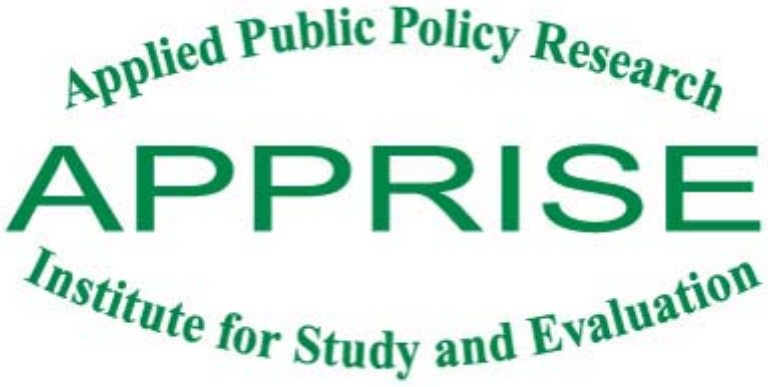

Ohio EPP
Process Evaluation

Final Report

Prepared for the Ohio Office of Energy Efficiency

October 2003

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Executive Summary

Ohio's Electric Restructuring Act, passed in July 1999, created the Universal Service Fund (USF) to ensure that low-income households retain access to electric service. The Act seeks to better coordinate the Home Energy Assistance Program (HEAP), the Home Weatherization Assistance Program (HWAP), the Ohio Energy Credits Program (OEC), and the Ohio Electric Percentage of Income Payment Program (PIPP),[1] and creates an Electric Partnership Program (EPP) that provides baseload, weatherization, and energy education services. This report presents the findings from the second year of the Process Evaluation of the Electric Partnership Program.

Introduction

The Electric Partnership Program (EPP) aims to reduce electric energy consumption of PIPP households, and reduce the growth of PIPP customers' arrears and the USF rider. To accomplish this objective, the EPP provides energy services that vary with the customer's usage level, and education services that vary with the customer's usage and payment. The basis of the Program is the installation of cost-effective energy conservation measures. Education is an important component of the Program to help customers to understand the Program, to improve measure performance, and to take energy-saving actions.

Evaluation Activities

This report presents the findings and recommendations from the second year of the Process Evaluation of the Electric Partnership Program. During this time period, the following evaluation activities were undertaken.

- *Administrative Interviews:* APPRISE conducted administrative interviews with OEE staff and contractors. The purpose of these interviews was to document the changes made to the Program and to document Program operations, including quality control findings.

- *Client Interviews:* APPRISE conducted the first round of the client interviews in April 2003. The purpose of these interviews was to document education provided to clients, client retention of educational information, changes in client behavior, and client satisfaction with the Program.

- *Program Data:* APPRISE is collecting data from the providers on other programs provided to EPP participants since the delivery of EPP services. These data will help to distinguish the impact of the EPP from other services that Program recipients may have received.

[1] The gas PIPP continues to be administered by the utility companies.

- *Agency Observations:* APPRISE conducted observations at COAD and Wayne-Medina and interviewed staff at these agencies. The purpose of these observations and interviews was to document how agencies are implementing the Program.

- *SMOC Visit:* APPRISE visited South Middlesex Opportunity Council (SMOC), the developers of the SMOC~ERS software. The purpose of the visit was to gain a better understanding of the development and implementation of the software. Agency staff were interviewed, and auditors were observed.

- *Agency Survey:* APPRISE conducted an agency survey in May 2003. The purpose of the survey was to document agency adherence to prescribed Program procedures, services delivered, and need for assistance in implementing the Program.

- *PIPP Pilot Planning:* APPRISE participated in a PIPP planning meeting in December 2002 and participated in other phone calls and reviewed documents related to the PIPP pilot. The purpose of this activity was to provide recommendations for the design of the pilot.

- *Economic Impacts:* APPRISE conducted a literature review on multipliers from economic activity, and estimated the economic impacts of the EPP on the State of Ohio. The purpose of this activity was to measure the economic impact of the Program.

- *Refrigerator Analysis:* APPRISE conducted analysis of the SMOC~ERS database, interviewed agency managers, and interviewed managers at utilities in other states to provide recommendations on whether OEE should go out for an additional refrigerator bid.

Summary of Findings

Significant improvements have been made in the design and implementation of the Electric Partnership Program in the second year of operation. Some of the key accomplishments over the last year have been:

- Many of the providers have adapted to the software, technology, and other new requirements of the EPP. Data through the first quarter of 2003 show that approximately 5,000 households have been served in the high use component, and an additional 500 customers were served in the moderate use component in the second Program year.

- Enhancements and fixes to the SMOC~ERS software have greatly improved the operation of the data collection and reporting system.

- A survey of Program recipients revealed high levels of client satisfaction and increased adherence to education and audit procedures by the providers.

- Additional components have been added to the Program design, and have been implemented by some of the agencies.

- New policies were established as part of the second request for proposals from providers, and the RFP for providers was successfully implemented.

The principal recommendations for continued improvements to the Program include additional training, enhanced quality control, improved documentation of Program procedures, continued upgrading of the software, and continued technical and programmatic support for the agencies from OEE.

Improvements in the Second Year of the EPP

With additional time to get adjusted to the Program, its technology, and its procedures; to enhance technology and systems, provide Program documentation and education materials; and to introduce and expand Program services, significant improvements have been seen in the second year of EPP implementation.

- *Production has increased significantly:* In the second year of the Program, by the end of the first quarter of 2003, approximately 5,000 customers were served in the high use component and 500 customers were served in the moderate use consumption.

- *SMOC~ERS has been updated and is working better:* Three rounds of SMOC~ERS updates were provided – in November 2002, December 2002, and February 2003. These updates took care of many of the major problems and provided corrections to some calculations. One of the more important changes was the removal of the Massachusetts 175 percent adder that caused measures to appear cost-effective when they were not. Other key improvements included updated action functions with flexible entries and defaults, easier measure selection, correction of the discrepancy between the SIR on the PDA and the desktop, and the room air conditioner default usage was adjusted to a more appropriate level.

- *Policies and procedures manual has been developed:* OEE created a policies and procedures manual that was distributed to the agencies via e-mail and is available on the Internet. The manual contains information on auditing procedures, weatherization program standards, requirements for landlord contributions, invoicing and reimbursement, referral of clients, and PDA software and hardware.

- *Action form is required for all clients:* Beginning in September 2002, OEE required that all visits include either an action plan or documentation explaining why there were no actions included in the audit. The policies and procedures manual contains a section explaining that the action report is required. The manual stipulates that if actions are not provided and documentation is not furnished, the agency will not be reimbursed for the audit.

- *Outreach letter was mailed:* An outreach letter signed by the Governor of Ohio was sent to high use PIPP clients in August 2002. The letter explained that the clients had been selected for the EPP because of their participation in the electric PIPP and explained some of the benefits provided by the Program. The goal of the letter was to provide more credibility to the EPP. This is important, as there is always skepticism about programs that provide free services, and agencies had made requests for such a letter.

- *Additional Program elements have been introduced and expanded:* In the second year of the EPP, follow-up education and case management were expanded, and the moderate use component was introduced. Ten of the 15 agencies that responded to the survey reported that they had implemented follow-up education, and six reported that they had implemented case management services. The moderate use pilot provides services to clients with annual baseload usage between 4,000 and 6,000 kWh. Agencies reported that 1,267 clients received moderate use services.

- *Refrigerator database has been distributed:* A refrigerator database, listing the usage of 47,000 refrigerators, was provided to the agencies for installation on the PDA. Auditors can use the database for the moderate use component rather than monitor the refrigerator for one hour. The refrigerator database runs outside the SMOC~ERS software and has not affected the speed of SMOC~ERS.

- *Education cards have been distributed:* Education cards were provided to the auditors to assist in the education process. Laminated education cards were provided as visual aids for the auditor to use in discussing energy use and potential action steps. Unlaminated educations cards were provided to be left with the client as reminders of the actions a client has agreed to take. However, monitors have reported mixed reactions to these cards and that auditors who do use the cards leave them with the client with no explanation.

Additional Advances Expected in the Next Year

OEE has completed a second RFP process to select providers to deliver services beginning in July 2003. The RFP process made several improvements to the Program.

- *RFP resulted in nine authorized providers*: Only nine authorized providers, as opposed to the original 18, were selected to provide services in this round. OEE awarded contracts only to those providers who provided competitive proposals in response to the RFP. The reduced number of providers should make the Program administration less burdensome for OEE, while not reducing the number of clients served by the Program.

- *New low use element will be introduced:* The RFP calls for the introduction of a low use component, where clients with an annual baseload usage of under 4,000 kWh receive a survey or participate in a workshop, and are then sent a package that

includes lighting measures to be installed and suggestions on actions they may take to reduce electric use.

- *Cost ceilings for administrative/audit fees:* OEE set cost ceilings for the audit and administrative fees in the RFP. The fee ceiling for baseload services was set at $225, as compared to fees that averaged $343 statewide, and that ranged as high as $509 for the first two years of the Program. These are reasonable fees that should cover costs for the agencies, especially after start-up costs have been absorbed with the higher fees from the first two years of program implementation, and will provide greater savings for the Ohio ratepayers.

- *Additional SMOC~ERS enhancements:* An additional update to the SMOC~ERS software is planned by July for the new Program year. This update will contain some significant changes and improvements. Some of the more important changes are described below.

    - Fuel switching: Agencies will now have the capability to provide fuel switching from electric hot water or electric dryers to gas appliances. The new version of SMOC~ERS contains screens for the fuel switching.

    - Multiple visits: The new version of SMOC~ERS now allows for billing for multiple trips to the client's home. This will allow agencies to bill directly through SMOC~ERS for follow-up education and case management visits.

    - Actions enhanced: The method for selecting actions and the cost savings associated with the actions has been overhauled to provide for easier selection and more accurate savings estimates.

Quality Control Is Insufficient

OEE monitors reported that oversight of agencies has been limited to "technical assistance" observations rather than formal Program monitoring. Systematic procedures for assessing agency performance have not been developed, and monitors do not provide written documentation of their visits. While monitors report that each agency has been visited at least once, agencies have several auditors, and monitors have not had the experience to observe many of the auditors or to determine whether individual auditors are improving. Fewer than half of the agencies that responded to the survey reported that they conduct on-site observation of audits or visit homes after the audit is completed.

Education Still Needs Improvement

Findings from the client survey were fairly positive regarding education provided by the auditors. Seventy-six percent of clients reported that the auditor reviewed and explained their electric bill, 61 percent said that the auditor explained how the client could determine if electric use was increasing or decreasing, and 71 percent said that the auditor explained how electric use is measured. Seventy-eight percent of clients said that the auditor verbally

suggested energy-saving actions, 71 percent said that the auditor developed an action plan, 72 percent said that the auditor provided savings estimates, and 87 percent said that they committed to taking actions to save energy. These percentages are higher than what has been observed in the field and suggest positive trends for the Program. However, it still appears that many auditors are not conforming to the requirement for action plans. Monitors reported that about half of the auditors do not use the action plan, and Michael Blasnik's data analysis shows that, between December 2002 and March 2003, only 46 percent of audits had one or more actions.

Other areas of the education component need improvement. Only 40 percent of the clients who responded to the survey said that their responsibility was to reduce energy usage or follow recommendations. These findings suggest that clients need to be educated more about their role in the Program and how they can actively participate in the reduction of their bills and energy use. Additionally, on-site observations by APPRISE, and verbal reports from monitors show that improvement is needed in this area. These observations have found that the audit introduction is weak, the education provided during the walk-through is inconsistent in quality and comprehensiveness, and providers are not sold on the education component.

The following elements of the education implementation need to be improved.

- *Program recruitment:* Customers need to receive information about the EPP at the time of recruitment, including the name of the Program, who is providing the Program, the purpose of the Program, the benefits of the Program, and what the customer should expect from the visit.

- *Program introduction:* The introduction to the in-home visit should include a description of the Program, including the Program name, who is providing the Program, and the Program's purpose. The provider should establish a partnership with the customer by eliciting the customer's goals for participating in the Program. The provider should explain what the customer should expect from the visit. The provider should review the customer's bill, explaining how to read the bill, the PIPP arrears, and the seasonal usage patterns. The provider should ask the customer what he/she thinks are the big electric users in the home.

- *Action plan:* The provider should furnish the customer with options for taking actions during the walk-through as well as corresponding estimates of cost savings. The provider should secure an action commitment from the customer and provide the customer with a written copy of the action plan that includes estimated cost savings associated with each action.

- *Program conclusion:* The visit conclusion should include a review of the installed measures, partnership reinforcement, explanation of the next steps, and a request for feedback on the materials.

- *Education materials:* Additional materials to assist the provider in effective education should be furnished by OEE. These materials could include an education notebook, a partnership agreement, magnetic folders that can be placed on refrigerator to hold the action plan, and a clipboard that the customer can use to record actions during the walk-through.

There are aspects of the education component that are being successfully implemented. Providers are connecting with the client, the first step in being able to provide effective education. Additionally, providers are furnishing customers with information about measures and actions during the walk-through. At the end of the visit, providers are reviewing SMOC~ERS reports and providing information about installed measures.

Agencies Need More Direction on Some Program Components

Agencies need more direction in following some of the Program's procedures and requirements. While follow-up education is required for all clients, only ten of the 15 agencies have implemented this Program component. Auditors are confused about some of the Program requirements. When determining refrigerator usage, some auditors are monitoring for only one hour or using the refrigerator database for the high use component, when all high use refrigerators should be monitored for two hours according to Program procedures. In the client survey, 37 percent of respondents reported that the provider left some of the CFLs for the client to install after the provider left the home. This practice is inconsistent with Program protocols, and it may lead to CFLs not being installed or not being installed in cost-effective locations.

Summary of Recommendations

Program Administration

- *Hire additional OEE staff:* The addition of staff members in a few critical areas could improve Program results and lead to earlier Program refinement and maturation. Targeted hires in the areas of quality control field staff and office staff with hardware and software skills are recommended. Additional quality control staff members are needed to provide sufficient monitoring and training of agency personnel. Additional technical staff members are needed to test changes to the software and determine what other changes are needed. Currently, two monitors are performing both of these functions, when additional staff members are needed for each area.

- *Further develop policies and procedures manual:* The agency survey, the client survey, and on-site observations have revealed that auditors need more direction on Program procedures. The policies and procedures manual should be further developed, with a pullout sheet summarizing the audit workflow and key audit requirements (for example, installing all bulbs and refrigerator monitoring

requirements). Additional procedures should be distributed for the follow-up component of the audit.

- *Send another letter announcing the Program:* The agency survey, interviews with agencies, and on-site observation showed that Program recognition should be improved, and that the letter signed by the Governor that was sent by OEE was an important part of this process. OEE should send another round of these letters to new client lists, or provide an electronic version of the letter to be sent by agencies prior to their audits.

- *Continue to provide technical support to agencies:* Agency surveys and on-site observations showed that auditors are making progress in utilizing the software and hardware provided by the Program. Additional SMOC~ERS updates can further enhance and improve the process. Agencies will need help installing these updates and working with the new versions of the software.

- *Improve refrigerator procurement:* An analysis of the refrigerator prices obtained by agencies providing the EPP showed that another refrigerator RFP is not warranted at the current time. However, this analysis also showed that some agencies have refrigerator prices significantly above the mean. Agencies with the higher prices should be required to obtain additional vendor bids to ensure that lower refrigerator prices are not available in their service territory.

- *Work to increase auditor compensation:* APPRISE conducted a visit to SMOC to understand how they implement their baseload program. SMOC managers contended that by providing better compensation to their auditors, they were able to obtain more experienced and motivated staff members. The services provided in the EPP require a wide variety of skills, including education and communication skills, understanding of baseload energy usage, and use of Program software. OEE should work with agencies to improve the compensation for auditors providing services in the EPP.[2]

- *Assist agencies in obtaining updated client information:* In the survey of agencies, the providers were most likely to report problems in the area of Program recruitment, because of outdated contact information. OEE should help to increase production by assisting agencies in obtaining updated contact information, such as by matching information from recent HEAP applications.

Training

- *Review protocols for service delivery:* On-site observations, reports from OEE monitors, agency surveys, and client surveys showed that agencies need additional training on some Program protocols. Primary areas for improvement include the workflow of the audit, measure installation, and refrigerator monitoring.

[2] It has been noted that it is not possible for OEE to increase auditor compensation. Additionally, the potential negative consequences of increasing compensation per audit include less time spent in the home.

- *Provide additional education training:* Client surveys showed that education provided during the audits has improved. However, these surveys have also revealed that certain elements of the education are still weak. On-site observations and reports from monitors also demonstrated a need for more education training.

- *Provide additional baseload training:* Client surveys showed that auditors are less likely to discuss appliances that are not commonly found in homes, and monitors found that auditors need to further develop their skills in finding the odd sources of electricity use. Additional baseload training is needed.[3]

Technology

- *Continue making enhancements to software:* Enhancements made to the SMOC~ERS software have significantly improved auditor satisfaction with the technology. Monitors have noticed increased comfort with the PDA during their observations. OEE should continue to make improvements to the software that will enhance auditor performance.

- *Develop custom measures module for SMOC~ERS:* There has been some evidence from monitors' reports, agency surveys, and observation of other baseload programs that auditors find opportunities with great energy-saving potential that they cannot address through the EPP because these opportunities do not have measures associated with them in the SMOC~ERS database. Some examples of such opportunities where the repair can be documented to impact electric usage include gutter replacement, correction of bleeds to the ground, fixing or replacing hot water heaters, fixing water leaks, and replacing filters on gas furnaces. SMOC~ERS could have a customer measure module that allows auditors to enter the cost of the measure and the expected energy savings. If the SIR was calculated as greater than one, the auditor could install the measure.

Service Delivery

- *Collect information on the telephone prior to the visit:* Observations suggest that it is a real challenge for an auditor to develop a true understanding of a customer's plug load in the limited time that the auditor has in the home and with the limited attention span of the customer. From our observations, it also appears that the process of entering the data into the computer and attempting to match the data to the customer's bill history represents a serious impediment to effective communication with the client. We have observed another program in which the auditor has a billing history and part of the plug load data prior to the household visit. It appears that at least some of the work done in the home could be completed over the phone by the auditor prior to the visit. If this were done, the auditor would enter the home with a

[3] Providers told OEE in the RFQ that they all had experienced baseload auditors. Based on this information, OEE did not focus training on this area and rather focused training on program operations and software requirements.

better sense of the unique opportunities in the home and might be able to better engage the client in the development of an effective plan.

Quality Control

- *Develop systematic procedures for quality control:* Interviews with OEE monitors revealed that the observations currently being conducted are viewed as informal technical assistance. Systematic procedures for conducting observations and assessing auditors have not been developed. OEE should develop a data collection form to systematically assess agencies and assist them in improving their service delivery. These reports should be provided to the agencies, and the areas where improvement is needed should be highlighted. These reports should also be used to assess the agencies' progress over time.

- *Increase the level of quality control:* While monitors report that each agency has been visited at least once, agencies have several auditors, and monitors have not had the opportunity to observe many of the auditors or to determine whether individual auditors are improving. The number of quality control visits to each agency should be increased to ensure that all auditors are performing at the level expected by the Program.

- *Require agencies to provide quality control and remedial training:* Fewer than half of the agencies that responded to the agency survey reported that they are providing on-site observation of service delivery or post completion home inspections. None of the agencies reported that they offer remedial training to auditors who show the need for assistance. Agencies should be required to provide quality control and remedial training for their auditors.

PIPP

- *Conduct research to determine why PIPP costs are increasing:* ODOD has seen considerable increases in the costs of PIPP since taking over the Program administration. It is not clear whether the increasing costs are a result of the economy, accounting procedures, or other factors. Research should be undertaken to determine the source of cost increases for the PIPP.

- *Develop a pilot to test an improved PIPP model:* It is well known that the current PIPP structure does not provide the optimal payment or energy usage incentives for PIPP customers. OEE worked with consultants to develop a model for improving the PIPP structure and testing such improvements but was not able to implement the model. This model, or a revised version of the model, should be implemented, results should be assessed, and Program administrators should determine whether the model should be implemented on a larger scale.[4]

[4] PIPP is the responsibility of OCS, rather than OEE.

I. Introduction

Ohio's Electric Restructuring Act, passed in July 1999, created the Universal Service Fund (USF) to ensure that low-income households retain access to electric service. The Act seeks to better coordinate the Home Energy Assistance Program (HEAP), the Home Weatherization Assistance Program (HWAP), the Ohio Energy Credits Program (OEC), and the Ohio Electric Percentage of Income Payment Program (PIPP),[5] and creates an Electric Partnership Program (EPP) that provides baseload, weatherization, and energy education services. This report presents the findings from the second year of the Process Evaluation of the Electric Partnership Program.

A. Electric Partnership Program

The Electric Partnership Program (EPP) aims to reduce electric energy consumption of PIPP households, and reduce the growth of PIPP customers' arrears and the USF rider. To accomplish this objective, the EPP provides energy services that vary with the customer's usage level, and education services that vary with the customer's usage and payment. The basis of the Program is the installation of cost-effective energy conservation measures. Education is an important component of the Program to help customers to understand the Program, to improve measure performance, and to take energy-saving actions.

B. Evaluation

This report presents the findings and recommendations from the second year of the Process Evaluation of the Electric Partnership Program. During this time period, the following evaluation activities were undertaken.

- *Administrative Interviews:* APPRISE conducted administrative interviews with OEE staff and contractors. The purpose of these interviews was to document the changes made to the Program and to document Program operations, including quality control findings.

- *Client Interviews:* APPRISE conducted the first round of the client interviews in April 2003. The purpose of these interviews was to document education provided to clients, client retention of educational information, changes in client behavior, and client satisfaction with the Program.

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[5] The gas PIPP continues to be administered by the utility companies.

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- *Economic Impacts:* APPRISE conducted a literature review on multipliers from economic activity, and estimated the economic impacts of the EPP on the State of Ohio. The purpose of this activity was to measure the economic impact of the Program.

- *Refrigerator Analysis:* APPRISE conducted analysis of the SMOC~ERS database, interviewed agency managers, and interviewed managers at utilities in other states to provide recommendations on whether OEE should go out for an additional refrigerator bid.

C. Organization of the Report

Three sections follow this introduction.

1) *Section II – Electric Partnership Program:* This section provides a description of the Electric Partnership Program.

2) *Section III – Evaluation Activities and Findings:* This section describes the evaluation activities undertaken and the findings and recommendations from these evaluation activities.

3) *Section IV – Summary of Findings and Recommendations:* This section summarizes the findings and recommendations made in this report.

APPRISE prepared this report under contract to the Office of Energy Efficiency. OEE facilitated this report by furnishing Program data and information to APPRISE. Blasnik and Associates facilitated this report by providing Program data to APPRISE. Any errors or omissions in this report are the responsibility of APPRISE. Further, the statements,

findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of the Office of Energy Efficiency.

II. Electric Partnership Program

The Electric Partnership Program (EPP) aims to reduce electric energy consumption of PIPP households and reduce the growth of the PIPP participants' arrears and the USF rider. To accomplish this objective, the EPP provides energy services that vary with the customer's usage level, and education services that vary with the customer's usage and payment. The basis of the Program is the installation of cost-effective energy conservation measures. Education is an important component of the Program to help customers understand the Program so as to improve measure performance and take energy-saving actions that will achieve savings.

When the EPP was first implemented, it was referred to as the Targeted Energy Efficiency Program. However, it was determined that this name was not a good marketing tool and did not identify the important aspects of the Program. Additionally, providers were sometimes uncomfortable telling customers that they had been "targeted" for the Program. Therefore, it was decided that the Program would be renamed so that it referred to the electric fuel and to a key aspect of the Program, the partnership. The EPP's mandate, goal, and design, as well as the changes made to the Program in the second year, are described below.

A. Program Mandate

Ohio's Electric Restructuring Act, passed in July 1999, created the Universal Service Fund to control the cost of PIPP for the ratepayers and to ensure access for low-income households to electric service. The Act seeks to better coordinate the Home Energy Assistance Program (HEAP), the Home Weatherization Assistance Program (HWAP), the Ohio Energy Credits Program (OEC), and the Ohio Electric Percentage of Income Payment Program (PIPP), and creates an Electric Partnership Program (EPP) that provides baseload, weatherization, and energy education services.

According to the Act, "The director of development shall establish an energy efficiency and weatherization program targeted, to the extent practicable, to high-cost, high-volume use structures occupied by customers eligible for the Percentage of Income Payment Plan Program, with the goal of reducing the energy bills of the occupants. Acceptance of energy efficiency and weatherization services provided by the program shall be a condition for the eligibility of any such customer to participate in the Percentage of Income Payment Plan Program."

The annual funding for the Program is $14.9 million.

B. Program Goals

The goal of the EPP is to "decrease fuel consumption of Percentage of Income Payment Plan (PIPP) participants." Such a decrease in consumption will lead to a reduction in the growth of PIPP participants' arrears and over time reduce the revenues needed from the USF rider.

C. Program Design and Implementation

The EPP consists of an audit component using the SMOC~ERS software, an installation of measures component, and a quality control component. Energy conservation measures are to be installed to meet Ohio Weatherization Program Standards (WPS).

This section of the report documents the design of each component of the Program, as well as the current status of Program development and implementation.

1. Program Administration

The Ohio EPP is managed by the Ohio Department of Development (ODOD) Office of Energy Efficiency (OEE). Programs are delivered by 18 authorized providers and 53 subagencies.

a) Office of Energy Efficiency (OEE)

The OEE is responsible for the development and implementation of the EPP.[6] These responsibilities included an RFQ and an RFP process for selecting the agencies to provide services under the Program. Agencies were selected based upon geographic area of service, cost of administering the Program and serving customers, capacity, and previous experience.

The Office of Energy Efficiency is also responsible for customer screening and targeting customers into the different Program components. The purpose of the screening is to direct services toward those PIPP customers with the highest usage and who therefore have the greatest potential for achieving cost-effective energy savings. The purpose of targeting is to channel customers into the services that will maximize energy savings. Once customers have been screened and targeted into the different Programs, OEE sends lists of customers to the providers. These lists are provided based upon location, usage characteristics, and building type.

After agencies have served customers, they send their SMOC~ERS data to OEE. These data provide OEE with all the information needed to determine that cost-effective measures have been installed and to remit payment for the services that the agencies provided. SMOC~ERS reports also allow OEE to perform a limited amount of quality control. The following checks can be made on the data.

- OEE can ensure that all measures installed are cost-effective according to the SMOC~ERS software and the data entered by the provider.

[6] An important component of the EPP design for OEE was to streamline service delivery to customers to allow for cost-effective service delivery.

- OEE can determine the extent to which providers are matching up actual usage with the usage in the PDA or from a more recent bill that was entered into the PDA, both average monthly usage and seasonal usage.

- OEE can check that all data that should be collected are included in the SMOC~ERS data.

OEE is also responsible for ensuring that training is available for providers and for documenting Program procedures.

Additionally, OEE provides in-field monitoring and training, where field staff can determine whether providers are finding all cost-effective opportunities for measures, as well as educating customers on energy saving actions. Where deficiencies are seen, they can provide supplemental training.

b) Provider Agencies

Eighteen authorized providers are responsible for providing services under the EPP. Some of these agencies have subagencies working for them and are responsible for reporting and invoicing for these agencies as well.

Provider agencies, as part of the RFP for Program services, were asked to provide an administrative fee, a baseload-only audit fee, and a moderate/high use audit fee, all for both cost-share and stand-alone delivery mechanisms.

The administrative fee, charged for each household served, includes all costs for managing the project, except the cost of auditing the home and installing measures. These costs include oversight of partner agencies and subcontractors, receiving the referral from OEE, contacting and scheduling visits with the clients and landlords, securing contributions from the landlords, processing paperwork, scheduling crews or contractors, insurance, equipment, materials management and storage, and submitting invoices. (Training is included in a separate budget item, along with software and hardware.)

The audit fee includes time and travel to conduct the audit, collect site-specific usage information, confirm installed measures, and assure customer satisfaction. This includes final quality control assessments.

Providers were also asked to bid on costs for an in-home energy analysis visit, a case management visit, a follow-up visit, a follow-up phone contact, a follow-up mail contact, an energy management workshop, and an energy savings action package.

Based upon these bids, agencies were allocated a dollar figure for the amount of services that could be performed. Agencies were told that if they utilized their allotment, they could obtain more Program funds to serve additional customers.

Based on the budgets and the providers' estimates of costs to serve customers, agencies were also provided with targets for numbers of customers to serve. Table II-1 displays provider budgets and targets for delivery by type of service delivery and visit, and by utility service territory.

Table II-1
Provider Budgets

Service Territory	Provider	Funding	Number of Units			
			Weatherization Units		Baseload Units	
			Cost-share	Stand-alone	Cost-share	Stand-alone
FirstEnergy	Ashtubula	$487,759	0	50	0	180
	Cuyahoga	$631,713	10	0	325	325
	CHN	$3,326,154	25	25	1,000	400
	EANDC	$800,332	20	20	50	150
	Honeywell	$1,892,613	0	0	0	1500
	NHS of Toledo	$399,710	25	0	340	85
	Ohio Heartland	$304,300	20	10	110	50
	Portage	$109,233	10	0	45	25
	Wayne Medina	$164,077	20	5	30	10
	WSOS	$382,103	20	20	100	100
	YACAC	$330,094	0	10	150	150
	COAD	$134,701	0	0	80	80
DP&L	Honeywell	$526,184	0	0	0	500
	Sources	$149,579	10	10	25	25
	SCOPE	$270,598	50	0	50	25
AEP	COAD	$2,138,582	483	193	1,009	600
	CMACAO	$1,185,037	50	0	250	250
	Honeywell	$249,049	0	0	0	200
	HHWP	$254,284	70	10	210	24
	MORPC	$411,761	0	0	100	0
	Wayne-Medina	$78,452	10	0	15	10
CINERGY	CHCCAA	$742,410	20	0	525	715
	COAD	$18,544	0	0	50	0
Allegheny	COAD	$14,786	1	0	5	6

Service Territory	Provider	Funding	Number of Units			
			Weatherization Units		Baseload Units	
			Cost-share	Stand-alone	Cost-share	Stand-alone
TOTAL		$15,002,055	844	353	4,389	5,330

Agencies are responsible for delivering Program services. The steps involved in this process include:

1. Recruiting high use PIPP customers on the list provided by OEE
2. Scheduling a home visit
3. Conducting a home visit
4. Performing follow-up or case management
5. Conducting quality control
6. Providing OEE with electronic SMOC~ERS data

2. Screening and Targeting

OEE obtains usage data on a quarterly basis from the electric utilities in Ohio containing data for all customers participating in PIPP. These data are analyzed to determine which customers should be served and which customers should be targeted to baseload and weatherization services.

The following targeting standards have been implemented:

- Customers with annual baseload usage of 8,000 kWh or more are targeted for baseload services.

- Customers with annual heating or annual cooling usage of 8,000 kWh or more are targeted for weatherization services.

- In November 2002, a moderate use component was introduced. Customers with annual baseload usage between 4,000 and 6,000 kWh are targeted for these services.

3. Outreach and Intake

After OEE targets customers into different services, they send files to the agencies with customer information, usage data, and targeting data.[7] As all customers on the list are PIPP participants and they have already been screened for eligibility by OEE, the provider is not responsible for screening customers. The Provider is responsible for contacting the customer and scheduling the audit and any required follow-up visits.

[7] Demographic data will also be included when this information can be obtained from the joint PIPP application.

4. Energy Services

The Electric Partnership Program (EPP) planned for three levels of energy service to be provided based on the customer's electric energy consumption. The three levels of service are baseload efficiency, weatherization/moderate use program, and the high use program. The baseload and weatherization services, and a new moderate use component, have been implemented, but the high use component is still under development.

a) Baseload Efficiency

Baseload usage is defined as energy used for purposes other than heating and cooling, such as refrigeration, lighting, domestic hot water, cooking, and appliances. The Baseload Efficiency Program focuses on the provision of energy conservation measures that reduce only baseload usage. Measures included in this Program are:

Water Measures
- Hot water tank insulation
- Reducing hot water temperature
- Energy-efficient showerheads
- Energy-efficient faucet aerators
- Water line insulation
- Fuel-switching of hot water tanks

Lighting Measures
- Compact fluorescent lights
- Replacement of a halogen torchiere lamp with a fluorescent torchiere

Refrigerator/Freezer Measures
- Refrigerator/Freezer replacement
- Removal of secondary refrigerator or freezer

Waterbed Measures
- Waterbed mattress replacement
- Insulation blanket on waterbed

Other Measures
- Switching to an alternate rate or off-peak program
- Consumer education

b) Weatherization

This Program addresses heating and cooling electric usage as well as baseload usage. In addition to installing the cost-effective baseload measures included in the list above, this Program installs weatherization measures aimed at reducing heating and cooling usage. These measures may include:

- Insulation
- Air sealing
- Heating and cooling equipment repair
- Heating and cooling equipment upgrades
- Heating and cooling equipment replacements
- Distribution system repairs

Fuel switching has not yet been implemented but is eligible if deemed cost-effective.

c) Moderate Use

A moderate use component, serving customers with 4,000 to 6,000 kWh annual baseload usage, under 6,000 kWh annual heating usage, and under 6,000 kWh annual cooling usage has been implemented. The moderate use audit focuses on explaining the Program and developing a partnership with the customer; analyzing lighting, refrigerator, freezer, and waterbed usage; and developing an action plan with the customer. Major differences from the baseload efficiency services provided to higher use customers include:

- The auditor is required to collect usage data only for appliances that will have measures and actions associated with them, not for all electrical appliances in the home, as in the high use component.

- The auditor is not required to get estimated usage within ten percent of the actual usage on the analysis report, as in the high use component.

- Only a one-hour metering of the refrigerator is required (if the refrigerator is not in the database), as opposed to a two-hour metering for the high use component.

- All agencies receive an inspection, education, and administrative fee of $200 per unit for the moderate use component.

d) High Use

High use services are planned to be provided for households with both high baseload and high electric heating load. These homes will have annual usage of more than 22,000 kWh, baseload usage over 10,000 kWh and heating usage over

12,000 kWh. Because these homes have high electric usage, more energy conservation measures will be cost-effective. Therefore, in this Program, the provision of renewable and other advanced technologies will be piloted, and it will be determined whether these measures can be cost-effectively provided in lower use homes. Homes from the moderate/high use audit will be referred to this Program if they have characteristics that would allow for geothermal heat pumps, domestic solar hot water systems, air source heat pumps, high efficiency window replacement, or GFX waste water recovery. Because the audit will have already been completed, this Program will not require thorough inspection and data collection. This Program will instead concentrate on installing specific new technology measures.

5. Education Services

The goal of the customer education component is to reduce the electric energy use of PIPP households to a level that is affordable and to maximize the benefits of the energy conservation measures and other services received. The level of education received by the customer will vary with the level of energy use and the customer's payment behavior. Two levels of education may be provided: one in-home visit with follow-up and in-home case management.

a) One In-Home Visit

Most customers will receive one in-home visit. This visit will include an introduction to the Program, an analysis of the customer's usage, an energy tour, and an action plan. It was originally planned that in homes with higher usage, the educator would not install measures and that a separate visit would be provided for measure installation. However, Program plans have been altered to include education and measure installation in one visit for all participants.

The steps of the in-home education visit are described below.

1) Introduction: The objectives of the introduction are to set the tone for participation, explain the Program, obtain client commitment, and obtain Program data.

- Purpose of the visit: The provider is to explain that the purpose is to develop an action plan for the customer and what the provider will do for the customer.

- Program overview and steps: The provider is to explain the services of the Program, the responsibilities of the client and the provider, and the benefits to the client and the provider.

- Partnership agreement: The provider should communicate the fact that the Program is a partnership and that there are responsibilities and

benefits for both the provider and the client. The provider should review the commitments of the provider and the client.

- Action plan as goal of the visit
- Use of educator teaching notebook

2) Usage analysis: The purpose of this section of the visit is to review the customer's energy usage.

- Show the customer 12 months of usage
- Explain baseload versus heating and cooling usage
- Explain how to read the meter if the customer has estimated readings
- Educate the customer about his/her bill
- Give the customer a clipboard to write down actions that he/she will consider during the house tour

3) Conduct an energy tour: The objectives of the tour are to determine what work needs to be done in the home and to identify the five biggest opportunities for reducing usage.

- Review biggest user electric appliances for the household
- Estimate costs per appliance using the customer's habits
- List suggested actions

4) Action plan

- Review list of suggested actions from notepad
- Get customer's commitment for three to five actions
- Complete energy savings action plan
- Reinforce consequences of each action

5) Conclusion

- Complete and sign action plan
- Complete paperwork, including list of measures installed

- Provide customer with folders and forms
- Give customer copies of worksheets
- Review next steps and time frame
- Provide referral information
- Establish follow-up procedures

b) In-Home Case Management

In-home case management includes the initial education visit described above, as well as another home visit and monthly follow-up by mail, phone, or in person. The form of this follow-up will depend on the customer's need.

The objectives of the case management energy education session are to:

1) Help the customer to increase control over energy costs, decrease energy use, and improve his/her ability to pay electricity bills.

2) Develop three new actions for the customer.

An important component of the case management session is budget counseling. The goals of the budget counseling component are to:

1) Keep accurate records of income and expenses for six months.

2) Develop a spending plan.

3) Place the electric bill as the third or fourth spending priority.

4) Provide a payment to the electric company each month for the next year.

5) Contact the utility company if the customer needs to discuss his/her payments.

Topics covered during the budget counseling session will include income, expenses, a spending plan, the utility bill, and the benefits of paying the utility bill.

The steps of the energy case management visit are outlined below:

1) Introduction

   - Purpose of the session
   - Benefits of the Program

- Steps of the process

2) Review action plan

3) Review energy efficiency measures

   - Tour home
   - Review results/benefits
   - Discuss proper use and maintenance of measures
   - Problem solving

4) Utility bill analysis

5) Budget counseling

6) Referrals including energy assistance

7) Update action plan

8) Discuss next steps

To date, six agencies have implemented case management services.

c) Follow-up

In addition to receipt of one of the education programs described above, all customers will receive at least one follow-up contact. The follow-up contact can be via mail, phone, or in person, based on an assessment of which would be of most benefit to the client. The purpose of this follow-up is to remind customers of their responsibilities and to review the benefits of the Program. It was originally planned that for one year following the home visit, the provider would check the customer's monthly payment and usage patterns. Usage tracking was planned to determine if savings are being achieved and to discuss solutions if the projected savings are not being met. Payment tracking was planned to determine if customers are meeting their commitments to make payments and to help the customer prioritize energy payments as the third or fourth spending priority.

Follow-up procedures have been implemented by ten agencies.

6. Service Delivery

Two methods of service delivery were planned. Cost-share and stand-alone service delivery are described below.

a) Cost-Share

With this method of service delivery, the EPP is delivered in conjunction with other low-income weatherization and/or housing repair/rehabilitation programs. Because the provider can divide the cost of contacting the client, scheduling the visit, and traveling to the home between the different programs, the cost of administering the cost-share program should be lower than the cost of administering the stand-alone component.

b) Stand-Alone

With this method of service delivery, the EPP is delivered on its own and must bear all the costs of outreach and delivery. The EPP must perform stand-alone work, as the annual service delivery for this Program will be much higher than the combined delivery of existing programs. Therefore, the intent of the stand-alone delivery is to address the shortfall of homes that cannot be addressed by the cost-share program.

7. Technology

OEE decided to utilize a new technology in the implementation of the EPP. This technology consists of an audit software tool, a Personal Digital Assistant (PDA) that allows the provider to collect data in the field, and transfer software that allows the provider to upload data to the desktop. The technology aims to serve many purposes, including to:

- Enable OEE to send client demographic and usage data for the targeted clients that can be easily used in the field to the providers,
- Allow providers to collect all of the information they need in the home and enter the data directly into the database,
- Allow providers to determine the source of electric usage and match the usage to historical usage data,
- Allow providers to calculate which measures are cost-effective (those with a savings to investment ratio [SIR] of greater than one) and how much the measures should save the customer,
- Allow providers to determine which actions should be taken and how much the actions should save the customer,
- Allow providers to invoice different funding sources, so that all measures can identified on cost-share jobs,
- Allow providers to send all data to OEE so that OEE can pay providers for services delivered, perform quality control, and send data to evaluators for analysis purposes.

Given the products available on the market, and the requirement for the ability to bill multiple funding sources, OEE decided to purchase the SMOC~ERS software, developed and used by SMOC, an agency in Massachusetts. While the South Middlesex Opportunity Council (SMOC) had previously implemented the software on laptops, OEE decided to use PDAs in the field because of their ease of use and their increased durability over the laptop.

The PDA uses a cradle and transfer software to send the data collected in the field to the provider's desktop machine. These data are then sent to OEE each month on a disc. OEE uses the data to perform quality control, pay providers for clients served, and send data to evaluators.

8. Material Procurement

OEE sent out an RFP for bulk procurement of refrigerators and freezers. Products acquired through this bid process are available to all providers. Additionally, providers were given the opportunity to bid to supply refrigerators and freezers. All refrigerators and freezers are required to be recycled in an environmentally sound manner. The point of the bulk procurement process is to reduce the costs for the provision and removal of refrigerators and to enable providers to arrange for refrigerator delivery and removal with one phone call.

Providers are responsible for procuring compact fluorescent light bulbs. Providers submitted prices for these bulbs and their installation as part of their response to the RFP for service providers.

Other measures that providers are responsible for procuring include showerheads, faucet aerators, water heater tank wraps, waterbed pads, building shell and mechanical measures, insulation measures, air sealing measures, and HVAC measures.

9. Landlord Contributions

Landlords are required to make a contribution in the form of a cash payment or in the form of an in-kind health and safety-related repair if necessary for conservation work to be performed. If appliances being replaced, such as the refrigerator or the water tank, are owned by the landlord, the landlord is required to contribute 50 percent of the costs of the materials and labor.

D. Changes and Enhancements to the EPP in Fiscal Year 2003

Several changes have been made to improve the EPP in the second year of the Program. SMOC~ERS has been updated to eliminate bugs and provide enhancements, a refrigerator database has been added to the PDA to allow auditors to look up the usage rather than to meter some of the refrigerator in the moderate use component, and education cards have been provided to the agencies. Additional elements of the Program have been implemented

or expanded in the second year. These include follow-up education, case management, and a moderate use component.

1. SMOC~ERS Updates

Three rounds of SMOC~ERS updates have been provided – in November 2002, December 2002, and February 2003. These updates have taken care of some of the bugs and have provided corrections to some calculations. One of the more important changes was the removal of the Massachusetts 175 percent adder that caused measures to appear cost-effective when they were not. Other improvements to the software, in addition to bug fixes, are described below.

- Laundry and DHW screens are saved. Previously the information loaded into these screens was used to make calculations, but the input data were not saved. If a mistake was made, all data would have to be re-entered. This change allows auditors to correct a mistake without re-entering all of the data.

- Actions functions were updated to allow for flexible entries with defaults. Additionally, savings from all actions were limited to 50 percent of estimated usage with a warning pop-up message.

- The room air-conditioner usage default was adjusted to a more appropriate level.

- Measure selection was made easier.

- The problem with differences between the SIR on the PDA and on the desktop was solved.

More significant changes are planned for the next update of SMOC~ERS, due to be implemented by July 2003, for the new Program year.

2. Policies and Procedures Manual

One of the recommendations in the Interim Process Evaluation report was to create a policies and procedures manual for the provider agencies. In the second year of the EPP, OEE produced a policy and procedures manual that was distributed to the agencies via e-mail, and that is available on the Internet. The manual contains information on auditing procedures, weatherization program standards, requirements for landlord contributions, invoicing and reimbursement, referral of clients, and PDA software and hardware.

3. Action Form Is Required

Beginning in September 2002, OEE required that all visits include either an action plan or documentation explaining why no actions were included in the audit. The policies

and procedures manual contains a section explaining that the action report is required. The manual stipulates that if documentation of action plans or of the reason for their absence is not provided, the agency will not be reimbursed for the audit. However, it still appears that many auditors are not conforming to this requirement. Monitors reported that about half of the auditors do not use the action plan, and Blasnik and Associate's data analysis showed that between December 2002 and March 2003, only 46 percent of audits had one or more actions.

4. Refrigerator Database

A refrigerator database was provided for installation on the PDAs. This database allows auditors to check the usage of 47,000 different refrigerator models in the field. If the refrigerator is in the database for moderate use audits, the auditor can enter the usage from the database, rather than attaching the monitor to the refrigerator. This may allow the auditor to complete the audit in a more timely manner, as a one-hour reading is otherwise required. The refrigerator database runs outside of the SMOC~ERS software and has not affected the speed of SMOC~ERS.

5. Outreach Letter

An outreach letter signed by the Governor was sent to high use PIPP clients in August 2002. The letter explained that the clients had been selected for the EPP because of their participation in the electric PIPP and explained some of the benefits provided by the Program. The goal of the letter was to provide more credibility to the EPP.

6. Education Cards

Education cards were provided to the auditors to assist in the education process. Laminated education cards should be used as visual aids by the auditor when discussing energy use and potential action steps. Unlaminated educations cards should be provided to the client as reminders of the actions he or she has agreed to take. No more than three to five cards with education related to the client's selected actions should be left in the home.

7. Follow-up Education

Follow-up education has been implemented by ten of the agencies. This follow-up education can take the form of a letter, a phone call, or a home visit. The table below shows the number of clients each agency reported serving.

Table II-2
Follow-up Education Provided

	Mailings	Phone	Home Visits
CHN	0	250	250
CMACAO	400	300	100
COAD	208	33	20
Cuyahoga	25	0	0
EANDC	16	35	0
HDMC	0	24	563
Portage	0	0	30
SOURCES	0	12	2
Wayne/Medina	69	0	0
WSOS	0	21	5
TOTAL	718	675	970

8. Case Management

Case Management has been implemented by COAD, EANDC, CHN, CMACAO, SOURCES, and WSOS. The table below shows the number of clients each agency reported serving.

Table II-3
Case Management Provided

	Mailings	Phone	Home Visits
CHN	0	250	250
CMACAO	6	0	0
COAD	74	74	74
EANDC	0	12	7
SOURCES	1	1	1
WSOS	1	0	1
TOTAL	82	337	333

9. Moderate Use Component

A moderate use component, serving customers with 4,000 to 6,000 kWh annual baseload usage, under 6,000 kWh annual heating usage, and under 6,000 kWh annual cooling usage has been implemented. The introduction of this component provides agencies with additional PIPP customers to recruit for the Program.

E. Program Changes for Fiscal Year 2004

A new RFP for service delivery under the EPP was distributed in Spring 2003. This RFP details many changes that will be implemented in the 2004 Program year. These changes

include three levels of service and the elimination of the cost-share approach. Ceilings have been set for the audit fees for all types of service delivery. A new SMOC~ERS release with important changes is also planned for the new Program year.

1. Services

The new RFP for service delivery calls for three levels of baseload-only services to be delivered: high use, moderate use, and low use.

- High Use: High use customers are defined as those with an annual baseload usage of greater than 6,000 kWh. These customers were previously defined as having greater than 8,000 kWh annual baseload usage. These customers will receive the full SMOC~ERS audit where all electric usage is recorded in the database, and usage is matched to the customer's bill. This is the audit as originally implemented in the EPP.

- Moderate Use: Moderate usage customers are defined as those with an annual baseload usage between 4,000 kWh and 6,000 kWh. The moderate use audit will focus on lighting and refrigerators and will not include a usage matching process. This is the audit as implemented in the moderate use component in the end of 2002.

- Low Use: Low usage customers are defined as those with an annual baseload usage under 4,000 kWh. These customers will receive a survey or participate in a workshop, and then be sent a package that includes lighting measures to be installed and suggestions on actions they may take to reduce electric use. This is a new component and has not yet been implemented.

In addition to the baseload services, clients with an annual electric heating load of over 6,000 kWh will receive weatherization services. This threshold had been set at 8,000 kWh annual heating usage for the previous Program years.

Follow-up education is required for all participants. Some of the high use customers may be selected to receive comprehensive case management services.

2. Providers

The number of authorized providers for the EPP has been reduced from 18 for the first two years of the Program, to only nine. OEE only awarded contracts to those providers who submitted competitive bids for the next Program period.

3. Cost-Share Approach Is Eliminated

The cost-share component of the EPP has been eliminated for the next Program year. Providers had indicated that it was difficult to fit the EPP audit into other audit

procedures. Because most other programs did not require the level of customer interaction that the EPP required, there appeared to be little time savings by combining programs. It was also difficult for OEE to target customers into cost-share or stand-alone because they did not have data on the other programs clients had received.

4. Cost Ceilings for Administrative/Audit Fees

The following cost ceilings for administrative and audit fees were imposed during the bidding process.

- High Baseload: $225
- Moderate Baseload: $175
- Low Baseload: $25
- Weatherization: $100
- Comprehensive Services, Initial Visit: $225
- Mail Follow-up: $10
- Phone Follow-up: $20
- In-Home Follow-up: $50

5. Additional SMOC~ERS Enhancements

An additional update to the SMOC~ERS software is planned to occur by July 2003 for the new Program year. This update will contain some significant changes and improvements. Some of the more important changes are described below.

- Fuel switching: Agencies will now have the capability to provide fuel switching from electric hot water or electric dryers to gas appliances. The new version of SMOC~ERS contains screens for the fuel switching.
- Multiple visits: The new version of SMOC~ERS allows for billing for multiple trips to the clients' homes. This will allow agencies to bill directly through SMOC~ERS for follow-up education and case management visits.
- Actions enhanced: The method for selecting actions and the cost savings associated with the actions has been overhauled to provide for easier selection and more accurate savings estimates.

III. Evaluation Activities and Findings

This section of the report describes the evaluation activities conducted during the second year of the EPP Process Evaluation, the findings from these evaluation activities, and recommendations for the EPP. During the second Program year, APPRISE conducted interviews with OEE staff responsible for the EPP, conducted interviews with recipients of EPP services, visited two agencies providing EPP services and conducted interviews with the agency staff, conducted a survey of authorized providers, participated in the planning process for the PIPP pilot, conducted an analysis of the economic impact of the EPP, and conducted an analysis of whether OEE should send out another RFP for refrigerator procurement. Each of the activities, and findings and recommendations related to the activity, is described below.

A. Administrative Interviews

APPRISE conducted administrative interviews with OEE staff and contractors on a quarterly basis. While administrative interviews during the first Program year focused on Program design and initial implementation, interviews in the second Program year focused more on Program operations.

1. Goals of the Evaluation Activity

The purpose of these interviews was to document the changes made to the Program and to document Program operations, including quality control findings. The goal was to provide accurate documentation of the evolution of the Program.

2. Design/Rationale

Interviews were conducted with OEE staff on a quarterly basis and with contractors for the SMOC~ERS program as information was needed.

3. Evaluation Findings

The administrative interviews provided information on changes being implemented in the Program, as well as findings from the monitoring visits.

a) Monitoring Staff Is Insufficient

Over the last six months, two monitors from OEE have been assigned to provide quality control for the EPP. These monitors have had other responsibilities related to the EPP and have not been able to devote all of their time to Program data review and monitoring. While these two monitors have had the opportunity to visit each agency at least once, they have not been able to observe all of the auditors or to observe how auditors are progressing over time.

b) Systematic Process for Providing Feedback and Training to Auditors Has Not Been Developed

The OEE monitors reported that observation of the audits is viewed as technical assistance rather than monitoring. Therefore, systematic procedures for documenting auditor performance and providing remedial training have not been developed. Written reports on the visits are not furnished to the agencies or to OEE managers.

c) Auditors, for the Most Part, Follow Protocols for Replacing Refrigerators and Lights

Monitors reported that auditors are following Program protocols for replacing refrigerators and lights. One monitor reported that after the implementation of the moderate use pilot where only one hour of monitoring was required, some of the auditors were monitoring for only one hour on the high use jobs, where a two-hour metering is required.

d) Auditors Do Not Find Odd Uses

Monitors reported that auditors, in general, are not investigating the electric usage sufficiently to determine when there are uncommon sources of high electric usage.

e) Electric Uses that Cannot be Addressed by the EPP

Monitors reported that they have observed homes where there are sources of high electric use that cannot be addressed by the Program because measures associated with these uses are not included in SMOC~ERS. In one case the client's sump pump was constantly running because of drainage from the home's gutters. In another case, the client was using a space heater in a well to prevent the pipes from freezing.

f) Metering ofAappliances Other Than Refrigerators is Inconsistent

While one monitor reported that he did observe auditors using the electric meters to determine usage of appliances where a label was not present, another monitor said that he had not seen this done. He reported that the auditors were accustomed to using the SMOC~ERS default values.

g) Education Component Is Still Weak

Monitors reported that the education component of the audit is still the weak point.

- *Explaining the Program:* Monitors reported that most auditors are not explaining the Program in the detail expected.

- *Establishing and confirming the partnership:* Monitors reported that most auditors are not developing the partnership.

- *Reviewing the clients' bills:* Monitors reported that most of the auditors are not reviewing the bills, and most are not discussing the client's arrearages.

- *Explaining what will be done during the visit:* Monitors reported that most of the auditors explain that they will be checking the lights and refrigerator but do not go beyond this explanation.

- *Asking the client what he/she thinks are the high users:* Monitors reported that most of the auditors are not discussing this with the client.

- *Identifying energy-saving actions during the walk-through:* Monitors reported that most of the auditors will do this if the client is participating in the walk-through and appears interested.

- *Adding actions to the action report and providing a copy of the report to the client:* Monitors reported that the majority of auditors who identify actions during the walk-through put the actions on the report. However, they do not discuss a broad range of actions with the client and work with the client to see what is most feasible. They offer those actions that have the greatest potential for saving energy, rather those that the client may be able to do, such as turn off the lights or the television.

- *Reviewing the reports with the client at the end of the visit*: Monitors reported that the majority of auditors review the reports with the client if they print them out in the home. However, some of the auditors return to the agency to print out the reports and return to the home later.

- *Education cards:* Monitors reported that auditors who do use the education cards are not utilizing them as an education tool. Rather than reviewing them with the client, the auditors just hand them to the client at the end of the visit.

h) Auditors Are Doing a Better Job with the Moderate Use Component

Monitors reported that auditors are doing a better job with the moderate use services. They attribute this to the fact that this audit is simpler and that the usage matching is not required. Auditors are doing a better job of meeting the requirements for the moderate use component.

i) Auditors Still Use Paper to Record Data

One of the monitors reported that many of the auditors are still using paper to record data from the audit and only later in the visit will enter the collected data into the PDA. This is because auditors have lost data and do not want to risk this again. However, the monitors reported that the updates to the software have reduced the frequency with which the PDA crashes and that the auditors are getting

more used to the hardware. The technical consultant at OEE also reported that the calls to OEE for assistance have dropped dramatically since the updates to SMOC~ERS were installed.

4. Recommendations

Below are recommendations based on findings from the administrative interviews.

a) Additional Staff Time Allocated to Monitoring and On-Site Training

OEE monitors reported that they have visited each agency at least once for observation of the audit and have returned to some agencies. However, some agencies have many auditors, and not all auditors have been observed. Additionally, findings from these observations indicate that additional observations and on-site training is needed to improve the quality of the audits and increase the potential savings from the Program.

b) Documentation of On-Site Observation

OEE monitors reported that they have not documented the observations that have been completed, as their quality control visits are considered technical assistance rather than formal monitoring. It would be helpful for auditors and for OEE to provide written documentation. Such documentation would assist auditors in focusing on the areas of the audit that need the most improvement. The documentation would also allow OEE to take a more critical look at how auditors are doing overall, determine what training is most critical, and determine if improvements are being made over time.

c) Custom Measure Module in SMOC~ERS

Monitors have reported that auditors are not proficient in identifying the odd causes of high electric use. However, there have been instances in which the odd uses have been identified and could not be addressed by the Program. The SMOC~ERS software should have a custom measure module. Such a module would allow the auditor to enter the expected usage reduction from a measure that was not included in the PDA and the cost estimate for the measure. The software would then provide an SIR, and auditors could install those measures where the SIR was greater than one.

d) Additional Education and Baseload Training

Findings from the on-site observations conducted by the monitors point for a need for additional education and baseload training.

B. Client Interviews

APPRISE conducted the first round of the client interviews in April 2003. One hundred twenty-nine Program recipients were interviewed about Program services received, changes

in energy uses, and satisfaction with the Program. Additional rounds of the survey are planned for Fall 2003, Spring 2004, Fall 2004, and Spring 2005.

1. Goals of the Evaluation Activity

The purpose of these interviews was to document education provided to clients, client retention of educational information, changes in client behavior, and client satisfaction with the Program.

2. Design/Rationale

The first round of the survey provided data for clients served in July through December 2002. The following rounds of the survey will provide data on later cohorts.

- Round 2 – Fall 2003: will document services provided January 2003 through June 2003
- Round 3 – Spring 2004: will document services provided July 2003 through December 2003
- Round 4 – Fall 2004: will document services provided January 2004 through June 2004
- Round 5 – Spring 2004: will document services provided July 2004 through December 2004

These rounds of the survey will allow for a total sample size of 625 clients, large enough to analyze results by subgroups, including utility area and for large providers. The time-series nature of the survey will allow for an analysis of how the Program evolves over time.

3. Evaluation Findings

a) Survey Respondents Profile

Households who received services under this Program were fairly likely to have a reason for not working, such as being elderly, being disabled, or being composed of a single parent with at least one child under age five. These households were also likely to have a difficult time finding employment that met all of their income needs, as they were likely to have no more than a high school education. Households were likely to receive other types of assistance, in addition to participating in PIPP.

- *Other programs and services:* Most of the clients reported that they had not received other programs or services aimed to improve their homes.

- *Household composition:* About one-fourth of the clients had one or more elderly household members, and nine percent of households were made up of all elderly household members. About one-fifth had one or more children under age five in the home, and eight percent were single parents with children under five. Forty-four percent had one or more disabled household members, and nine percent of households were made up of all disabled members. Seventeen percent of households were composed of all disabled, all elderly, or single parents with children under five.

Table III-1
Household Compisition

	Number of Household Members	Number Over 60	Number Under 5	Number Disabled
0	0%	74%	80%	56%
1	14%	19%	17%	36%
2	20%	7%	2%	7%
3	18%	0%	1%	1%
4	24%	0%	0%	0%
5	11%	0%	0%	0%
6 - 10	13%	0%	0%	0%

- *Education:* Fifty-nine percent had a high school education or less.

- *Assistance:* Thirty-seven percent received retirement income, 40 percent received public assistance, 41 percent received non-cash benefits such as food stamps or subsidized housing, and 64 percent received HEAP.

Table III-2
Types of Income and Benefits Received

	Retirement Income	Public Assistance	Non-cash Benefits	HEAP
Receive	37%	40%	41%	64%
Do not receive	62%	59%	59%	35%
Don't know	1%	1%	1%	1%

b) Understanding of the Program

Clients reported that they have a good understanding of the EPP. Ninety percent of respondents reported that they understand the Program, and 72 percent reported that they understand the partnership nature of the Program.

Table III-3
Understanding of the Program

	Understand the EPP	Understand Partnership Nature of the Program
Yes	90%	72%
No	10%	24%
Don't know	0%	4%

Clients appeared to have a better understanding of the service provider's responsibility in the Program than of their own responsibility. Thirty-nine percent said that the service provider's responsibility was to reduce energy bills or make the bills more affordable, and 33 percent said that the service provider's responsibility was to reduce energy usage. However, only 40 percent of the clients said that their responsibility was to reduce energy usage or follow recommendations. These findings suggest that clients need to be educated more about their role in the Program and how they can actively participate in the reduction of their bills and energy use. One way to improve the education may be to begin the education process when recruiting clients for the Program. When asked what information was provided at the time of enrollment, only 45 percent reported learning that the Program would help save energy and money.

Table III-4
Service Provider's Responsibility

	Percent Responding
Reduce energy bills/Make bills more affordable	39%
Reduce energy usage	33%
Provide services	24%
Provide assistance	19%
Provide information or education	11%
Weatherize home/Make home more comfortable	3%
Don't know	9%

Table III-5
Client's Responsibility

	Percent Responding
Reduce energy usage/Follow recommendations	40%
Keep up with payments	21%
Cooperate with providers	10%
Be a partner/keep my end of the partnership	9%
Learn about energy use	9%
Use/maintain measures	7%
Don't know	20%

Clients were likely to understand that saving energy was a benefit of the Program. Sixty-three percent of clients reported that reducing energy use or energy bills, or saving money was a benefit of participating in the EPP. Eleven percent of the clients cited the education as a benefit of the Program. Clients were also likely to mention the refrigerator, freezer, or other measures as a benefit of the Program.

Table III-6
Benefits of Participation in the EPP

	Percent Responding
Reduce energy use/bills/save money	63%
Receive new refrigerator/freezer	16%
Receive services/products (other than refrigerator and freezer)	14%
Receive education	11%
Receive help/assistance	11%
Make home safer/more comfortable	7%
Don't know	8%

c) Satisfaction with Program Services

Clients' satisfaction with Program services and measures received was very high. Ninety-seven percent of respondents reported being very or somewhat satisfied with the Program overall, and 95 percent said they were very or somewhat satisfied

with energy education received. Between 92 and 98 percent of respondents were very or somewhat satisfied with CFLs, refrigerators, and freezers installed.

Table III-7
Satisfaction with Program Measures and Services

	CFL[1]	Refrigerator[2]	Freezer[3]	Energy Education[4]	Overall[5]
Very satisfied	79%	80%	93%	80%	82%
Somewhat satisfied	17%	12%	5%	15%	15%
Somewhat dissatisfied	2%	2%	2%	1%	1%
Very dissatisfied	2%	7%	0%	4%	3%

[1]126 respondents. [2]89 respondents. [3]41 respondents. [4]127 respondents. [5]127 respondents.

Clients were also satisfied with the service providers. Ninety-six percent of respondents said that service providers were very or somewhat knowledgeable about energy use, and 100 percent of respondents said that service providers were very or somewhat courteous and professional.

The most common problem clients reported about the Program was that they did not receive everything they expected to receive. Twenty-two percent of respondents did not receive everything they had expected to receive from the Program. Eleven percent said they expected a refrigerator, and four percent said that they expected a freezer that they did not receive.

Table III-8
Expected Measures and Services Not Received

	Percent Responding
Refrigerator	11%
Freezer	4%
Insulation/weatherization	4%
Roofing work	3%
Electric work	1%
Furnace	1%
Lamp	1%
Light bulbs	1%
Refrigerator repairs	1%

	Percent Responding
Not asked	78%

d) Measures

The survey asked questions about the measures received to assess how these measures were installed and the persistence of the measures. Thirty-seven percent of the clients reported that the provider left some of the CFLs for the client to install after the provider left the home. This practice is inconsistent with Program protocols, and it may lead to CFLs not being installed, or not being installed in cost-effective locations.

Even if the auditors do install the bulbs in the cost-effective locations, clients may remove or move the CFLs if they are unhappy with the bulbs or if their usage patterns change. Seven percent of clients reported that they removed CFLs for reasons other than they burnt out, and nine percent reported that they moved CFLs. Clients were most likely to remove CFLs because they were not bright enough. This points to the importance of the auditor installing all bulbs and discussing the room's illumination with the client.

Table III-9
Client Moved or Removed CFLs

	Removed CFLs	Moved CFLs
Yes	7%	9%
No	91%	90%
Not asked	1%	1%

The survey also addressed whether all cost-effective bulbs were replaced. Seventeen percent of clients said that one of more of their bulbs were used for two or more hours per day but were not replaced by the Program. However, it appears that most of these bulbs were not replaced because the CFL did not fit in the location, or the client did not want the bulb replaced. Therefore, it appears that providers are doing a good job of finding most cost-effective opportunities for CFLs. It may be worthwhile to expand the types of CFLs available so as to increase the percentage of cost-effective opportunities that may be addressed by the Program.

Table III-10
Reasons Bulbs Were Not Replaced

	Percent Responding
CFL didn't fit	5%
Didn't want replacement	4%
Provider failed to replace/did not discuss light	3%
Other	4%
Don't know	1%
Not asked	83%

e) Comprehensiveness of the Audit

The client survey contained many questions aimed to address the comprehensiveness of service delivery. Clients were asked whether the provider discussed many specific electric uses. Seventy-nine percent of respondents said that the provider discussed all of their lights, and an additional 11 percent said that the provider discussed most of their lights. Seventy-eight percent said that the provider discussed all of their appliances, and another 10 percent said that the provider discussed most of their appliances.

Table III-10
Number of Lights and Appliances
That Provider Asked About

	Lights	Appliances
All	79%	78%
Most	11%	10%
Some	4%	5%
None	0%	5%
Don't know	6%	1%

While about 65 percent of respondents said that the provider discussed the use of their air conditioning, electric dryer, dishwasher, and lights left on all night, only 33 percent said that the provider discussed the dehumidifier, 47 percent said that the provider discussed other uses that the respondents felt used a lot of electricity.

Table III-11
Appliances that Provider Asked About

	Air Conditioning[1]	Dryer[2]	Dishwasher[3]	Lights on All Night[4]	Dehumdifier[5]	Other Uses[6]	All Uses[7]
Yes	66%	65%	67%	67%	33%	47%	88%
No	29%	26%	33%	25%	52%	40%	5%
Don't know	5%	9%	0%	9%	15%	14%	7%

[1]95 respondents. [2]110 respondents. [3]27 respondents. [4]75 respondents. [5]16 respondents.
[6]27 respondents. [7]127 respondents.

f) Energy Education Provided

Auditors are expected to provide comprehensive energy education while in the home. This means they should explain the Program, explain the customer's bill, discuss actions that the client can take to reduce energy usage, and explain the measures provided by the Program.

The survey included questions that addressed whether the provider explained the energy bill. Seventy-six percent of clients reported that the auditor reviewed and explained their electric bill, 61 percent said that the auditor explained how the client could determine if electric use was increasing or decreasing, and 71 percent said that the auditor explained how electricity use is measured. These percentages are higher than what has been observed in the field and represent positive findings for the Program.

Table III-12
Provider's Explanation of Electric Bill

	Reviewed and Explained Bill	Explained How to Tell if Use is Increasing or Decreasing	Explained How Electricity Use is Measured
Yes	76%	61%	71%
No	19%	24%	21%
Don't know	6%	15%	8%

The survey also addressed whether the provider developed an action plan with the client. Seventy-eight percent of clients said that the auditor verbally suggested energy-saving actions, 71 percent said that the auditor developed an action plan, 72 percent said that the auditor provided savings estimates, and 87 percent said that they committed to taking actions to save energy. Again these percentages are

higher that what was observed in the field and suggest positive trends for the Program.

Table III-13
Actions and Commitments

	Auditor Verbally Suggested Actions	Auditor Developed Action Plan	Auditor Provided Savings Estimates	Respondent Committed to Taking Actions
Yes	78%	71%	72%	87%
No	17%	23%	7%	12%
Don't know	5%	7%	4%	1%
Not asked	0%	0%	18%	0%

g) Program impact on energy use

The impact of the Program on energy use is assessed by responses to questions about actions committed to and taken, and to questions about reducing specific end uses.

Eighty-seven percent of respondents reported that they felt they had made a commitment to take energy–saving actions. The actions clients most commonly mentioned were turning lights off, turning appliances off when not in use, and conserving energy. Clients were much less likely to mention more specific actions such as line drying clothes, using cold water for clothes washing, or ceasing use of an extra refrigerator or freezer.

Clients were more likely to report reducing specific end-uses when asked directly about the appliance. Seventy-five percent reported that they reduced the use of lights, 62 percent for the dryer, 32 percent for electric hot water usage, 24 percent for air conditioning, eight percent for the dishwasher, and six percent for the electric dryer.

Table III-14
Reduced End Uses

	Hot Water	Air Conditioning	Dryer	Dishwasher	Dehumidifier	Lights
Yes, have reduced use	32%	24%	62%	8%	6%	75%
No, have not reduced use	15%	29%	24%	12%	5%	21%
Don't know	5%	21%	1%	0%	1%	4%
Refused	0%	1%	0%	1%	0%	0%

	Hot Water	Air Conditioning	Dryer	Dishwasher	Dehumidifier	Lights
Not asked	48%	26%	13%	79%	88%	0%

h) Program Impact on Bills

Clients were asked if their electric bills were higher, lower, or the same at the time of the survey as they were at the same time the prior year. Seventy-four percent reported that their electric bill was lower than it had been. Ninety-seven percent of those who reported having a lower electric bill said they felt the bill was lower as a result of appliances and light bulbs provided by the Program, and 83 percent said they felt their bill was lower because of actions taken by household members.

Table III-15
Changes in Electric Bill

	Percent Responding
Lower	74%
No change	15%
Higher	2%
Don't know	9%

i) PDA and SMOC~ERS Reports

Observations in the field and interviews with providers revealed that many auditors were not using the PDA and reports as specified by Program protocols. The survey included many questions that addressed the use of these tools. Seventy-six percent of respondents said that the provider used a PDA in their home. Seventy-seven percent said that the provider gave them a SMOC~ERS usage report, 75 percent said the provider gave them a top ten users report, and 71 percent said the provider gave them an action plan.

Table III-16
SMOC~ERS Reports Provided to the Client

	Usage by Appliance	Top-Ten Electric Uses	Action Plan
Yes	77%	75%	71%
No	17%	16%	17%
Don't know	7%	9%	12%

Clients appeared to feel that the reports are a good education tool. Ninety-five percent said that they understood the reports, and 98 percent said that the reports were somewhat or very helpful.

j) PIPP

The survey addressed clients' understanding of PIPP and the impact of PIPP on their motivation to save energy. Although the EPP is open only to PIPP customers at this time, only 93 percent of respondents said they were on PIPP. Some of those who said they are not on PIPP may not be aware that they are on PIPP or may have left PIPP prior to service delivery or the survey.

PIPP participants were asked about their participation in the Program. Most respondents reported that they had been on PIPP for five years or more. Clients were aware that their arrearages had increased since they began participating in PIPP. Thirty-five percent of respondents said they owed more than $500 when they started on PIPP, and 66 percent said they owed more than $500 at the time of the survey. Eighty-two percent of respondents said they understood that they would be required to pay their arrearages if they left PIPP.

Table III-17
Arrearages

	Arrearages When Started on PIPP	Current Level of Arrearages
$0	17%	1%
$1 - $100	5%	2%
$101 - $500	16%	6%
$501 - $1000	12%	17%
$1001 - $2000	13%	23%
> $2000	10%	26%
Don't know	20%	18%
Not asked	7%	7%

Clients were asked what they felt were the benefits of reducing electric usage. Seventy-three percent of respondents reported that there were benefits to reducing usage. When asked to identify those benefits unprompted, 39 percent mentioned saving money, 25 percent mentioned preventing future debt or reducing future arrears, and three percent mentioned reducing summer electric bills. When asked specifically about reducing summer electric bills and arrearages, 78 percent said they did feel that reducing electric use would help them reduce their summer

electric bills, and 83 percent said they did feel that reducing their usage would help prevent them from owing more money to the electric company.

Table III-18
Benefits to Reducing Usage While On PIPP

	Percent Responding
Save money	39%
Prevent future debt/reduce future arrears	25%
Reduce usage	4%
Reduce summer electric bills	3%
Save energy/good for environment	3%
Other	2%
Don't know	3%
Not asked	27%

4. Recommendations

a) Review EPP Protocols with Providers

More than one-third of the clients reported that the provider left some of the CFLs for the client to install after the provider left the home. This practice is inconsistent with Program protocols, and it may lead to CFLs not being installed or not being installed in cost-effective locations. The requirement that all bulbs be installed while the auditor is in the home should be reinforced.

b) Provide Additional Training on Baseload Usage

Clients were much less likely to say that the auditor discussed the use of their humidifier and other less common appliances than they were to say that the provider discussed the use of the air conditioning, electric dryer, dishwasher, and lights. This suggests that auditors need to be more diligent about investigating all electric uses in the home, especially those that are less commonly seen.

c) Provide Additional Training on Client Education

Clients were asked what they felt were the benefits of reducing electric usage. When asked to identify the benefits of reducing electric usage unprompted, only 39 percent mentioned saving money, 25 percent mentioned preventing future debt or reducing future arrears, and three percent mentioned reducing summer electric bills. These benefits should be included in the education provided during the audit.

C. Program Data

APPRISE collected data from the providers on other programs provided to EPP participants since the delivery of EPP services. APPRISE requested this information from providers for all respondents to the client survey.

1. Goals of the Evaluation Activity

Clients are eligible for many other utility and government programs that may affect the energy usage of their home. These programs may be delivered either in conjunction with the EPP or independently from the EPP. To distinguish the impact of the EPP from other programs where clients may have received services, it is necessary to document the other services received by clients since receipt of EPP services.

2. Design/Rationale

APPRISE contacted all provider agencies to collect information on other programs. APPRISE asked these agencies to provide information on other services received, as well as other agencies that may have provided services to EPP clients. These other agencies have also been contacted to determine if they provided services to these clients.

The first round of program data was collected in Spring 2003 for the first round of survey respondents. Additional rounds of program data will be collected after each round of the client survey.

3. Evaluation Findings

a) Number of Clients Receiving Other Program Services

Table III-19 shows the number of other programs aimed to improve the home that clients have participated in since receipt of EPP services. Thirty-nine clients, or 30 percent of the sample, participated in one or more other programs.

Table III-19
Number of Other Programs
Received by EPP Survey Respondents

Number of other Programs	Number of Clients
0	86
1	31
2	5
3	3

Data not yet available	4
TOTAL	129

b) Types of Programs That Clients Have Received

Table III-20 displays the programs that clients have received. Twenty-one clients received WAP services since participating in EPP. Clients also received services from utility programs, including Community Connections, a program that provides roofing, light bulbs, and electrical wiring, and other utility weatherization programs.

Table III-20
Types of Other Programs
Received by EPP Survey Respondents

Type of Program	Number of Clients
WAP	21
Community Connections – First Energy	20
Warm Choice – Columbia Gas	6
Housewarming – Dominion East Ohio	1
Tee - AEP	1
Toledo Edison	1

4. Recommendations

a) Use Program Data in Impact Analysis

In addition to WAP, many utility programs are available for low-income households in Ohio. Thirty percent of survey respondents received at least one of these other program's services. These data should be used in the impact analysis to control for other work done in the home that will impact energy savings.

D. Agency Observations

APPRISE conducted observations at COAD and Wayne-Medina and interviewed staff at these agencies.

1. Goals of the Evaluation Activity

The purpose of these observations and interviews was to document how agencies are implementing the Program.

2. Design/Rationale

Observations and interviews were initially planned for the first year of the Process Evaluation. However, due to the delay in the implementation of the Program, it was determined that some of the Program observations should be delayed as well. Two agencies were observed during the second year of the Process evaluation.

3. Evaluation Findings

Many of the evaluation findings corroborate information gleaned from the other evaluation activities.

a) Client Lists from OEE Are Outdated

One of the major complaints of the agencies was that the lists of prospective clients supplied by OEE had old contact information, and many of the clients could not be reached. The addresses and telephone numbers were not accurate. COAD reported that they were only able to reach about four percent of the people on the list by telephone and that auditors in the subagencies were trying to find people by going door to door. Wayne-Medina also reported problems with the lists from OEE. The auditor at Wayne-Medina obtained updated contact information for some of the clients on the OEE list from the agency's HEAP coordinator.

b) Agencies Reported That They Provide Important Program Information When Enrolling Clients

COAD reported that they tell the client that the EPP is a partnership to work with the client to better deal with electric usage in the household. They tell the clients that they may receive light bulbs at no cost and that the appliances will be metered to see if they can be replaced. They tell the client that if they are renters, they will need to speak to the landlord to determine the ownership of the appliances. They let the client know how long the visit will take and what they need to do to get ready for the visit. If the client's home has not been weatherized, they do the paperwork for weatherization.

Wayne-Medina reported that they tell clients that the intention of the Program is to lower electric bills. The auditor at Wayne-Medina said that she stresses that the Program deals only with electricity and indicates that she'll make a comparison between the bill and what she observed in the home. She tells clients that she will put a dollar amount on their behaviors and help them make informed decisions. She asks questions about heating and appliances.

c) Audit Introduction Is Weak

In our observations, we found that auditors were not providing a comprehensive introduction to the Program.

- One COAD subagency auditor explained in general terms what would take place during the audit. The auditor did not tell the clients how long the audit would take or what was expected of them as participants in the audit. The auditor did not mention the name of the Program or provide information about what was expected of the clients as partners in the Program.

- The Wayne-Medina auditor explained what she would do during the visit, but she did not introduce the Program by name, discuss the goals for the Program, or discuss the relationship between PIPP and EPP.

d) Auditors Obtain Required Information from Clients

We observed that most auditors collected required usage information from the clients. However, the quality of their work varied.

- COAD sub-agency auditors conducted a room-to-room walk-through that allowed them to collect data efficiently and thoroughly. COAD subagency auditors engaged the clients and asked probing questions to get detailed information needed. APPRISE did not notice any major electric uses that the auditors overlooked. The auditors asked specifically about the hours of use for each bulb and appliance they looked at and recorded the wattage for each of the bulbs and appliances.

- One COAD auditor did not collect the data systematically. He did not check the flow of the water, he failed to notice a number of lights, and he exaggerated the number of bulbs that were eligible for replacement. He did not ask clients about the specific hours of use for bulbs and appliances, and guessed on the hours of use and wattage of some bulbs.

- One COAD subagency auditor conducted the audit in a systematic and efficient manner and successfully engaged the client during the audit. He did a thorough job of collecting data on the use of lights and major appliances, and he made sure to ask specifically about the hours of use. However, he missed some small appliances and lights in the home and failed to pick up on things the client and his family said that pointed to other electric uses. There were at least three stereos, a space heater, two table lamps, and a humidifier that the auditor did not discuss. He also did not notice when the client and his family mentioned that they use two electric blankets and have an electric grill that they use for cooking. He did not check the temperature of the hot water heater or measure the flow of the water.

- The Wayne-Medina auditor conducted an organized and thorough baseload audit. She asked probing questions that allowed her to obtain the information that she needed. She was careful to ask for the specific hours of use for each light and appliance she discussed with the client. However, she did not look for or record the actual wattage of any of the appliances in the household, and instead used the default values in SMOC~ERS. She also did not measure the temperature or the flow of the water.

e) Education Provided During Walk-Through Is Mixed

Some auditors who were observed did a good job of providing education and suggesting actions during the walk-through. Other auditors provided only a minimum amount of education.

- COAD sub-agency auditors did not use the walk-through as a vehicle for providing education to the clients. During the parts of the audit that were observed, no client education was provided other than information about how many watts the CFLs use in comparison to incandescent bulbs. They did suggest that clients reduce their use of lights that are on for many hours per day.

- One of the COAD auditors provided education during the walk-through related to CFLs, the temperature of the hot water, the effects of a tight house, and the costs of a large outdoor security light. However, he did not suggest many energy-saving actions that the clients could undertake.

- One COAD subagency auditor told clients only that CFLs use less energy than incandescents and that using a double spin on the washer can save energy used by the dryer.

- On one of the audits, the Wayne-Medina auditor provided education on a number of topics including the energy used by the computer, energy used by the electric baseboard heaters, and how CFLs work. She suggested some energy-saving actions.

- On another audit, the Wayne-Medina auditor provided education relating to using CFLs, keeping jugs of water in an empty freezer, not keeping a freezer outside, and not drying clothes completely in the dryer, among a few other recommendations.

f) Light Bulb Replacement Procedures Need Improvement

Our observations showed that auditors need a review of the procedures for replacing light bulbs.

- COAD subagency auditors did not ask clients if they were satisfied with the brightness of the bulbs that were replaced.

- The Wayne-Medina auditor installed only a few of the light bulbs and left the rest for the clients to install on their own. She told them where the bulbs should go, but did not write the information down.

g) The PDA Has Been Problematic

Agencies were still having problems with the PDA in November when the auditors were observed. These observations were conducted prior to the SMOC~ERS updates.

- COAD reported that the PDA was problematic. They said that it loses information, active sync is a problem, the PDA is very slow when saving data, and it gets slower as more data are saved. COAD reported that many of the auditors would like to eliminate the PDA. They said that it is a distraction that interferes with auditors' interaction with customers because it requires so much concentration to enter data and that problems seem to continuously occur.

- The Wayne-Medina auditor reported that she used the PDA on the first two or three audits but didn't like having to work with the technology while trying to talk to the clients. She said that the technology got in the way of dealing with the clients one-on-one.

h) Auditors Still Using Back-up Data Collection Methods

As a result of the problems experienced with the PDA, the auditors that we observed collected usage data on paper. They entered the data into the PDA or a laptop at a later point in the visit. This process creates a discontinuity for the client.

- During one of the COAD audits observed, one auditor entered information into the PDA during the audit, and another used the agency's USF data collection form to gather data.

- During one of the COAD audits, the auditor said that he did not trust the PDA because he had lost data before. He did not use the PDA as he did the walk-through of the home. Instead he collected data on plain lined paper and then entered it into the PDA at a few different points during the audit. After he finished the walk-through, he spent more than an hour entering data into the PDA, during which time he had minimal interaction with the clients, even though they were seated at the same table with him.

- One COAD subagency auditor spent more than 45 minutes entering data that he had collected during the walk-through into the PDA and then at the end of the audit had trouble printing out the SMOC~ERS reports. He tried twice to print the reports, but the pages came out blank.

- The Wayne-Medina auditor created forms and carried a clipboard to collect data during the audit. When she finished interviewing the client, she went outside to her van to enter all of the data into SMOC~ERS on the laptop.

i) SMOC~ERS Software Has Been Problematic

The SIRs show up differently for COAD and OEE. COAD was hopeful that many of their concerns would be addressed when the first update of the software was installed. The Wayne-Medina auditor also reported that she was looking forward to updates to the software.

j) Emphasis on Seasonal Usage Matching Has Been Helpful

COAD reported that accounting for seasonal usage had led auditors to study households more closely and ultimately resolve usage questions that are tied to customer behavior. COAD reported that OEE's involvement has been helpful in getting auditors to focus on comparing their input data with the consumption history of the customer.

k) Requirement for Action Reports Was Needed

COAD reported that they did not require that every client be given an action report after the initial training, because it was not clear that this was a requirement of the Program. Since the second training, auditors were made aware that an action report must be given to every client.

l) Experience of the Auditors with Baseload Auditing Is Mixed

COAD auditors had previous experience doing baseload audits, but subagency auditors had previously done only weatherization and consumer education. The Wayne-Medina auditor reported that she had no prior experience performing energy audits.

m) Computer Skills Need Development

COAD reported that while most auditors have a great deal of experience working with weatherization and energy efficiency, possess fairly good communication skills, and are able to work with and relate to low-income people, many are still developing computer skills.

n) Providers Are Not Sold on the Education Component

A COAD manager reported that he was not initially enthusiastic about consumer education being pushed so heavily but that some of the feedback from auditors

shows him that clients are learning. He still believes that education is stressed too much because there is no built-in incentive for PIPP clients to save, and if one is poor, he or she doesn't think about the fact that arrearages will have to be paid.

o) Some Agencies Have Undertaken Additional Training for Their Auditors

COAD trained its entire staff on administrative software loading issues and on doing baseload and weatherization audits.

p) Little Quality Control Done by Agencies

COAD reported that there is no built-in follow-up for the EPP. They do no assessment of baseload work, but they do review invoices for all work. Wayne-Medina reported that they had not yet set up quality control procedures.

q) Support by OEE and Its Contractors Has Been Excellent

COAD reported that OEE provided them with assistance through ICC. They feel that the ICC consultant has been instrumental in making the Program work.

4. Recommendations

a) Collect Some Information Over the Telephone Prior to the Audit

Observations and agency interviews both revealed that the data collection process gets in the way of establishing a good rapport with the client. Many of the auditors record information on paper, and then the client is asked to wait an hour or more while the data are entered into the PDA or laptop. Such a process is very disruptive and diverts the client's attention from the audit. By collecting some data prior to the home visit, the auditor could reduce the amount of time needed for data collection in the home, and also come to the home adequately prepared with the needed number of electric meters.

b) Provide More Training to Auditors on Baseload Auditing, Education, and EPP Procedures

Observations revealed that auditors need more training on baseload auditing, education, and EPP procedures.

c) Conduct More Quality Control

More quality control should be conducted so that all auditors are observed and their progress measured over time. Quality control should ensure that all Program procedures are being followed.

E. SMOC Visit

APPRISE visited the South Middlesex Opportunity Council (SMOC), the developers of the SMOC~ERS software. Agency staff members were interviewed, and auditors were observed.

1. Goals of the Evaluation Activity

The purpose of the visit was to gain a better understanding of the development and implementation of the software. In our evaluation to date, we have seen certain barriers to effective Program implementation. By comparing the SMOC operations to the Ohio experience, we hoped to develop a better understanding of which barriers OEE can expect to overcome as the Program evolves, which cannot be resolved without a special intervention or change in Program philosophy, and which still exist in the more mature SMOC program.

2. Design/Rationale

The SMOC visit was a tremendous opportunity for the evaluation. We met with SMOC~ERS developers, program managers, and trainers. We also observed an audit conducted by a new auditor and by an experienced auditor. The visit allowed APPRISE to observe how the SMOC~ERS software operates in a more mature program with a different auditor interface.

3. Evaluation Findings

a) SMOC~ERS Background and Development

Art Wilcox began managing the energy conservation programs at SMOC in 1987. At that time, SMOC was a provider for the WAP program as well as for other low-income energy programs funded by the Petroleum Violation Escrow Account. These funds began to fade in 1991, and SMOC began to replace these programs with gas and electric utility funded programs. In 1997, SMOC began to deliver baseload programs for the utilities. They used a Lotus-based spreadsheet program to record data on energy usage in the home, to account for baseload usage, to determine cost-effectiveness of measures, and to provide client education. This software, however, was somewhat cumbersome, was not very user-friendly, and did not provide all of the functions required by the agency.

SMOC decided to create a new software tool that would enable them to supervise staff, split invoices between different funding sources, and lower the administrative cost of providing services, as well as to determine the cost-effectiveness of potential measures. The first baseload-only version of SMOC~ERS was developed in 1999-2000. Updates to the software over the last three years have been made periodically.

b) SMOC~ERS Implementation

There are some key differences between the way in which the SMOC~ERS software was implemented in the Ohio and SMOC programs.

- *Pilot program*: SMOC~ERS was implemented in a pilot program in Massachusetts. A controlled number of auditors was initially involved in the pilot, and the auditors were given support in the field by both utility and agency managers.

- *Auditors with baseload experience*: Auditors who were involved in the pilot of the SMOC~ERS software had extensive experience with baseload programs. These auditors had used the prior Lotus software as part of other baseload programs and had developed a good understanding of the use and benefits of the new software.

- *Training of new auditors*: New auditors who are brought into the SMOC programs are provided with extensive up-front and in-field training. Their training is conducted in small groups of no more than six auditors and includes the fundamentals of electrical and mechanical concepts, computer training, and training on the audit. Auditors are then provided with in-field training, with twelve or more supervised audits, depending on the auditors' demonstration of capability.

- *Auditor incentive:* SMOC and its sub-agencies provide their auditors with economic incentives to develop their skills, conduct audits efficiently, and produce at desired rates. From the approximately $150 that the agency receives for an audit, the auditor receives $85 to $90. Such a pay structure results in auditors who are willing to participate in the rigorous training program and who are motivated to produce quality work.

- *Scheduling:* Customers are not screened for usage in the programs delivered by SMOC. Therefore, auditors have laptops containing thousands of eligible customers. The auditors can schedule customers for a particular day in a small geographic area and can reschedule with other customers in the same small area in the event of a no-show or cancellation. This means that auditors can provide services to four or five clients in one day and can obtain high earnings, and that it is easier to obtain high production rates.

- *Software updates:* When desired enhancements to the software are identified, they can be easily implemented. It is straightforward for the programmer in the SMOC office to make the changes, as the space and memory constraints of the PDA are not faced in the laptop, and a second round of programming changes are not required. CDs or e-mails can easily be sent to providers with the updated software.

4. Recommendations

Our discussion with SMOC management staff and our observations of the SMOC auditors furnished insights that may be useful to the EPP. SMOC appears to run an efficient and effective program in an environment that presents many of the same challenges that are faced by the Ohio Program. [Note: Since there has never been an impact evaluation of the baseload programs run by SMOC, we do not have evidence that they are performing at a higher level than the Ohio Program.] Two factors may contribute to this. First, the program has been in place for at least five years. Second, SMOC had to aggressively compete for funding for this program. Additionally, it should be noted that the Ohio Program is significantly more complex than the SMOC program, given its statewide nature and the number of authorized providers.

Using the SMOC program as a model, the EPP might enhance its performance in the following ways.

a) Baseload Auditing

Prior to the start of the EPP, OEE staff did not have extensive experience with baseload programs. Given their requirement to ramp up the Program so quickly, they did not have time to develop an expertise in this area. It may be beneficial for OEE monitoring staff to visit SMOC and obtain baseload training from SMOC's trainer, as well as information on how to train auditors in the field. Another useful training strategy may be for Michael Blasnik to instruct OEE staff on how to review SMOC~ERS data for potential problems or missed opportunities.

b) Training

Training of the SMOC auditors was much more comprehensive than what was done in Ohio. While Ohio auditors have received basic training, it appears that additional training is needed. After the monitors themselves have received additional baseload training, OEE should dedicate significant amounts of the monitors' time to providing in-field training to each auditor.

c) Auditor Compensation

Agencies that provide better compensation to their auditors can obtain more experienced and motivated auditors. SMOC has structured auditor compensation in such a way to obtain individuals who are motivated to provide the services. APPRISE evaluators have noted that some of the providers who were in attendance at the EPP training sessions expressed their dissatisfaction with having to attend the training or deliver the Program. OEE should do anything in its power to affect the compensation structure for auditors in a way that would allow for motivated and experienced providers.[8]

[8] It has been noted that it is not possible for OEE to increase auditor compensation. Additionally, the potential negative consequences of increasing compensation per audit include less time spent in the home.

d) Scheduling

In moving to the lower use households, more clients should be eligible for EPP participation. OEE should attempt to provide agencies with as many potential clients as possible so that agencies can efficiently schedule and serve these clients.

e) Software Updates

It is important for OEE to have the ability to promptly respond to significant software problems with updates and enhancements. With the current hardware used, the cycle time necessary to update the software is too long. OEE should study how to provide software updates in a more timely fashion. Given the constraints of the PDA, this may involve a long-term strategy to move to a laptop-based delivery system.

f) Advance Telephone Screening

The idea behind the development of a comprehensive baseload audit is that, by matching the plug load to the customer's actual bill, one can identify the highest priority measures and actions and achieve the maximum savings. However, observations suggest that it is a real challenge for an auditor to develop a true understanding of a customer's plug load in the limited time that the auditor has in the home and with the limited attention span of the customer.

From our observations, it also appears that the process of entering the data into the computer and attempting to match the data to the customer's bill history represents a serious impediment to effective communication with the client. In Ohio, the slow response time of the PDA's causes continuous interruptions in the flow of the audit. In the SMOC program, the auditor walks through the home with the client and takes notes, then spends as much as a half an hour with the computer while the customer takes care of other household chores. In both cases, the technology introduces a barrier between the auditor and the customer.

We observed another program in which the auditor has billing data and part of the plug load data prior to the household visit. It appears to us that at least some of the work done in the home could by completed over the phone by the auditor prior to the visit. If this were done, the auditor would enter the home with a better sense of the unique opportunities in the home and might be able to better engage the client in the development of an effective plan. For example, in both of the homes observed with SMOC, the primary issue for the household was secondary electric space heat. If that were learned during the scheduling call, the auditor could have gone to the home with information on whether the home would qualify for any weatherization or fuel switching dollars. Moreover, it would have reduced the time spent with the computer from 30 minutes to five or ten minutes and might have resulted in the development of a better action plan with two fairly motivated customers.

We recommend that both organizations consider at least some advance telephone screening. If one of the Ohio agencies wanted to pilot this approach, it could pilot the baseline assessment at the same time.

F. Agency Survey

APPRISE conducted an agency survey in May 2003. All authorized providers were sent a survey via e-mail. Responses were reviewed and follow-up data were collected by e-mail, phone, or fax.

1. Goals of the Evaluation Activity

The purpose of the survey was to document agency adherence to prescribed Program procedures, services delivered by the agencies, and agencies' need for assistance in implementing the Program.

2. Design/Rationale

The first round of the agency survey provided data primarily on the high use component of the Program, as the moderate use services were introduced only shortly before the survey. Additional rounds of the agency survey will collect data on other Program elements. The following rounds of the survey will be conducted over the next two years of the Program.

- Round 2 – Fall 2003: This survey will provide more data on the moderate use component and the updated SMOC~ERS software.
- Round 3 – Spring 2004: This survey will provide more data on how new agencies are implementing the Program.
- Round 4 – Fall 2004
- Round 5 – Spring 2004

These rounds of the survey will allow for an analysis of all elements of the Program that are introduced and developed over the next two Program years. The time-series nature of the survey will also allow for an analysis of how the Program evolves over time.

3. Evaluation Findings

a) Other Programs Provided by the Agencies

Thirteen agencies reported that they provide WAP and utility weatherization programs, eight provide utility baseload programs, six provide roofing programs, two provide hardship programs, and seven provide other programs. The mean

number of years that WAP was provided was 22, and the mean number of years that utility baseload programs were provided was seven. Many of the agencies that had experience with utility weatherization and utility baseload programs had worked on a fee-for-service basis. However, nine of the agencies did not provide any fee-for-service programs. These agencies are most likely the ones that had difficulty dealing with this payment mechanism in the EPP.

Table III-21
Other Programs Provided by the Agencies

Program Type	Agencies Providing the Program		Mean # Years Provided	# With Each Payment Type	
	#	%		Grant	Fee for Service
WAP	13	87%	22	13	0
Utility Weatherization	13	87%	8	4	9
Utility Baseload	8	53%	7	2	6
Roofing	6	40%	6	3	3
Hardship	2	13%	11	2	0
Other	7	47%	10	7	0

b) EPP Staffing

Agencies reported a total of 70 auditors working on the EPP in their agencies and 72 auditors working on the Program in their subagencies. Overall, 71 percent of the auditors working on the EPP were reported to have prior baseload experience, defined as having previously provided audits where a complete analysis of the client's electric baseload usage was done. The staffing problem most commonly mentioned was the need for additional training. Another problem mentioned was that auditors did not have the computer, communication, or education skills needed to implement the Program.

c) Program Training

Twelve of the fifteen agencies said that all of their auditors had attended both the SMOC~ERS and the education training sessions provided by OEE. Eight to ten of the 15 agencies said that they conducted training in the classroom, through mock audits, through observation of an experienced auditor, or by conducting supervised audits. When these types of training were provided, they were usually given to all of the auditors in the agency. Three of the agencies did not provide any type of training, and one agency only held mock audits for those who had missed training. Agencies did not target training to particular auditors who showed a need for more training.

Table III-22
Training Provided by Agencies

	Number of Agencies			
	Training Provided to All Auditors	**Training Provided to Auditors Who Missed OEE Training Sessions**	**Training Provided to Auditors Who Showed Need for Training**	**Training Not Provided**
Classroom Training	9	1	0	5
Mock Audits	9	2	0	4
Observation of Experienced Auditor	8	1	0	6
Conducting Supervised Audits	10	0	0	5

d) Clients Served

Agencies reported that there were 39,170 clients on the recruitment lists and that 120 received weatherization stand-alone, 4,558 received baseload stand-alone, 1,564 received weatherization cost-share, 1,458 received baseload cost-share, and 1,267 received moderate use services. Agencies were somewhat confused about how to classify the different types of services.

e) Client Recruiting

Nine agencies said that their primary recruiting method was by telephone, five said it was by mail, and one said it was through another means. Eight of the agencies said that the same auditor who visits the home also recruits and schedules the clients. Agencies reported that the most severe problem for client recruitment was wrong phone numbers. On average they estimated that 47 percent of the households had a wrong number on the lists from OEE. However, agencies reported that more recent lists supplied by OEE were better than the initial list, with a lower percentage of clients who could not be reached. Ten of the 15 agencies said that they had not been given enough high use clients to serve. Another problem was that the Program was not highly recognized and that the letter from the State that introduced the Program was not sent out until a year after the Program had been implemented.

Table III-23
Recruiting Methods

	Primary Recruiting Method		Secondary Recruiting Method	
	# of Agencies	**% of Agencies**	**# of Agencies**	**% of Agencies**
Telephone	9	60%	5	33%

	Primary Recruiting Method		Secondary Recruiting Method	
	# of Agencies	% of Agencies	# of Agencies	% of Agencies
Mail	5	33%	6	40%
Other	1	7%	4	27%

f) Case Management and Follow-up Education

Six agencies reported that they provided case management services,[9] three by mail, four by phone, and five by home visits. Overall, 82 clients received mailings, 337 clients received phone calls, and 333 clients received home visits. The most common criteria for targeting were bill payment problems and high PIPP arrears.

Table III-24
Case Management

	# of Agencies	# of Clients Who Received Services
Any Case Management Services	6	
By Mail	3	82
By Phone	4	337
By Home Visits	5	333

While follow-up is required for all EPP participants, only ten of the 15 agencies said that they had provided follow-up education. Agencies reported that, in total, 718 clients received mail follow-up, 675 clients received phone follow-up, and 970 clients received home visits. Six agencies said that the same auditor who did the home visits provided the follow-up education.

Table III-25
Follow-Up Education

	# of Agencies	# of Clients Who Received Services
Any Follow-up Education	10	
By Mail	6	718
By Phone	7	675
By Home Visits	7	970

[9] It appears that some agencies are confused about the definition of case management. Agencies may be confusing case management with follow-up education. OEE reports that only two agencies have been approved to provide case management services.

g) Equipment for the Audit

Most of the tools required by OEE for the EPP were supplied by agencies. Tools that were most likely not to be provided by either the agency or the auditor were a rubber jar opener, threaded couplers, and a 2x4 with padding. All of the agencies said that the auditors are required to carry all equipment that is issued to them.

h) Workflow of the Audit

Agencies were asked whether each element of the audit was provided by all auditors, some auditors, or no auditors, and to rate the importance of the component on a scale from one to ten, where one represents not at all important and ten represents very important. While all components of the introduction received high importance ratings, agencies rated the components the highest where they were most likely to say that the components were done by all auditors. Components that were rated the highest in importance were to identify the Program and to identify the purpose of the Program and the visit. All of the agencies said that that these components were done by all of the auditors. (This is not consistent with field reports.) Components that were rated the least important were explaining arrearages on the bill, reviewing and discussing seasonal variations in usage, and reviewing and explaining electric bills.

Table III-26
Workflow of the Audit – Introduction

	Is Each Component Done By:				Importance of the Component
	All Auditors	Some Auditors	No Auditors	Don't Know	
Have information available on site that was collected prior to the audit on the telephone	13	0	2	0	8
Identify Program	15	0	0	0	10
Idenfity the purpose of the Program/visit	15	0	0	0	10
Explain the partnership nature of the Program	14	1	0	0	9
Create a partnerhsip with the client	13	1	0	1	9
Review and explain electric bills	13	2	0	0	8
Explain clients' usage level	13	2	0	0	9
Discuss seasonal variation in usage	13	1	1	0	8
Explain arrearages on the bill	9	2	4	0	7
Use electric bills obtained from the client to update electric usage in SMOC~ERS	12	2	1	0	9
Develop an understanding of the clients' needs/motivation for saving energy	12	3	0	0	9

Components of the home walk-through that were rated the most important and that agencies were most likely to report were done by all auditors were educating clients about energy-saving actions and recording those actions in SMOC~ERS, asking the client about all electric uses, and confirming the partnership with the client. Components that were rated the lowest and that were least likely to be done by all auditors were related to how the data were recorded and when the data were entered into SMOC~ERS. Agencies were also less likely to highly rate the use of meters to measure the use of nonmarked appliances.

Table III-27
Workflow of the Audit – Home Walk-Through

	Is Each Component Done By:				Importance of the Component
	All Auditors	Some Auditors	No Auditors	Don't Know	
Confirm partnership	12	1	1	1	9
Ask client about all electric uses	15	0	0	0	9
Use electric meter to measure use of appliances that are not labeled	10	3	2	0	7
Enter data directly into the PDA	10	3	2	0	9
Enter data directly into the laptop	0	2	13	0	2
Write data on paper, to be entered at a later point in the visit into PDA	0	6	9	0	4
Write data on paper, to be entered at a later point in the visit into laptop	0	3	12	0	2
Write data on paper, to be entered after home visit into PC or laptop	1	3	11	0	3
Educate client about potential energy-saving actions, and record actions in SMOC~ERS	15	0	0	0	10
Educate client about potential energy-saving actions, and do not record actions in SMOC~ERS	6	1	8	0	6

The component of the visit conclusion with the highest importance rating and that all agencies said that all auditors do is to review installed measures. Other components that were rated highly and that all agencies said that all auditors do are to produce an action report for the client, and to explain the next steps of the Program. Providers said it was least important to use the education cards. Other components that were not as highly rated in importance were to match average monthly usage and seasonal usage with clients' bills, and to leave education materials with the client.

Table III-28
Workflow of the Audit – Visit Conclusion

	Is Each Component Done By:				Importance of the Component
	All Auditors	Some Auditors	No Auditors	Don't Know	
Match average monthly usage in SMOC~ERS with consumption data	12	1	2	0	8
Match seasonal usage in SMOC~ERS with consumption data	12	1	2	0	8
Review highest energy users	13	1	1	0	9
Use education cards	10	4	1	0	6
Leave other eduation materials with client	13	0	2	0	8
Review installed measures	15	0	0	0	10
Produce an action report for the client	15	0	0	0	9
Secure an action commitment	14	1	0	0	9
Reinforce partnership	13	2	0	0	9
Explain next steps of the Program	15	0	0	0	9
Request feedback from the client	13	2	0	0	9

i) Refrigerators and Freezers

Agencies reported that, on average, auditors carry two meters and meter refrigerators for two hours. Most agencies said that auditors meter all refrigerators and freezers in the home. All agencies said that all auditors replace refrigerators and freezers that are used all year round, and most of the agencies said that all auditors do two for one replacements. Agencies were less likely to say that all auditors educate clients on the proper use of the anti-condensate heater.

Table III-29
Refrigerator Replacement, Monitoring, and Education

	Is Each Component Done By:			
	All Auditors	Some Auditors	No Auditors	Don't Know
Auditors do 2 for 1 replacements	12	3	0	0
Replaced refrigerators/freezers are used all year round	15	0	0	0
Auditors measure the inside temperature of all refrigerators/freezers	8	2	4	1
Auditors measure the ambient temperature when monitoring refrigerators/freezers	8	0	5	2
Auditors educate clients about the inside temperature of their refrigerators/freezers	10	3	2	0

	Is Each Component Done By:			
	All Auditors	Some Auditors	No Auditors	Don't Know
Auditors educate clients on the proper use of the anti-condensate heater	6	1	5	3

All of the agencies said that they verify that the refrigerator was delivered, and all but two of the agencies said that they verify that the refrigerator was recycled according to Program protocols.

j) Quality Control

Agencies were asked about the types of quality control they provide and the percentage of homes that receive each type of quality control. Ten agencies said they conduct follow-up data review, nine agencies said they conduct follow-up phone calls, seven agencies said they conduct on-site inspections, and seven agencies said they observe audits. On average, agencies report that 62 percent of visits receive follow-up data review, 32 percent receive follow-up phone calls, 25 percent receive on-site inspections, and 16 percent of audits are observed. Seven of the agencies said that they did follow-up data review on all audits. All but one of the agencies said that they had been observed by OEE monitors.

Table III-30
Quality Control

	Agencies Using this Form of Quality Control		Percent of Homes That Receive This Method of Quality Control
	Number	Percent	
Follow-up Data Review	10	67%	62%
Follow-up Phone Call	9	60%	32%
On-site Inspection	7	47%	25%
Visits Observed	7	47%	16%

k) SMOC~ERS

Agencies were asked to rate SMOC~ERS in terms of how well it compared to using paper, where "one" means that paper would be much better than SMOC~ERS, and "five" means that SMOC~ERS is much better than paper. Overall, the mean SMOC~ERS rating was four, meaning that it was somewhat better than paper. SMOC~ERS received the highest rating for its facilitation of invoicing. Other high ratings were for facilitating easy data collection, thorough data collection, determination of highest energy users, determination of most effective actions, and management reports. Lower ratings were received for communicating with the client about energy uses, client education, and securing an action commitment from the client. Not surprisingly, agencies were most likely to

say that paper was better than SMOC~ERS in facilitating client education. However, the lowest mean rating was a three, meaning that SMOC~ERS is equal to paper in facilitating the task.

Table III-31
SMOC~ERS Ratings

	Number of Agencies Giving Each Rating			Mean Rating
	1-2	3	4-5	
Facilitates easy data collection	1	2	12	4
Facilitates thorough data collection	4	0	11	4
Facilitates communication with the client about energy uses	4	3	8	3
Facilitates determination of highest energy users	2	0	13	4
Facilitates determination of most effective energy-saving actions	2	1	12	4
Facilitates client education	5	4	6	3
Facilitates securing an action commitment from the client	4	3	8	3
Facilitates invoicing	1	0	14	5
Facilitates management reports	2	1	11	4
Overall rating of SMOC~ERS	2	1	12	4

The comments that agencies provided on SMOC~ERS also revealed that much progress had been made both with the software itself and with the agencies' ability to use the software. Some of the most positive comments included, "SMOC~ERS is getting progressively better," the software is working well, the actions are working better, and since the updates, the software has improved and is more user-friendly. However, some of the auditors still have a strong preference for paper because they feel that it is quicker to record information on, it better facilitates developing a relationship with the client, and it is not subject to loss of batteries.

l) Health and Safety

Agencies were asked whether they had to refuse service to any clients because of health and safety concerns. While nine of the 15 agencies said that they had encountered such problems, the percent of homes with such problems was very low, ranging from half a percent to seven percent of the jobs, and averaging only three percent.

m) Cost Share Services

Previous interviews with OEE and providers revealed that agencies had a difficult time implementing cost-share services. However, 11 of the 12 agencies that had

planned to implement these services reported that they had done so. Eleven of the agencies implemented cost-share with WAP, eight implemented cost-share with utility programs, and four implemented cost-share with other programs. Other programs that agencies did cost-share with included CHIP, the housing trust fund, TANF, AAOA, and water conservation for the City of Cleveland.

n) Assistance Provided by OEE

Agencies reported that they were most likely to need assistance with SMOC~ERS updates, the initial SMOC~ERS setup, and the use of the PDA. Most of the ratings OEE received for the assistance they provided were on the higher end of the scale. The one exception was in recruiting clients, where OEE received a rating of four out of ten.

Table III-32
OEE Assistance

	Number of Agencies Needing Assistance	Rating of Assistance Provided by OEE (On a Scale of 1 to 10)
Initial SMOC~ERS Setup	13	7
SMOC~ERS Updates	15	8
Use of the PDA	13	8
Recruiting Clients	10	4
Implementing Program Procedures	11	6
Overall	14	7

o) Program Costs

Eight agencies said that actual costs to implement the Program were equal to their estimate, five agencies said that costs were higher than their estimate, one agency said that costs were lower than their estimate, and one agency said it did not know. Agencies said that costs were higher than they expected because of the time it takes to do outreach, because of problems with the software, and because the length of time spent with the client was longer than expected. They said costs were lower than expected because the service areas were close together.

4. Recommendations

a) Allocate OEE Staff Time for Additional Monitoring

Agencies reported a total of 70 auditors working on the EPP in their agencies and 72 auditors working on the Program in their subagencies. While some auditors may contract for more than one agency or subagency, this represents a large

number of auditors to be trained and monitored by OEE. Additional OEE staff time should be made available to observe all of these auditors.

b) Provide Additional Training

Agencies reported that nearly 30 percent of auditors did not have prior baseload experience. Additionally, the staffing problem most commonly mentioned by the agencies was the need for additional training. OEE should provide additional training to agency staff.

c) Require Agencies to Provide Additional Quality Control and Training

Fewer than half of the agencies said they conduct on-site inspections and observations of their auditors for quality control purposes, and none of the agencies reported that they target training to particular auditors who showed a need for more training. Agencies should be required to provide the quality control and remedial training needed to improve the Program.

d) Provide Training or Written Procedures for Client Follow-up

While follow-up is required for all EPP participants, only ten of the 15 agencies said that they had provided follow-up education. One agency reported that it had not implemented the follow-up because it had not received instruction from OEE. Agencies should be given clear instructions as to what is expected from the follow-up visits.

e) Provide Additional Training on the Workflow of the Audit

Agencies rated the components of the audit the highest where they were most likely to say that the components were done by all auditors. Components that were rated the least important, and where agencies were least likely to say that all auditors followed these procedures, were explaining arrearages on the bill, reviewing and discussing seasonal variations in usage, reviewing and explaining electric bills, and using meters to measure the use of nonmarked appliances. Training should stress the importance of these components of the audit.

f) Continue Making Enhancements to SMOC~ERS

Agencies' attitudes toward the SMOC~ERS software has improved dramatically in the past year, as a result of the updates that have been made to the software, as well as increased familiarity with the software. However some bugs still need to be worked out. OEE should continue to work with the agencies and the software developers to identify and make improvements to the software.

g) Assist Agencies in Obtaining Updated Client Contact Information

All of the ratings OEE received for the assistance they provided to the agencies were on the higher end of the scale, with the exception of client recruitment. OEE should help agencies identify ways to obtain updated client contact information, such as through HEAP applications.

G. PIPP Planning

APPRISE participated in a PIPP planning meeting in December 2002 and participated in phone calls and reviewed documents related to the PIPP pilot.

1. Goals of the Evaluation Activity

The purpose of this activity was to provide recommendations for the design of the Pilot.

2. Design/Rationale

APPRISE attended PIPP pilot planning meetings and participated in phone calls. As a Program evaluator, APPRISE cannot design the pilot, but APPRISE can make recommendations regarding important elements of the plan.

3. Evaluation Findings

A draft plan for the pilot was developed, but the pilot has been indefinitely put on hold.

4. Recommendations

The PIPP pilot should be moved forward. The current PIPP structure does not provide the correct incentives for clients to reduce their electric usage and pay their bills. PIPP costs have been increasing dramatically. Additional research should be conducted to determine why these costs have been increasing and how the PIPP design can be adapted to provide better usage and payment incentives for participants. A pilot should be implemented to test alternative PIPP rules that may provide clients with better usage and payment incentives.

H. Economic Impacts of the EPP

APPRISE conducted a literature review on multipliers from economic activity and estimated the economic impacts of the EPP on the State of Ohio.

1. Goals of the Evaluation Activity

The purpose of this activity was to measure the economic impact of the Program.

2. Design/Rationale

While the development of an input-output model specific to Ohio and the industries affected by the EPP would provide the most appropriate estimate of this effect, the development of such a model is beyond the scope of this project. A less costly alternative is to utilize expenditure multipliers developed for other usage reduction programs and other government programs to develop an estimate for the projected economic impacts of the Program.

The macroeconomic effects of economic activity are generally divided into three categories: direct effects, indirect effects, and induced effects.

- *Direct effects:* The direct effects are jobs and output created from the initial investment in a program. In the EPP, examples include auditors hired to implement the Program and refrigerators and light bulbs purchased by the Program.

- *Indirect effects:* The indirect effects are jobs and output in industries that supply goods and services to the EPP. For example, this includes people who deliver office supplies to the provider agencies.

- *Induced effects:* The induced effects are the jobs and the output created when the individuals who are directly and indirectly affected by the program spend their earnings in Ohio.

The multiplier is defined as:

$$multiplier = \frac{direct\,effects + indirect\,effects + induced\,effects}{direct\,effects}$$

The EPP provides cost-effective reductions in electric energy usage resulting in a reduction in the costs to the ratepayers of Ohio. Therefore, there are two sets of economic benefits from the Program expenditures:

- *Expenditure of State funds:* Cost-effective expenditure of funds on the EPP substitute for expenditures on PIPP arrearages by the State of Ohio. In other words, if OEE was not expending funds on the EPP, these funds would be spent on subsidizing the electric bills of PIPP customers. Both types of expenditures have a positive impact on Ohio's economy. However, expenditures on energy conservation have a greater impact on the State economy than do expenditures on electricity. One reason for the greater impact from energy conservation programs is that a larger fraction of expenditures on electricity are for goods produced out of Ohio. Another reason is that energy conservation work is more labor intensive than

electricity production. Because expenditures on energy conservation are more likely to be spent on labor, and are more likely to be spent on in-state supplies, these expenditures have a greater multiplier effect for Ohio's economy. These expenditures are more likely to be re-spent within the state, leading to increased economic activity and growth within Ohio. The positive economic impact from these expenditures is equal to the difference between the multiplier for electricity expenditures and the multiplier for energy conservation expenditures, times the EPP expenditures in Ohio, minus the electricity multiplier, times the EPP expenditures outside of Ohio.

Economic benefit from EPP expenditures = (conservation multiplier – electric multiplier)*EPP expenditures in Ohio - electric multiplier*EPP expenditures outside Ohio

- *Reduction of ratepayer subsidy:* Another economic benefit comes from the cost-effective reduction in electric expenditures. If the cost/benefit ratio for expenditures on the EPP was equal to one, the benefit described above would be the only benefit from the EPP. However, it is expected that overall benefits will exceed a ratio of one. Therefore, in addition to substituting expenditures on the Program for expenditures on electricity, there will be an additional reduction in expenditures on electricity. This reduction will be in the form of a reduced PIPP rider and therefore reduced subsidy by the Ohio ratepayers. This means that Ohio ratepayers are spending less on their electricity and have more disposable income to spend on other consumer goods that have higher multipliers for the Ohio economy. The positive economic impact from this effect is equal to the difference between the multiplier for electricity expenditures and the multiplier for other consumer goods, times the fraction of the net present benefits that Ohio ratepayers spend minus the electricity multiplier times the amount that is put into savings accounts.

Economic benefit from EPP net benefits = (consumer goods multiplier – electric multiplier)*net benefits spent - electric multiplier*net benefits saved

Table III-33 illustrates the two sources of impact, the multipliers in the absence of the Program and with the Program, and the base upon which the difference between the two multipliers is measured. Both sources of impact have a positive and a negative effect. The negative effect from the EPP expenditures exists because some of the EPP expenditures are made outside of Ohio, whereas all electricity expenditures would have been in Ohio. The negative effect from the EPP net benefits exists because some of the net benefits are saved, whereas all of these dollars would have been spent on electricity in Ohio, in the absence of the Program. The net economic benefits from these factors are the sum of the positive and negative benefits.

Table III-33
Multiplier Effects from the EPP

Source of Impact	Positive Economic Benefits			Negative Economic Benefits	
	Multiplier in Absence of Program	Multiplier Due to Program	Base	Multiplier	Base
EPP expenditures	Electricity	Construction, consumer goods, government, technology, services	EPP expenditures in Ohio	Electricity	EPP expenditures outside of Ohio
EPP net benefits	Electricity	Consumer goods	Part of the net present value of benefits that is spent	Electricity	Part of the net present value of benefits that is saved

3. Evaluation Findings

a) EPP Expenditures

Table III-34 displays the expenditures on the EPP in the first two years of the Program. Expenditures are broken out by category, and for each category, the percent and dollar amount spent in Ohio is estimated. The following percentages are estimated for each category.

- SMOC~ERS: The SMOC~ERS software was purchased from SMOC, based in Massachusetts. It is estimated that none of these expenditures were in Ohio.

- ICC: The expenditures for software programming went to a consulting company in Ohio. It is estimated that 100 percent of these expenditures were in Ohio.

- PDAs: The PDAs were purchased through ICC, located in Ohio, but these computers were manufactured outside the country. It is estimated that 15 percent of these expenditures were in Ohio.

- OEE Staff: OEE staff supporting the Program work in Columbus. It is estimated that 100 percent of these expenditures were in Ohio.

- Evaluation: One of the evaluation team members is based in Ohio, and additional evaluation funds have been spent in Ohio during on-site meetings and observations. It is estimated that 10 percent of the evaluation expenditures were in Ohio.

- Other Consultants: One of the other consultants is based in Ohio and consultants made numerous trips to Ohio for training sessions and meetings. It is estimated that 10 percent of these expenditures were in Ohio.

- Other Costs: It is estimated that 90 percent of these other costs were in Ohio.

- Training Costs: The training costs were mostly for accomodations in the State and payments to agencies. Some of the trainers were from outside Ohio. It is estimated that 90 percent of training costs were spent in Ohio.

- Measures: Most of the agencies used local vendors for refrigerator replacements. It is estimated that 90 percent of the expenditures on measures were in Ohio.

- Audit/Admin: The audit and admin costs went to agencies in Ohio. It is estimated that 100 percent of these costs were spent in Ohio.

Total Program expenditures for October 2001 through April 2003 were $10,104,840. Of that total, $8,249,497 were estimated to be spent in Ohio.

Table III-34
EPP Expenditures

	FY 2002	FY 2003	Total	Estimate of Percent Spent in Ohio	Ohio Expenditure Estimate
SMOC-ERS	$254,000	$0	$254,000	0%	$0
ICC	$285,530	$673,230	$958,760	100%	$958,760
Hardware PDAs	$780,116	$1,570	$781,686	15%	$117,253
OEE Staff	$72,138	$258,961	$331,098	100%	$331,098
Evaluation	$161,041	$111,514	$272,555	10%	$27,255
Other Consultants	$126,678	$51,041	$177,719	10%	$17,772
Other Costs	$110,924	$47,041	$157,965	90%	$142,169
Training Costs	$271,852	$0	$271,852	90%	$244,667
Measures	$1,228,050	$3,658,774	$4,886,824	90%	$4,398,142
Audit/Admin	$550,302	$1,462,079	$2,012,381	100%	$2,012,381
Total	$3,840,631	$6,264,210	$10,104,840		$8,249,497

b) Cost-Effective Reductions in Energy Usage

Blasnik and Associates estimated the lifetime savings and the net benefit from the audits completed from the beginning of the Program through March 2003. Table III-35 shows that the predicted savings from the jobs completed to date are $2,862,192. These savings will reduce the cost of the PIPP rider and therefore reduce electric expenditures for households in Ohio.

Table III-35
Net Present Value of Energy Savings

	Net Lifetime Benefit (per unit)	Number of Units	Total Benefits
High Use	$453	5,561	$2,519,133
Moderate Use	$661	519	$343,059
TOTAL		6,080	$2,862,192

c) Multipliers from the Literature Review

Table III-36 displays the economic multipliers used in the economic analysis of the EPP. Multipliers for Ohio were obtained from a review of the literature. These multipliers were calculated using input-output models for the state of Ohio. The technology employment multiplier was not available, so we use the consumer goods mulitplier for the analysis of employment impacts from technology expenditures.[10]

Table III-36
Multipliers used in Economic Analysis of the EPP

	Output Multiplier	Employment Multiplier
Electricity	1.43	6.9
Construction	1.85	18.2
Consumer Goods	1.74	42.2
Government	1.85	27.9
Technology	1.71	N/A
Services	1.94	27.7

[10] Output multipliers come from Sporleder, Thomas L., Jeffrey D. Layman, and Jessica E. Esch (2001) "Estimated Increases in Ohio Economic Activity from a New Ethanol Processing Facility," Ohio State University, Agricultural, Environmental, and Development Economics, Report Series AEDE-RP-007-01. Employment multipliers come from Laitner, Skip, John DeCicco, Neal Elliott, Howard Geller, and Marshall Goldberg (1994) "Energy Efficiency as an Investment in Ohio's Economic Future." American Council for an Energy-Efficient Economy, Washington, D.C.

d) Economic Impacts on Output

Table III-37 estimates the increases in output in Ohio as a result of expenditures on the EPP. The default multiplier for each category is the electricity multiplier, because in the absence of expenditures on EPP, these funds would be used to purchase electricity for PIPP households. The multiplier with the the EPP is estimated as either a construction multiplier, a consumer goods multiplier, a government multiplier, a technology multiplier, or a services multiplier, depending on the category of expenditure. This table estimates the increase in output due to EPP expenditures in the first two Program years as $3,233,407. The decrease in output due to EPP expenditures that are made out of state is equal to the electricity multiplier times the amount of expenditures that are made outside Ohio. The decrease in output is estimated as $2,653,140. Therefore, the net increase in output is estimated to be $580,267.

Table III-37
Output Increases from EPP Expenditures

	Ohio Expenditure Estimate	Default Multiplier	Multiplier with the EPP	Increase in Output	Amount Spent Outside Ohio	Increase in Output	Net Change in Output
SMOC-ERS	$0	1.43	--	$0	$254,000	-$363,220	-$363,220
ICC	$958,760	1.43	1.94	$488,967	$0	$0	$488,967
Hardware PDAs	$117,253	1.43	1.71	$32,831	$664,433	-$950,139	-$917,308
OEE Staff	$331,098	1.43	1.85	$139,061	$0	$0	$139,061
Evaluation	$27,255	1.43	1.74	$8,449	$245,300	-$350,779	-$342,330
Other Consultants	$17,772	1.43	1.74	$5,509	$159,947	-$228,724	-$223,215
Other Costs	$142,169	1.43	1.74	$44,072	$15,796	-$22,588	$21,484
Training Costs	$244,667	1.43	1.94	$124,780	$27,185	-$38,875	$85,905
Measures	$4,398,142	1.43	1.74	$1,363,424	$488,682	-$698,815	$664,609
Audit/Admin	$2,012,381	1.43	1.94	$1,026,314	$0	$0	$1,026,314
Total	$8,249,497			$3,233,407	$1,855,343	-$2,653,140	$580,267

Table III-38 displays estimates of the output increases from the EPP net benefits. It is conservatively estimated that ten percent of the dollar savings are saved, and 90 percent of the dollar savings are spent on consumer goods. The 90 percent spent leads to an increase in output equal to the amount spent multiplied by the difference between the electricity multiplier and the consumer goods multiplier. The ten percent saved leads to a loss of output equal to the amount saved multiplied by the

electricity multiplier. We estimate a $389,259 increase in output resulting from the net benefits from the Program.

Table III-38
Output Increases from EPP Net Benefits

	Total Benefits	Amount Spent	Default Multiplier	Multiplier with the EPP	Increase in Output	Amount Saved	Output Decrease	Net Change in Output
High Use	$2,519,133	$2,267,220	1.43	1.74	$702,839	$251,913	-$360,236	$342,602
Moderate Use	$343,059	$308,753	1.43	1.74	$95,713	$34,306	-$49,058	$46,655
TOTAL	$2,862,192	$2,575,973			$798,552	$286,219	-$409,293	$389,259

e) Economic impacts on employment

Table III-39 estimates the increase in employment as a result of EPP expenditures. We estimate that an additional 227 jobs were created by the EPP expenditures.

Table III-39
Employment Increases from EPP Expenditures

	Ohio Expenditure Estimate	Default Multiplier	Multiplier with the EPP	Increase in Employment	Amount Spent Outside Ohio	Increase in Employment	Net Change in Employment
SMOC-ERS	$0	6.9	--	0	$254,000	-1.8	-1.8
ICC	$958,760	6.9	27.7	19.9	$0	0	19.9
Hardware PDA's	$117,253	6.9	42.2	4.1	$664,433	-4.0	-0.4
OEE Staff	$331,098	6.9	27.9	7.0	$0	0	7.0
Evaluation	$27,255	6.9	42.2	1.0	$245,300	-1.7	-0.7
Other Consultants	$17,772	6.9	42.2	0.6	$159,947	-1.1	-0.5
Other Costs	$142,169	6.9	42.2	5.0	$15,796	-0.1	4.9
Training Costs	$244,667	6.9	27.7	5.1	$27,185	-0.2	4.9
Measures	$4,398,142	6.9	42.2	155.3	$488,682	-3.4	151.9
Audit/Admin	$2,012,381	6.9	27.7	41.9	$0	0	41.9
Total	$8,249,497			239.8	$1,855,343	-12.8	227.0

Table III-40 displays estimates of the increases in employment from the EPP net benefits. We estimate an increase of 89 jobs resulting from the EPP net benefits.

Table III-40
Employment Increases from EPP Net Benefits

	Total Benefits	Amount Spent	Default Multiplier	Multiplier with the EPP	Increase in Employment	Amount Saved	Employment Decrease	Net Change in Employment
High Use	$2,519,133	$2,267,220	6.9	42.2	80.0	$251,913	-1.7	78.3
Moderate Use	$343,059	$308,753	6.9	42.2	10.9	$34,306	-.2	10.7
TOTAL	$2,862,192	$2,575,973			90.9	$286,219	-1.9	89.0

f) Summary of Economic Benefits

Table III-41 displays a summary of the estimated economic benefits from the EPP. We estimate an increase in output of $969,526 and an increase in employment of 316 jobs. We estimate an output increase of $580,267, and an increase of 227 jobs resulting from expenditures on the EPP. We estimate an output increase of $389,259 and an employment increase of 89 jobs from the net benefits from the EPP.

Table III-41
Summary of Economic Benefits

Source of Impact	Output Increase	Employment Increase
EPP Expenditures	$580,267	227
EPP Net Benefits	$389,259	89
Total	$969,526	316

4. Recommendations

Real and measurable economic benefits for Ohio result from the EPP. These benefits should be taken account of when looking at the complete set of benefits from this Program.

I. Refrigerator Analysis

OEE asked APPRISE to conduct research to assist them in determining whether or not to put out a third RFP to obtain bids from refrigerator vendors. OEE previously put out two RFPs for refrigerator vendors that achieved less than satisfactory results. The number of vendors who responded to the RFPs was low, and there was lack of complete statewide coverage for all types of refrigerators and freezers. One statewide bidder was accepted but was found to provide unsatisfactory service. Given this experience, OEE questioned whether the time and expense necessary to put out another RFP would be worthwhile.

1. Goals of the Evaluation Activity

The goal of the evaluation activity was to obtain information on whether it would be worthwhile for OEE to put out another RFP for refrigerator procurement.

2. Design/Rationale

APPRISE conducted three different types of research to advise OEE as to whether another RFP process would be worthwhile. First, APPRISE conducted analysis of the SMOC~ERS data on refrigerators supplied and prices obtained. Second, APPRISE spoke with managers from other low-income programs to determine how they procured refrigerators and the prices that they received. Third, APPRISE spoke with managers at EPP-authorized providers to determine what other factors should be considered.

3. Evaluation Findings

a) Refrigerator Prices

Blasnik and Associates provided APPRISE with data from the SMOC~ERS database on refrigerators delivered under the EPP. Table III-42 displays the number of each type of refrigerator supplied, as well as the mean, minimum, and maximum price for refrigerators in each size range. This table shows that the most common refrigerator sizes are those that range from 18 to under 19 cubic feet, and those that range from 19 to under 21 cubic feet. There is substantial variability in the prices of these models. The maximum price for 18 to 19 cubic foot refrigerators is about 25 percent greater than the minimum price (and nearly two standard deviations above the mean), and the maximum price for 19 to 21 cubic foot refrigerators is about 50 percent greater than the minimum price for this size (and more than three standard deviations above the mean).

Table III-42
Ohio EPP Refrigerators
Number Supplied and Cost, By Size

Refrigerator Size	# Procured	Refrigerator Cost		
		Mean	Min	Max
<10 cf	106	$286	$202	$316
10≥cf<13	68	$344	$343	$366
13≥cf<15	219	$388	$292	$426
15≥cf<16	366	$426	$312	$529
16≥cf<17	233	$479	$292	$595

Refrigerator Size	# Procured	Refrigerator Cost		
		Mean	Min	Max
17≥cf<18	299	$445	$390	$550
18≥cf<19	1,268	$495	$442	$567
19≥cf<21	837	$512	$439	$675
21≥cf<22	466	$580	$445	$690

Table III-43 displays mean refrigerator prices by agency to identify those agencies with prices that are significantly higher than the mean. Only agencies that procured more than 50 refrigerators in total are shown in this table. Prices that are more than one standard deviation above the mean EPP price are shown in bold. For example, the mean price of refrigerators between 15 and 16 cubic feet is $426. However, ACCAA has a mean price of $493 and COAD has a mean price of $499. COAD, COAD subagencies, and EANDC each have several refrigerator sizes with mean prices significantly above the EPP mean price.

Table III-43
Ohio EPP Mean Refrigerator Prices
By Agency

Agency	Refrigerator Size (In Cubic Feet)					
	15≥cf<16	16≥cf<17	17≥cf<18	18≥cf<19	19≥cf<21	21≥cf<22
Mean EPP Price	*$426*	*$479*	*$445*	*$495*	*$512*	*$580*
ACCAA	**$493**	$502	$439	$500	$488	$605
CHN	$355	$468	$439	$458	$494	$562
CHN SUBS		$522	$438	$459	$496	$452
CMACAO	$395	$456	$439	$474	$497	$558
CAWM	$405		$394	$445	$499	$480
COAD	**$499**		**$516**	**$534**	**$666**	$577
COAD SUBS	$478		**$495**	$523	**$666**	$577
EANDC		**$588**	$466	**$550**	**$605**	**$656**
HWDMC	$423	$459		$518	**$615**	$555
MORPC			$439	$458	$497	
OHCAC	$336	$292	$416	$473	$506	

Table III-44 compares the refrigerator prices obtained under the EPP to the prices obtained by a utility in New Jersey and Pennsylvania in their low-income programs.

The Large Store price is the price obtained for the New Jersey program. Because many of the utility's customers were not satisfied with the service provided by the Large Store delivery subcontractors in Pennsylvania, the utility dropped the Large Store and began using smaller stores for refrigerator purchase and delivery in Pennsylvania.

Table III-44 shows that mean Ohio EPP prices are generally lower than the Large Store prices and the Pennsylvania prices. Therefore, it appears that despite the lack of statewide refrigerator suppliers, authorized providers are obtaining competitive prices for their refrigerators.

Table III-44
Comparison of Ohio EPP Refrigerator Prices
And NJ and PA Program Refrigerator Prices

Refrigerator Size	Ohio EPP Mean Price	NJ Large Store Price	PA Other Vendor Mean Price	PA Other Vendor Minimum Price	PA Other Vendor Maximum Price
15 cf	$425	$439	$467	$415	$503
17 cf	$445	$429	NA	NA	NA
18 cf	$495	$534	$518	$445	$564
21 cf	$580	$675	$578	$518	$616

b) Other Factors

APPRISE spoke with seven of the agencies that purchased the greatest number of refrigerators to obtain an understanding of how they procured refrigerators and factors that are important in selecting a vendor. Most of the agencies did not use the OEE vendor and were very satisfied with the vendor that they had selected. The reasons cited most often for choosing a local vendor were the ability to work with the supplier, to develop a close working relationship, and to work out any problems that arose. A few agencies mentioned that they had worked with OEE providers but had not been satisfied, so had obtained another vendor. In general, agencies were concerned with many factors in addition to price. The factors are summarized below.

- *Service:* Most agencies felt that they obtained better service from their local providers than is possible with a statewide supplier. One agency complained about the delivery people at a particular supplier that was one of the State vendors. One agency noted that it had used the statewide vendor, but stopped because the vendor left some of the old refrigerators with landlords or in the street. Agencies liked their local providers because they worked cooperatively, did not charge for second delivery attempts, set up Saturday delivery to meet clients' needs, or delivered in two to three days.

- *Credit:* One agency noted that they were unable to set up a good relationship with the statewide vendor because it took weeks to get agency credit approved with the vendor. This meant that some customers had to wait quite a while to receive refrigerators because there was no replacement refrigerator information to enter into SMOC~ERS to see if the replacement would be cost-effective. Ultimately, the agency decided to use an alternative vendor.

- *Customer relationships:* Another important factor was the vendor's treatment of and respect for the clients served by the EPP. One agency noted that the OEE vendor made negative comments about the Program's target customers, so the agency refused to work with that vendor.

- *Coverage:* Another factor mentioned was the service territory covered by the vendor. One agency noted that if they switched to an OEE supplier, the vendor would need to cover the agency's entire service territory. A few of the agencies said that their remote location would be a problem for a statewide vendor.

- *Proximity:* All of the agencies noted that they preferred to work with local suppliers because of the ability to have a closer relationship and talk to the vendors about any problems that arose. One agency representative also noted that she preferred to spend the Program money locally.

- *Product quality:* One agency complained about a State-obtained vendor's product. The representative said that many of the replacement refrigerators had problems with freezing and ice build-up and that some of the shelves fell off. The vendor fixed the problems but took a long time to do so.

- *Brands:* Two agencies noted that the OEE vendor did not offer name brand refrigerators; they liked the name brand appliances and that they offered a warranty.

- *Selection:* One agency noted that the OEE vendor offered only two sizes of refrigerators. Another agency noted that it did not work with the OEE-selected vendor because the vendor did not carry the units that the agency wanted to use and did not offer options that customers often like to pay for, such as ice-makers.

Interviews with agency representatives revealed there are many important factors in the selection of a refrigerator vendor. This implies that OEE may have a difficult time meeting the varied preferences of the individual agencies with a statewide vendor. It also appears that a significant price advantage would have to be obtained

through a statewide vendor to make up for the other factors that agencies find important and that the statewide vendor may not meet.

4. Recommendations

The main conclusions from the research are that:

- Ohio EPP agencies are obtaining relatively low mean prices for the refrigerators that they procure.
- There is significant variability in the prices obtained by the EPP authorized providers.
- Many factors, in addition to price, are important when procuring refrigerators.

Because the EPP refrigerator prices are competitive, it does not appear that significant savings could be obtained by putting out another RFP. Additionally, even if some cost savings were obtained through such procurement, they may not be significant enough to outweigh the many other non-economic benefits obtained from local suppliers.

Therefore, the recommendations for EPP refrigerator procurement are as follows.

a) Do Not Put Out Another RFP at the Current Time

Comparisons with other Programs show that prices obtained in Ohio are reasonable, agencies are satisfied with their providers, and another RFP should not be issued at the current time.

b) Require the Agencies That Have the Highest Refrigerator Costs to Obtain Additional Vendor Bids

The high current prices may be an indicator of local market conditions, but they may also result from a lack of competitive shopping. OEE should also take into consideration the efficiency of the refrigerator.

c) Consider the possibility of an RFP at some point in the future to continue to establish a maximum price for refrigerator procurement.

While agencies appreciate the ability to work with local vendors, having a "price to meet" or "price to beat" is worthwhile. One agency noted that its vendor was able to meet the necessary price because of the volume of refrigerators that would be purchased. Another agency representative noted that if the State gave him some prices to use to pressure his current supplier to lower its prices, he would talk to his vendor.

IV. Summary of Findings and Recommendations

There have been significant improvements in the design and implementation of the Electric Partnership Program in the second year of operation. Some of the key accomplishments over the last year have been:

- Many of the agencies have adapted to the software, technology, and other new requirements of the EPP. Data through the first quarter of 2003 show that approximately 5,000 households have been served in the high use component and an additional 500 customers were served in the moderate use component in the second Program year.

- Enhancements and fixes to the SMOC~ERS software have greatly improved the operation of the data collection and reporting system.

- A survey of Program recipients revealed high levels of client satisfaction and increased adherence to education and audit procedures by the providers.

- Additional components have been added to the Program design and have been implemented by some of the agencies.

- New policies were established as part of the second request for proposals from providers, and the RFP was successfully implemented.

The principal suggestions for continued improvements to the Program include additional training, enhanced quality control, improved documentation of Program procedures, continued upgrading of the software, and continued technical and programmatic support from OEE to the agencies.

A. Findings

1. Improvements in Second Year of the EPP

With additional time to get adjusted to the Program, its technology, and it procedures; to enhance technology and systems, provide Program documentation and education materials; and to introduce additional Program elements, significant improvements have been seen in the second year of EPP implementation.

- *Production has increased significantly:* In the second year of the Program, by the end of the first quarter of 2003, approximately 5,000 customers were served in the high use component and 500 customers were served in the moderate use consumption.

- *SMOC~ERS has been updated and is working better:* Three rounds of SMOC~ERS updates were provided – in November 2002, December 2002, and

February 2003. These updates took care of many of the major problems and provided corrections to some calculations. One of the more important changes was the removal of the Massachusetts 175 percent adder that caused measures to appear cost-effective when they were not. Other key improvements included updated action functions with flexible entries and defaults, easier measure selection, correction of discrepancy between the SIR on the PDA and the desktop, and the room air conditioner default was adjusted to a more appropriate level.

- *Policies and procedures manual has been developed:* OEE created a policies and procedures manual that was distributed to the agencies via e-mail, and is available on the Internet. The manual contains information on auditing procedures, weatherization program standards, requirements for landlord contributions, invoicing and reimbursement, referral of clients, and PDA software and hardware.

- *Action form is required for all clients:* Beginning in September 2002, OEE required that all visits include either an action plan or documentation explaining why there were no actions included in the audit. The policies and procedures manual contains a section explaining that the action report is required. The manual explains that if actions are not provided and documentation is not provided, the agency will not be reimbursed for the audit.

- *Outreach letter was mailed:* An outreach letter signed by the Governor of Ohio was sent to high use PIPP clients in August 2002. The letter explained that the clients had been selected for the EPP because of their participation in the electric PIPP and explained some of the benefits provided by the Program. The goal of the letter was to provide more credibility to the EPP. This is important, as there is always skepticism about programs that provide free services. Agencies had made requests for such a letter.

- *Additional Program elements have been introduced and expanded*: In the second year of the EPP, follow-up education and case management were expanded, and the moderate use component was introduced. Follow-up education is required for all clients, to review measures and reinforce energy education. Ten of the 15 agencies who responded to the survey reported that they had implemented follow-up education. Agencies reported that 718 clients received mailings, 675 clients received phone calls, and 970 received home visits.

  Case management provides up to 12 follow-up contacts to households that can benefit from the intensive services. Six of the 15 agencies that responded to the survey reported that they had implemented case management services. Agencies reported that 82 clients received mailings, 337 clients received phone calls, and 333 clients received home visits.

The moderate use pilot provides services to clients with annual baseload usage between 4,000 and 6,000 kWh. The audit focuses on explaining the Program and developing a partnership with the customer; analyzing lighting, refrigerator, freezer, waterbed, and electric hot water usage; and developing an action plan with the customer. Usage data are not required to be collected for all appliances, and the auditor is not required to match usage to the customer's bills. Agencies reported that 1,267 clients received moderate use services.

- *A Refrigerator database has been distributed:* A refrigerator database, listing the usage of 47,000 refrigerator models was provided to the agencies for installation on the PDA. Auditors can use the database for the moderate use component rather than monitor the refrigerator for one hour. The refrigerator database runs outside the SMOC~ERS software and has not affected the speed of SMOC~ERS.

- *Education cards have been distributed:* Education cards were provided to the auditors to assist in the education process. Laminated education cards were provided as visual aids for the auditor to use in discussing energy use and potential action steps. Unlaminated educations cards were provided to be left with the client as reminders of the actions a client has agreed to take. Monitors have reported mixed reactions to these cards, with some auditors reporting that they do not feel they should be used as they are demeaning to the clients. Monitors have reported that auditors who do use the cards leave them with the client with no explanation.

2. Additional Advances Expected in Next Year

OEE has recently completed a second RFP process to select providers to deliver services beginning in July 2003. The RFP process made several improvements to the Program.

- *RFP for providers resulted in nine authorized providers:* Only nine authorized providers, as opposed to the original 18, were selected to provide services in this round. OEE awarded contracts only to those providers who submitted competitive proposals in response to the RFP. The reduced number of providers should make the Program administration less burdensome for OEE, while not reducing the number of clients served by the Program.

- *New low use element will be introduced:* The RFP calls for the introduction of a low use component, where clients with an annual baseload usage of under 4,000 kWh would receive a survey or participate in a workshop, and then be sent a package that includes lighting measures to be installed and suggestions on actions they may take to reduce electric use.

- *Cost ceilings for administrative/audit fees:* OEE set cost ceilings for the audit and administrative fees in the RFP. The ceiling for baseload services was set at $225, as compared to fees that averaged $343 statewide, and that ranged as high as $509 for the first two years of the Program. These are reasonable fees that should cover costs for the agencies, especially after start-up costs have been absorbed, and will provide greater savings for the Ohio ratepayers.

- *Additional SMOC~ERS enhancements:* An additional update to the SMOC~ERS software is planned to occur by July 2003 for the new Program year. This update will contain some significant changes and improvements. Some of the more important changes are described below.

    - *Fuel switching:* Agencies will now have the capability to provide fuel switching from electric hot water or electric dryers to gas appliances. The new version of SMOC~ERS contains screens for the fuel switching.

    - *Multiple visits:* The new version of SMOC~ERS now allows for billing for multiple trips to the client's home. This will allow agencies to bill directly through SMOC~ERS for follow-up education and case management visits.

    - *Actions enhanced:* The method for selecting actions and the cost savings associated with the actions has been overhauled to provide for easier selection and more accurate savings estimates.

3. Quality Control Is Insufficient

OEE monitors report that oversight of agencies has been limited to "technical assistance" observations rather than formal Program monitoring. Systematic procedures for assessing agency performance have not been developed, and monitors do not provide written documentation of their visits. While monitors report that each agency has been visited at least once, agencies have several auditors, and monitors have not had the opportunity to observe many of the auditors or to determine whether individual auditors are improving. Fewer than half of the agencies that responded to the survey reported that they conduct on-site observation of audits or visit homes after the audit is completed.

4. Education Still Needs Improvement

Findings from the client survey were fairly positive regarding education provided by the auditors. Seventy-six percent of clients reported that the auditor reviewed and explained their electric bill, 61 percent said that the auditor explained how the client could determine if electric use was increasing or decreasing, and 71 percent said that the auditor explained how electric use is measured. Seventy-eight percent of clients said

that the auditor verbally suggested energy-saving actions, 71 percent said that the auditor developed an action plan, 72 percent said that the auditor provided savings estimates, and 87 percent said that they committed to taking actions to save energy. These percentages are higher than what has been observed in the field and suggest positive trends for the Program. However, it still appears that many auditors are not conforming to the requirement for action plans. Monitors reported that about half of the auditors do not use the action plan, and Blasnik and Associate's data analysis showed that, between December 2002 and March 2003, only 46 percent of audits had one or more actions.

Other areas of the education component need improvement. Only 40 percent of the clients responding to the survey said that their responsibility was to reduce energy usage or follow recommendations. These findings suggest that clients need to be educated more about their role in the Program and how they can actively participate in the reduction of their bills and energy use. Additionally, on-site observations by APPRISE and verbal reports from monitors showed that improvement is needed in this area. These observations found that the audit introduction is weak, the education provided during the walk-through is inconsistent in quality and comprehensiveness, and providers are not sold on the education component.

The following elements of the education implementation need to be improved.

- *Program recruitment:* Customers need to receive information about the EPP at the time of recruitment, including the name of the Program, who is providing the Program, the purpose of the Program, the benefits of the Program, and what the customer should expect from the visit.

- *Program introduction:* The introduction to the in-home visit should include a description of the Program, including the Program name, who is providing the Program, and the Program's purpose. The provider should establish a partnership with the customer by eliciting the customer's goals for participating in the Program. The provider should explain what the customer should expect from the visit. The provider should review the customer's bill, explaining how to read the bill, the PIPP arrears, and the seasonal usage patterns. The provider should ask the customer what he/she thinks are the big electric users in the home.

- *Action plan:* The provider should furnish the customer with options for taking actions during the walk-through as well as corresponding estimates of cost savings. The provider should secure an action commitment from the customer and give the customer with a written copy of the action plan that includes estimated cost savings associated with each action.

- *Program conclusion:* The visit conclusion should include a review of the installed measures, partnership reinforcement, explanation of the next steps, and a request for feedback on the materials.

- *Education materials:* Additional materials to assist the provider in effective education should be furnished by OEE. These materials could include an education notebook, a partnership agreement, magnetic folders that can be placed on refrigerator to hold the action plan, and a clipboard that the customer can use to record actions during the walk-through.

Some aspects of the education component are being successfully implemented. Providers are connecting with the client, the first step in being able to provide effective education. Additionally, providers are furnishing customers with information about measures and actions during the walk-through. At the end of the visit, providers are reviewing SMOC~ERS reports and providing information about installed measures.

5. Agencies Need More Direction on Some Program Components

Agencies need more direction in following some of the Program's procedures and requirements. While follow-up education is required for all clients, only ten of the 15 agencies that responded to the survey reported that they have implemented this Program component. Auditors are confused about some of the Program requirements. When determining refrigerator usage, some auditors are monitoring for only one hour or using the refrigerator database for the high use component, when all high use refrigerators should be monitored for two hours according to Program procedures. In the client survey, 37 percent of respondents reported that the provider left some of the CFLs for the client to install after the provider left the home. This practice is inconsistent with Program protocols, and it may lead to CFLs not being installed or not being installed in cost-effective locations.

B. Recommendations

1. Program Administration

a) Hire Additional OEE Staff

The addition of staff members in a few critical areas could improve Program results and lead to earlier Program refinement and maturation. Targeted hires in the areas of quality control field staff and office staff with hardware and software skills are recommended. Additional quality control staff members are needed to provide sufficient monitoring and training of agency personnel. Additional technical staff members are needed to test changes to the software and determine what other changes are needed. Currently, two monitors are performing both of these functions, when additional staff members are needed for each area.

b) Further Develop Policies and Procedures Manual

The agency survey, the client survey, and on-site observations revealed that auditors need more direction on Program procedures. The policies and procedures

manual should be further developed, with a pullout sheet summarizing the audit workflow and key audit requirements (for example, installing all bulbs and refrigerator monitoring requirements). Additional procedures should be distributed for the follow-up component of the audit.

c) Send Another Letter Announcing the Program

The agency survey, interviews with agencies, and on-site observation showed that Program recognition should be improved, and that the letter signed by the Governor that was sent by OEE was an important part of this process. OEE should send another round of these letters to new client lists, or provide an electronic version of the letter to be sent by agencies prior to their audits.

d) Continue to Provide Technical Support to Agencies

Agency surveys and on-site observations showed that auditors are making progress in utilizing the software and hardware provided by the Program. Additional SMOC~ERS updates can further enhance and improve the process. Agencies will need help installing these updates and working with the new versions of the software.

e) Improve Refrigerator Procurement

An analysis of the refrigerator prices obtained by agencies providing the EPP showed that another refrigerator RFP is not warranted at the current time. However, this analysis also showed that some agencies have refrigerator prices significantly above the mean. Agencies with the higher prices should be required to obtain additional vendor bids to ensure that lower refrigerator prices are not available in their service territory.

f) Work to Increase Auditor Compensation

APPRISE conducted a visit to SMOC to understand how they implement their baseload program. SMOC managers contended that by providing better compensation to their auditors, they were able to obtain more experienced and motivated staff members. The services provided in the EPP require a wide variety of skills, including education and communication skills, understanding of baseload energy usage, and use of Program software. OEE should consider working with agencies to improve the compensation for auditors providing services in the EPP.

g) Assist Agencies in Obtaining Updated Client Information

In the survey of agencies, the providers reported that they were most likely to experience problems in the area of Program recruitment, because of outdated contact information. OEE should help to increase production by assisting agencies in obtaining updated contact information, such as by matching information from recent HEAP applications.

2. Training

a) Review Protocols for Service Delivery

On-site observations, reports from OEE monitors, agency surveys, and client surveys showed that agencies need additional training on some Program protocols. Primary areas from improvement include the workflow of the audit, measure installation, and refrigerator monitoring.

b) Provide Additional Education Training

Client surveys showed that education provided during the audits has improved. However, these surveys also revealed that certain elements of the education are still weak. On-site observations and reports from monitors also demonstrated a need for more education training.

c) Provide Additional Baseload Training

Client surveys showed that auditors are less likely to discuss appliances that are not commonly found in homes, and monitors found that auditors need to further develop their skills in finding the odd sources of electricity use. Additional baseload training is needed.[11]

3. Technology

a) Continue Making Enhancements to Software

Enhancements made to the SMOC~ERS software have significantly improved auditor satisfaction with the technology. Monitors have noticed increased comfort with the PDA during their observations. OEE should continue to make improvements to the software that will enhance auditor performance.

b) Develop Custom Measures Module for SMOC~ERS

There has been some evidence from monitors' reports, agency surveys, and observation of other baseload programs that auditors find opportunities with great energy-saving potential that they cannot address through the EPP because these opportunities do not have measures associated with them in the SMOC~ERS database. Some examples of such opportunities include gutter replacement, correction of bleeds to the ground, fixing or replacing hot water heaters, fixing water leaks, and replacing filters on gas furnaces.

SMOC~ERS should have a customer measure module that allows auditors to enter the cost of the measure and the expected energy savings. If the SIR was calculated as greater than one, the auditor could install the measure.

[11] Providers told OEE in the RFQ that they all had experienced baseload auditors. Based on this information, OEE did not focus training on this area and rather focused training on program operations and software requirements.

4. Service delivery

a) Collect Information on the Telephone Prior to the Visit

Observations suggested that it is a real challenge for an auditor to develop a true understanding of a customer's plug load in the limited time that the auditor has in the home and with the limited attention span of the customer. From our observations, it also appears that the process of entering the data into the computer and attempting to match the data to the customer's bill history represents a serious impediment to effective communication with the client. We observed another program in which the auditor has a billing history and part of the plug load data prior to the household visit. It appears to us that at least some of the work done in the home could be completed over the phone by the auditor prior to the visit. If this were done, the auditor would enter the home with a better sense of the unique opportunities in the home and might be able to better engage the client in the development of an effective plan.

5. Quality control

a) Develop Systematic Procedures for Quality Control

Interviews with OEE monitors revealed that the observations currently being conducted are viewed as informal technical assistance. Systematic procedures for conducting observations and assessing auditors have not been developed. OEE should develop a data collection form to systematically assess agencies and assist them in improving their service delivery. These reports should be provided to the agencies, and the areas where improvement is needed should be highlighted. These reports should also be used to assess the agencies' progress over time.

b) Increase Level of Quality Control

While monitors reported that each agency was visited at least once, agencies have several auditors, and monitors have not had the opportunity to observe many of the auditors or to determine whether individual auditors are improving. The number of quality control visits to each agency should be increased to ensure that all auditors are performing at the level expected by the Program.

c) Require Agencies to Provide Quality Control and Remedial Training

Fewer than half of the agencies that responded to the agency survey reported that they are providing on-site observation of service delivery or post completion home inspections. None of the agencies reported that they offer remedial training to auditors who show the need for such assistance. Agencies should be required to provide quality control and remedial training for their auditors.

6. PIPP

a) Conduct Research to Determine Why PIPP Costs Are Increasing

ODOD has seen considerable increases in the costs of the PIPP since taking over the Program administration. It is not clear whether the increasing costs are a result of the economy, accounting procedures, or other factors. Research should be undertaken to determine the source of cost increases for PIPP.

b) Develop a Pilot to Test an Improved PIPP Model

It is well known that the current PIPP structure does not provide the optimal payment or energy usage incentives for PIPP customers. A model for improving the PIPP structure and testing such improvements has been developed. This model, or a revised version of the model, should be implemented, results should be assessed, and Program administrators should determine whether the model should be implemented on a larger scale.

Appendix

Appendix A: Client Survey
Appendix B: Agency Survey