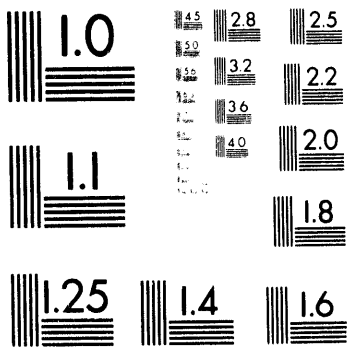
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New York State
Energy Research and Development Authority
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An Energy Authority Report in Brief

Report: Evaluation of Orange and Rockland Utilities, Inc.'s Competitive Bidding Program for Demand-Side Resources, Report 93-15

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Background: This report describes the results of a process evaluation of Orange and Rockland Utilities' (O&R) demand-side bidding program in New York State in 1991 and 1992. The bidding program, scheduled to operate until January 1, 1995, is implemented by two energy service companies (ESCos) in O&R's New York State service territory. The process evaluation methodology included interviews with utility staff, ESCo staff, and participating and nonparticipating utility customers.

Objectives: The project's goals were to evaluate the delivery mechanisms and program administration's effectiveness; analyze customer participation and nonparticipation; develop an impact evaluation plan for the State bidding program; and identify program strengths and weaknesses, and recommend ways to improve DSM bidding programs in the future. This report is the final product of the evaluation.

Results: The two ESCos had enrolled 14 customers in the program by summer 1992. One company had achieved 90 percent of its 2.75 MW bid and the other had achieved less than 90 percent of its 6.9 MW bid. The ESCos' contracts required them to achieve 90 percent of their targeted goals by April 1992 and, if the goals were not achieved, O&R could terminate the agreements or levy penalties against the ESCos while they continued to work towards their goals. In the unsuccessful ESCo's case, O&R has levied a penalty, while allowing the ESCo to continue to operate in its New York State territory. Critical factors in the successful ESCo's case were bidding a reasonable amount of capacity for the market and targeting marketing efforts to appropriate customers. Customers most interested in the program included those with limited access to capital and medium-sized firms with limited cash flow, particularly schools and hospitals. An unexpected result of O&R's DSM bidding program was that it promoted energy conservation among customers who chose not to participate in an ESCo program. Six of the seven nonparticipants interviewed chose to proceed on their own or to use the O&R rebate to install measures recommended by the ESCos.

Copies Available: Limited copies of the full report are available from The New York State Energy Research and Development Authority, Two Rockefeller Plaza, Albany, New York 12223.

EVALUATION OF ORANGE AND ROCKLAND UTILITIES, INC.'S COMPETITIVE BIDDING PROGRAM FOR DEMAND-SIDE RESOURCES

Final Report

Prepared for

THE NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

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ABSTRACT

The process evaluation reports on the implementation of Orange and Rockland Utilities demand-side bidding program in New York State during 1991 and 1992. The program is implemented by two energy service companies in Orange and Rockland's New York State service territory. The process evaluation methodology included interviews with utility staff (3), energy service company staff (2), and participating (6) and nonparticipating (7) utility customers.

The two energy service companies had enrolled 14 customers in the program by summer 1992. One company had achieved 90 percent of their 2.75 MW bid and the other had achieved less than 90 percent of their 6.9 MW bid. Critical factors in success were determination of a reasonable bid amount for the market and marketing to the appropriate customers. Customers most interested in the program included those with limited access to capital and medium-sized firms with poor cash flows, particularly schools and hospitals. The findings also show that due to the incentive structure and associated need for substantial customer contributions, lighting measures dominate all installations. Customers, however, were interested in the potential savings and six of the nonparticipants chose to either install measures on their own or enroll in the utility's rebate program.

ACKNOWLEDGEMENTS

All research projects require the commitment and support of the participants in the study and the supporting organizations. We would like to thank both the New York State Energy Research and Development Authority and Orange and Rockland Utilities for supporting this research and contributing to its completion. We would also like to thank Orange and Rockland's staff, the energy service company staff who are implementing the program, and the customers who took time to talk with us about their experiences with the program. Without their input, there would be little to report.

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SUMMARY

In 1988, the Orange and Rockland Utilities (O&R) and the New York State Energy Research and Development Authority began working collaboratively to design a demand-side bidding program. The program was finalized and released for bid in July 1989. In response, O&R received 11 bids for demand-side services (five in New Jersey and six in New York). By the summer of 1990, O&R had successfully negotiated contracts with four bidders in New Jersey and two in New York State. The focus of this report is on the implementation of the program in the New York State service territory in 1991 and 1992.

The New York State program was structured differently from the New Jersey program. Three particular issues have been addressed in the process evaluation. First, payments are based on kW savings in New York State, as opposed to kWh savings in New Jersey. This results in New York State bidders receiving a single payment for kW reductions after the project is verified, while in New Jersey bidders receive a stream of payments based on measured kWh savings over the contract term, ten years. Second, the programs have different ceiling prices. The New York State Program used a fixed ceiling price of $550 per kW and the New Jersey program uses total price based on the load shape impacts of the proposed measures. Third, the program includes franchise areas limited to a maximum of three bidders in New York State, while in New Jersey unlimited awards were permitted. In New York State, contracts were negotiated with two bidders, both operating in the two franchise areas.

The two bidders in New York State were both energy service companies (ESCos). Each was required to complete at least 90 percent of their bid by April 1992. By April 1992, ESCo A had installed over 90% of their bid of 2.75 MW. ESCo B had achieved less than 90 percent of their 6.9 MW bid. O&R assessed a penalty of $18/kW not achieved and permitted ESCo B to continue marketing and delivery services until termination of the program marketing period, January 1, 1995.

Both ESCos initially targeted O&R's largest 25 customers as well as the institutional sector. ESCo A, however, recognized early that the program had greater appeal to medium sized customers along with institutional customers and has had increased success since shifting their strategy. ESCo B continues their original marketing approach. The slow implementation has suggested to both ESCos and O&R that the market potential for ESCo based services is much smaller than originally expected. The ESCos had anticipated having over 100 customers enrolled by the end of 1991, in fact, 14 customers had enrolled in the program by summer 1992 when these interviews were conducted.

In addition to marketing strategy, one of the ESCos had a 100 percent staff turnover early in the implementation period. O&R field staff were also somewhat confused about the relationship between the bidding program and O&R's direct installation programs. Customers, ESCos, and O&R staff report that up until December 1990 it appeared that the two approaches were competing for demand-side opportunities. Once field staff understood that goals for the ESCos and O&R were the same, they actively cooperated with the ESCos, and the program began to move forward.

Both ESCos offer customers shared-savings arrangements with a ten-year contract term. One ESCo provides long-term real-time metering on which to base the payments between the customer and the ESCo, the other uses the verification metering to calculate a stream of payments for the ten-year period. Customers express a variety of opinions about the program. However, the strongest signal is that customers are not comfortable with the ten-year contract term. Customers with limited capital and a strong need to cut costs, however, find their need outweighs their concerns about the contract term. Such customers include schools, hospitals, and a few others with poor cash flows. The energy savings identified by the ESCos are appealing to all customers. As a consequence, six of the seven nonparticipants interviewed have chosen to proceed on their own or using the O&R rebate to install the measures recommended by the ESCos.

The effect of franchising was limited. All parties felt it worked to have limited competition. However, due to the limited market potential, the presence of two ESCos throughout the entire New York State service territory did not offer a full test of franchising. The effects of the low ceiling price appear more obvious. While both ESCos bid to install comprehensive measure packages, they reported prior to implementation that they would only be able to install lighting without obtaining large customer contributions. This has proved to be the case. All installations to date are for lighting measures.

The program to date has had limited administrative costs for O&R, it currently operates with costs between $3,000 and $4,000 per month. These costs are lower than O&R's rebate programs due to the limited involvement by O&R field staff and lack of marketing costs for O&R. In addition, because O&R makes a single payment to the ESCos for each completed and verified project, there are no long-term administrative costs associated with monitoring savings and coordinating payments over-time. Whether the savings are actually in place in the long term, however, can only be determined through an impact evaluation.

These results provide the basis for several recommendations:

- ESCos and utilities should carefully conduct market research prior to entering bidding programs. Utilities can use the information to identify "reasonable" bids and perhaps target their resource acquisition efforts to be more congruent with market potential. ESCos can use the market research to ensure their bids are reasonable and to provide a "leg up" once they win the contract.

- Bidding programs are more effective when utilities and bidders cooperate. One mechanism for increasing cooperation is to ensure utility field staff treat savings acquired through utility and bidding programs equally.

- Utilities interested in bidding programs should be careful about relying solely on bidding programs for DSM resource acquisition. Bidding programs take time to put in place and time to generate savings. They therefore fit most comfortably as a long term strategy in sectors where savings may be difficult to achieve through other means.

- Incentive structures effectively define the types of measures bidders are likely and willing to install. Long term contracts between the ESCos and utilities may encourage installation of additional measures over time, but this cannot be assured. Incentive structures, therefore, need to be designed to ensure comprehensive measures are installed. Time differentiated and measure based pricing are potential solutions.

- Franchising deserves further investigation, especially if mechanisms can be achieved to address potential problems in the selection process that reduce the potential for selecting diverse measure proposals.

- While little can be done to address the long term contract issue, utilities can cooperate closely with ESCos participating in their program to assure customers that the ESCo is a reliable business partner.

- O&R should conduct an impact evaluation using the proposed strategy of engineering analysis and statistical billing history analysis with data from on-site surveys and existing program data.

Section 1
INTRODUCTION

During 1987 and 1988, investor-owned utilities in New York State and staff representing the New York Public Service Commission (PSC), the State Energy Office (SEO), and the New York State Energy Research and Development Authority (Energy Authority) began exploring the potential for competitive bidding for energy resources. While the initial interest in New York focused on generation resources, experience elsewhere suggested that demand-side resources could also be included in a competitive bidding process.

In 1988, Orange and Rockland Utilities (O&R) volunteered to work with the Energy Authority as the first New York State investor-owned utility to design a demand-side bidding program. As part of the design process, in September 1988, the Energy Authority and O&R jointly contracted with ERC Environmental and Energy Services Co. (ERCE) and Pacific Energy Associates to develop an evaluation plan and conduct a process and impact evaluation of the program as implemented in O&R's New York State service territory.

The project was conducted in two phases: Phase I focused on the development of an Evaluation Plan completed February 1990[1]; Phase II implemented the Evaluation Plan in two stages. The first stage addressed program design, bid solicitation, contractor selection, and contract negotiations. ERCE performed the first-stage evaluation and presented their findings in the Interim Report[2].

In June 1992, ERCE assigned the second stage of the evaluation to Barakat & Chamberlin. The second stage of the evaluation focuses on program implementation,

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[1]ERC Environmental and Energy Services Co. and Pacific Energy Associates, "Evaluation Plan for the Orange and Rockland Utilities Demand-Side Bidding Program," February 1990.

[2]ERC Environmental and Energy Services Co. and Pacific Energy Associates, "Evaluation of the Orange and Rockland Utilities Competitive Bidding Program for Demand Side Resources," Interim Report, December 1990

administration, customer and energy service company (ESCo) response, and developing an impact evaluation plan for the New York State bidding program projects. This report is the final product of the evaluation.

In July 1989, O&R issued three solicitations, one for demand- or supply-side resources for O&R's New Jersey territory, one for supply-side resources in O&R's New York State territory, and one for demand-side resources in O&R's New York State territory. The demand-side solicitations requested bids from ESCos, customers, and others to provide demand and energy reductions, particularly those related to summer peaking. As a result of the solicitation in New York, three ESCos responded: EUA Cogenex Corporation; Econoler/USA, Inc.[3]; and Central Hudson Enterprises. Two of the three, EUA and Kenetech, signed contracts with O&R. The third ESCo terminated participation prior to executing a contract.

O&R's Economic Research Department developed the Request for Proposals (RFP), negotiated contracts with successful bidders, and implemented the program from 1989 to 1990. Two contracts were signed with bidding ESCos by summer 1990, and two projects were enrolled by the end of 1990. Beginning in 1991, program implementation duties were transferred to O&R's Demand-Side Management (DSM) Department. The Department's responsibilities for the bidding program include developing policies and procedures, and administering program delivery.

The contracts required each ESCo to achieve 90 percent of the targeted goal by April 1992. If ESCos did not make this deadline, O&R could terminate the agreement or levy penalties against the ESCos, even while allowing them to continue working towards the goals.

The New York State bidding program is scheduled to operate until January 1, 1995.

[3]Econoler/USA, Inc. has since changed its name to Kenetech Energy Management, Inc.; hereafter referred to as Kenetech.

While the New York State bidding program differs from O&R's New Jersey bidding program in several ways, three particular issues have been addressed in the process evaluation. First, payments are based on kW savings in New York State, kWh savings in New Jersey. Second, the programs have different ceiling prices. The New York State program used a fixed ceiling price of $550/kW, and the New Jersey program uses total price based on the load shape impacts of the proposed measures.[4] Third, the program includes franchise areas limited to a maximum of three ESCo contractors in New York State, while in New Jersey unlimited awards are permitted. Each of these features may affect program implementation.

EVALUATION METHODOLOGY

Process evaluations assess the progress of programs using data collected through interviews and surveys with program staff, ESCos, participating and nonparticipating O&R customers, and through reviews of program records and documents. Structured open-ended interview schedules are used for discussions with key contacts who are guaranteed confidentiality and anonymity.

The objectives of this second-stage process evaluation are to:

- Evaluate the effectiveness of the delivery mechanism;
- Evaluate the effectiveness of program administration;
- Examine the nature of customer participation and nonparticipation;
- Develop an Impact Evaluation Plan that can be used to evaluate the DSM bidding program; and

[4]ERC Environmental and Energy Services Co. and Pacific Energy Associates, "Evaluation of the Orange and Rockland Utilities Competitive Bidding Program for Demand-Side Resources," Interim Report, December 1990

- Identify program strengths and weaknesses and make recommendations for program optimization.

Barakat & Chamberlin staff conducted 13 face-to-face interviews that included three O&R program staff (two staff members responsible for program delivery and one contact from the Economic Research Department); two participating ESCo contacts; two customer nonparticipants; and six customer participants. An additional six nonparticipating customers were contacted, and five agreed to participate in structured telephone discussions with Barakat & Chamberlin staff for a total of seven nonparticipant discussions.

The participant sample includes contacts at 6 of the 14 completed projects in the New York State service territory. The sample also includes participants with each ESCo as well as a range of building types. As nonparticipants were difficult to identify, we relied on information from the two ESCos. The nonparticipants had been contacted by the ESCo but were not currently enrolled in the program. Most had received at least a preliminary proposal from an ESCo.

A list of key contacts and dates for interviews is provided in Appendix A; Appendix B contains copies of the survey instruments.

Section 2
PROGRAM DELIVERY AND IMPLEMENTATION

This section documents the implementation and delivery of O&R's DSM Bidding Program. We examine the effectiveness of program delivery by assessing program staff and ESCo perspectives of program goals and objectives, comparing the bidding program to other DSM efforts by O&R, and examining the relationship between O&R and ESCos, and ESCos and customers. We also examine the effects of franchising on the implementation and delivery of the New York State bidding program.

PROGRAM DELIVERY

O&R program staff identify the program goals and objectives as acquiring demand reduction (MW savings), and "getting DSM installed." O&R staff note that their expectations for the bidding program have changed since the concept was first discussed. One staff member characterized the declining MW expectation as a result of insufficient market potential. Prior to releasing the big solicitation, O&R conducted some market research and identified 66 commercial, industrial, and government customers with greater than 1 MW summer demand. The total diversified demand for all commercial, industrial, and government customers based on highest summer billing in 1988 was 207.7 MW. About 80 percent of this demand is located in O&R New York State service territory.[5] The quantitative goals for each ESCo are 2.75 MWs (ESCo A) and 6.9 MWs (ESCo B)[6]. Furthermore, ESCos are required to maintain this level of savings for the life of the measure, typically ten years. ESCo A achieved 90 percent of its targeted goal by April 1992; the other did not. O&R penalized ESCo B at $18 per kW not achieved, but opted to allow them to continue marketing and delivering services until termination of the program, January 1, 1995.

[5]Orange and Rockland Utilities, "Demand Side Bid Solicitation in New York and New Jersey," June 1989.

[6]These goals are signed MWs - not installed

Staff say the most significant difference between the two ESCos is the marketing strategy. Both ESCos initially targeted their marketing efforts at O&R's approximately 25 largest customers (over 400 kW). The strategy met with little success. ESCo A shifted marketing to focus on medium-sized firms and has been successful in penetrating that market. On the other hand, ESCo B appears to concentrate on larger customers. Additionally, O&R credits ESCo A with better assessing market potential and submitting a bid more realistically reflecting available opportunities in O&R's service territory.

ESCo contacts also identify marketing as a major influence on program success. Before bids were submitted, ESCo A assessed the market potential by contacting customers and gauging their interest in participation. ESCo B indicated they should have also premarketed to estimate a more realistic bid.

The ESCos first attempted to capture every market segment. ESCo A was familiar with customer demographics and targeted the public sector and the largest industrial customers. As there were a limited number of large customers, it was somewhat difficult to enlist their participation. In addition, the large customers often had access to capital, and they were adverse to entering into long-term contracts. Many of the ESCos' proposals were declined during a lengthy review process that involved facility management, chief financial officers, and customers' lawyers.

ESCo A quickly realized that the program was more attractive to medium-sized rather than large customers. Consequently, they continued to target the public sector, school districts, town buildings, and public buildings. ESCo B continues to focus on larger customers along with the public school projects.

O&R staff indicate that the program was also slow getting started for reasons unrelated to the ESCos or their marketing strategy. First, O&R introduced a new rate structure for its largest customers concurrent with the start of the bidding program. One staff member said this new rate structure (Peak Activated Rate (PAR)) seemed to

send a conflicting message to customers. The ensuing confusion created some skepticism among customers as to what O&R was trying to accomplish.

Second, O&R field representatives did not initially promote the bidding program. In particular, O&R's Commercial Operations department (regional staff) tended to view the bidding program as competition with O&R's other programs. The situation was alleviated when field staff were informed that all DSM savings were a benefit to O&R. Once this occurred, field staff worked cooperatively with the ESCos to enhance marketing efforts.

Third, staff believe customers may have been confused by the variety of DSM programs offered by O&R. O&R offers direct installation and rebate programs, along with the bidding program. The direct-install program is limited to O&R's small customers (under 50 kW). The rebate program offers a one-time payment to any O&R customer installing qualifying measures. Staff believe the rebate program is geared for small projects (i.e., projects that require a nominal up-front investment), or customers that have sufficient capital to cover up front costs. The incentive payment for the rebate program is lower than the bidding program and is actively advertised through billing inserts, newspapers, C&I representatives, and radio.

In contrast, the bidding program provides a specific service as well as access to up-front capital. This enables customers with limited capital to install DSM measures. The program is not advertised by O&R; ESCos are responsible for marketing the program. Additionally, the bidding program generally requires customers to enter into shared saving agreements with the sponsoring ESCo. The programmatic differences between O&R's rebate program and the bidding program are shown in Table 2-1.

Table 2-1
PROGRAMMATIC DIFFERENCES BETWEEN O&R'S DIRECT PROGRAMS AND BIDDING PROGRAM

Lighting Rebate Program	DSM Bidding Program
Customer must have up front money to invest	ESCos provide up front funding
Customer responsible for project installation	ESCos provide turn-key operation
Customer realizes all the savings	Customers share the savings with ESCo
One-time payment from O&R	Long term contract with ESCo
O&R rebate paid to customer	O&R provides pay for performance to the ESCo

Thus, bidding is perceived as most attractive to those firms desiring turn-key operations, firms with limited access to up-front capital, firms on shaky financial grounds, and/or firms with limited staff to devote to project management. For instance, O&R staff noted that ESCos have been very successful in obtaining participation from hospitals due to the financial constraints faced by hospitals in New York State. The major disadvantage for customers, according to staff, is the long-term commitment required for the shared savings agreement.

Finally, staff say the "ESCo concept was difficult for customers to grasp," and the relationship between O&R and the ESCos was not clear to customers. The confusion subsided as customers became more comfortable with the ESCos delivering the program. Customers' initial skepticism also waned as O&R staff became more supportive of the ESCos efforts.

ESCo and O&R Relations

At the start of the program, O&R customer representatives and the ESCos perceived themselves in competition with each other. O&R customer representatives promoted

only O&R programs and excluded the bidding program from their list of services. As a result, both ESCos had more difficulty convincing customers to participate. In addition, because O&R customer service representatives did not promote the program, customers were initially confused about the concept of the DSM bidding program.

O&R staff responsible for overseeing the DSM bidding program were aware that participation was low in early 1990. O&R and the ESCos realized they needed to work together to promote the bidding program. ESCos believe the real turning point occurred after the New York Public Service Commission ruled that O&R could earn a preferential rate of return on DSM. Thus, O&R would earn a rate of return on DSM whether O&R or the ESCos developed the projects. A meeting between the ESCos and O&R in December 1990, just before the PSC order went into effect, is cited by ESCos as the point when more cooperative efforts began.

Both ESCos originally promoted the program through cold calls, mailings, and seminars targeted at specific market segments such as education facilities. Since the December meeting, O&R customer service representatives meet with their customers, and they explain to customers the various DSM programs, including the bidding program. If the customer expresses an interest, the O&R customer service representatives refers the customer to the ESCos and sends both a written letter. The ESCo is responsible for following up and making contact with the customer.

Both O&R and the ESCos feel that customers, O&R, and the ESCos have benefitted from the two ESCos promoting the program together. O&R is careful to promote the bidding program concept and not promote a particular ESCo. For the most part, O&R staff feel that both ESCos would have had problems meeting their goals without cooperation from the customer service representatives. These ESCos say that the arrangement is working well and participation has increased dramatically.

O&R customer service representatives' involvement in bidding program promotion has also settled customer concerns regarding ESCo credibility and long-term

agreements. Customers are frequently contacted by energy service companies and equipment vendors not participating in the program. It is often difficult for them to know if a company is legitimate and does good work. Staff and ESCos report that customers are reassured that the ESCos have been selected by O&R. The customers feel that O&R is "guaranteeing" the work and professionalism of the ESCo.

O&R staff generally believe the ESCos have objectives similar to O&R's—to obtain DSM savings. While one staff member believes the ESCos enter into long-term relationships with customers to pursue more comprehensive projects in the future, another staff member says the "bidders main objective is to make money." Neither of these are viewed in conflict with O&R's goal; rather, they believe "O&R's job is to structure the program so there is an incentive for the ESCos to do things that help the utility."

Franchising

Prior to designing the bidding program, O&R conducted market research and spoke with utilities in Massachusetts about experiences with bidding programs. This research suggested that franchising could be an effective mechanism to reduce customer confusion about various options and to provide ESCos the opportunity to more freely market their services. The New York PSC permitted O&R to offer two franchise areas in their New York State service territory. Each franchise could have a maximum of three contractors. In practice, all successful bidders had bids for both franchise areas, though with different goals for each area; so the two ESCos participating in the program operate in both franchise areas.

Program staff report both positive and negative aspects of franchising. Staff believe customers receive the best deal because of the competition between the ESCos. A negative, however, is the confusion caused by having two ESCos offering the same services to the same customer, and O&R's inability to promote or stand behind one ESCo. Program staff do not perceive the New York State approach to franchising as

having much impact on how the program is delivered compared to New Jersey where there is no franchising; rather, the major difference lies between the bidding program and the rebate program. One staff member noted, "O&R only pays the two ESCos for doing work in our service territory. Other vendors or ESCos can come in and use our lighting rebate program; however, O&R does not pay as much on lighting rebates as it does for the bidding program."

The ESCos feel that franchising or limiting sections of the service territory to a few ESCos is a good idea and seems to work. Customers are regularly contacted by energy service companies. By limiting the number of sponsored ESCos, the customers seem to feel the ESCos in the bidding program are credible, hence they do not have to review too many proposals. This saves customers' time.

PROGRAM IMPLEMENTATION

ESCos participating in O&R's bidding program are responsible for marketing the program, submitting verification plans to O&R for proposed projects, performing pre- and post-installation metering, and maintaining the savings produced from the projects for ten years. As a result, ESCos require similar provisions for the maintenance of savings in their contracts with customers. The most common provision is for the ESCo to provide the labor and materials to maintain the equipment for the life of the contract, although ESCos also offer the option of providing materials and the customer provides the labor, or the customer can provide both the labor and materials. If the latter is selected, the customer usually receives a greater share of the savings, as they are assuming more of the risk. This issue is negotiated on a case-by-case basis between the ESCo and the customer.

O&R is responsible for reviewing and approving proposed projects and verification plans, performing inspections, meeting with the ESCos, verifying invoices, and issuing payments. Program staff make presentations of O&R DSM programs to customers and meet with regional staff managers on a monthly basis. Program staff

also interact with customers, O&R field representatives, and ESCos to ensure that the program is delivered in accordance with O&R's objectives.

Table 2-2 depicts the 17-step process jointly developed by O&R's DSM Department and the ESCos to outline the normal sequence of events and associated responsibilities. A staff member notes that the first two steps are the most time-intensive tasks of the entire process. The length of time can vary from less than a year to as long as two years; however, most projects require one year for the completion of these two steps.

O&R staff do not track the ESCos marketing efforts, but they believe the proposal-to-closing ratio improved when O&R field representatives began more actively supporting the program and providing leads to the ESCos. ESCos report their current proposal-to-closing ratio is 3:1. O&R staff believe the customer receives a "better deal" because of the competition fostered by having two ESCos deliver the program in the same area. However, O&R staff are ambivalent as to whether the two-ESCo approach hinders customer participation in the long run. Some staff commented that if customers get "turned-off" to these two ESCos, they have no option except the rebate program. Currently, the utility remains neutral, supporting the ESCo concept rather than endorsing one ESCo over the other. This approach led one staff member to comment, "If [O&R] really wants the program to take off, [they should] remove the competition aspect." This same staff member believes the only way O&R can help the ESCos improve the proposal-to-closing ratio is to fully support one ESCo, rather than remaining unbiased.

Table 2-2
NORMAL SEQUENCE OF EVENTS FOR O&R'S BIDDING PROGRAM

ESCo RESPONSIBILITY	O&R RESPONSIBILITY
Market program	
Obtain customer approval	
Notify O&R of project	
	Approve project
Submit verification plan	
	Approve verification plan
Schedule pre-installation metering	
Perform pre-installation metering	Perform inspection
Submit pre-installation metering	
	Approve pre-installation metering
Perform installation	
Schedule post-installation metering	
Perform post-installation metering	Perform inspection
Submit post-installation metering	
	Approve post-installation metering
Submit payment request	
	Pay ESCo

Staff say there have been relatively few problems and very few customer complaints about the ESCos. The relationship between O&R and the ESCos is satisfactory, and staff believe both ESCos exhibit technical expertise and integrity in representing O&R's interests. From a customer viewpoint, O&R staff believe the ESCo showing actual savings for the duration of the measure life is more credible in the long term, since these customers will see actual metered results.

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[1]Notification includes copy of authorization or executed lease agreement, scope of project, and estimated kW and kWh savings.

One minor problem occurred during program implementation as one ESCo experienced a major change in ownership. While this did not have long-lasting effects, there was one hundred percent staff turnover. ESCo staff report that this change put them somewhat behind at the outset of the program because new staff were unfamiliar with the program and the market. In addition, initial customer contacts had been made and in some cases customer confidence was difficult to regain.

During program implementation it became apparent that the program primarily addresses lighting end-uses. While ESCos make recommendations for other end-uses, most have been ignored. The ESCos' perception is that customers tend to be uncomfortable investing in anything but lighting technologies. Lighting is less costly, simple to understand, and the savings are easy to demonstrate. Other measures are more complicated and require more detailed analysis and more expertise to evaluate. Customers often do not have the engineering capability in-house. Both ESCos indicated that if they do a good job on lighting, a customer may be more willing to enter into an agreement with them to retrofit another end use.

ESCos indicate that they consider the O&R contribution as too low to cover anything but lighting. Both ESCos feel the price per kW is a problem, especially as the payment is on a kW instead of measured kWh basis. One ESCo cited another program in New York State where the incentive is $1,200 per kW. In that program, the customer does not have to make any contribution to get most measures installed. In O&R's program, however, the incentive is less than $550 per kW. The ESCos total cost for an O&R project is generally about $1,000 per kW; hence the customer must make a contribution. The cost of other measures, such as HVAC retrofits, would be more expensive, requiring a much larger contribution from the customer.

The ESCos also note that payment for kW instead of measured kWh savings provides a lower payment stream. This is primarily because kWh payments are made each year. This results in greater return and reduced requirements for customer

contributions. One ESCo noted that if they had the kWh approach in New York, as they have in New Jersey, it would make closing the deal much easier.

O&R staff are concerned that only lighting measures were being installed in the program. The O&R staff suggest the incentive should be directed towards measures, rather than have a single incentive for all savings. One approach would be to use a measure-differentiated pricing structure based on the differential value of the demand savings at different times of day.

Staff say implementation of the bidding program meets original expectations except that demand reductions were not achieved by the deadline date. Overall, staff believe the program works well. Roles and responsibilities are clearly defined, and staff do not perceive any problems with the ESCos delivery of the program. Additionally, staff believe ESCos and customers understand O&R's goal, and all parties strive to achieve this common goal.

SUMMARY

O&R staff identify the program's strength as allowing ESCos to provide customers with a service the utility does not provide (capital funding), and offers customers the opportunity to take on projects they would otherwise not have the staff and resources to do. Program delivery and implementation was slow in getting started; however, it appears to now be successful. The most significant factor in moving the program toward success was O&R's effort to work cooperatively with the ESCos to market the program. The ESCos believe that this cooperation was the result of discussions with the ESCos and the agreement with the New York PSC to permit O&R to collect a preferential rate of return for DSM savings. As a result of O&R's active support for the bidding program, customers became more confident and the ESCos were able to close deals more rapidly.

There is concern that the competitive environment is a weakness. O&R's neutral stance may have hindered the ESCos' ability to effectively market the program. One staff member perceives the issue not as competition, but as the utility's reluctance to "get behind the ESCos until we were sure they would not try to slip by some shady deals." In the interim, the utility distanced itself from the ESCos and took the customers' side. In retrospect, staff would like to integrate the ESCos efforts with their own and use O&R's name so customers would be sure of what they were getting. This would also allow the utility to exercise a bit more control over the ESCos and increase the quality of offers.

The only significant problem in the program has been that only one ESCo achieved their 90 percent target by June 1992. The differential success of the two ESCos appears to be attributable to the following. ESCo A conducted more comprehensive market research, made a more realistic bid, and retargeted their marketing efforts after finding difficulty following their original plan. Due to organizational changes, ESCo B experienced significant start-up difficulties with a 100 percent staff turnover that may have eroded customer confidence during the first few months of the program. They also failed to conduct market research or to retarget their marketing during the implementation period.

Program features have affected program delivery and implementation. Franchising appears to have had some positive impact on program delivery. O&R staff and the ESCos perceive the limitation positively, permitting greater customer confidence in the ESCos while maintaining a competitive cost environment. Nonetheless, given the limited market potential and the fact that both ESCos operate throughout O&R's New York State and New Jersey service territories, it is not apparent that this program truly tests franchising.

Program features that appear to have had a more significant impact are the ceiling price and paying for kW versus kWh. ESCos indicate that the low price, plus basing the payment on kW rather than measured kWh, results in a lower payment stream and

the requirement for a larger customer contribution. This requirement for customer contribution limits the measures the customer is willing to install to: (1) those in which they have the most confidence; and (2) those that are the least expensive. The result is lighting measures are being installed with, probably, limited potential for additional measures to be accepted.

Section 3
PROGRAM ADMINISTRATION

In this section, we examine four components of program administration: staffing allocations and administrative costs; project inspections; savings verification; and payment procedures. Staffing allocations and administrative costs determine whether sufficient resources exist to successfully initiate and monitor the program. Project inspections, savings verification, and payment procedures offer other avenues for ensuring quality and cost control. These four components generally define the current system used by O&R to administer the bidding program.

STAFFING ALLOCATIONS AND ADMINISTRATIVE COSTS

O&R currently allocates two staff members to the bidding program. One staff member indicates they spend one-third of their time on the bidding program, while the other estimates their time at less than one fourth. Both staff members said this staffing level is adequate; however, if the program had worked as anticipated, current staffing would probably be inadequate. Staff note the most time-demanding tasks are: reviewing projects, meeting with the ESCos, verifying invoices, and verifying pre- and post-installations. A third staff member does not spend "a whole lot of time per day" on the bidding program. His main responsibility is getting ESCos to meet their obligations.

Other O&R departments involved in the bidding program include commercial and industrial (C&I) field representatives and, when necessary, the financial and legal departments. O&R has three regional managers - one for Orange County, one for Rockland County, and one in New Jersey, each one supervises 12 to 15 field representatives. Monthly meetings with the managers are held to review how field representatives deliver DSM programs. O&R staff indicate 25 percent of the field representatives' time is spent marketing DSM programs. The other 75 percent is spent on customer service activities, including new services, service upgrades, and other

customer related activities. C&I field representatives meet with O&R staff on a more informal basis, with most of the communication occurring by telephone.

O&R staff use payroll, inspection costs, and rebate costs as variables to compute administrative costs. The estimated inspection costs are based on the number of projects. This basic computation is used for deriving administrative costs on all O&R programs. Administrative costs for the bidding program are estimated on a monthly basis (currently estimated at $3,000 to 4,000/per month), and are based on how many projects are expected. The administrative costs of the bidding program differ from other O&R programs because bidding does not incur advertising costs. In addition, the pared down staffing structure keeps administrative costs relatively low.

PROJECT INSPECTIONS AND SAVINGS VERIFICATION

Initially, O&R staff performed inspections and observed metering installations. This has been subcontracted, which is *status quo* for other O&R DSM programs. A staff member initially responsible for conducting project inspections reports finding few problems or unhappy customers.

Savings are verified two ways: (1) an inspection of installed measures; and (2) a pre- and post-measurement of kW. O&R staff are satisfied with these methods. They believe O&R is "getting what they pay for since the kW is metered." However, staff express apprehension regarding the kWh savings in subsequent years for ESCo B's participants. This is a result of the different methods employed by each ESCo for verifying savings to the customer.

Staff feel ESCo A goes beyond what is required for verification of savings by O&R because of the shared savings agreements between the ESCo and the customer. ESCo A provides "real time metering" on installed measures for the duration of the project. These metered kWh savings are used to determine customer payments during the contract term. ESCo B, however, relies on pre- and post-installation kW measurement

and estimated hours of operation to derive kWh savings; there is no long-term metering installed by ESCo B. Some staff members are concerned about customer satisfaction because there are unanswered questions over issues such as change in hours of operation, persistence of savings, and how this will affect customer payments over time. However, another staff member observes that the utility is only concerned about this issue from a customer satisfaction standpoint, as the ESCos are paid by kW saved rather than kWh saved. Therefore, if kWh savings are different due to behavioral changes, the kW savings are likely to remain constant.

Still, program staff have a higher level of confidence and comfort with ESCo A because they use long term metering as opposed to ESCo B's reliance on pre- and post-metered kW. One staff member sums up the issue by saying, "[ESCo A] does a much better job of showing savings and being credible in the long run. If it was in our power to make [ESCo B] do [long-term] metering, we would."

PAYMENT PROCEDURES

Payment is made when a project is installed and savings are verified. The ESCos are responsible for maintaining the savings over ten years; however, if kW savings should decline, O&R is relying on the ESCos to reinstall demand savings. In the New Jersey program, payments are based on kWh savings, and payments can be reduced if kWh savings decline. In contrast, if an ESCo in the New York program walked away, O&R could be left "holding an empty bag" since the payments were made up front. The only recourse would be through contract litigation to enforce the penalty requirements. In spite of this drawback, staff indicate they prefer paying for kW rather than kWh because "administering payments over time is a budgetary nightmare for the utility." One staff member believes the New Jersey program is actually paying too much for the savings. They point out that the utility is actually paying more than "measured cost" because of the additional administrative costs incurred to monitor the savings and make payments over time.

Staff believe the ESCos receive payments in a timely manner. When the post-metering report is submitted, O&R has two months to approve and issue payments. Staff say this length of time is more than adequate, as payments are usually generated in less than two months.

SUMMARY

An administrative strength of the program is that the marketing is performed by outside sources freeing O&R from maintaining a marketing budget or staffing to monitor the program. In addition, the contracts require metering kW to ensure O&R is getting what they pay for.

The weakness lies in the lack of control over the results that the ESCos obtain. Two staff members express concern about the persistence of kWh savings for projects installed by the contractor that does not use real-time metering, and how this could affect payments. One went as far as to say that they would like to change the verification expectation with ESCos to factor in planned inspections for persistence and savings, and clearly define how the lack of persistence would affect the utility's payment.

While the structure of the bidding program provides O&R with low administrative costs, it also leads to the loss of control O&R has over the pace of program delivery. This is a major disadvantage. In its own programs, O&R can accelerate or decelerate marketing efforts as needed. This is beneficial for meeting budget constraints or achieving targeted savings goals. The bidding program does not allow O&R this flexibility. As the ESCos control the pace of program delivery, O&R must be reactive, rather than proactive, in obtaining desired results.

Section 4
CUSTOMER RESPONSE

Participants and nonparticipants were interviewed to determine how well the program was being received and what modifications to current program delivery could be implemented to improve customer response. Our findings focus on barriers to participation, relationships between customers and ESCos, and customers' perception of the relationship between ESCos and O&R, contract negotiations, and overall program delivery.

BARRIERS TO PARTICIPATION

Both participants and nonparticipants identified the ten-year length of the contract as a primary obstacle to participation in the program. Both groups believe ten years is an unacceptably long-term commitment. Among participants, most characterize the long-term commitment as "a trade off we accepted because of the benefits we receive from participating (e.g., funding of the up-front costs, project management, energy savings)." Additionally, both groups expressed concern with the ESCos' ability to track savings over the ten-year period. Customers say they weighed this aspect against their own availability of funds; when funds could be found in-house, they chose O&R's rebate programs rather than the bidding program.

Another barrier to participation was the concept of shared savings between the ESCo and the customers. The prospect of not getting all the savings motivated two of the nonparticipating customers to develop in house strategies to achieve conservation goals - usually at a slower pace. This alternative allowed them to realize all of the savings internally. Four of the nonparticipating customers opted to participate in O&R's rebate program to avoid shared savings.

Other reasons customers gave for not participating include:

- Decision was made by upper management rather than by the respondent;
- The ESCo was too pushy;
- The contract was too complicated;
- They would prefer to deal directly with O&R rather than an ESCo.

Of the seven nonparticipants we interviewed, two are implementing their own DSM installation, four are participating in O&R's rebate program, and one sees "no future plans to expend capital expenditures for energy conservation."

RELATIONSHIP WITH ESCOS

Customers perceive O&R and the ESCos to have congruent goals. Both want to acquire kW and kWh through DSM resources. Customers believe O&R supports the ESCo by providing leads to potential customers and supporting the program. Customers see O&R as promoting the concept of ESCos, rather than either ESCo. This approach allows the customer to select the best deal.

Customers found both ESCos to be well-organized, flexible, professional, and responsive to their needs. Four of the seven nonparticipants state they were very satisfied with the ESCo's preliminary work and, had they decided to participate, they would not hesitate to go with an ESCo. However, two of the six participants believe the ESCos were not straightforward in revealing all costs until after contracts had been signed. In both cases, this issue arose over the costs of disposing of ballasts that might contain PCBs. These appeared to be "hidden costs" which fell on the customer. These customers claim the ESCo neglected to communicate the cost in time for it to be included in the cost of the program, and this conflicted with early statements by the ESCo that "...there's no cost to you."

It is important to note that all participants say they would not have been so eager to work with ESCos if O&R had not endorsed and, in their view, implicitly

"guaranteed" the ESCo's professionalism. All state that without O&R's approval, they would not have participated with the ESCo. Even so, some participants are puzzled by O&R's neutral stance on endorsing the ESCo concept rather than supporting one ESCo over another.

FRANCHISING

Customers say they like having two options available and believe "they receive a better deal" because two ESCos compete for their business. Most (five of six) indicate that the ESCos or O&R explained the franchising concept, and it did not cause confusion. The single participant who did not like the franchise concept says it precludes O&R from fully supporting the ESCo, and gives the impression that O&R is "staying on the outside so if anything goes wrong, [the ESCo] gets the blame." While other participants did not convey this message so succinctly, they indicated that they perceived O&R as hesitant to fully endorse either ESCo.

CONTRACT NEGOTIATIONS

Contract negotiations went smoothly and within allotted time frames. By the time the contract was negotiated, the ESCos had reviewed the facility and prepared a proposal. The proposal had then been reviewed and a final measure selection identified. At this point, a standard contract was presented, and customers were generally satisfied with the offers as presented. In instances where major modifications were needed, customers felt the ESCo was less willing to devote its own resources to the process. These customers spent more of their own time developing revised contracts but were able to achieve the outcomes they desired. One nonparticipant, however, stated the proposal was two inches thick, and so riddled with "ifs" and "buts" that an attorney would need to review it if before he could consider signing.

Some customers indicated that O&R had not given the ESCo their full backing during the contract negotiation phase of the program. These customers felt O&R should have

responded more rapidly to ESCo requests to review proposed contracts and savings estimates.

MEASURE SELECTION AND INSTALLATION

To date, all the selected and installed measures have been lighting. Customers report that the energy surveys were thorough and professional. However, few measures were suggested with which customers were unfamiliar or had not already considered. Where nonlighting measures such as motors or chillers were recommended, customers found it difficult to justify the initial cost with the savings projected under the terms of the program. However, most of the customers report they are considering these measures through other options (O&R rebates) or through replacing worn-out motors with efficient models, as circumstances permit. In a limited number of cases, the customers are considering installing these additional measures over time using the ESCo's services.

Customers also report that installations were done in a timely manner; a few delays were attributable to materials on order. Most installation was done during nonbusiness hours to minimize disturbance to employees, customers, and residents. We found several customers reporting that the quality of lighting in their facility was reduced as a result of the installation. These customers questioned whether the ESCo had their best interests in mind, or if the ESCo was serving its own bottom line by first focusing on energy savings to meet program goals.

INCENTIVE STRUCTURE

Energy savings are a strong incentive for customers to participate in the program. Cost constraints have generally prohibited installation of measures previous to participation in the program. Some customers, both participants and nonparticipants, felt the ESCo received too much of the savings, considering the time and effort involved in installing measures. Two customers addressed this by negotiating more

favorable contract provisions. Customers were aware of the incentives offered to the ESCos by O&R, and felt they had little effect on their own ESCo contract. One customer is "very disappointed in the ESCo's delivery of the program" and states "if we could go back in time, we would do the project in-house." Overall, however, most are pleased with the ESCo's performance, and most participants say they prefer working with an ESCo rather than O&R.

Many customers were uncomfortable entering into long-term agreements. Some customer segments such as retailers have only two-year planning horizons. They will not enter into a ten-year agreement. Other companies, such as industrial customers, were concerned with liability issues associated with a long-term agreement if the equipment was removed or used differently. Ultimately, customers view the ten-year contract agreement as a trade off for having access to capital and the ESCo's expertise in the project. The greatest advantage is for institutional building owners—hospitals and schools—that pursue cost-cutting efforts, but have limited access to the capital required to make investments in energy-efficient equipment.

SUMMARY

Participants praised the program as requiring little of their time and energy because the ESCos did all the work. Paper work requirements were minimal, and customers considered the proposals to generally be complete and easy to understand. The major obstacle to the adoption of more measures lies in the program's limited incentive and its associated requirement for customer contributions.

What customers like about the program is the access to capital. What customers do not like is the long-term contract commitment. They are afraid they will lose control over the project, and that problems may arise later. Some customers also noted that the ESCos did not propose measures they were not already aware of. Six of the seven nonparticipants have chosen to go forward with projects using the O&R rebates or their own financing.

Customers recommended O&R implement a low-cost loan program for customers as a financing alternative to ESCos. They also suggested O&R could more strongly endorse the bidding program by either using a single ESCo or by being less neutral about the two ESCos qualifications.

Section 5

IMPACT EVALUATION PLAN: ORANGE AND ROCKLAND DSM BIDDING PROGRAM

In this section we present an impact evaluation plan to assess the impacts attributable to the program. The plan includes a method for assessing response for individual projects.

The evaluation plan includes:

- An explanation of the engineering and billing analysis methodology;
- A description of the type of data required for the analysis, including discussion of the type of information available in ESCo measurement plans and reports, and the type of additional information collected via on-site surveys;
- Approaches for assessing the effects of free ridership, free drivers, rebound, and persistence;
- A discussion of impacts that are not addressed in the evaluation approach;
- Task assignments and resource requirements;
- A preliminary schedule; and
- Preliminary cost estimates for the evaluation.

EVALUATION METHOD

The evaluation plan will use the same strategy as the ESCo measurement plans, namely, engineering calculations designed to estimate demand reductions and energy savings. To increase the accuracy of the results, the evaluation plan will also incorporate the effects of diversity in fixture use and changes in electric cooling and heating loads. The secondary method of analysis is a billing analysis. It will be used to verify and/or calibrate the results from the primary method.

The primary method of analysis to estimate impacts will be engineering calculations. Load shapes will be developed to estimate demand reductions and energy savings for each project. The engineering inputs and assumptions will be based on ESCo measurement results as well as data collected through on-site surveys. The ESCo measurement results provide capacity ratings and actual numbers on pre-existing and installed equipment. ESCos may also be able to provide information on operating hours. If these data are unavailable or incomplete, on-site surveys should be conducted to collect information on operating schedules and diversity factors. In addition, engineering simulation will be used to assess the interactive savings effects of reducing lamp wattages on electric heating and cooling requirements. A billing analysis will be performed for each project, and the results will be integrated with those from the engineering calculations. On-site surveys will also collect information on the effects of free riders, free drivers, rebound, and persistence. To assess long-term persistence of impacts, telephone surveys of customers will be conducted every three years.

Primary Method: Engineering Analysis

The engineering analysis will generate typical and peak load profiles for each project to estimate demand reduction and energy savings. Table 5-1 lists and describes the typical and peak load profiles that will be used in the evaluation.

Load profiles will vary to some degree by hour and season, depending on the type of facility. Of all the facilities, schools and hospitals are expected to vary the most between hour and season. For schools, the variation will be due to change in school schedules and possible interactions with weather-sensitive, seasonal electric loads such as cooling or heating. For hospitals, the variation will be due to activities that can fluctuate significantly with changes in hospital equipment and patient number. Office buildings may not vary significantly by hour and season. Clearly, the number of day types needs to be assessed for each project.

Table 5-1
TYPES OF LOAD PROFILES

Day Types	Characteristics
Typical winter day	Average weekday demand-reduction profile during all non-holiday weekdays between November and February, inclusive.
Peak winter day	Average peak winter day reduction profile during the 20 highest peak days.
Typical shoulder day	Average of the weekday demand-reduction profiles during all non-holiday weekdays between the months of September, October, March, and April.
Typical summer day	Average of the weekday demand-reduction profiles during all non-holiday weekdays between the months of May and August.
Peak summer day	Average peak winter day reduction profile during the 20 highest peak days.

To calculate the direct demand-reduction load profile of project impacts, the evaluation should follow these steps:

(1) Sum the kilowatt reductions from individual fixture retrofits in each area. This step entails developing a schedule of when lights are used for each area (i.e., room or space type) in a facility. The information may be reconstructed from the ESCo measurement reports or collected through an on-site survey. The number of areas will vary by facility. In addition, the on-site survey should take an inventory of fixtures in each of these areas. The noncoincident demand reduction will be based on: (a) the type and number of fixtures, tallied by area from the on-site survey; and (b) the weighted average wattage per fixture type, documented in the ESCo pre- and post-measurement reports.

(2) Include reductions or additions for building electric load due to electric heating or cooling impacts applicable to the areas evaluated. The noncoincident demand reduction for lighting will then be adjusted to account for changes in HVAC requirements by area. The adjustment factor will be estimated using: (a) average reduction of internal heat gain associated with the change in wattage; and (b) the average efficiency of electric cooling and heating systems. The internal heat gain will be calculated from demand reductions ascertained through the previous step. The average efficiency of electric heating and cooling systems will be assessed from information collected through the on-site survey.

(3) Apply a diversity factor. The diversity factor is the percentage of maximum potential savings achieved at any point. It accounts for some percentage of lights turned off that are normally scheduled on. For lighting measures, the diversity factor is primarily affected by occupancy and is the weighted average percentage of the time that lights are in use during scheduled operating hours. To determine the impact of the project on system peak, multiply the diversity factor by the noncoincident demand reduction for each lighting area.

(4) Calculate the annual energy savings from the load profiles by multiplying the operating hours in each season by the demand reduction achieved in each of the areas and aggregate energy savings for all the areas.

Table 5-2 shown on the next page illustrates how to calculate load shapes and energy savings.

Table 5-2

EXAMPLE OF A SCHOOL

SAMPLE CALCULATION OF LIGHTING ENERGY SAVINGS AND SYSTEM DEMAND IMPACT

Typical Winter and Shoulder Day, Peak Winter Day

Location, Room Type	kW Savings Per Fixture	# of Fixtures	Maximum Direct Demand Savings (kW)	Cooling Savings Factor	Diversity Factor	System Demand Reduction (kW) 8 AM	9 AM	10 AM	11 AM	12 AM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM - 8 AM	Annual Operating Hours	Annual Direct kWh Savings
Office	0.019	7,000	133	0%	0.8	106	106	106	106	106	106	106	106	106	106	106	0	0	0	0	2,138	227,526
Hallway	0.032	8,000	256	0%	1.0	256	256	256	256	256	256	256	256	256	256	256	256	0	0	0	2,916	746,496
Classrooms	0.135	11,000	1,485	0%	0.8	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188	0	0	0	2,333	2,771,366
Gymnasiums	0.032	8,000	256	0%	1.0	256	256	256	256	256	256	256	256	256	256	256	256	256	256	0	0	0
Exterior Lighting	0.032	4,000	128	0%	1.0	128	0	0	0	0	0	0	0	0	0	128	128	128	128	128	3,645	466,560
Total						1,934	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,806	1,934	1,828	384	384	128		4,211,948

Typical Summer Day

Location, Room Type	kW Savings Per Fixture	# of Fixtures	Maximum Direct Demand Savings (kW)	Cooling Savings Factor	Diversity Factor	System Demand Reduction (kW) 8 AM	9 AM	10 AM	11 AM	12 AM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM - 8 AM	Annual Operating Hours	Annual Direct kWh Savings
Office	0.019	7,000	133	2%	0.5	67	67	67	67	67	67	67	67	67	67	67	0	0	0	0	1,065	71,091
Hallway	0.032	8,000	256	2%	0.5	129	129	129	129	129	129	129	129	129	129	129	129	0	0	0	1,452	186,546
Classrooms	0.135	11,000	1,485	2%	0.5	745	745	745	745	745	745	745	745	745	745	745	745	0	0	0	1,162	865,922
Gymnasiums	0.032	8,000	256	2%	0.5	129	129	129	129	129	129	129	129	129	129	129	129	129	129	0	0	0
Exterior Lighting	0.032	4,000	128	0%	1.0	128	0	0	0	0	0	0	0	0	0	0	0	128	128	128	1,815	232,320
Total						1,197	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,069	1,003	257	257	128		1,355,929

Typical Summer Day

Location, Room Type	kW Savings Per Fixture	# of Fixtures	Maximum Direct Demand Savings (kW)	Cooling Savings Factor	Diversity Factor	System Demand Reduction (kW) 8 AM	9 AM	10 AM	11 AM	12 AM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM - 8 AM	Annual Operating Hours	Annual Direct kWh Savings
Office	0.019	7,000	133	4%	0.5	67	67	67	67	67	67	67	67	67	67	67	0	0	0	0	9	550
Hallway	0.032	8,000	256	4%	0.5	129	129	129	129	129	129	129	129	129	129	129	129	0	0	0	12	1,545
Classrooms	0.135	11,000	1,485	4%	0.5	745	745	745	745	745	745	745	745	745	745	745	745	0	0	0	10	7,185
Gymnasiums	0.032	8,000	256	4%	0.5	129	129	129	129	129	129	129	129	129	129	129	129	129	129	0	0	0
Exterior Lighting	0.032	4,000	128	0%	1.0	128	0	0	0	0	0	0	0	0	0	0	0	128	128	128	15	1,920
Total						1,197	1,073	1,073	1,073	1,073	1,073	1,073	1,073	1,073	1,073	1,073	1,003	257	257	128		11,248

Secondary Method: Billing Analysis

A billing analysis will examine the change in energy consumption between the pre- and post-installation period. Estimates of energy consumption derived from the billing analysis will be compared to the engineering estimates. Large divergences between the two values will be an indication that one or more of the parameters used in the engineering calculations may be incorrect. The other possibility is that electric uses in the facility changed from year-to-year. The issue of changes in facility operations will be investigated as part of the on-site survey.

The second part of the billing analysis is to convert the energy savings into demand reductions by allocating the total savings over the hours of operations. This energy allocation will be weighted by each hour of each day type. The resulting load shapes should be compared to those derived from engineering analysis. If the load shapes are significantly different, operating schedules will be reexamined, and the engineering analysis will be redone. The load shapes and energy savings should be calibrated within plus or minus 20 percent, assuming all other variables are the same.

O&R will provide the billing data for a full year before the start of construction and for a full year after completion of construction for each project.

DATA REQUIREMENTS

Data requirements will involve incorporating information from ESCo measurement reports and on-site surveys. The following discussion describes the information contained in ESCo measurement plans and reports.

ESCo Measurement Data

Measurement plays a major role in program implementation. O&R and the ESCos developed measurement guidelines during the contract negotiation phase. The

guidelines stipulate how the ESCos should measure, calculate savings, and document the results.

This measurement activity is entwined in the development of each project. For example, the customer agrees to and O&R approves of the project, and the ESCo submits a measurement plan to O&R. Upon approval, the ESCo performs pre installation metering in the presence of an O&R representative. At the same time, O&R inspects to verify that all the existing fixtures conform to the customer contract. A O&R DSM program administrator reviews and approves the pre installation measurement results. After project construction, the ESCo performs post installation measurement in the presence of O&R representatives. This time, the O&R representative inspects to verify that measures have been installed as specified. The ESCo submits the post installation measurement results for O&R approval, then requests payment.

Measurement method includes instantaneous measurement of wattage for a representative sample of fixtures. The measurement guidelines specify the acceptable percentage of each type of fixture the ESCos are to measure. Outside of the O&R and ESCo agreement, hours of operation and time of use are monitored. This information does not appear in the measurement reports. Rather, the ESCo uses this information to develop kilowatt hour use in order to calculate customer payments for the shared savings agreements.

The measurement approach is best described as three steps. First, wattage is measured with an instantaneous wattmeter, time of operation is determined with a data logger. Second, the wattage per measure (similar type fixtures) is determined by weighting the average wattage per fixture on each measured circuit, by the number of fixtures on that circuit times the total number of measured circuits. These calculations are conducted for each measure before and after installation. Third, the total demand reduction is determined by aggregating the wattage of each fixture and taking the difference between the total wattage of all the measures before and after installation.

The following discussion outlines the available data for evaluation purposes. This includes the ESCo/customer contract and measurement reports.

The DSM contract that the ESCos use with customers appears to follow a standard format. The outline is presented below:

I. Background. This section describes the customer's facility in terms of size and types of operations.

II. Systems. This section outlines the types of electrical equipment in the facility and the ESCo's energy efficiency recommendations.

III. Work Schedule. The work schedule addresses measure installation and pre- and post measurement.

IV. Demonstration of Savings throughout the Contract Period. This section outlines for the customer how ESCos will conduct inspections to verify equipment is operating properly. In addition, the section explains how hours of operation will be measured by the ESCo. This is important to the customer as their shared savings payment to the ESCo is based on actual energy savings; O&R bases ESCo payment on demand reduction.

V. Operation and Maintenance. This section discusses the ESCo's and the customer's responsibilities in operating and maintaining the energy efficiency equipment.

VI. Measurements. This section describes how the ESCo will be responsible for obtaining hours of operation for peak and off peak periods. The ESCo will also be responsible for identifying locations for pre- and post installation measurement. The measurement section stipulates that 10 percent of the fixtures will be measured. A smaller percentage of fixtures

will be measured if measurement interferes with facility operations. More fixtures will be measured if preliminary results significantly differ from engineering estimates.

Attachments.

Two types of attachments are included. First, manufacturer cutsheets provide descriptions and specifications on all energy efficient equipment installed in the facility. Then a pre measurement report lists recommended and installed measures by type and quantity and includes a "rollup" sheet that specifies what kind of lighting equipment is being monitored and where it is located.

The ESCos provide pre- and post-measurement reports to OPUR as proof of demand reduction in customer facilities. These measurement reports include a list of lighting fixtures, as well as a summary of demand accompanied by the field staff's work papers ("Fixtures Measurement Summaries"). These track information on location, total number of fixtures, panel/circuit number, number of measured fixtures, and measured wattage. The work papers also include columns to calculate actual wattage per fixture and weighted average wattage per fixture.

On-Site Survey

The on-site survey will collect the following information for each project.

- **Customer Participation.** Information will be collected on customer characteristics, facility characteristics, and project milestone dates.

- **Inventory of Fixtures.** The facility will be examined in conjunction with ESCo documentation on actual installations, and the number of fixtures will be determined in each type of lighting area.

- **Inventory of Existing Control Systems.** An inventory will determine the number of interior fixtures that have timers or occupancy sensors by affected lighting area.

- **Operating Schedules.** A schedule will be developed for each type of lighting area in the facility. The schedules will represent only those areas impacted by the lighting retrofit.

- **Electric Heating and Cooling Efficiency.** The efficiency of HVAC equipment will be examined and documented if impacted by lighting measures.

- **Changes in Building Use.** The changes in building use will be investigated. The facility engineer will be questioned about changes in building operations or use that have occurred over the last year or that may occur in the future.

- **Project Costs.** A question will be asked about the payment agreement, and project costs and customer contributions to the ESCo will be determined.

The surveys will be performed during the post-measurement meeting for projects that have not yet completed the implementation process.

Most facilities that have completed the implementation process will need to be revisited. In some cases, the above information could be extrapolated from: (1) discussions with ESCos about types of lighting areas and operating hours; (2) information provided from ESCo measurement reports on installation rates; and (3) telephone surveys to collect information on customer characteristics, changes in building use, and project costs.

Either way, a tracking system will be developed and information will be recorded in a database. The tracking system will be designed to generate estimated savings. For completed projects, the information will be transferred from hard copies into the database.

On the next page, Table 5-3 presents the data requirements and collection methods for the impact evaluation. Besides each data element is the corresponding information source or collection technique.

Table 5-3
DATA AND COLLECTION TECHNIQUES

Data	Source/Collection Technique
Customer Information	On-site survey or telephone survey/ESCo documentation and records.
Pre-existing Equipment (number of fixtures and name plate ratings)	ESCo/Customer contract. Includes a summary of existing information and proposed energy-efficiency equipment.
Installed Equipment (number of fixtures and name plate ratings)	ESCo/Customer contract. Includes manufacturer cutsheets that provide descriptions and specifications of the equipment. It should be noted that the post-measurement report provides information on actual installations.
Daily Operating Schedules (by lighting area)	On-site survey or ESCo records. The ESCo measurement results will be used where available in the evaluation to verify that fixtures are operating.
Inventory of Existing Control Systems (i.e., interior and exterior lights on timers or occupancy schedules)	On-site survey or ESCo records.
Average Efficiency of Electric Cooling and Heating Systems	On-site survey or ESCo records.
Billing Data for the Year Proceeding and Following Installation	O&R billing records.
Change in Building Use	On-site survey or telephone survey.
Project Costs	On-site survey or telephone survey.
Free Ridership, Free Driver, Rebound, and Persistence	On-site survey or telephone survey.
Long-Term Persistence	Triannual telephone survey.

EVALUATION OF NON-DEMAND FACTORS

Free Ridership

The on-site survey will ask the customer a series of questions to determine whether he or she would have installed the measures without the program. If indicated, the on-site survey will probe further into when the installations would have occurred and how extensive they would have been. In addition, the evaluation should examine the payback periods and the availability of up-front capital to provide more information on the free ridership issue.

Free Drivers

The on-site survey will ask building managers if they have completed other energy efficiency projects as a result of the success of the lighting project or related energy projects.

Rebound

Rebound effects are not anticipated to be an issue. Nonetheless, the evaluation should ask about and identify reasons for changes in lighting schedules.

Persistence

The ESCo's bid guarantees savings for at least ten years. Given that many of the measures proposed here are lamps with limited lifetimes, the evaluation will focus on two factors. First, the evaluation will examine the maintenance and operating agreement in the ESCo/customer contract. Second, the on-site survey will examine whether efficient lamps are stocked in the facility.

Persistence surveys will be conducted every three years. Customers will be contacted by phone, and survey questions will examine lighting operations.

TASK ASSIGNMENT AND RESOURCE REQUIREMENTS

A list of the major evaluation tasks follows. These tasks will need to be assigned between O&R and the evaluation consultant(s). Our estimated costs assume consultants will complete the budgeted tasks and O&R will complete non-budgeted tasks. Costs will increase if more projects are included in the evaluation. The tasks are:

- Develop tracking system to assess program impacts;
- Examine project documentation and consult with ESCo to determine if an additional on-site survey is required or if a telephone survey is adequate for each project;
- Enter relevant information into the tracking system;
- For projects in the implementation process, conduct an on-site survey for projects during post-measurement visits;
- For completed projects, revisit the site;
- On a project basis, perform engineering and billing analysis to assess load shapes and energy savings;
- On a project basis, assess the effects of free ridership, free drivers, rebound, and persistence on energy and demand impacts;

- Perform a triannual telephone survey to assess long-term persistence; and

- Provide report.

SCHEDULE

Week:	**Task:**
1 to 2	Develop tracking system
3 to 4	Review existing information Enter data Schedule on-site surveys
5 to 7	Perform on-site surveys
8 to 9	Record new information in tracking system
10 to 13	Perform engineering analysis and billing analysis on each of the 14 completed projects
14 to 16	Draft report
17 to 18	Wait for comments
19 to 20	Final report

BUDGET

Task (for 14 projects; excludes triannual telephone surveys)	**Amount:**	**Detail:**
Tracking system development	$ 6,000	(60 hours x $100 per hour)
Review of existing documentation	$ 6,000	(14 projects x 4 hours per project x $100 per hour)
On-site surveys	$25,000	(14 projects x 18 hours per project x $100 per hour)
Data entry	$ 2,500	(14 projects x 4 hours per project x $40 per hour)
Analysis	$25,000	(14 projects x 18 hours per project x $100 per hour)
Draft and Final Report	$ 8,000	(80 hours x $100 per hour)
TOTAL:	$72,500	

Section 6
CONCLUSIONS AND RECOMMENDATIONS

The following presents our conclusions and recommendations for the O&R DSM Bidding Program. As no follow-on program is planned for the O&R program, we offer these recommendations as improvements on future bidding programs, rather than on the current O&R program.

Both the interim and final reports of the process evaluation demonstrate that competitive bidding can be used to acquire DSM resources. However, as reported in the interim report, the selection criteria (specifically the ceiling price and incentive structure in combination with the franchising approach) can have a significant effect on the types of bids submitted and selected. This final report further demonstrates that the ceiling price and incentive structure influenced the types of measures installed in the program. However, franchising effects were less significant in influencing the types of measures installed.

Critical to the success of the O&R program has been the increased cooperation between O&R and the ESCos during 1991 and 1992. Nonetheless, implementation has been slow. The following presents our conclusions and recommendations on the effectiveness of the delivery mechanism and program administration, and on the nature of customer participation.

DELIVERY MECHANISM EFFECTIVENESS

The program delivery mechanism consists of ESCos offering DSM services to utility customers. O&R pays the ESCos an incentive for each kW reduction achieved. The ESCos are free to use the incentive and market the program in whatever manner they believe is most effective. In establishing the delivery mechanism for the New York State service territory, O&R established two franchise areas. Two ESCos operate in each franchise area.

The ESCos operating in the O&R DSM Bidding Program are effectively obtaining sufficient participants to meet their targeted goals. However, one ESCo has clearly had difficulties and may yet fail to achieve their entire target. Perhaps the most important explanation of ESCo B's difficulties lies in its unrealistically high bid amount resulting from a lack of sufficient market research prior to bidding. This was exacerbated by changes in personnel and adherence to a marketing strategy with a very low return. ESCo A, on the other hand, conducted market research in addition to that provided by O&R prior to bidding, provided a more conservative bid, and has had little difficulty achieving and surpassing the bid amount as they adjusted marketing efforts in response to their experience.

Franchising appears to have potential for reducing the number of bids a customer must review. However, we do not believe the O&R program provides a true test of franchising. This is primarily due to the low market potential and the fact that both ESCos operated throughout O&R's New Jersey and New York State territory. However, to the extent that franchising limited the number of ESCos to two bidders with full access to the service territory, we found that franchising met the needs of all parties. Competition between the ESCos was limited. Customers had opportunities to meet with two contractors, but did not have to confront multiple bids. The utility and the ESCos were able to work together effectively, in part because there were so few players.

Bidding programs and traditional utility DSM programs often compete for customers. However, competition can be limited through cooperation. O&R has a variety of DSM programs operating concurrently with the bidding program. When the program began, O&R representatives and ESCos saw themselves in competition with one another for customer participants. This situation was confusing to customers and the ESCos. A cooperative effort has evolved since O&R field staff were informed of the additional benefits of the DSM bidding program to O&R programs.

Recommendation: Market research can enhance the utility and the ESCos' ability to make a bidding program more effective. ESCos and utilities should carefully conduct market research prior to entering bidding programs. Utilities can use the information to identify "reasonable" bids and perhaps target their resource acquisition efforts to be more congruent with market potential. ESCos can use the market research to ensure their bids are reasonable and to provide a "leg up" once they win the contract.

Recommendation: Franchising deserves further investigation, especially if mechanisms can be achieved to address potential problems in the selection process that reduce the potential for selecting diverse measure proposals.

Recommendation: Bidding programs are more effective when utilities and bidders cooperate. One mechanism for increasing cooperation is to ensure utility field staff treat savings acquired through utility and bidding programs equally.

ADMINISTRATIVE MECHANISM EFFECTIVENESS

The administrative mechanisms of the program include the incentive structure, payment procedures, verification requirements, and on-site inspections by O&R. In addition, the ESCos have contracts with the customers that are reviewed by O&R as part of the verification process.

The O&R bidding program currently has less administrative burden than other O&R DSM programs. This is primarily because field staff spend little time actually addressing bidding program issues and the utility has no advertising costs associated with the program. O&R's estimate of monthly costs for the bidding program range from $3,000 to $4000. The only disadvantage cited by staff is that the utility makes a long-term commitment to the ESCos. This reduces O&R's ability to decrease or

increase DSM acquisition efforts should financial or business conditions warrant a change.

The program incentive structure appears to have contributed to the preference for lighting measures by customers. The interim report found that while ESCos bidding in the program proposed to install comprehensive measure packages, they did not expect to be able to install comprehensive packages due to the low ceiling price. In fact, this study found that lighting measures are the only measures currently being installed in the program. ESCos attribute this to the low incentive structure that requires the ESCo obtain a significant customer contribution in order to install any measures. However, some customers are considering installing additional measures either using their own financing, O&R's rebates, or with the ESCos at a later date.

As ESCos seek to achieve continued savings, they will probably actively encourage customers to work with them to install the measures. Whether they will be successful remains to be seen. There is one potential problem should ESCos become more concerned about acquiring additional savings. Comments by customers indicate that the lighting measures currently installed in some settings were unsatisfactory due to low lighting levels. Such a situation could lead to some customer dissatisfaction with the program as well as with the concept of energy efficiency and DSM.

The verification requirements for the contractors are sufficient to provide much of the information needed to conduct an impact evaluation of the program. Additional data can be collected through on-site surveys, additional short-term metering, and an analysis of billing histories. These tasks can be accomplished for about $70,000—around 15 percent of the anticipated incentives for the program.

> **Recommendation:** Utilities interested in bidding programs should be careful about relying solely on bidding programs for DSM resource acquisition. Bidding programs take time to put in place and time to generate savings. They

therefore fit most comfortably as a long-term strategy in sectors where savings may be difficult to achieve through other means.

Recommendation: Incentive structures effectively define the types of measures bidders are likely and willing to install. Long-term contracts between the ESCos and utilities may encourage installation of additional measures over time, but this cannot be assured. Incentive structures, therefore, need to be designed to ensure comprehensive measures are installed. Time-differentiated and measure-based pricing are potential solutions.

Recommendation: O&R should conduct an impact evaluation using the proposed strategy of engineering analysis and statistical billing history analysis with data from on-site surveys and existing program data.

THE NATURE OF CUSTOMER PARTICIPATION

ESCos report that they generally require three to four different contacts to obtain a committed customer. Customer response to the program is greatest among institutional facilities (hospitals, schools, etc.). These customers have limited access to capital and achieve significant budgetary benefits from participation because payments to the ESCo are made over time through a shared savings arrangement.

The major barriers to customer participation are long contract terms and unfamiliarity with the ESCo concept. Customers report they do not like to sign ten-year contracts for energy savings. Those willing to sign long-term agreements see few alternatives for obtaining the energy savings. Unfamiliarity with the ESCo concept and a mistrust of ESCos provides another barrier. This led nonparticipating customers who were identified in the proposal by the ESCos as being interested in the DSM opportunities to pursue projects on their own. Six of the nonparticipants we spoke with indicated that they had either started to implement some of the measures with their own capital,

or they had taken advantage of O&R's lighting rebate program to implement the recommended measures on their own.

Recommendation: While little can be done to address the long-term contract issue, utilities can cooperate closely with participating ESCos to assure customers that the ESCo is a reliable business partner.

APPENDICES

APPENDIX A

LIST OF KEY CONTACTS

ORANGE AND ROCKLAND STAFF

Bill Atzl, Manager, DSM Operations, September 15, 1992

Michael Thorpe, Program Administrator, DSM Operations, September 15, 1992

Jim Cuccaro, Manager, Economic Analysis, September 17, 1992

ESCOs

Linda Gettings, Kenetech, V.P. Eastern Division, September 16, 1992

Diana Schnittker, EUA, Marketing Director, September 15, 1992

Art Lennon, EUA, Vice President, September 15, 1992

PARTICIPANTS

Ralph Zanfardino, Helen Hayes Hospital, Director of Technical Services, September 18, 1992

Robert Garloch, Arden Hill Hospital, Director of Plant Operations, September 17, 1992

Devon Upton, Nyack Hospital, Director of Engineering September 17, 1992

Andy Kiste, MRC, Facilities Manager, September 16, 1992

Mark Jettison, Edwin Gould - Crystal Run Environmental Center, Executive Director of Crystal Run, September 14, 1992

Barry Wolkon, Sport-O-Rama, President of Roller Rinks, September 16, 1992

NONPARTICIPANTS (IN-PERSON)

Ronald Lewis, Horton Memorial Hospital, Director of Engineering Services, September 15, 1992

Dick Green, Revere Smelting, Vice President, New York Operations, September 16, 1992

NONPARTICIPANTS (TELEPHONE)

Robert Hoarle, Ciba-Geigy

Roberta Zampolin, Nyack Public Schools

Richard Haswell, East Ramapo Schools

Robert Hoffman, AGFA/Matrix Corporation

Anthony Cashara, Clarkstown Central Schools

APPENDIX B

PROGRAM IMPLEMENTATION
UTILITY STAFF

NAME _____

FIRM _____

TITLE _____

DATE _____

OVERVIEW

1. What is your overall assessment of the program? (PROBE: In what ways has the implementation of the program differed from your original expectations?)

2. What do you consider the goals of the program are at this time?

3. Do you feel these same goals are accepted and held by firms and customers participating in the program?

4. Do other departments of O&R organization share these goals?

DELIVERY MECHANISM

5. Have the firms participating in this program been credible agents/participants in representing the utility's and customer's interests? (In what ways?)

6. If some projects are being installed, are the contractors providing the agreed upon services? (PROBE: If not, where are there problems and what is causing them?)

7. Do the contractors appear to have the skills required to do the job?(marketing, technical, business management, etc.).

8. Are there any things you think could be done to improve the contact/completion and proposal/closing ratios? (PROBE: What are they? Why do you think so?)

9. Have you been contacted by any customers about this program and the contacts made by contractors? (PROBE: What were their concerns? Did you find that there was confusion among customers who had several firms contact them?)

ADMINISTRATIVE MECHANISM

10. Will savings levels for each contractor/customer participating in O&R program be achieved? (PROBE: Why or why not?)

11. Are contractors being paid in a timely manner?

12. How much time (FTE) do you allocate to program administration since contracts were negotiated? (PROBE: Has this changed during program implementation? Is the staffing adequate?)

13. What activities take most of your time?

14. How are responsibilities for the program shared by different departments at O&R (eg. financial, regional staff, program staff)?

15. Are the roles and responsibilities of each department understood? (PROBE: Have there been any difficulties? How have these been resolved?)

16. How much time (FTE) do O&R staff allocate to other conservation programs in the commercial/industrial sector?

17. What are the administrative costs for this program? Can this be allocated by KW savings or ECM cost for anticipated number of completed projects at this time? (PROBE: How does this compare to other O&R conservation programs?)

18. How are savings being verified? (PROBE: Is this satisfactory?)

CONCLUSIONS

19. What are the program's strong points?

19a. What are its weak points?

20. What would you change in the program?

PROGRAM IMPLEMENTATION
ESCos

NAME _____

FIRM _____

TITLE _____

DATE _____

OVERVIEW

1. What are the program goals?

2. What is your overall assessment of the program at this time? (PROBE: Is the program achieving its goals?)

3. What was your marketing approach? (PROBE: How has this changed since we last talked?)

4. Has O&R provided you with the assistance you expected? (PROBE: In what ways? Have they expedited or hindered the success?)

5. Have you found O&R responsive (PROBE: Explain your other concerns and their response, or lack of response.)

CUSTOMER RESPONSE

6. Can you estimate your proposal to closing ratio (the number of proposals required to close a deal)?

   (PROBE with the following questions.)

   a. How many firms in your franchise have you contacted since negotiating your contract with O&R?

   b. How many firms requested a proposal?

   c. How many firms entered negotiations with you?

   d. How many signed?

e. How many are still pending?

f. How many installations have you completed?

g How many are pending?

7. Are there any things which could be changed in the program design which would improve your contact/closing ratio?

8. About how long does it take for a customer to determine that they would like to enter negotiations after you have submitted a proposal?

9. About how long does it take to negotiate a contract once you enter negotiations with a customer?

10. What is important to customers (from ESCo's viewpoint)? [NOTE: Some are shared savings: ESCo long-term commitment (negative?), but $s to invest (positive?). Expand the thought and be specific about the pros and cons of this issue as perceived by the customer] (PROBE: Have you noticed any differences in which types of customers are most likely to request a proposal or close the deal? What are these differences?)

11. Are there differences in customers being willing to enter a deal with this O&R program vs. your normal day-to-day business? (PROBE: What are those differences?)

12. Are there any generalizations you can draw regarding the types of customers that chose not to participate in the O&R program?

13. Have customers chosen to not install any approved measures? (PROBE: If so, which measures are not installed? Had they been planning to install any recommended measures before your proposal?)

14. Have customers used the O&R transaction to leverage installation of other measures not covered by O&R? (PROBE: What were these?)

15. How much of the incentive paid by O&R was passed on to the customers?

16. Do you consider the incentive sufficient to initiate and develop proposals?

IMPLEMENTATION

17. Has the franchise approach been helpful or has it caused any difficulties for you? (PROBE: Do you wish you had selected a different franchise group? How would you recommend changing this in the future? How does O&R's franchise approach compare to other franchise approaches?)

18. Did you contact any customers who had been contacted by more than one firm participating in O&R program? (PROBE: Did this cause any confusion? Had any firms been contacted by vendors not O&R's program? Did this cause any confusion?)

19. Have you conducted any marketing or installations in the institutional sector?

20. Have you had any difficulty finding projects which meet the bid price you proposed to O&R?

21. Have you had any difficulty obtaining hardware or subcontractors? (PROBE: What types?)

22. Are there any factors that slowed the program? (PROBE: What are they and how would you like to see them changed?)

23. How are you proposing to verify savings on these projects? (PROBE: Why or why not?)

24. Are there customer groups not available through the O&R program that should be included in the program? (PROBE: Which ones?)

25. Are you able to get assistance/resolution with issues you bring to the O&R staff?)

26. Do you track your administrative costs? (PROBE: What are they on average based on the number of projects you expect to complete (KW Savings or total ECM cost)?)

[FOR ESCos]

27. Could you estimate your marketing costs? (PROBE: What are they on average based on the number of projects you expect to complete (KW Savings or total ECM cost)?)

[FOR CUSTOMERS]

27a. Did you incur any costs other than administrative? (PROBE: If so, please estimate the dollar amount)

28. Is the utility paying you in a timely manner?

CONCLUSIONS

29. Do you expect to meet, your energy-savings goal? (PROBE: By how much and for what reasons?)

30. Are there any ambiguities in the program you have found troublesome? (PROBE: How would you like these changed?)

PROGRAM IMPLEMENTATION
PARTICIPANTS

NAME _____

FIRM _____

TITLE _____

DATE _____

OVERVIEW

1. What stage is your project in now?

   a. Analysis
   b. Proposal under review by you
   c. Under construction
   d. Awaiting payment
   e. Complete

Comments: _____

_____

_____

2. When were you first contacted by -firm-? (PROBE: Did you request a formal proposal at that time or later?)

3. What decision makers at your firm were involved in the decision to request a proposal and to implement this proposal? (PROBE: What is the decision-making process at your firm for these types of projects?)

4. How long did it take your firm to decide to participate?

5. Are you aware that O&R is sponsoring -firm- activities? (PROBE: How did -firm- explain this relationship to you? Did it influence your decision to participate?)

6. Has this program changed in any manner your impression of O&R? (PROBE: In what ways?)

DELIVERY MECHANISM

7. Have any other firms contacted you that are involved in the O&R program?

8. Have any energy service or energy management companies contacted you in the past about this type of service, but without O&R's involvement?

9. Would you rather deal directly with O&R or do you prefer to have -firm- deal with O&R instead of yourself? (PROBE: Please explain what -firm- told you.)

10. Would you rather deal with another energy management or energy service company other than -firm-? (PROBE: Why?)

11. Does the -firm- appear to be competent and organized? (PROBE: Are you getting good service?)

12. Are there any things that are (or did) slowing your participation in the program? (PROBE: What things? Are they program related or firm specific?)

13. Did the contract negotiations proceed at the pace you desired? (PROBE: What is important to you about this process (obstacles, influences, good and bad; get specifics)

MEASURE SELECTION

14. Did the -firm- provide you with valuable information or analysis?

15. What did you like and dislike about their proposal?

16. Were there measures proposed by the ESCo that you rejected? (PROBE: If so, why?)

17. Were there any recommended measures in the proposal that you had already been considering? (PROBE: Which ones? Why had you previously not installed them? When did you expect to install them?)

18. Were there any recommended measures that you <u>had not</u> previously considered installing, or you had decided not to install previously? (PROBE: Which ones? Did you decide to install them?)

19. Are there any other measures you are installing or considering installing that are not part of the recommended actions?

20. Were any other services provided by the firm important to making this project work? (PROBE: What were they? Did the contractor recommend an operations and maintenance agreement.)

21. If they are aware that O&R is paying (firm) an incentive, ask: How much of that incentive was passed on to you? Did this influence your decision to participate in the program? In what ways?

ADMINISTRATION

22. Has the firm been able to answer your questions regarding the project satisfactorily?

23. What were your initial expectations for the required months to complete this project? (PROBE: How has that changed, and why?)

24. About how much time have you and your employee's put into this project so far? (PROBE: How much more do you anticipate? What activities take up the most time?)

25. Is this time expenditure about what you expected? How so?

FIRM CHARACTERISTICS

26. How many employees work at this location?

27. What is the SIC code for this firms location? (PROBE: If no SIC, describe activities)

28. Is energy an important cost concern? (PROBE: Do you consider demand reduction a high priority?)

29. Could you estimate the percent of your businesses total cost that are attributed to your demand and energy costs?

DEMAND _____% TC ENERGY _____% TC

CONCLUSIONS

30. What do you think is O&R's goal in this program? (PROBE: How did you determine that to be the goal?)

31. What is the most important reason your firm decided to participate in this project?

32. When do you anticipate completing this project?

33. What are the strong points of this program?

33a. What are the weak points?

34. Would you recommend participation in this program to other companies?

35. Is there any advice you would give them?

36. Is there anything you would like to see changed in the program?

PROGRAM IMPLEMENTATION
NONPARTICIPANTS

NAME _____

FIRM _____

TITLE _____

DATE _____

NOTES: Find out what "deal" the ESCos are offering to determine what the "true cost" of the resource is (i.e. are participants offered all of it, splitting with the ESCos or ?). Focus on the experience with the ESCos and not on the program (e.g., how ESCos work with customers; how customer respond to ESCos vs. how they respond to utility).

PROGRAM DELIVERY

1. When were you first contacted by -firm-? (PROBE: Did you request a formal proposal at that time or later?)

2. What was your initial impression of the firm?

3. What decision makers at your firm were involved in the decision to request a proposal and to decide whether or not to implement this proposal? (PROBE: What is the decision-making process at your firm for these types of projects?)

4. For those that did not request a proposal: Why did you not request a proposal?

5. For those that received a proposal: Why did you decide to not install this project?

6. Were you able to have all your questions answered satisfactorily?

7. Are you aware that O&R is supporting -firm- activities?

8. If so, how did -firm- explain this relationship to you? (PROBE: Did that have any influence on your decision not to participate? If they know of the incentive, did the firm offer an incentive to you?)

9. Have any energy service or energy management companies contacted you in the past about this type of service?

10. Would you rather deal directly with O&R or do you prefer to have -firm- deal with O&R? Explain

11. Would you rather deal with another energy management or energy service other than -firm-? Why?

PROPOSAL RECIPIENTS ONLY

12. Were there any recommended demand reducing actions in the proposal that you had already been considering? (PROBE: Which ones? Why had you not installed them? When did you expect to install them?)

13. Were there any recommended demand reducing actions which you had not previously considered installing, or you had decided not to install previously? (PROBE: Which ones?)

14. Do you plan on installing any of the recommended measures on your own? (PROBE: What led to your decision?)

FIRM CHARACTERISTICS

15. How many employees work at this location?

16. What type of firm is this? (PROBE: What is the SIC code for this firms location?)

17. Is energy an important cost concern? (PROBE: Do you consider demand reduction a high priority?)

18. Could you estimate the percent of your businesses total cost that are attributed to your demand and energy costs?

DEMAND _____% TC ENERGY _____% TC

CONCLUSIONS

19. Is there anything you would like to see changed in the program? (PROBE: Might the changes have influenced your decision not to participate?)

DATE FILMED

1 / 5 / 94

END