32,259,426 | 12,661,398 | 7,408,486 | 1,575,693 | 50,753,706 | 37,153,085 | 3.73 | 1.33 | 4.6 |
| Motors | MTR 490 | BRE/ADM - 00108 | IEMT | EEM - RI | 13,862,175 | 258,561 | 13,603,614 | 32,263,734 | 12,662,134 | 7,408,486 | 1,576,682 | 50,757,672 | 37,154,059 | 3.73 | 1.33 | 4.6 |
| Motors | MTR 489 | BRE/ADM - 00107 | IEMT | EEM - RI | 13,865,167 | 258,561 | 13,606,606 | 32,268,043 | 12,662,870 | 7,408,486 | 1,577,761 | 50,761,638 | 37,155,033 | 3.73 | 1.33 | 4.6 |
| Motors | MTR 488 | BRE/ADM 00106 | IEMT | EEM - RI | 13,868,159 | 258,561 | 13,609,598 | 32,272,351 | 12,663,606 | 7,408,486 | 1,578,840 | 50,765,604 | 37,156,006 | 3.73 | 1.33 | 4.6 |
| Motors | MTR 487 | BRE/ADM - 00105 | IEMT | EEM - RI | 13,871,151 | 258,561 | 13,612,590 | 32,276,659 | 12,664,343 | 7,408,486 | 1,579,918 | 50,769,570 | 37,156,980 | 3.73 | 1.33 | 4.6 |
| T&D | 39k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 13,899,085 | 258,561 | 13,640,524 | 32,287,190 | 12,667,943 | 7,408,486 | -1,557,384 | 50,806,235 | 37,165,711 | 3.72 | 1.31 | 4.6 |
| T&D | 50k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 13,928,713 | 258,561 | 13,670,152 | 32,298,296 | 12,671,795 | 7,408,486 | 1,533,515 | 50,845,092 | 37,174,910 | 3.72 | 1.31 | 4.6 |
| T&D | 32k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 13,950,342 | 258,561 | 13,691,781 | 32,306,278 | 12,674,491 | 7,408,486 | 1,516,029 | 50,873,226 | 37,181,445 | 3.72 | 1.30 | 4.6 |
| T&D | 63k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 13,964,568 | 258,561 | 13,706,008 | 32,311,028 | 12,676,020 | 7,408,486 | 1,503,824 | 50,891,710 | 37,185,703 | 3.71 | 1.30 | 4.6 |
| T&D | 59k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,039,467 | 258,561 | 13,780,906 | 32,339,262 | 12,685,168 | 7,408,486 | -1,443,970 | 50,988,946 | 37,208,040 | 3.70 | 1.30 | 4.7 |
| T&D | 65k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,051,950 | 258,561 | 13,793,389 | 32,343,968 | 12,686,692 | 7,408,486 | -1,433,994 | 51,005,152 | 37,211,763 | 3.70 | 1.30 | 4.7 |
| T&D | 81k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,069,738 | 258,561 | 13,811,177 | 32,351,060 | 12,689,125 | 7,408,486 | 1,420,435 | 51,028,236 | 37,217,059 | 3.69 | 1.30 | 4.7 |
| Motors | MTR 30 | MWR - 01322 | COMPMTR | EEM RI | 14,069,925 | 258,561 | 13,811,364 | 32,351,324 | 12,689,171 | 7,408,486 | -1,420,503 | 51,028,479 | 37,217,114 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-48 | MWR 01322 | CONDMTR | EEM RI | 14,070,112 | 258,561 | 13,811,551 | 32,351,588 | 12,689,217 | 7,408,486 | 1,420,570 | 51,028,721 | 37,217,170 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-47 | MWR 01322 | CONDMTR | EEM - RI | 14,070,299 | 258,561 | 13,811,738 | 32,351,852 | 12,689,263 | 7,408,486 | -1,420,638 | 51,028,964 | 37,217,225 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-31 | MWR 01322 | COMPMTR | EEM - RI | 14,070,486 | 258,561 | 13,811,925 | 32,352,116 | 12,689,309 | 7,408,486 | -1,420,705 | 51,029,206 | 37,217,281 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-46 | MWR - 01322 | CONDMTR | EEM - RI | 14,070,673 | 258,561 | 13,812,112 | 32,352,380 | 12,689,355 | 7,408,486 | -1,420,773 | 51,029,449 | 37,217,336 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-33 | MWR 01322 | COMPMTR | EEM RI | 14,070,860 | 258,561 | 13,812,299 | 32,352,644 | 12,689,401 | 7,408,486 | 1,420,840 | 51,029,691 | 37,217,392 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-32 | MWR 01322 | COMPMTR | EEM - RI | 14,071,047 | 258,561 | 13,812,486 | 32,352,908 | 12,689,447 | 7,408,486 | 1,420,907 | 51,029,934 | 37,217,447 | 3.69 | 1.30 | 4.7 |
| Motors | MTR-476 | PLT-BLDG - 00263 | Fan Motor | EEM - RI | 14,071,536 | 258,596 | 13,812,940 | 32,353,608 | 12,689,509 | 7,408,486 | -1,421,086 | 51,030,518 | 37,217,577 | 3.69 | 1.29 | 4.7 |
| T&D | 56k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,111,855 | 258,596 | 13,853,289 | 32,366,520 | 12,693,771 | 7,408,486 | -1,386,394 | 51,082,382 | 37,229,093 | 3.69 | 1.29 | 4.7 |
| T&D | 58k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,123,980 | 258,596 | 13,865,393 | 32,370,393 | 12,695,049 | 7,408,486 | -1,375,987 | 51,097,942 | 37,232,548 | 3.69 | 1.29 | 4.7 |
| T&D | 21k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,213,179 | 258,596 | 13,954,583 | 32,401,349 | 12,705,426 | 7,408,486 | -1,303,528 | 51,211,733 | 37,257,150 | 3.67 | 1.28 | 4.7 |
| T&D | 7k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,233,984 | 258,596 | 13,975,388 | 32,408,405 | 12,707,770 | 7,408,486 | -1,286,432 | 51,238,229 | 37,262,841 | 3.67 | 1.27 | 4.7 |
| T&D | 53k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,303,024 | 258,596 | 14,044,428 | 32,432,835 | 12,715,556 | 7,408,486 | -1,231,076 | 51,325,802 | 37,281,374 | 3.65 | 1.27 | 4.7 |
| T&D | 85k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,325,272 | 258,596 | 14,066,677 | 32,439,649 | 12,718,168 | 7,408,486 | -1,212,630 | 51,353,673 | 37,286,996 | 3.65 | 1.25 | 4.7 |
| T&D | 14k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,338,281 | 258,596 | 14,079,686 | 32,443,872 | 12,719,545 | 7,408,486 | -1,201,995 | 51,369,908 | 37,290,222 | 3.65 | 1.25 | 4.7 |
| Motors | PMTR 13a | BRE/ADM 00273 | PMPMTR | EEM - RI | 14,339,009 | 258,656 | 14,080,354 | 32,444,411 | 12,720,093 | 7,408,486 | -1,202,249 | 51,370,741 | 37,290,388 | 3.65 | 1.25 | 4.7 |
| T&D | 87f | | Transformer | Improvd Silicon Steel/Windings (No Load & Load Loss Reduction) - ROP | 14,771,960 | 258,656 | 14,513,304 | 32,545,198 | 12,780,224 | 7,408,486 | -823,167 | 51,910,741 | 37,397,437 | 3.58 | 1.25 | 4.8 |
| T&D | 46k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 14,781,607 | 258,656 | 14,522,951 | 32,547,868 | 12,781,129 | 7,408,486 | -814,846 | 51,922,637 | 37,399,686 | 3.58 | 1.23 | 4.8 |
| Motors | PMTR-3e | ADMIN - 00988 | PMPMTR | VSD & EEM - RI | 14,785,527 | 258,748 | 14,527,779 | 32,555,173 | 12,781,860 | 7,408,314 | -816,770 | 51,928,577 | 37,400,798 | 3.57 | 1.23 | 4.8 |
| T&D | 40k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 14,792,591 | 258,748 | 14,533,843 | 32,556,792 | 12,782,413 | 7,408,314 | -811,535 | 51,935,984 | 37,402,141 | 3.57 | 1.22 | 4.8 |
| T&D | 51k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,802,238 | 258,748 | 14,543,490 | 32,559,352 | 12,783,301 | 7,408,314 | -803,215 | 51,947,753 | 37,404,262 | 3.57 | 1.22 | 4.8 |
| T&D | 33k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 14,810,454 | 258,748 | 14,551,707 | 32,561,499 | 12,784,027 | 7,408,314 | -796,112 | 51,957,728 | 37,406,021 | 3.57 | 1.21 | 4.8 |
| T&D | 60k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,818,907 | 258,748 | 14,560,159 | 32,569,092 | 12,786,487 | 7,408,314 | -771,702 | 51,992,191 | 37,412,032 | 3.57 | 1.21 | 4.8 |
| T&D | 29k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,822,165 | 258,748 | 14,623,417 | 32,582,216 | 12,790,658 | 7,408,314 | -736,731 | 52,044,457 | 37,421,040 | 3.56 | 1.21 | 4.8 |
| T&D | 37k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,903,794 | 258,748 | 14,645,047 | 32,582,778 | 12,792,743 | 7,408,314 | -719,245 | 52,070,590 | 37,425,544 | 3.56 | 1.21 | 4.8 |
| T&D | 35k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 14,911,004 | 258,748 | 14,652,256 | 32,590,965 | 12,793,438 | 7,408,314 | 713,416 | 52,079,301 | 37,427,045 | 3.55 | 1.21 | 4.8 |
| Motors | MTR-426a | ADMIN - 00988 | Fan Motor | EEM - RI | 14,911,495 | 258,780 | 14,652,710 | 32,591,361 | 12,793,767 | 7,408,314 | -713,595 | 52,079,848 | 37,427,138 | 3.55 | 1.20 | 4.8 |
| Motors | MTR-430a | ADMIN - 00988 | Fan Motor | EEM - RI | 14,911,922 | 258,818 | 14,653,164 | 32,591,757 | 12,794,096 | 7,408,314 | -713,773 | 52,080,395 | 37,427,230 | 3.55 | 1.20 | 4.8 |
| Motors | MTR-422a | ADMIN - 00988 | Fan Motor | EEM - RI | 14,912,471 | 258,853 | 14,653,618 | 32,592,154 | 12,794,426 | 7,408,314 | -713,952 | 52,080,942 | 37,427,323 | 3.55 | 1.20 | 4.8 |
| Motors | MTR-429a | ADMIN - 00988 | Fan Motor | EEM - RI | 14,912,980 | 258,888 | 14,654,072 | 32,592,550 | 12,794,755 | 7,408,314 | -714,130 | 52,081,488 | 37,427,416 | 3.55 | 1.20 | 4.8 |
| Motors | MTR-421a | ADMIN - 00988 | Fan Motor | EEM - RI | 14,913,449 | 258,923 | 14,654,526 | 32,592,946 | 12,795,084 | 7,408,314 | -714,308 | 52,082,035 | 37,427,509 | 3.55 | 1.20 | 4.8 |
| Motors | MTR 425a | ADMIN 00988 | Fan Motor | EEM RI | 14,913,918 | 258,958 | 14,654,960 | 32,593,342 | 12,795,413 | 7,408,314 | -714,487 | 52,082,582 | 37,427,602 | 3.55 | 1.20 | 4.8 |
| T&D | 42k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,070,541 | 258,958 | 14,811,584 | 32,639,226 | 12,810,804 | 7,408,314 | -582,319 | 52,270,026 | 37,458,442 | 3.53 | 1.20 | 4.9 |
| T&D | 48k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,079,006 | 258,958 | 14,820,049 | 32,641,706 | 12,811,636 | 7,408,314 | -581,499 | 52,280,158 | 37,460,109 | 3.53 | 1.20 | 4.9 |
| T&D | 22k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,118,352 | 258,958 | 14,859,394 | 32,651,375 | 12,814,878 | 7,408,314 | -547,374 | 52,327,192 | 37,467,798 | 3.52 | 1.20 | 4.9 |
| T&D | 6k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,142,063 | 258,958 | 14,883,105 | 32,657,068 | 12,816,769 | 7,408,314 | -526,655 | 52,355,496 | 37,472,391 | 3.52 | 1.19 | 4.9 |
| T&D | 54k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,206,620 | 258,958 | 14,947,662 | 32,673,241 | 12,821,924 | 7,408,314 | -471,148 | 52,432,331 | 37,484,669 | 3.51 | 1.19 | 4.9 |
| T&D | 77k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,218,414 | 258,958 | 14,959,456 | 32,676,398 | 12,822,965 | 7,408,314 | -461,336 | 52,446,341 | 37,486,885 | 3.51 | 1.19 | 4.9 |
| T&D | 13k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,243,123 | 258,958 | 14,984,165 | 32,682,077 | 12,824,816 | 7,408,314 | -439,816 | 52,475,391 | 37,491,226 | 3.50 | 1.18 | 4.9 |
| T&D | 69k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,254,303 | 258,958 | 14,995,345 | 32,685,564 | 12,825,919 | 7,408,314 | -431,285 | 52,488,512 | 37,493,167 | 3.50 | 1.17 | 4.9 |
| T&D | 12k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,265,811 | 258,958 | 15,006,853 | 32,688,690 | 12,826,930 | 7,408,314 | 421,935 | 52,501,999 | 37,495,146 | 3.50 | 1.17 | 4.9 |
| T&D | 24k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,274,442 | 258,958 | 15,015,485 | 32,691,035 | 12,827,688 | 7,408,314 | 414,923 | 52,512,114 | 37,496,630 | 3.50 | 1.17 | 4.9 |
| T&D | 71k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,300,065 | 258,958 | 15,041,108 | 32,698,578 | 12,830,255 | 7,408,314 | -395,377 | 52,541,770 | 37,500,662 | 3.49 | 1.16 | 4.9 |
| T&D | 8k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,314,339 | 258,958 | 15,055,381 | 32,704,746 | 12,832,109 | 7,408,314 | 375,432 | 52,569,737 | 37,504,356 | 3.49 | 1.15 | 4.9 |
| T&D | 2k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,346,878 | 258,958 | 15,087,920 | 32,710,474 | 12,833,830 | 7,408,314 | -356,912 | 52,595,706 | 37,507,786 | 3.49 | 1.15 | 4.9 |
| T&D | 9k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,352,079 | 258,958 | 15,093,122 | 32,711,796 | 12,834,227 | 7,408,314 | 352,638 | 52,601,699 | 37,508,577 | 3.49 | 1.15 | 4.9 |
| T&D | 12k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,380,265 | 258,958 | 15,121,308 | 32,718,969 | 12,836,486 | 7,408,314 | 329,595 | 52,634,174 | 37,512,866 | 3.48 | 1.15 | 4.9 |
| T&D | 16k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,404,115 | 258,958 | 15,145,157 | 32,725,039 | 12,838,396 | 7,408,314 | 310,097 | 52,661,652 | 37,516,495 | 3.48 | 1.15 | 5.0 |
| T&D | 30k | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) ROP | 15,453,414 | 258,958 | 15,194,456 | 32,735,628 | 12,841,762 | 7,408,314 | 267,479 | 52,718,224 | 37,523,768 | 3.47 | 1.15 | 5.0 |

# Table 3.11. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Cumulative Present Values of Costs and Savings

| End Use | Bldg Type | Use Area | Existing Technology | Retrofit Technology | Cumulative Value of Installed Cost (1994 $) | Cumulative Value of Rebate (1994 $) | Cumulative Value of Net Installed Cost (1994 $) | Cumulative Value of Energy Savings (1994 $) | Cumulative Value of Demand Savings (1994 $) | Cumulative Value of O&M Savings (1994 $) | Cumulative Value of Replacement Savings (1994 $) | Cumulative Value of Total Savings (1994 $) | Cumulative Net Savings (1994 $) | Cumulative Savings to Investment Ratio | Individual Savings to Investment Ratio | Cumulative Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T&D | 41h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,479,139 | 258,958 | 15,220,181 | 32,740,964 | 12,843,552 | 7,408,314 | 245,291 | 52,747,540 | 37,527,358 | 3 47 | 1 14 | 5 0 |
| T&D | 49h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,488,786 | 258,958 | 15,229,828 | 32,742,965 | 12,844,223 | 7,408,314 | 236,970 | 52,758,533 | 37,528,704 | 3 46 | 1 14 | 5 0 |
| T&D | 27h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,528,132 | 258,958 | 15,269,174 | 32,750,533 | 12,846,671 | 7,408,314 | 202,845 | 52,802,673 | 37,533,499 | 3 46 | 1 12 | 5 0 |
| T&D | 19h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,541,247 | 258,958 | 15,282,289 | 32,753,056 | 12,847,486 | 7,408,314 | 191,470 | 52,817,386 | 37,535,097 | 3 46 | 1 12 | 5 0 |
| T&D | 25h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,547,804 | 258,958 | 15,288,847 | 32,754,317 | 12,847,894 | 7,408,314 | 185,783 | 52,824,742 | 37,535,896 | 3 46 | 1 12 | 5 0 |
| T&D | 17h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,577,455 | 258,958 | 15,318,497 | 32,759,833 | 12,849,613 | 7,408,314 | 159,959 | 52,857,801 | 37,539,304 | 3 45 | 1 11 | 5 0 |
| T&D | 64h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,587,938 | 258,958 | 15,328,981 | 32,761,177 | 12,850,046 | 7,408,314 | 150,050 | 52,869,487 | 37,540,507 | 3 45 | 1 11 | 5 0 |
| T&D | 82h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,651,358 | 258,958 | 15,392,400 | 32,769,450 | 12,852,931 | 7,408,314 | 90,747 | 52,930,948 | 37,547,547 | 3 44 | 1 11 | 5 0 |
| T&D | 57h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,664,042 | 258,958 | 15,405,084 | 32,771,104 | 12,853,508 | 7,408,314 | 78,837 | 52,954,040 | 37,548,955 | 3 44 | 1 11 | 5 0 |
| T&D | 3h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,672,902 | 258,958 | 15,414,004 | 32,772,200 | 12,853,870 | 7,408,314 | 70,449 | 52,963,936 | 37,549,931 | 3 44 | 1 11 | 5 0 |
| T&D | 5h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,684,817 | 258,958 | 15,425,860 | 32,774,333 | 12,854,511 | 7,408,314 | 60,089 | 52,977,069 | 37,551,210 | 3 43 | 1 11 | 5 0 |
| T&D | 11h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,687,452 | 258,958 | 15,428,494 | 32,774,807 | 12,854,654 | 7,408,314 | 57,787 | 52,979,988 | 37,551,494 | 3 43 | 1 11 | 5 0 |
| T&D | 74h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,700,630 | 258,958 | 15,441,672 | 32,777,182 | 12,855,401 | 7,408,314 | 46,310 | 52,994,587 | 37,552,915 | 3 43 | 1 11 | 5 0 |
| Motors | MTR-111 | ADMIN 00281 | HVAP | EEM - RI | 15,714,109 | 258,958 | 15,455,152 | 32,780,572 | 12,856,578 | 7,408,314 | 36,028 | 53,009,435 | 37,554,284 | 3 43 | 1 10 | 5 0 |
| T&D | 8h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,714,661 | 258,998 | 15,455,664 | 32,781,024 | 12,856,883 | 7,408,314 | 36,224 | 53,009,997 | 37,554,334 | 3 43 | 1 10 | 5 0 |
| T&D | 1h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,731,057 | 258,998 | 15,472,059 | 32,782,952 | 12,857,622 | 7,408,314 | 20,908 | 53,027,980 | 37,555,921 | 3 43 | 1 10 | 5 0 |
| T&D | 47h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,732,858 | 258,998 | 15,473,860 | 32,783,244 | 12,857,715 | 7,408,314 | 19,325 | 53,029,948 | 37,556,088 | 3 43 | 1 09 | 5 0 |
| Motors | PMTR-12a | BRK/ADM 00273 | PMPMTR | EEM - RI | 15,747,076 | 258,998 | 15,488,078 | 32,784,755 | 12,858,228 | 7,408,314 | 5,860 | 53,045,437 | 37,557,358 | 3 42 | 1 09 | 5 0 |
| T&D | 41h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,747,804 | 259,058 | 15,488,746 | 32,785,241 | 12,858,723 | 7,408,314 | 6,114 | 53,046,164 | 37,557,418 | 3 42 | 1 09 | 5 0 |
| T&D | 52h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,756,741 | 259,058 | 15,497,683 | 32,786,157 | 12,859,036 | 7,408,314 | 2,352 | 53,055,859 | 37,558,176 | 3 42 | 1 08 | 5 0 |
| T&D | 34h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,770,959 | 259,058 | 15,511,901 | 32,787,606 | 12,859,539 | 7,408,314 | 15,817 | 53,071,275 | 37,559,374 | 3 42 | 1 08 | 5 0 |
| Motors | PMTR 31a | DINING 00254 | PMPMTR | EEM - RI | 15,777,014 | 259,058 | 15,517,956 | 32,788,213 | 12,859,744 | 7,408,314 | 21,555 | 53,077,827 | 37,559,871 | 3 42 | 1 08 | 5 0 |
| T&D | 61h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,778,470 | 259,178 | 15,519,292 | 32,788,947 | 12,860,963 | 7,408,314 | 21,047 | 53,079,271 | 37,559,979 | 3 42 | 1 08 | 5 0 |
| T&D | 78h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,816,909 | 259,178 | 15,557,731 | 32,792,887 | 12,862,239 | 7,408,314 | 57,381 | 53,120,821 | 37,563,090 | 3 41 | 1 08 | 5 0 |
| T&D | 89h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,836,744 | 259,178 | 15,597,567 | 32,797,205 | 12,863,720 | 7,408,314 | 94,636 | 53,163,875 | 37,566,308 | 3 41 | 1 08 | 5 1 |
| T&D | 23h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,876,662 | 259,178 | 15,617,484 | 32,799,364 | 12,864,461 | 7,408,314 | 113,263 | 53,185,402 | 37,567,918 | 3 41 | 1 08 | 5 1 |
| T&D | 55h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,896,327 | 259,178 | 15,637,149 | 32,800,276 | 12,864,767 | 7,408,314 | 122,433 | 53,195,790 | 37,568,641 | 3 40 | 1 07 | 5 1 |
| T&D | 76h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,954,713 | 259,178 | 15,695,535 | 32,806,855 | 12,866,864 | 7,408,314 | 187,125 | 53,269,158 | 37,573,623 | 3 39 | 1 07 | 5 1 |
| Motors | MTR 274 | GROCERY 00920 | HVAP | EEM - RI | 15,980,785 | 259,178 | 15,721,607 | 32,809,534 | 12,867,748 | 7,408,314 | 211,509 | 53,297,106 | 37,575,499 | 3 39 | 1 07 | 5 1 |
| T&D | 15h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,982,252 | 259,283 | 15,722,969 | 32,810,723 | 12,868,550 | 7,408,314 | 210,974 | 53,298,561 | 37,575,592 | 3 39 | 1 07 | 5 1 |
| T&D | 75h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 15,989,535 | 259,283 | 15,730,253 | 32,811,366 | 12,868,760 | 7,408,314 | 217,895 | 53,306,334 | 37,576,082 | 3 39 | 1 07 | 5 1 |
| T&D | 35h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,012,176 | 259,283 | 15,752,893 | 32,813,462 | 12,869,623 | 7,408,314 | 239,071 | 53,330,470 | 37,577,577 | 3 39 | 1 07 | 5 1 |
| T&D | 31h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,024,285 | 259,283 | 15,765,002 | 32,814,461 | 12,869,940 | 7,408,314 | 250,549 | 53,343,263 | 37,578,261 | 3 38 | 1 06 | 5 1 |
| T&D | 36h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,034,376 | 259,283 | 15,775,094 | 32,815,293 | 12,870,205 | 7,408,314 | 260,113 | 53,353,924 | 37,578,831 | 3 38 | 1 06 | 5 1 |
| T&D | 44h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,040,431 | 259,283 | 15,781,148 | 32,815,792 | 12,870,363 | 7,408,314 | 265,852 | 53,360,321 | 37,579,173 | 3 38 | 1 06 | 5 1 |
| Motors | MTR 273 | GROCERY 00920 | HVAP | EEM - RI | 16,080,715 | 259,283 | 15,821,433 | 32,819,001 | 12,871,449 | 7,408,314 | 304,002 | 53,402,757 | 37,581,324 | 3 38 | 1 05 | 5 1 |
| T&D | 65h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,082,182 | 259,388 | 15,822,795 | 32,820,227 | 12,872,267 | 7,408,314 | 303,379 | 53,404,188 | 37,581,393 | 3 38 | 1 05 | 5 1 |
| T&D | 70h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,094,701 | 259,388 | 15,835,313 | 32,821,289 | 12,872,603 | 7,408,314 | 315,090 | 53,417,295 | 37,581,982 | 3 37 | 1 05 | 5 1 |
| T&D | 79h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,100,961 | 259,388 | 15,841,573 | 32,821,820 | 12,872,771 | 7,408,314 | 320,945 | 53,423,849 | 37,582,276 | 3 37 | 1 05 | 5 1 |
| T&D | 26h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,110,920 | 259,388 | 15,851,532 | 32,822,623 | 12,873,080 | 7,408,314 | 330,258 | 53,434,276 | 37,582,744 | 3 37 | 1 05 | 5 1 |
| T&D | 28h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,120,584 | 259,388 | 15,861,197 | 32,823,337 | 12,873,311 | 7,408,314 | 339,429 | 53,444,391 | 37,583,195 | 3 37 | 1 05 | 5 1 |
| T&D | 20h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,130,249 | 259,388 | 15,870,861 | 32,824,051 | 12,873,542 | 7,408,314 | 348,599 | 53,454,507 | 37,583,645 | 3 37 | 1 05 | 5 1 |
| T&D | 72h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,136,692 | 259,388 | 15,877,304 | 32,824,527 | 12,873,696 | 7,408,314 | 354,713 | 53,461,250 | 37,583,946 | 3 37 | 1 05 | 5 1 |
| T&D | 4h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,143,865 | 259,388 | 15,884,477 | 32,825,101 | 12,873,891 | 7,408,314 | 361,422 | 53,468,729 | 37,584,251 | 3 37 | 1 04 | 5 1 |
| T&D | 10h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,146,777 | 259,388 | 15,887,389 | 32,825,302 | 12,873,952 | 7,408,314 | 364,193 | 53,471,761 | 37,584,372 | 3 37 | 1 04 | 5 1 |
| Motors | MTR-472a | MWR - 01322 | Fan Motor | EEM - RI | 16,164,985 | 259,388 | 15,905,597 | 32,826,562 | 12,874,348 | 7,408,314 | 381,495 | 53,490,720 | 37,585,123 | 3 36 | 1 04 | 5 1 |
| Motors | MTR-465a | MWR - 01322 | Fan Motor | EEM - RI | 16,165,501 | 259,408 | 15,906,093 | 32,827,088 | 12,874,527 | 7,408,314 | 381,301 | 53,491,231 | 37,585,137 | 3 36 | 1 03 | 5 1 |
| Motors | MTR 468a | MWR - 01322 | Fan Motor | EEM - RI | 16,166,017 | 259,428 | 15,906,589 | 32,827,615 | 12,874,706 | 7,408,314 | 381,107 | 53,491,742 | 37,585,152 | 3 36 | 1 03 | 5 1 |
| Motors | MTR-463a | MWR - 01322 | Fan Motor | EEM - RI | 16,166,533 | 259,448 | 15,907,085 | 32,828,141 | 12,874,885 | 7,408,314 | 380,913 | 53,492,253 | 37,585,167 | 3 36 | 1 03 | 5 1 |
| Motors | MTR 470a | MWR - 01322 | Fan Motor | EEM - RI | 16,167,049 | 259,468 | 15,907,581 | 32,828,667 | 12,875,064 | 7,408,314 | 380,718 | 53,492,764 | 37,585,182 | 3 36 | 1 03 | 5 1 |
| Motors | MTR-471a | MWR - 01322 | Fan Motor | EEM - RI | 16,167,565 | 259,488 | 15,908,077 | 32,829,193 | 12,875,243 | 7,408,314 | 380,524 | 53,493,275 | 37,585,197 | 3 36 | 1 03 | 5 1 |
| Motors | MTR-473a | MWR - 01322 | Fan Motor | EEM - RI | 16,168,081 | 259,508 | 15,908,573 | 32,829,720 | 12,875,422 | 7,408,314 | 380,330 | 53,493,785 | 37,585,212 | 3 36 | 1 03 | 5 1 |
| T&D | 73h | | Transformer | Amorphous Core/Improvd Windings (No Load & Load Loss Reduction) - ROP | 16,168,597 | 259,528 | 15,909,069 | 32,830,246 | 12,875,601 | 7,408,314 | 380,135 | 53,494,296 | 37,585,227 | 3 36 | 1 03 | 5 1 |
| | | | | | 16,228,971 | 259,528 | 15,969,444 | 32,834,374 | 12,877,033 | 7,408,314 | 434,605 | 53,556,327 | 37,586,884 | 3 35 | 1 03 | 5 1 |

## Table 3.12a. Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Present Values Aggregated by Category

| End Use | Estimated Current Facility Energy Use (MBtu) | Estimated Post-Retrofit Facility Energy Use (MBtu) | Estimated Facility Annual Energy Savings (MBtu) | Estimated Percent Energy Savings | First Year Energy Cost Savings (1994 $) | Estimated Investment Required for Retrofits (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|
| Heating | 97,527 | 58,926 | 38,602 | 40% | NA | NA | NA | NA | NA | NA |
| Cooling | 127,957 | 113,867 | 14,089 | 11% | NA | NA | NA | NA | NA | NA |
| Vent | 40,605 | 35,906 | 4,699 | 12% | NA | NA | NA | NA | NA | NA |
| Lights | 73,953 | 39,720 | 34,233 | 46% | NA | NA | NA | NA | NA | NA |
| Misc. Equip. | 99,406 | 99,406 | 0 | 0% | | | | | | |
| Hot Water | 107,144 | 66,539 | 40,605 | 38% | NA | NA | NA | NA | NA | NA |
| Totals | 546,592 | 414,364 | 132,228 | 24% | 2,000,957 | 7,679,657 | 33,718,120 | 26,038,463 | 4.39 | 3.9 |

## Table 3.12b. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resources: Present Values Aggregated by Category

| End Use | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Present Value of Installed Cost (1994 $) | Present Value of Rebate (1994 $) | Present Value of Net Installed Cost (1994 $) | Present Value of Energy Savings (1994 $) | Present Value of Demand Savings (1994 $) | Present Value of O&M Savings (1994 $) | Present Value of Replacement Savings (1994 $) | Present Value of Total Savings (1994 $) | Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 935 | 1,129 | 935 | 1,129 | 90 | 0 | 90 | 326,119 | 213,310 | -1,550 | 0 | 537,879 | 537,789 | 5,976.43 | 0.0 |
| Central Chillers | 1,099 | 2,110 | 1,099 | 2,110 | 432,000 | 78,000 | 354,000 | 748,165 | 524,852 | -25,831 | 0 | 1,247,186 | 893,186 | 3.52 | 4.9 |
| Controls | 1,508 | 2,186 | 1,508 | 2,186 | 150,400 | 0 | 150,400 | 427,670 | 104,982 | 0 | -68,127 | 464,525 | 314,125 | 3.09 | 5.6 |
| DHW & A/C | 4,345 | 2,198 | 4,345 | 2,198 | 118,124 | 0 | 118,124 | 586,244 | 415,428 | -32,719 | -53,507 | 915,446 | 797,322 | 7.75 | 2.2 |
| Envelope | 21,177 | 17,099 | 21,177 | 17,099 | 1,496,453 | 95,546 | 1,400,907 | 7,216,199 | 4,403,737 | 0 | -789,727 | 10,830,209 | 9,429,302 | 7.73 | 2.2 |
| Fam. Hsg. HVA | 76,678 | 15,226 | 76,678 | 15,226 | 7,086,917 | 0 | 7,086,917 | 8,254,166 | 4,037,704 | 281,903 | -241,994 | 12,331,780 | 5,244,863 | 1.74 | 9.9 |
| Heating | 4,682 | 727 | 4,713 | 742 | 235,202 | 0 | 235,202 | 660,450 | 40,480 | 0 | 22,215 | 723,146 | 487,944 | 3.07 | 5.6 |
| HVAC | 15,058 | 1,690 | 15,058 | 1,690 | 279,627 | 0 | 279,627 | 2,217,760 | 347,265 | 0 | -126,243 | 2,438,782 | 2,159,155 | 8.72 | 2.0 |
| Lighting | 5,992 | 0 | 5,992 | 0 | 231,867 | 51,040 | 180,827 | 2,512,676 | 0 | 719,268 | 0 | 3,231,943 | 3,051,116 | 17.87 | 1.0 |
| Motors | 7,814 | 7,343 | 7,814 | 7,343 | 1,397,273 | 34,942 | 1,362,331 | 2,439,614 | 1,611,399 | -4,133 | -504,490 | 3,542,390 | 2,180,059 | 2.60 | 6.6 |
| T&D | 2,203 | 3,708 | 6,076 | 7,223 | 2,543,519 | 0 | 2,543,519 | 1,314,593 | 927,579 | -109 | 2,147,346 | 4,389,410 | 1,845,890 | 1.73 | 10.0 |
| Vehicles | 14,638 | -180 | 14,638 | -180 | 2,047,000 | 0 | 2,047,000 | 5,688,420 | -25,561 | 6,475,790 | 0 | 12,138,649 | 10,091,649 | 5.93 | 2.9 |
| Wells | 0 | 1,097 | 0 | 1,097 | 210,500 | 0 | 210,500 | 442,299 | 275,857 | -4,305 | 51,131 | 764,981 | 554,481 | 3.63 | 4.7 |
| Totals | 156,128 | 54,331 | 160,032 | 57,862 | 16,228,971 | 259,528 | 15,969,444 | 32,834,374 | 12,877,033 | 7,408,314 | 436,605 | 53,556,327 | 37,586,884 | 3.35 | 5.1 |

## Table 3.13. Non-Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resource: Annualized Values Aggregated by Category

| End Use | First Year Energy Savings (MBtu) | First Year Demand Savings (kW-mo) | Full Implementation Energy Savings (MBtu) | Full Implementation Demand Savings (kW-mo) | Annualized Value of Installed Cost (1994 $) | Annualized Value of Rebate (1994 $) | Annualized Value of Net Installed Cost (1994 $) | Annualized Value of Energy Savings (1994 $) | Annualized Value of Demand Savings (1994 $) | Annualized Value of O&M Savings (1994 $) | Annualized Value of Replacement Savings (1994 $) | Annualized Value of Total Savings (1994 $) | Annualized Net Savings (1994 $) | Savings to Investment Ratio | Discounted Payback Period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 935 | 1,129 | 935 | 1,129 | 5 | 0 | 5 | 18,938 | 12,387 | -90 | 0 | 31,234 | 31,229 | 5,976.43 | 0.0 |
| Central Chillers | 1,099 | 2,110 | 1,099 | 2,110 | 25,086 | 4,529 | 20,557 | 43,446 | 30,478 | -1,500 | 0 | 72,424 | 51,867 | 3.52 | 4.9 |
| Controls | 1,508 | 2,186 | 1,508 | 2,186 | 8,734 | 0 | 8,734 | 24,835 | 6,096 | 0 | -3,956 | 26,975 | 18,241 | 3.09 | 5.6 |
| DHW & A/C | 4,345 | 2,198 | 4,345 | 2,198 | 6,859 | 0 | 6,859 | 34,043 | 24,124 | -1,900 | -3,107 | 53,160 | 46,300 | 7.75 | 2.2 |
| Envelope | 21,177 | 17,099 | 21,177 | 17,099 | 86,898 | 5,548 | 81,350 | 419,042 | 255,723 | 0 | -45,859 | 628,906 | 547,556 | 7.73 | 2.2 |
| Fam. Hsg. HVA | 76,678 | 15,226 | 76,678 | 15,226 | 411,535 | 0 | 411,535 | 479,316 | 234,468 | 16,370 | -14,052 | 716,102 | 304,567 | 1.74 | 9.9 |
| Heating | 4,682 | 727 | 4,713 | 742 | 13,658 | 0 | 13,658 | 38,352 | 2,351 | 0 | 1,290 | 41,993 | 28,335 | 3.07 | 5.6 |
| HVAC | 15,058 | 1,690 | 15,058 | 1,690 | 16,238 | 0 | 16,238 | 128,785 | 20,166 | 0 | -7,331 | 141,619 | 125,381 | 8.72 | 2.0 |
| Lighting | 5,992 | 0 | 5,992 | 0 | 13,464 | 2,964 | 10,501 | 145,910 | 0 | 41,768 | 0 | 187,678 | 177,177 | 17.87 | 1.0 |
| Motors | 7,814 | 7,343 | 7,814 | 7,343 | 81,139 | 2,029 | 79,110 | 141,668 | 93,573 | -240 | -29,296 | 205,705 | 126,595 | 2.60 | 6.6 |
| T&D | 2,203 | 3,708 | 6,076 | 7,223 | 147,701 | 0 | 147,701 | 76,338 | 53,864 | -6 | 124,696 | 254,891 | 107,190 | 1.73 | 10.0 |
| Vehicles | 14,638 | -180 | 14,638 | -180 | 118,869 | 0 | 118,869 | 330,325 | -1,484 | 376,047 | 0 | 704,887 | 586,018 | 5.93 | 2.9 |
| Wells | 0 | 1,097 | 0 | 1,097 | 12,224 | 0 | 12,224 | 25,684 | 16,019 | -250 | 2,969 | 44,422 | 32,199 | 3.63 | 4.7 |
| Totals | 156,128 | 54,331 | 160,032 | 57,862 | 942,411 | 15,071 | 927,340 | 1,906,680 | 747,765 | 430,198 | 25,354 | 3,109,997 | 2,182,657 | 3.35 | 5.1 |

**Table 3.14a.** Summary of Total Minimum Life-Cycle Cost Efficiency Resource: Building EROs

Summary of Energy and Demand Savings

| | |
|---|---|
| Estimated Current Facility Energy Use (MBtu/yr) | 546,592 |
| Estimated Post-Retrofit Facility Energy Use (MBtu/yr) | 414,364 |
| Estimated Facility Annual Energy Savings (MBtu/yr) | 132,228 |
| Estimated Facility Percent Energy Savings | 24% |

Summary of Costs and Benefits

| | Present Value (1994 $) |
|---|---|
| First Year Energy Cost Savings due to Retrofits | 2,000,957 |
| Present Value of Total Savings | 33,718,120 |
| Total Estimated Investment Reequired for Retrofits | 7,679,657 |
| Net Savings of Retrofits | 26,038,463 |
| Savings to Investment Ratio | 4.39 |
| Discounted Payback Period | 3.9 |

**Table 3.14b.** Summary of Total Minimum Life-Cycle Cost Efficiency Resource: Non-Building EROs

Summary of Energy and Demand Savings

| | |
|---|---|
| First Year Energy Savings (MBtu/yr) | 156,128 |
| First Year Demand Savings (kW-mo) | 54,331 |
| Full Implementation Energy Savings (MBtu/yr) | 160,032 |
| Full Implementation Demand Savings (kW-mo) | 57,862 |

Summary of Costs and Benefits

| | Present Value (1994 $) | Annualized Value (1994 $) |
|---|---|---|
| Value of Installed Cost | 16,228,971 | 942,411 |
| Value of Rebate | 259,528 | 15,071 |
| Value of Net Installed Cost | 15,969,444 | 927,340 |
| Value of Energy and Demand Savings | 45,711,408 | 2,654,445 |
| Value of O&M Savings | 7,408,314 | 430,198 |
| Value of Replacement Cost Savings | 436,605 | 25,354 |
| Value of Total Savings | 53,556,327 | 3,109,997 |
| Net Value of Savings | 37,586,884 | 2,182,657 |
| Savings to Investment Ratio | 3.35 | 3.35 |
| Discounted Payback Period | 5.1 | 5.1 |

**Table 3.15a.** Building EROs Constituting the Minimum Life-Cycle Cost Efficiency Resource: Fuel Balance Table

| Fuel Type | Existing Energy Use (MBtu) | Existing Demand (kW) | Resulting Energy Use (MBtu) | Resulting Demand (kW) | Net Energy Use Reduction (MBtu) | Net Demand Reduction (kW) |
|---|---|---|---|---|---|---|
| Chilled Water | 24,085 | NA | 20,118 | NA | 3,969 | NA |
| District Hot Water | 9,238 | NA | 1,558 | NA | 7,680 | NA |
| Electricity | 304,170 | 30,097 | 254,607 | 26,523 | 49,562 | 3,574 |
| Propane | 209,098 | NA | 138,080 | NA | 71,018 | NA |
| Totals | 546,591 | 30,097 | 414,363 | 26,523 | 132,229 | 3,574 |

**Table 3.15b.** Non-Building Constituting the Minimum Life-Cycle Cost Efficiency Resource: Fuel Balance Table

| | Existing | | Conservation | | New Load | | Resulting | | Net Conservation | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fuel Type | Existing Energy Use (MBtu) | Exising Demand (kW-mo) | Energy Use Reduction (MBtu) | Demand Reduction (kW-mo) | Increased Energy Use (MBtu) | Increased Demand (kW-mo) | Resulting Energy Use (MBtu) | Resulting Demand (kW-mo) | Net Energy Use Reduction (MBtu) | Net Demand Reduction (kW-mo) |
| Diesel | 516,808 | NA | 3,116 | NA | 0 | NA | 513,692 | NA | 3,116 | NA |
| Electricity | 272,217 | 399,251 | 43,427 | 57,682 | 1,962 | 180 | 230,753 | 341,389 | 41,465 | 57,862 |
| Gasoline | 81,245 | NA | 81,245 | NA | 0 | NA | 0 | NA | 81,245 | NA |
| Natural Gas | 0 | NA | 0 | NA | 68,784 | NA | 68,784 | NA | -68,784 | NA |
| Propane | 225,780 | NA | 102,990 | NA | 0 | NA | 122,790 | NA | 102,990 | NA |
| Totals | 1,096,050 | 399,251 | 230,778 | 57,682 | 70,746 | 180 | 936,018 | 341,389 | 160,032 | 57,862 |

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# Appendix A

# Electricity Cost Calculations

# Appendix A

# Electricity Cost Calculations

Federal agencies are required to analyze all potential energy investments using a life-cycle costing (LCC) methodology developed by National Institute of Standards and Technology (NIST) (NBS 1987). The NIST LCC methodology proceeds by calculating all relevant costs of a project and discounting them to result in present dollars, and then subtracting that sum from a similarly constructed LCC of a "no-action" baseline. This difference is called the net savings of the action being considered. Actions are recommended for implementation if the net savings is positive and greater than the net savings of any competing actions. This methodology results in minimizing the LCC of energy services at a site.

In order to examine the energy resource opportunities (EROs) at Fort Irwin, marginal fuel costs must be calculated. The marginal, or avoided, cost of electricity service is used in conjunction with the estimated energy savings of an ERO to calculate the dollar value of those savings. Because of the potential complications associated with the use of more than one rate structure, and because of the uncertainty involved with the future of the ISR schedule, it was decided that the base rate represented the best marginal rate for use in the LCC analysis. While the base rate may overestimate the savings available during the first four years of the analysis, it is believed to be the most conservative estimate of savings available given the uncertainty of Fort Irwin's electricity rate in the future. This appendix presents a more detailed description of the calculations performed to determine the appropriate marginal rates that were used for electricity within the Fort Irwin LCC analysis.

## A.1 Methodology

The first step in the LCC process is to determine the present value of all future energy costs associated with an ERO and the no-action baseline. This is done by calculating the current year energy cost, known as the base year energy cost, escalating that cost to represent future real price increases, and then discounting the stream of costs to result in the present value. In accordance with the NIST LCC methodology, only the energy cost relevant to the ERO analysis should be included. The relevant energy cost is the energy cost that can be avoided by the ERO. Any cost that is common to the ERO and the no-action baseline is not relevant as it will cancel itself out when the difference is taken to obtain the net savings.

The relevant energy cost is obtained by using the marginal cost of the fuel. The marginal, or avoided, energy cost of fuel is the appropriate cost to use in conjunction with the estimated energy cost savings of an ERO so that the dollar value of those savings can be calculated. For this reason, it is important that only variable costs, which are affected by the amount of fuel used, are included. A cost is considered variable if the amount of fuel used affects the dollar amount paid. Fixed costs associated with a fuel, such as minimum monthly charges, will be paid despite any increase or reduction in fuel usage, and therefore do not affect the marginal cost.

According to Title 10 of the Code of Federal Regulations (CFR) Part 436 Subpart A 436.19, the life-cycle cost is the sum of the present values of investment costs, non-fuel operation and maintenance costs, replacement costs, and energy costs. The energy cost stream is composed of annual expenditures. Per 10 CFR Part 436 Subpart A 436.17, the base year energy cost is calculated by multiplying the total

amount of energy used in the base year by the price per unit of energy in the base year. The present value of energy costs over the project study period is the product of the energy cost in the base year multiplied by the appropriate modified uniform present worth factor adjusted for energy price escalation for the applicable region, sector, fuel type, and study period. To determine the energy cost, it is necessary to calculate the appropriate cost of energy for each fuel type.

## A.2 Electricity cost Determination

Electricity rates are composed primarily of charges for demand and charges for consumption. Demand charges are based on the maximum (peak) demand for kilowatts (kW) for a given duration within some time frame, such as the peak one hour demand within the billing period. Consumption charges are based on the total electricity consumption, in kilowatt-hours (kWh), within the billing period. These charges can be flat rates per kWh, or they can vary with the time of use, which can be defined as on-peak and off-peak for the utility during a 24 hour time period, or as seasonal to allow for changes in winter and summer consumption patterns.

The determination of the appropriate electricity rate for this analysis presented a unique challenge as the cost of electricity at Fort Irwin is complicated by the structure of the rate schedule under which Fort Irwin purchases its electricity. Fort Irwin purchases its electricity from Southern California Edison (SCE) under SCE's time-of-use rate, schedule TOU-8, with an Incremental Sales Rate (ISR) rider. The ISR essentially adds a declining block rate component to the time-of-use structure in that it provides a base level of energy at a fixed monthly charge, while consumption above the base level is billed at the incremental rate, which is lower than the base energy rate in during on-peak and mid-peak time periods. The structure is unlike a declining block rate structure in that Fort Irwin is billed for the base level of energy regardless of whether it is used, so valuing energy savings becomes more complicated if consumption drops below this level. In determining the appropriate electricity rates for valuation of savings, then, it is important to understand current consumption and the potential ramifications if proposed energy resource opportunities (EROs) cause this consumption to drop below the established base level. Such an understanding makes it possible to more accurately reflect the actual marginal rate at which energy savings should be valued.

### A.2.1 Fort Irwin Electricity Rate Structure

The electricity rate agreement between Fort Irwin and Southern California Edison is known as the Incremental Sales Rate (ISR). The ISR is essentially a time-of-use rate structure with fixed and incremental components. There are six distinct times of use. During the summer months, June through September, Fort Irwin is charged for on-peak, mid-peak, and off-peak consumption. The remaining eight months are divided into mid-peak, off-peak, and super off-peak periods. Each of the six periods is billed at a unique rate. Table A.1 lists the applicable consumption rates for each time period.

A demand charge is assessed in the summer months for the maximum demand during the on-peak and mid-peak periods. A non-time related demand charge is assessed for the maximum demand during each month, regardless of the time period in which it occurs. Table A.2 lists the applicable demand rates for each time period.

**Table A.1.** Electricity Rates at Fort Irwin ($/kWh)

| Rate Component | Summer On-Peak | Summer Mid-Peak | Summer Off-Peak | Winter Mid-Peak | Winter Off-Peak | Winter Super Off-Peak |
|---|---|---|---|---|---|---|
| Base | 0.02676 | 0.02676 | 0.02676 | 0.02676 | 0.02676 | 0.02676 |
| Base Adjustment | 0.11076 | 0.03841 | 0.01401 | 0.05012 | 0.01659 | 0.01659 |
| Base Total | 0.13752 | 0.06517 | 0.04077 | 0.07688 | 0.04335 | 0.04335 |
| Incremental | 0.01927 | 0.01165 | 0.00827 | 0.02443 | 0.01672 | 0.01142 |
| Incr. Adjustment | 0.04082 | 0.04082 | 0.04082 | 0.04082 | 0.04082 | 0.04082 |
| Incremental Total | 0.06009 | 0.05247 | 0.04909 | 0.06525 | 0.05754 | 0.05224 |

**Table A.2.** Demand Rates at Fort Irwin ($/kW)

| Rate Component | Summer On-Peak | Summer Mid-Peak | Summer Off-Peak | Winter Mid-Peak | Winter Off-Peak | Winter Super Off-Peak |
|---|---|---|---|---|---|---|
| Base | 15.75 | 2.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| Base Adjustment | 3.15 | 0.00 | 0.00 | 3.15 | 0.00 | 0.00 |
| Base Total | 18.90 | 2.35 | 0.00 | 3.15 | 0.00 | 0.00 |
| Incremental | 2.54 | 0.27 | 0.00 | 0.15 | 0.00 | 0.00 |

For each of the six time periods, the utility has established baseline levels of consumption and demand, which are computed using two previous years of Fort Irwin's consumption history. In a given month, Fort Irwin is charged for the base levels of energy and demand at the rates outlined in the tariff, regardless of whether they were consumed. If consumption or demand exceeds the baseline established for any time period, the customer is charged the incremental rate on the extra consumption. This incremental rate is lower than the base rate during the on-peak and mid-peak periods, but is higher in the off-peak period.

Due to the type of rate structure under which Fort Irwin receives its electricity, there are three possible rates at which the marginal value of savings could be calculated:

1. incremental rate - the rate charged for consumption/demand above an established base level. The incremental rate structure is in place through 1997, but can be renewed. According to SCE personnel, the base level established due to use of the ISR would most likely not be reevaluated.

2. base rate - the rate charged for consumption/demand up to the established base level, and the effective marginal rate if the base level were to be reevaluated after 1997; or if the Fort were to discontinue the use of the ISR after 1997.

3. zero rate - any electric savings which reduce consumption/demand below the established base level between the first year of the analysis and 1997 must be valued at zero as the base rate is essentially "fixed" during the first five years. If the base remains on the ISR, and if the base level remains unchanged, then the zero rate can be applicable throughout the analysis period.

Discussions with SCE regarding the rate structures raised significant uncertainty as to whether Fort Irwin would be able to renew the ISR rider when the clause expires in 1997.[a] Because of the uncertainty, it was determined that the appropriate marginal rate for use in the analysis should be the base rate as explained above in number 2. Since the ISR will be in effect until 1997 and the analysis period is assumed to start in 1994, this presents some complications.

Use of the base rate to evaluate electricity savings for the first four years of the analysis period translates into an overestimation of savings for those years. The alternative of using the ISR rate for the entire analysis period may underestimate savings for years after 1997 or may overestimate savings, as use of the ISR's lower rates in certain time periods could result in more cost-effective measures than would be recommended under the base rate. Use of more than one rate during the analysis period would have resulted in a very time-consuming and challenging process. For informational purposes, the remainder of this appendix discusses the determination of the appropriate marginal rate to use for the first four years of the analysis, proposes a methodology for incorporation of the appropriate rate, and outlines some of the complications associated with the use of more than one rate.

### A.2.2 Determination of Applicable Rate Structures

In order to determine the most appropriate rate to use for the LCC analysis, the current consumption at the Fort, as well as estimates of future electric requirements due to construction activities, was examined. Electricity consumption data from one year was used, broken down into monthly time-of-use consumption levels (see Table A.3).

If it were assumed that electricity consumption was expected to remain unchanged, these consumption levels would be used for the analysis. It is known, however, that Fort Irwin is constructing 172 new housing units, and has an additional 220 housing units in the design phase. Because this construction will affect the consumption of electricity, its impact must be estimated and included in the analysis. The next step, then, is to make an estimate of the electricity that will be required by the new housing units and add it to the monthly time-of-use (TOU) profile to determine the predicted electric consumption (see Table A.4). The total electric requirement was divided into time-of-use estimates for the housing units, and then these were further subdivided into monthly estimates based on the number of days in the billing period for that particular time (see Tables A.5 and A.6). The predicted annual and monthly electric consumption level assumes that no other construction other than the 392 housing units planned would occur, and that personnel levels would remain constant at the base.

(a) Personal Communication, Ted Gold, Southern California Edison, December 16, 1993.

## Table A.3. Actual kWh Consumed

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-7/23/92 | 1,715,180 | 2,168,914 | 3.478,626 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 1,923,276 | 2,542,250 | 3,970,474 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 1,666,116 | 2,173,673 | 4,032,211 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 572,746 | 683,204 | 835,703 | 2,143,697 | 1,548,798 | 848,252 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 2,020,977 | 1,947,806 | 957,217 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | 1,040,692 | 2,968,672 | 1,011,436 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 2,044,126 | 1,870,610 | 794,723 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 2,028,861 | 1,761,561 | 969,978 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 2,032,063 | 1,555,015 | 878,122 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 2,233,888 | 1,852,443 | 989,669 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 2,781,174 | 2,011,733 | 1,046,293 |
| 12 | 5/25-6/24/93 | 1,261,365 | 1,626,183 | 2,390,282 | 450,150 | 627,534 | 225,286 |

## Table A.4. Predicted kWh Consumption

| Period | Dates | Summer On | Summer Mid | Summer Off | Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 1,767,413 | 2,247,264 | 3,635,326 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 1,973,768 | 2,617,988 | 4,121,950 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 1,721,831 | 2,257,246 | 4,199,357 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 588,416 | 706,709 | 882,713 | 2,227,714 | 1,626,352 | 903,186 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 2,139,365 | 2,057,087 | 1,034,625 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | 1,159,080 | 3,077,953 | 1,088,844 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 2,170,152 | 1,986,942 | 877,125 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 2,143,430 | 1,867,317 | 1,044,888 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 2,142,813 | 1,657,246 | 950,535 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 2,356,095 | 1,965,249 | 1,069,574 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 2,888,105 | 2,110,439 | 1,116,209 |
| 12 | 5/25-6/24/93 | 1,301,410 | 1,686,251 | 2,510,418 | 476,883 | 652,210 | 242,765 |

**Table A.5.** Estimates for new housing units under construction or planned at Fort Irwin

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 52,233 | 78,350 | 156,700 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 50,492 | 75,738 | 151,476 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 55,715 | 83,573 | 167,146 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 15,670 | 23,505 | 47,010 | 84,017 | 77,554 | 54,934 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 118,388 | 109,281 | 77,408 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | 118,388 | 109,281 | 77,408 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 126,026 | 116,332 | 82,402 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 114,569 | 105,756 | 74,910 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 110,750 | 102,231 | 72.413 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 122,207 | 112,806 | 79,905 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 106,931 | 98,706 | 69,916 |
| 12 | 5/25-6/24/93 | 40,045 | 60,068 | 120,136 | 26,733 | 24,676 | 17,479 |
| Total kWh | | 214,156 | 321,234 | 642,468 | 928,009 | 856,623 | 606,775 |
| # of Units | Total kWh | Summer on Peak | Mid Peak | Off Peak | Mid Peak | Off Peak | Super-Off Peak |
| 172 | 1,380,065 | 82,804 | 124,206 | 248,412 | 358,817 | 331,215 | 234,611 |
| 220 | 2,189,200 | 131,352 | 197,028 | 394,056 | 569,192 | 525,408 | 372,164 |
| Totals: | | | | | | | |
| 392 | 3,569,265 | 214,156 | 321,234 | 642,468 | 928,009 | 856,623 | 606,775 |

This predicted consumption level was then compared to the base levels established by SCE for each month (see Table A.7), and from this, the percentage savings required to drop the consumption level below the base level for any given month and time period was determined (see Tables A.8 and A.9).

Table A.10 lists the number of time periods that fall into each savings percentage category, based on Table A.8. The savings percentage categories indicate the savings required to reach the base level. Any savings above this rate in each time period will cause the consumption level to drop below the base level, thus requiring use of the zero rate to value the savings associated with that time period. Table A.11 lists the electricity savings calculated for other installations. These figures provide information regarding the potential effects of energy reduction on the value of savings.

These tables indicate that for 13 out of 41 time periods (one time period out of 42 had consumption listed below the base level), savings of 30% or greater would be required to drop consumption below the base level in those periods; for 30 out of 41 time periods, savings of 20% or greater would be required; and for 11 out of 41 time periods, savings of less than 20% would be required to drop consumption below the base level. The potential ramifications of this will be discussed more fully in another section.

## Table A.6. Number of Days

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 30 | 30 | 30 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 29 | 29 | 29 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 32 | 32 | 32 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 9 | 9 | 9 | 22 | 22 | 22 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 31 | 31 | 31 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | 31 | 31 | 31 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 33 | 33 | 33 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 30 | 30 | 30 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 29 | 29 | 29 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 32 | 32 | 32 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 28 | 28 | 28 |
| 12 | 5/25-6/24/93 | 23 | 23 | 23 | 7 | 7 | 7 |

## Table A.7. Base Level kWh

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 1,208,044 | 1,646,208 | 2,710,710 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 1,208,044 | 1,646,208 | 2,710,710 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 1,208,044 | 1,646,208 | 2,710,710 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 350,722 | 477,931 | 786,980 | 1,321,451 | 1,065,764 | 563,997 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 1,862,044 | 1,501,759 | 794,723 |
| 12 | 5/25-6/24/93 | 926,167 | 1,262,093 | 2,078,211 | 434,477 | 350,410 | 185,435 |

**Table A.8.** Percentage kWh Savings Required to Reach Base Level

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 31.6% | 26.7% | 25.4% | NA | NA | NA |
| 2 | 7/23-8/21/92 | 38.8% | 37.1% | 34.2% | NA | NA | NA |
| 3 | 8/21-9/22/92 | 29.8% | 27.1% | 35.4% | NA | NA | NA |
| 4 | 9/22-10/23/92 | 40.4% | 32.4% | 10.8% | 40.7% | 34.5% | 37.6% |
| 5 | 10/23-11/23/92 | NA | NA | NA | 13.0% | 27.0% | 23.2% |
| 6 | 11/23-12/24/92 | NA | NA | NA | NA | 51.2% | 27.0% |
| 7 | 12/24/92 | NA | NA | NA | 14.2% | 24.4% | 9.4% |
| 8 | 1/26-2/25/93 | NA | NA | NA | 13.1% | 19.6% | 23.9% |
| 9 | 2/25-3/26/93 | NA | NA | NA | 13.1% | 9.4% | 16.4% |
| 10 | 3/26-4/27/93 | NA | NA | NA | 21.0% | 23.6% | 25.7% |
| 11 | 4/27-5/25/93 | NA | NA | NA | 35.5% | 28.8% | 28.8% |
| 12 | 5/25-6/24/93 | 28.8% | 25.2% | 17.2% | 8.9% | 46.3% | 23.6% |
| Total | | 33.3% | 29.8% | 28.4% | 16.5% | 29.8% | 24.2% |

**Table A.9.** kWh Difference Between Base and Predicted

| Period | Dates | Summer On | Summer Mid | Summer Off | Winter Mid | Winter Off | Winter Super-Off |
|---|---|---|---|---|---|---|---|
| 1 | 6/23-723/92 | 559,369 | 601,056 | 924,616 | 0 | 0 | 0 |
| 2 | 7/23-8/21/92 | 765,724 | 971,780 | 1,411,240 | 0 | 0 | 0 |
| 3 | 8/21-9/22/92 | 513,787 | 611,038 | 1,488,647 | 0 | 0 | 0 |
| 4 | 9/22-10/23/92 | 237,694 | 228,778 | 95,733 | 906,263 | 560,588 | 339,189 |
| 5 | 10/23-11/23/92 | 0 | 0 | 0 | 277,321 | 555,328 | 239,902 |
| 6 | 11/23-12/24/92 | 0 | 0 | 0 | NA | 1,576,194 | 294,121 |
| 7 | 12/24/92-1/26/93 | 0 | 0 | 0 | 308,108 | 485,183 | 82,402 |
| 8 | 1/26-2/25/93 | 0 | 0 | 0 | 281,386 | 365,558 | 250,165 |
| 9 | 2/25-3/26/93 | 0 | 0 | 0 | 280,769 | 155,487 | 155,812 |
| 10 | 3/26-4/27/93 | 0 | 0 | 0 | 494,051 | 463,490 | 274,851 |
| 11 | 4/27-5/25/93 | 0 | 0 | 0 | 1,026,061 | 608,680 | 321,486 |
| 12 | 5/25-6/24/93 | 375,243 | 424,158 | 432,207 | 42,406 | 301,800 | 57,330 |
| Total kWh | | 2,451,818 | 2,836,810 | 4,352,443 | 3,616,365 | 5,072,307 | 2,015,258 |

**Table A.10.** Percentage Savings Available According to Time Period

| Percentage Savings Available | Number of Periods |
|---|---|
| Less than 10% | 3 |
| 10% - 20% | 8 |
| 20% - 30% | 17 |
| 30% - 40% | 9 |
| 40% - 50% | 3 |
| Greater than 50% | 1 |

**Table A.11.** Energy and Demand Savings Estimates for Other Facilities

| Base | Existing Electricity Consumption | Resulting Electricity Consumption | Percent Savings | Existing Demand | Resulting Demand | Percent Savings |
|---|---|---|---|---|---|---|
| Cape Canaveral | 655,549 | 504,303 | 23% | 362,135 | 181,353 | 50% |
| Fort Drum | 361,263 | 266,845 | 26% | NA | NA | NA |
| Griffiss AFB | 293,296 | 252,457 | 14% | NA | NA | NA |
| Fort Lewis | | | 25% | | | |
| Patrick AFB | 370,803 | 275,021 | 26% | | | |
| Robins AFB | 918,386 | 766,049 | 17% | 545,781 | 386,321 | 29% |
| Fort Stewart | 981,921 | 850,147 | 13% | NA | NA | NA |
| Vandenberg AFB | 681,787 | 555,575 | 19% | NA | NA | NA |

From Table 11, it can be seen that the range of calculated savings for other installations falls between 13% and 26%; and the mean savings has been 19% over the baseline consumption level. Therefore, it is likely that the potential electricity savings could drop the consumption level below the base level, requiring a "dual" rate to be used in the valuation of savings - the incremental rate and the zero rate. These figures indicate that the appropriate rate for the valuation of savings is the incremental rate up to the point at which energy savings above the base level have been exhausted, when they should then be valued at the zero rate. The next section discusses the proposed methodology for the valuation of electricity savings.

**Calculation of Energy Savings**

The calculation of energy savings for each time of use was based on the following formula:

$$ES^t = E_b^t - E_r^t$$

Where $ES^t$= Energy savings for each time of use
$E_b^t$= Baseline energy consumption for each time of use
$E_r^t$= Resulting energy consumption for each time of use

The initial valuation of this energy savings will be in present value terms, using a modified uniform present value factor (UPV*) to account for increasing future energy costs and the time value of money. The energy cost savings are calculated using the following formula:

$$PV(ES^t) = (ES^t \times R_i^t \times UPV_{25}^*)$$

Where $PV(ES^t)$= Present value of energy savings for each TOU
$ES^t$= Energy savings for each TOU
$R_i^t$= Incremental electricity rate for each TOU
$UPV^*_n$= UPV* for each time period n

**Valuation of Savings**

Assuming no periodic re-evaluation of the base level, all energy savings would be valued at the incremental rate. The EROs will be evaluated using a number of prices, appropriate to season and time of use, as illustrated in Equation 3:

$$C = R_P \times E_P + R_M \times E_M + R_O \times E_O$$

where C= Electricity cost of ERO
$R_P$= On-peak rate
$E_P$= On-peak consumption
$R_M$= Mid-peak rate
$E_M$= Mid-peak consumption
$R_O$= Off-peak rate
$E_O$= Off-peak consumption

Since the base energy charge is fixed, a ceiling of energy cost savings will exist for each time period at the point where incremental consumption is equal to zero. Because of this, the actual valuation of savings will require two steps. The net savings and SIR must be calculated for all EROs so that they can be ranked, then they will have to be recalculated after appropriate adjustments have been made to energy and demand savings.

The first step would be to rank all cost-effective EROs in order of SIR. The analysis proceeds by adding or subtracting the electricity savings in each time period for each ERO from the total predicted consumption, beginning with the ERO with the highest SIR. This continues until the cumulative energy

or demand savings for any time of use equals the maximum savings available, or the point at which incremental consumption equals zero. This is the critical ERO for the time of use in question, or the point at which actual consumption equals the established base level.

The next step would be to set the dollar savings for that time of use to zero for each ERO below the critical ERO, because there can be no energy or demand cost savings below the base level. The remaining EROs are then reevaluated under the mixed incremental rate / zero rate pricing scheme. Using Equation 3 as an example, we would set $R_P$ to zero, assuming that only the on-peak savings potential had been exhausted, while $R_M$ and $R_O$ would remain at their incremental price levels. This procedure would be repeated until a critical ERO is established for each time of use, below which all savings, the savings available in each time period, are valued at the zero rate.

This method would yield a list of EROs with potentially less total dollar savings than the original list. EROs at the top of the list will see full incremental savings, EROs in the middle of the list will see dollar savings only during certain times of use, and EROs at the bottom of the list will have no dollar savings associated with energy and demand reductions. For some EROs, the loss of energy cost savings will be sufficient to cause them to become cost-ineffective, and as such, they should be discarded. What remains will be a list of cost-effective EROs that take into account a limited amount of available dollar savings.

**Integration with FEDS**

A problem that arises with this method is the incorporation of FEDS data. The FEDS EROs taken together will represent some level of energy savings in each time of use. The FEDS EROs alone might show sufficient energy savings in the first period to reduce consumption to below the established base levels, which will throw off the analysis of manual EROs as described above.

FEDS and manual LCC output cannot be combined on an individual ERO basis because the FEDS analysis incorporates interactive effects. To alleviate this problem, FEDS EROs should be treated on a building set level. Aggregating the energy savings for EROs at this level should accurately account for interactive effects, since interaction among EROs should be contained within discrete building sets. Once FEDS EROs are grouped in this way, a net savings and SIR can be calculated for each building set, and they can be incorporated into the list of EROs described above.

**Determining the Appropriate Electricity Consumption Baseline**

In a previous section, the predicted electricity consumption was calculated on a monthly, time-of-use, basis. These calculations assume that the annual data used represent a typical consumption year, that personnel levels would not change, that all current and planned housing units would be fully occupied and are not replacing any old housing, and that no other construction or demolition will occur that would significantly affect energy consumption.

The next problem to be faced is whether the ERO energy and demand savings should be subtracted on a monthly, time-of-use basis; or whether the subtractions should occur on an annual level. Calculations based on a monthly basis allow the valuation of savings to be more accurate since monthly variations would be incorporated, however, these calculations would require the savings for each ERO to be divided into monthly components. This would mean that instead of six consumption figures representing the entire year, 72 consumption figures would need to be calculated (one set of six for each of the twelve months). Conversely, calculations based on an annual basis would not require the monthly consumption

figures but could overvalue savings as individual month decreases in consumption may cause the level to drop below the base level for that month, but remain above the base level for the year.

**Other Complications**

The methodology outlined in the previous section assumes that the ISR is in effect throughout the analysis period and that the base level is never re-evaluated. Realistically, however, it is unknown as to whether the ISR will be in effect after 1997. Ideally, then, the ISR and zero rates should be used to evaluate the energy savings incurred during the first four years of the analysis with the base rate used to value the savings for the remainder of the analysis period.

This valuation method would introduce further challenges and complications into the analysis methodology. Because the base rate is higher than the ISR rate for the on-peak and mid-peak time periods, there may be measures that would not be cost-effective when evaluated under the ISR/zero rate but would become cost-effective under the base rate. Thus, the analysis would need to be performed again on all EROs not found to be cost-effective during the first four years due to the possibility that not all of the savings for each of the time periods were valued at a non-zero rate.

Additionally, another possible scenario could be introduced. Traditionally, EROs have been evaluated assuming that the measure is either implemented immediately or on failure of existing equipment. Because of the potential to have measures become cost-effective when valued at a higher marginal rate, a time-related component would need to be introduced so that measures would be evaluated as "Replace Immediately," "Replace on Failure," and "Replace before Failure" where the replacement before failure would occur when the effective marginal rate switched.

Other complications arise if the ISR remains in effect during the analysis period, but re-evaluation of the base level occurs during one or more of the renewal times. This possibility would introduce requirements such as the re-valuation of savings at base, incremental, and zero rates, depending on whether the new base level was higher or lower than previous levels. If, for example the base level was established at a higher level than in the previous period, any saving between the old base level and the new base level would need to be valued at the base rate instead of the incremental rate, with savings above the new base level evaluated at the incremental rate and savings below the old base level valued at the zero rate. If, on the other hand, the new base level were to be lower than the old base level, another analysis would need to be performed similar to the first to determine new critical EROs.

All of these complications are compounded further in determining a method for incorporating the multitude of rate structures and time periods within the FEDS framework.

**Conclusions**

Because of the potential complications associated with the use of more than one rate structure, and because of the uncertainty involved with the future of the ISR schedule, it was decided that the base rate represented the best marginal rate for use in the LCC analysis. While the base rate may overestimate the savings available during the first four years of the analysis, it is believed to be the most conservative estimate of savings available given the uncertainty of Fort Irwin's electricity rate in the future.

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