ENVIRONMENTAL IMPACT DETERMINATION

Based on

The State Energy Conservation Plan and
Environmental Assessment

Submitted to the FEA by

The State of Pennsylvania for Approval and
Funding under the Provisions

of

Title III, Part C of the Energy Policy and Conservation Act;
State Energy Conservation Program

Prepared by

The Office of Energy Conservation
Federal Energy Administration

I. Introduction

Title III, Part C of the Energy Policy and Conservation Act (EPCA) establishes the State Energy Conservation Program (SECP). The SECP will provide up to $22.5 million to the States and Territories in FY 1977 and up to $50 million in FY 1978 for implementation of State developed and State administered programs. Under the FY 1977 funding formula, Pennsylvania is eligible for an award of $1,045,000. The objective of the SECP is to promote the conservation of energy and to reduce the rate of growth of energy demand.

An Environmental Assessment (EA) of the probable nationwide impacts of the SECP was undertaken by FEA. On the basis of said EA, a Determination was published in the Federal Register, Vol. 41. No. 117 (June 16, 1976) as follows:

> In accordance with FEA's obligations under the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), an evaluation of the potential environmental impacts of the program for State energy conservation plans has been prepared by FEA. While certain adverse environmental impacts have been identified, they were found not to be "significant" as that term is used under NEPA. The overall impacts of the various program measures taken either separately or in combination are clearly beneficial.
>
> The nature and degree of environmental benefit will vary, however, among State energy conservation plans and from program measure to program measure. In the final analysis, the content of any particular State energy conservation plan will be determined by many factors peculiar to that individual State; these include local economic, employment, environmental, social, geographic and climatic conditions.
>
> The FEA evaluation, therefore, in addition to describing the environment to be affected by the plans, the impact of alternative measures likely to be included in the various State plans, and the maximum probable environmental impacts from the implementation of plans in all States, provides formulas for the use of the States which will allow them to compute the environmental residuals likely to flow from measures they propose. This information will be included in the plan reports submitted by the Governors. Prior to approving any plan or making any grants, FEA will review each State's submission of environmental data to determine

whether it entails any significant effects on the quality of the human environment. In any case in which FEA discovers significant effects, based on the information submitted and any supplemental information needed to make an informed judgment, an environmental impact statement will be undertaken by FEA. In cases where there are determined to be no significant effects, FEA will issue a negative determination of environmental impact, citing the State's submission in lieu of a formal environmental assessment pursuant to 10 CFR 203.4.

II. Findings

A review of Pennsyvania's proposed conservation plan has been completed, by FEA, with the following results and observations:

- o No significant adverse environmental impacts are expected to result from plan implementation;
- o Beneficial environmental impacts from plan implementation are expected to have results that substantially outweigh any adverse impacts - but which are, themselves, not considered to be "significant" within the meaning of NEPA;
- o The nature of the process by which Pennsylvania's plan has been developed has been such that the environmental factors have been identified and considered at each stage of development for each program measure.

III. Program Description

The objective of the SECP is the wise and efficient use of energy. That is:

- o To conserve energy - especially non-renewable fossil fuels;

- To increase the number of output units per BTU of energy input, e.g., miles per gallon of gasoline, square feet of buildings space illuminated, heated or cooled per kilowatt hour, therm or gallon, etc.; and, in general,

- To eliminate waste and inefficiency and, thereby, to promote economic, social, environmental and other benefits.

The program presently does not encompass, provide funding for, or otherwise encourage such actions as:

- Fuel switching;

- Changes in pollution control efforts, air or water quality standards, etc.

In other words, the program is designed primarily to operate within existing social, economic, environmental, political, legal, etc. constraints. The most tangible environmental effects, therefore, are likely to be the changes in environmental residuals which result from the changes in specific fuel consumption. These changes in all cases are net reductions in fuel use and are calculated by subtracting any small increase in energy use that may be occasioned by a program measure from the larger savings. For example:

- Increased use of commuter vanpools, carpools, or mass transit will reduce vehicle miles travelled by removing a number of commuter automobiles from the road. Additional fuel consumed by vans, buses, remaining commuter autos with higher occupancy rates and by autos freed for uses other than commuting as a result of the program must be subtracted in order to arrive at a net savings estimate.

- Reduced lighting levels in some buildings will, during the heating season in some climates, slightly increase fuel requirements for heating and decrease them for cooling. These changes have been shown to be insignificant in terms of environmental impact. The net impact is beneficial.

Because the most tangible environmental effects are the residuals changes resulting from the reductions in fuel use, the most reasonable approach to an environmental analysis, here, is to stress these first order (residuals) changes. This is best done by specific fuel use within each energy use sector.

IV. Impacts

A. Environmental Residuals

If the Pennsylvania goal is achieved, the impact of the plan, as a whole, will be to reduce the State's 1980 energy consumption by 301.61 trillion (10^{12}) BTU; of this, 239.50×10^{12} BTU will be non-electrical and 62.11×10^{12} BTU will come from fuels used to generate electricity. This, measured against the FEA 1980 baseline projection for Pennsylvania of 4,360.96 trillion BTU, equals a 6.9 percent savings.

These savings, measured across end use sectors, result in an absolute decrease in every environmental residual measured from each fuel consumed within each sector. The method of assessing the reduction in residuals was to compare the changes resulting from Pennsylvania's projected fuel savings with a set of residuals calculated (by sector, by fuel) against FEA's baseline consumption forecast. A summary of these calculations is appended. The reductions range from highs of 6.6 percent and 6.3 percent for particulates and occupational injuries respectively, to 1.7 percent for biological oxygen demand.

These reductions reflect the fuel mix of the proposed savings. Where percent changes in residuals are highest, this reflects higher savings of particular fuels in particular sectors, specifically:

- 62.11 trillion BTU are saved in fuels for electrical generation. This represents roughly 5.6 percent of total estimated 1980 fuel input into the electrical sector;
  - An estimated 28 percent of Pennsylvania's 1980 electrical demand will be supplied by non-fossil fuels and an estimated 44 percent by coal.
  - 100 percent of savings will be in fossil fuels with coal being the major contributor;
- 139.63 trillion BTU of non-electrical savings are realized through Pennsylvania's proposed Industrial Energy Conservation Program. Of this 78.44 trillion BTU will come from coal. This reflects this sector's projected 1980 fuel mix (50 percent coal).
- Particulates and occupational hazards are characteristically higher for the production and burning of coal relative to other fuels. Therefore, decreases in these environmental impacts can be expected to be slightly greater than for other residuals.

It should be noted, however, that Pennsylvania's overall fuel mix and projected savings are rather more evenly distributed across fuel types and between electricity and direct burning than is typical of most other States. The changes in environmental residuals, therefore, tend to be more evenly distributed than is generally the case (see appended tables) for residual changes for most States.

The following tables summarize Pennsylvania's fuel consumption patterns and the sectoral impacts of the State's various SECP program measures.

TABLE I

Pennsylvania Energy Consumption (1980)
(By Sector)

Sector	By Primary Fuel	By End Use
	%	%
Residential	13.4	20.3
Commercial	7.0	10.6
Industrial	32.3	48.8
Transportation	20.2	20.2
Elect. Util.	27.0	
Total	99.9	99.9

TABLE II

Pennsylvania Energy Consumption (1980)
(By Fuel)

Fuel	10^{12} BTU	%
Oil-Dist.	322	7.8
Oil-Resid.	477	11.6
N.Gas	773	18.7
Coal	716	17.4
Coke	692	16.8
Diesel	152	3.7
Gasoline	635	15.4
Aircraft	46	1.1
Nuclear	89	2.2
Hydro	223	5.4

TABLE III

Pennsylvania Energy Savings Targets (1980)

A. By Required and Optional Program Measures

Required			Optional		
	Savings			Savings	
Measure	10^{12}BTU	%	Measure	10^{12}BTU	%
1. Therm.Eff.Stds.	25.85	8.6	6. Enforce.55mph.	16.30	5.4
2. Ltg.Eff.Stds.	21.09	7.0	7. Driver Ed.	17.44	5.7
3. Procurement	.07	0.02	8. Used Oil Recycling	1.07	0.4
4. Carpool,Pub.Trans	5.221	1.7	9. Industrial	156.88	52.0
5. R.T.O.R.*	.300	0.1	10. Proj.Conserve	54.142	18.0
Total	52.531	17.42	11. Weatherization	1.66	0.6
			12. MasterMetering	1.583	0.5
			Total	249.075	82.6

B. By Program Type
(Savings in 10^{12} BTU)

Buildings		Transportation		Industrial	
Program	Savings	Program	Savings	Program	Savings
1. T.E.S.	25.85	3. Procur.Auto	.06	9. Industrial	156.88
2. L.E.S.	21.09	4. C.Pool,M.Trans	5.221		
3. Procur. (A.Cond.)	.01	5. R.T.O.R.	.300		
		6. 55MPH	16.30		
10. Proj.Cons.	54.142	7. Driver Ed.	17.44		
11. Weatherization	1.66	8. Used Oil	1.07		
12. M.Metering	1.583				
Total	104.335	X	40.391		156.88
Percent	34.6	X	13.4	X	52.0

*Right-Turn-On-Red

These tables illustrate the comparatively even distribution of Pennsylvania's energy consumption both across fuel types and sectors. This should indicate that conservation opportunities are also fairly evenly distributed. Judging from the Commonwealth's plan, this is, indeed the case. The residential and commercial sectors combined (where building heating, lighting and cooling are the largest energy users) account for about 31 percent of end use consumption; 34.6 percent of targeted savings are from this area. The transportation ratio is 20.2 percent to 13.4 percent and for industry it is 48.8 to 52. This reflects the distribution of conservation and environmental benefit opportunities quite well. The most tangible environmental impacts likely to occur from the program are the changes in the 19 environmental residuals listed on the appended tables. The distribution of these residuals is most sensitive to the fuel and sectoral mix of energy use. In the Pennsylvania case we would expect the distribution of residual reduction (environmental benefits), then, to be relatively even. Reference to the residuals tables will show this to be the case. While the impacts are uniformly beneficial, none is judged to be significant.

In reviewing Pennsylvania's Environmental Assessment of its plan, certain changes were made to its residuals computations to:

- Correct for State specific emission factors used to calculate the FEA base residuals case for 1980; and

- Correct for the coal/coking coal breakdown assumptions used in computing the base case. The residuals from coal and coking coal are dissimilar and both vary from the coefficients used by Pennsylvania in its calculations.

In both cases (above) the result was to make the changes smaller than initially stated in the Commonwealth's submission-but still uniformly beneficial.

As in the case of most (if not all) States, Pennsylvania's electrical purchases come from power generated both in and out of State. While Pennsylvania's computation of the residuals change (percent and absolute) is accurate and based on total fuel mix for all electricity purchased, the reductions will not all be in-State but will be, at least somewhat, regional in nature. Pennsylvania is, however, a net exporter of electricity and, therefore, stands to benefit from electrical savings in surrounding States. These benefits are not quantifiable.

One final caveat is that the total residuals changes posited here are based on the assumption that Pennsylvania's energy savings target will be met. Percent reduction estimates are, as well, subject to the accuracy of the baseline consumption forecast. It is in the nature of such forecasts to be significantly more accurate in the aggregate (national level) than when disaggregated (by region or State).

B. Other Impacts

1. General

Of the program measure groupings shown in Table III above, it can be stated that:

- All three categories of measures will - at least over a 5 to 10 year period - be mildly deflationary and productive of slight increases in employment;
- The transportation measures, as a whole, should slightly decrease traffic related deaths, injuries, and property damage, with whatever slight increase might be associated with RTOR being more than offset by the decrease associated with enforcement of the 55 mph speed limit; and
- Industrial efficiency will improve, and capital requirements in the utilities sector will decline somewhat.

While certain potential adverse impacts can be postulated, none are significant, and none can be quantified with precision or discussed in more than very general terms.

- Where quantification has been attempted of an adverse impact (as with CO emissions incident to new lighting standards in the nationwide case) it has been found that residuals changes are well within the margin of error associated with the projections against which they are measured and the impacts are insignificant.
- In many cases, small adverse impacts have been accounted for and subtracted out in the process of computing the benefit, e.g., fuels used by vans and cars freed for uses other than commuting (as a result of carpooling and vanpooling) are subtracted from fuels saved prior to computing residuals changes.

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2. Specific

Pennsylvania's potential for energy savings is fairly evenly distributed among the energy use sectors and fuels; as stated above, its plan reflects this distribution of opportunities.

1. Residential and Commercial Buildings

Of the total energy savings anticipated in 1980 from the implementation of Pennsylvania's plan, 35 percent can be attributed to program measures directly affecting residential and commercial buildings, such as mandatory thermal and lighting efficiency standards.

- o Manufacture and Installation of Weatherization Materials

  The impact of the actual installation of improvements and repair work will be insignificant. The aggregate environmental impacts can be divided into two major effects: environmental benefits associated with reduced fuel consumption, and small but possibly adverse environmental effects associated with the production of materials to retrofit the structures specified. The important consideration here is that while any adverse environmental effects will terminate when the program expenditures terminate, the environmental benefits will continue to accrue as long as the subject buildings are consuming heating fuel at a rate below their pre-retrofit levels.

  Increased housing costs, due to purchase and installation of insulating materials and the like, are negligible and, in fact, over very short time periods will be more than offset by reduced fuel bills.

- o Other Conservation Devices and Materials

  The manufacture of devices such as clock thermostats may result in minor, but unquantifiable, emissions which, however, will be more than offset by the reduced emissions attributable to their use.

- o Reduced Levels of Lighting and Heating

  The nationwide case (Programmatic EA) referenced above makes note of the potential for minor, seasonal, increases (on the order of 0.01 percent) in CO as a result of increased heating needed in some buildings to offset heat loss when lighting levels are reduced.

Pennsylvania's method of assessment was to account for net fuel changes resulting from all program measures (and their interactions) within this area (lighting and heating). The environmental residual calculations which followed--based on these net fuel use changes--showed no quantifiable adverse impacts.

Health effects from reduced heating and cooling levels are expected to be negligible - and presumed to be, on the whole, beneficial, i.e., in most cases heating, cooling, and lighting levels with the proposed standards are thought to be more healthful than existing levels; in addition, the reduction in pollutants is beneficial.

2. Industry

In Pennsylvania, the savings anticipated from industrial programs are relatively large. These savings will come from eliminating waste in industrial processes and from transportation and buildings efficiency measures which, in terms of impact are similar to measures discussed elsewhere under these headings.

3. Transportation

While a significant amount of energy is consumed in the transportation sector in Pennsylvania (see Table I), most major changes in transportation fuels use will occur only with infrastructure and vehicle efficiency changes which are (compared to other savings opportunities) slower, more capital intensive, and/or inter-rather than intrastate in character and therefore outside the scope of the SECP. However, Pennsylvania's estimated savings in this sector are larger than is the general case for most States.

From the implementation of the required transportation program measures, Pennsylvania expects to realize an energy savings of 40.4 trillion BTU's in 1980, about 13 percent of the total savings expected from plan implementation. This reduction in fuel consumption and thus in environmental residuals will have a beneficial impact.

The promotion of vans and carpools in Pennsylvania may have small adverse secondary impacts:

- o The fuel used by vans, as well as the increased consumption per auto when the number of occupants is increased, has been subtracted from fuel savings prior to estimating residuals changes. The net change is, in all cases, beneficial, but not significant.

- o The increased emissions from the manufacture of the vans have not been determined but are judged to be negligible when compared to reduced operating emmissions from autos. This impact is likely as well to be offset by reduced auto manufacture.

4. Economic Impact (cross sectoral)

An inflationary impact statement for the program was prepared and filed, in June 1976, with the Council on Wage and Price Stability. Certain program measures, e.g., buildings insulation, vans, etc., may have an initial adverse economic impact in that the costs are front-end loaded (borne entirely at the time of purchase/installation) and the benefits are spread over a period of years. Over the life span of the improvement, however, all such investments identified produce beneficial economic impacts.

Industry programs as well as enforcement of the 55 m.p.h. speed limit, driver education, and master metering will all involve some level of initial investment; this is not thought to be significant and is judged to be cost beneficial over a very short period of time.

V. Alternatives

Under EPCA, there are no alternatives to the five mandatory program measures other than a State's non-participation in the SECP. The "no-participation" alternative, in all cases, is adverse when compared to the implementation of any mix of these five measures.

There is little room within the SECP timeframe for major structural changes affecting the way energy is used. Nor does an individual state have much say over the energy intensity or efficiency of many products used within its borders but produced and sold on a national basis. Rather, the emphasis of the SECP is on greater efficiency of energy use within the short term constraints imposed by presently in place infrastructure, capital investment, land-use patterns, buildings, motor vehicle stock, and the like. Given this situation as well as current State-specific fuel distribution and use patterns, the reduction in residuals for any State program, including Pennsylvania's, will not be uniform across all residuals but will tend to be skewed in such fashion as to conform to current fuel uses and specific savings opportunities and the particular characteristics of the fuels affected. In all cases the net result will be beneficial.

VI. Conclusions

In summary, it is the determination of the FEA that Pennsylvania's Environmental Assessment of this program complies with the requirements of both NEPA and the SECP Guidelines as promulgated by FEA.

Based upon our review of this EA, the FEA has determined that actions now required to be taken to implement Pennsylvania's proposed energy conservation plan under Title III, Part C of the EPCA will not be "major Federal actions significantly affecting the quality of the human environment." (Section 102(2)(C), National Environmental Policy Act, 42 U.S.C. 4332 (2)(C)). Consequently, no EIS preparation is contemplated for this action.

STATE ENERGY CONSERVATION PROGRAM (SECP)

ENVIRONMENTAL REVIEW

RESIDUALS TALLY SHEET
(AIR)

STATE NAME Pennsylvania

Sector	Particulates	Nox	Sox	HC	CO	CO_2	Aldehydes
Transportation	7.33 E04	5.23 E05	5.83 E04	2.36 E05	1.76 E06	7.76 E07	9.59 E03
Industrial	2.25 E05	2.07 E05	3.10 E05	6.99 E04	7.27 E04	6.94 E07	4.98 E03
Commercial	1.39 E04	5.83 E04	6.95 E04	7.14 E03	6.90 E03	2.18 E07	2.16 E03
Residential	2.67 E04	5.40 E04	7.35 E04	1.09 E04	1.45 E04	3.90 E07	3.83 E03
Utilities	8.07 E04	4.78 E05	5.75 E05	1.69 E04	2.65 E04	1.36 E08	2.43 E03
Total Baseline Residuals	4.20 E05	1.32 E06	1.09 E06	3.41 E05	1.88 E06	3.44 E08	2.30 E04
Reduction	27910.96	63205.08	59417.96	17639.14	89388.62	17743398.72	1406.83
% Reduction	6.6%	4.8%	5.5%	5.2%	4.8%	5.2%	6.1%

Footnotes:

Entries given in scientific notation, e.g., 3.86 E04 equals 3.86×10^4 or 38,600; ( ) denotes minus value.

Unit values are:

- For Air, Water, and Solid Waste: tons per year;
- For Thermal Rejection: BTU per year; and
- For Deaths, Injuries, and Man-Days Lost: individual (single) occurances.

STATE ENERGY CONSERVATION PROGRAM (SECP)

ENVIRONMENTAL REVIEW

RESIDUALS TALLY SHEET
(WATER)

STATE NAME Pennsylvania

Sector	Acids	Bases	Dis. Solids	Sus. Solids	Non-Deg. Org.	B.O.D.	C.O.D.
Transportation	--	--	4.03 E02	7.78 E02	2.44 E03	7.73 E02	4.72 E03
Industrial	--	7.67 E02	2.32 E04	4.65 E03	5.87 E02	8.36 E03	1.11 E03
Commercial	--	--	7.30 E01	1.40 E02	4.44 E02	1.40 E02	3.54 E02
Residential	--	3.49 E01	1.03 E03	3.69 E02	5.29 E02	1.66 E02	1.01 E03
Utilities	1.47 E04	1.11 E03	7.23 E04	1.03 E04	1.96 E03	1.59 E02	9.73 E02
Total Baseline Residuals	1.47 E04	1.91 E03	9.70 E04	1.62 E04	5.96 E03	9.60 E03	8.67 E03
Reduction	578.89	4.96 E01	3.33 E03	5.18 E02	3.00 E02	1.62 E02	4.73 E02
% Reduction	3.9%	2.6%	3.4%	3.2%	5.0%	1.7%	5.5%

Footnotes:
Entries given in scientific notation, e.g., 3.86 E04 equals 3.86×10^4 or 38,600; ( ) denotes minus value.
Unit values are:
- For Air, Water, and Solid Waste: tons per year;
- For Thermal Rejection: BTU per year; and
- For Deaths, Injuries, and Man-Days Lost: individual (single) occurances.

STATE ENERGY CONSERVATION PROGRAM (SECP)
ENVIRONMENTAL REVIEW
RESIDUALS TALLY SHEET
(OTHER)

STATE NAME Pennsylvania

Sector	Thermal Rejection	Occup. Deaths	Occup. Inj.	Occup. M.Days Lost	Solid Waste		
Transportation	--	7.08 E(01)	4.94 E01	2.55 E03	4.86 E04		
Industrial	4.78 E11	6.05 E01	1.02 E03	8.87 E04	3.83 E06		
Commercial	9.08 E10	1.49 E(01)	1.20 E01	5.53 E02	8.80 E03		
Residential	2.42 E11	2.85 E00	6.18 E01	4.04 E03	1.82 E05		
Utilities	2.79 E14	8.53 E01	1.51 E03	1.09 E05	1.56 E07		
Total Baseline Residuals	2.80 E14	1.50 E02	2.65 E03	2.05 E05	1.97 E07		
Reduction	1.20 E13	8.75 E00	1.68 E02	1.23 E04	6.92 E05		
% Reduction	4.2%	5.8%	6.3%	6.0%	3.5%		

Footnotes:
Entries given in scientific notation, e.g., 3.86 E04 equals 3.86×10^4 or 38,600; ( ) denotes minus value.
Unit values are:
- For Air, Water, and Solid Waste: tons per year;
- For Thermal Rejection: BTU per year; and
- For Deaths, Injuries, and Man-Days Lost: individual (single) occurances.

STATE Pennsylvania

DATE March, 1977

PART IV-B - PLAN SUMMARY

PROGRAM MEASURES	1980 ESTIMATED ENERGY Savings (in BTU's)	ESTIMATED COST OF IMPLEMENTATION (in $000's) NonSECP							
		1977 FEA	1977 NON-FEA	1978 * FEA	1978 * NON-FEA	1979 * FEA	1979 * NON-FEA	1980 * FEA	1980 * NON-FEA
Thermal Efficiency Standards	25.85×10^{12}	52,912	100,000	200,000	---	220,000	---	240,000	---
Lighting Efficiency Standards	21.09×10^{12}	19,321	50,000	90,000	---	100,000	---	110,000	---
Energy Efficiency Procurement Standards for State & Local Government	0.07×10^{12}	164,194	30,000	271,000	---	300,000	---	330,000	---
Carpool, Vanpool, Public transportation measures	5.221×10^{12}	215,838	10,000	400,000	---	440,000	---	490,000	---
Right-turn-on-red	0.30×10^{12}	2,296	100,000	3,800	---	4,100	---	4,500	---
* 55 M.P.H. Enforcement	16.30×10^{12}	11,480	100,000	19,000	---	20,000	---	23,000	---
Driver & Trucker Education	17.44×10^{12}	20,814	10,000	35,000	---	39,000	---	42,000	---
Waste Oil Recycling	1.07×10^{12}	30,095	25,000	45,000	---	50,000	---	55,000	---
TOTAL	Continued				---		---		---

List all other program measures included in the proposed State Energy Conservation Plan.

Unknown at this time

STATE Pennsylvania

DATE March, 1977

PART IV-B - PLAN SUMMARY

PROGRAM MEASURES	1980 ESTIMATED ENERGY Savings (in BTU's)	ESTIMATED COST OF IMPLEMENTATION (in $000's)							
		1977		1978 *		1979 *		1980 *	
		FEA	NON-FEA	FEA	NON-FEA	FEA	NON-FEA	FEA	NON-FEA
ndustrial Energy Conservation	156.88 x 10^{12}	21,824	1,250,000	67,000		73,700		81,100	
roject Conserve	54.142 x 10^{12}	0	200,000	0		0		0	
eatherization	1.66 x 10^{12}	261,218	9,200,000	400,000		440,000		484,000	
rohibition of Mass Metering	1.583 x 10^{12}	2,985	10,500	5,000		5,500		6,050	
atural Gas Conservation	No Methodology Available	234,311	200,000	380,000		418,000		460,000	
hermography	No Methodology Available	26,868	7,000	42,000		46,200		50,800	
chool Building Audits	No Methodology Available	134,341	40,000	50,000		55,000		60,000	
nergy Curriculum	No Methodology Available	52,244	47,000	0		0		0	
TOTAL	Continued								

List all other program measures included in the proposed State Energy Conservation Plan.

Non "SECP"

*Unknown at this time

STATE Pennsylvania

DATE March, 1977

PART IV-B - PLAN SUMMARY

PROGRAM MEASURES	1980 ESTIMATED ENERGY Savings (in BTU's)	ESTIMATED COST OF IMPLEMENTATION (in $000's)							
		1977		1978 *		1979 *		1980 *	
		FEA	NON-FEA	FEA	NON-FEA	FEA	NON-FEA	FEA	NON-FEA
\griculture	Not Applicable	119,414	29,500	200,000		220,000		240,000	
NTRPDC	No Methodology Available	111,952	25,000	100,000		110,000		120,000	
*									
GRAND TOTAL	301.61 x 10^{12}	1,482,107	11,434,000	2,307,800	--	2,541,500	--	2,796,450	---

List all other program measures included in the proposed State Energy Conservation Plan.

Unknown at this time.