Program Evaluation:
Oregon HEAT's Refrigerator Replacement Pilot Program

Final Report for:

Prepared for:

Oregon HEAT

Prepared by:

Community Planning Workshop

Community Service Center
1209 University of Oregon
Eugene, OR 97403-1209
Email: cpw@uoregon.edu
http://darkwing.uoregon.edu/~cpw

October 2004

Community Planning Workshop

Special Thanks & Acknowledgements

Community Planning Workshop wishes to thank the following individuals for their assistance with this evaluation.

Becky Eberle, Pacific Power

Cindy Olmstead, Oregon HEAT

Donna Kinnaman, Community Action Program of East Central Oregon

Dave Schmidt, Community Services Consortium

Community Planning Workshop Staff

Research Team:

Beth Goodman

Susan Hopkins

Faculty Advisor:

Robert Parker

Table of Contents

Executive Summary i

- Evaluation Purpose and Methods i
- Conclusions i
- Recommendations ii

Chapter 1 Introduction 1

- Evaluation Purpose and Methods 1
- Report Organization 5

Chapter 2 Program Description 7

- Program Purpose 7
- Program Structure 7
- Replacement Process 9

Chapter 3 Program Benefits and Costs 11

- Program Resources 11
- Program Benefits 11
- Program Costs 15
- Key Findings 17

Chapter 4 Participant Satisfaction 19

- Survey Results 19
- Participant Interviews 26
- Key Findings 27

Chapter 5 Staff Perceptions of the Program 29

- Staff Interviews 29
- Key Findings 32

Chapter 6 Conclusions and Recommendations 33

- Conclusions 33
- Recommendations 34
- Potential Funding Strategies 35
- Conclusion 36

Appendix A Survey Methods and Survey Instrument 37

- Initial Cover Letter 38
- Follow-up Cover Letter 39

Appendix B Transcript of Written Survey Comments 45

Appendix C Staff Interviewees 53

Executive Summary

Oregon HEAT is a 501(c)(3) nonprofit corporation founded in 1989 with the goal of helping low-income Oregonians meet their energy needs, in part by providing bill payment assistance to prevent disconnection of utility service. Oregon HEAT provides assistance statewide.

In 2003, Oregon HEAT began a refrigerator replacement pilot program designed to reduce the electricity usage and bills of participating low-income households. The Refrigerator Replacement Pilot Program was funded through a $50,000 grant from the Oregon Office of Energy and $50,000 from Oregon HEAT. The program replaced refrigerators that have high electricity consumption with refrigerators with lower energy consumption. The pilot program provided free replacement refrigerators to 141 qualifying households in Pacific Power's service territory. Oregon HEAT selected two nonprofit weatherization agencies to distribute the refrigerators through a Request for Proposals (RFP) process: Community Services Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO).

Oregon HEAT contracted with the University of Oregon's Community Planning Workshop (CPW) to conduct a program evaluation of the Refrigerator Replacement Pilot Program. This report presents the results of CPW's evaluation.

Evaluation Purpose and Methods

The program evaluation has three key purposes: (1) study pilot program results to determine if the program is cost-effective; (2) evaluate program satisfaction of participants and staff; and (3) provide recommendations for the program's next steps, including possible funding sources to maintain the program beyond the pilot phase. The evaluation includes the following components: a logic model that shows the key linkages of the program, a quantitative analysis of the program's cost effectiveness, a survey to assess participant satisfaction, and interviews with program staff (including Oregon HEAT, CSC and CAPECO) to assess their satisfaction with the program.

Conclusions

Several themes emerged from the cost-benefit analysis, survey, and interviews that CPW conducted for this project:

- The estimated cumulative savings for all replaced refrigerators is about 151,783 kWh and $10,625 per year. Over the estimated 15-year lifespan of the new refrigerators, this savings will total approximately 2,276,745 kWh and $159,372. The total cost of the program was the original $100,000, plus an estimated $4,500 from CSC and $7,904 from CAPECO. The

total cost of the program was $112,404, making the benefit-cost ratio over the 15-years is 1.4:1.[1] The Program was cost effective over the 15-year period, saving participating households more than the Program cost.

- The Program was more expensive than expected. In their RFP CAPECO and CSC underestimated the costs associated with replacing each refrigerator including the refrigerator itself, refrigerator delivery and installation, and recycling of the old refrigerator. CSC spent about $672 per refrigerator and CAPECO spent about $704 per refrigerator. Both agencies found that administrative costs were higher than they expected. CAPECO found that the cost of the refrigerators, delivery, and recycling were also higher than they expected.
- Survey respondents were very satisfied with their participation in the program and their new refrigerator. Their comments on the survey and in interviews were overwhelmingly positive, with many expressing gratitude for having been able to participate in the program.
- Program staff at CSC and CAPECO were generally satisfied with the program. They felt that it would make a difference in participants' energy assistance needs but would not eliminate the need of some participants for emergency energy assistance, especially in the winter.
- CSC and CAPECO staff would like to see the program expanded to cover more geographic areas and allow participation of utility customers other than just Pacific Power.
- Agency staff and survey respondents would like to have the program expanded to include replacement of other energy consuming appliances.

Recommendations

Results of this evaluation show that the Refrigerator Replacement Pilot Program provided benefits to the participants and was successful in reducing the energy bills of participants. Both participants and staff were satisfied with the program and felt that it should be continued and expanded. CPW developed the following recommendations for the Refrigerator Replacement Pilot Program.

[1] The benefit-cost ratio, a common measure used in evaluations, is a course program success indicator. A benefit-cost ratio greater than 1 indicates that the program has more benefits than costs. A benefit-cost ratio less than 1 indicates that the program has more costs than benefits. If the refrigerators last longer, then the benefit-cost ratio will increase. If electricity is more expensive than $0.07 kWh, the benefit-cost ratio will increase. In the event of either of these changes, the program will become more cost effective.

- **Continue the Program**: Given the results of the program evaluation, CPW recommends that the program be continued in some form. Understanding that limited resources may exist to continue the program, and that the participating agencies expressed concern about recruiting more eligible participants in the short run, CPW suggests an approach that focuses on specific geographic regions.

- **Work with Partner Agencies to Ensure that Program Costs are Estimated Accurately**: CPW recommends that Oregon HEAT change the program Request for Proposals (RFP) to require that agencies provide detailed information about their estimates of the costs involved with implementing refrigerator replacement. This includes the cost of the refrigerator, delivery costs, recycling costs, the cost of staff time for program administration and refrigerator monitoring, and a small contingency fund to repair any damage to participants' homes resulting from the program. This will ensure that agencies are allocating enough funds to replace the targeted number of appliances. Moreover, it will ensure than agencies understand all of the costs that are associated with refrigerator replacements and how to generate accurate estimates of those costs.

- **Encourage Participation by Other Utility Companies**: To expand the program into regions not served by Pacific Power, Oregon HEAT needs to work with other utilities and other local agencies so that customers of these utilities have the opportunity to participate in the Program.

- **Evaluate the Feasibility of Expanding the Program to Include Other Appliances**: Both participant and staff interviews identified a desire to expand the Program to include replacement of other appliances. CPW recommends that Oregon HEAT conduct a preliminary feasibility assessment of expanding the program to include other appliances. The assessment should prioritize the type of appliances replaced based on the energy usage of the appliances and the potential energy savings based on the relative efficiency of new appliances compared to older appliances. Appliances to replace might include hot water heaters, electric dryers, deep freezers, and stoves.

- **Conduct Energy Assessments in Conjunction with Refrigerator Replacements**: Encourage agency partners to combine the opportunity presented in monitoring and replacing a household's refrigerator with the opportunity to perform a household energy assessment. This could result in additional energy savings for participating households and would potentially leverage the program's benefits.

- **Set Program Standards:** It is important to maintain flexibility in the program, so that the partners are able to innovate. It is equally important to set basic standards for the Program to ensure its efficient and equitable operation. One standard could be the electronic exchange of program reports, including standards for file format, mechanisms for exchange, and report layout. Another standard may be a minimum age requirement for refrigerators that are replaced. Refrigerators would need to meet the minimum age requirement before becoming eligible for electricity usage monitoring. Finally, consider setting basic standards for assigning replacement refrigerators to households, so that households of a similar make-up receive similar sized refrigerators, regardless of which partner agency is implementing the Program. This standard should be flexible enough to allow for variance in model availability across the state.

Chapter 1
Introduction

Oregon HEAT is a 501(c)(3) nonprofit corporation founded in 1989 with the goal of helping low-income Oregonians meet their energy needs, in part by providing bill payment assistance to prevent disconnection of utility service. Oregon HEAT provides assistance to people across Oregon.

In 2003, Oregon HEAT began a refrigerator replacement pilot program designed to reduce the electricity usage and bills of participating low-income households. The Refrigerator Replacement Pilot Program was funded through a $50,000 grant from the Oregon Office of Energy and $50,000 from Oregon HEAT. The program replaced refrigerators that have high electricity consumption with refrigerators with lower energy consumption. The pilot program provided free replacement refrigerators to 141 qualifying households in Pacific Power's service territory. Oregon HEAT selected two nonprofit weatherization agencies to distribute the refrigerators through a Request for Proposals (RFP) process: Community Services Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO). The Program ran from July 1, 2003 to April 1, 2004, with refrigerator replacement completed by April 1, 2004.

Oregon HEAT contracted with the University of Oregon's Community Planning Workshop (CPW) to conduct a program evaluation of the Refrigerator Replacement Pilot Program. This report presents the results of CPW's evaluation.

Evaluation Purpose and Methods

The program evaluation has three key purposes: (1) study pilot results to determine if the program is cost-effective; (2) evaluate program satisfaction of participants and staff; and (3) provide recommendations for the program's next steps, including possible funding sources to maintain the program beyond the pilot phase. The evaluation includes the following components: a logic model that shows the key linkages of the program, a quantitative analysis of the program's cost effectiveness, a survey to assess participant satisfaction, and interviews with staff to assess their satisfaction with the program.

Logic Model

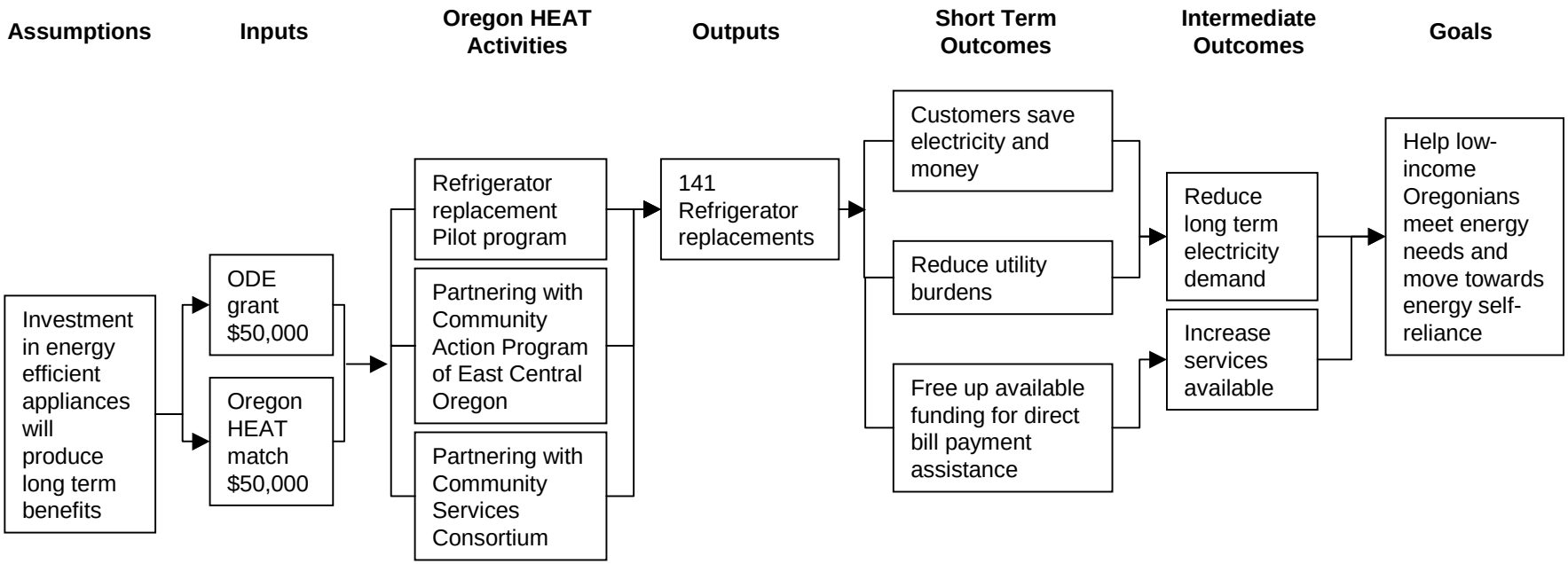
The first step in conducting a program evaluation is to develop a "logic model." A logic model is a graphic representation of the relationships and linkages between program inputs, outputs (activities and outreach efforts), and outcomes. Such a model was used to evaluate the Refrigerator Replacement Pilot Program. This model is accompanied by

a series of indicators that were measured quantitatively and qualitatively. Figure1-1 shows the logic model CPW developed for the Refrigerator Replacement Pilot Program evaluation. The logic model illustrates the key linkages implicit in the Refrigerator Replacement Pilot Program.

Following are explanations of each of the six components of the process included in the logic model. Each level of the process in this program represents a step toward reaching the overall goals of the Refrigerator Replacement Pilot Program:

- **Assumptions.** Assumptions determine the need for and design of the program. In this case, the assumption is that investing in energy efficient appliances decreases kWh usage and energy costs, producing long-term benefits for income qualifying households by reducing electric bills.
- **Inputs.** Inputs into the Refrigerator Replacement Pilot Program include an Oregon Department of Energy grant of $50,000 and matching funds from Oregon HEAT for a total budget of $100,000.
- **Oregon HEAT Activities.** The inputs described above make possible the next level of the logic model, Oregon HEAT's activities. Oregon HEAT formed partnerships through an RFP process with two agencies for the purpose of carrying out the Refrigerator Replacement Pilot Program: the Community Action Program of East Central Oregon (CAPECO) and Community Services Consortium (CSC).
- **Outputs.** The activities conducted by Oregon HEAT and its partners replaced 141 refrigerators.
- **Outcomes.** The immediate output described above leads to two levels of outcomes: short-term and intermediate. Short-term outcomes include customer savings on electric bills and reduced utility burden on low-income households. The intermediate outcome is an overall reduction in electricity demand.
- **Goals.** The outcomes of Oregon HEAT Refrigerator Replacement Pilot Program aim to help low income Oregonians meet their energy needs and move towards energy self-reliance.

Figure 1-1. Logic model for Oregon HEAT Refrigerator Replacement Pilot Program



Source: Community Planning Workshop

Cost Effectiveness Evaluation

The goal of the Refrigerator Replacement Pilot Program was to reduce the energy burden of participating low-income households by replacing inefficient refrigerators with energy efficient refrigerators, consequently lowering energy consumption and electricity bills. CPW performed a quantitative analysis of participants' existing refrigerators' energy consumption relative to the replacement unit to estimate the amount of electricity and money the participants will save over the lifetime of the refrigerator.

Participant Survey

CPW developed and administered a survey of 141 program participants. The goal of the survey was to assess participant's satisfaction with the program, focusing on participant experience with the program. In total, CPW received 78 completed surveys from 141 Program participants, which is a high response rate for a mailed survey.

Employee Interviews

CPW conducted interviews with staff from Oregon HEAT and participating partners—the Community Service Consortium (CSC) and the Community Action Program of East Central Oregon (CAPECO). The goal of the interviews was to identify issues that may contribute to the overall level of effectiveness of the program from the point of view of Oregon HEAT and agency staff.

Limitations of this study

The methods used for this study create inherent limitations that need to be considered when interpreting the results. These include assumptions related to the cost analysis: future electricity rates and average lifetime of the refrigerators as well as limitations of the qualitative analysis.

A key limitation of the qualitative analysis is non-response bias from the mailed survey. CPW received 78 valid responses to the survey out of an effective sample size of 130 (11 surveys were returned undeliverable), yielding a response rate of 60%. If one were to assume that the sample was perfectly random and that there was no response bias, then the survey would have a margin of error of ±5% at the 95% confidence level based on the sample size relative to the sample population. This means that if the survey were conducted 100 times, the results would end up within 5% of those presented in this report.

Non-response bias is an issue in all surveys, but is particularly important in mailed surveys due to response rates. The Refrigerator Replacement Program Survey had a 60% response rate, which is a high response rate for a mailed survey. Although we cannot say with 100% confidence whether those 60% are representative of all Program participants, based on the 95% confidence level we can be reasonably

certain that they do because the Program participants have a number of similarities, such as socioeconomic status.

Another limitation to this study is that we did not consider the avoided costs that will result from the Program. Avoided costs are the costs related to increasing energy generating capacity that electric companies avoid through energy conservation.

Finally, we did not consider the remaining useful lifespan of the old refrigerators. It is likely that the refrigerators that the Program replaced would have been replaced with a more energy efficient refrigerator within the next 15 years. If this information was factored in, the potential benefit of the Program might have decreased over the course of the Program. The information required to include this in the cost-benefit analysis, the age of the old refrigerators, was not collected. This could be a significant factor, however, because CSC and CAPECO both used refrigerator age thresholds of at least 8 years for program participants. CPW had no way to evaluate this issue.

Report Organization

The remainder of this report is organized as follows:

- **Chapter 2: Program Description** presents the Refrigerator Replacement Pilot Program, including the program's purpose, partners, and client selection.
- **Chapter 3: Program Benefits and Costs** summarizes the analysis of costs and benefits of the program.
- **Chapter 4: Participant Satisfaction** presents the results of program participant surveys and interviews.
- **Chapter 5: Staff Perceptions of the Program** presents the results of staff interviews.
- **Chapter 6: Conclusions and Recommendations** presents CPW's conclusions based on the findings of Chapters 2, 3, and 4. The chapter presents recommendations for the future direction of the Refrigerator Replacement Pilot Program.

This report also includes three appendices:

- **Appendix A: Survey Methods and the Survey Instrument** include a description of the Refrigerator Replacement Pilot Program Survey methodology and the survey instrument with results for each question.
- **Appendix B: Transcript of Written Survey Comments** presents the written comments from the participant survey.
- **Appendix C: Staff Interviewees** lists the staff interviewed in the course of this evaluation.

Chapter 2
Program Description

This chapter provides a description of the Refrigerator Replacement Pilot Program, including a description of the program purpose and structure. The chapter describes the process that Oregon HEAT used to select nonprofit partnering agencies and the methods the agencies used to find eligible participants. The chapter concludes with a description of the process of replacing the participants' refrigerators.

Program Purpose

Refrigerators are one of the most energy consuming appliances in most households. Since March 2002, some agencies in Oregon that provide weatherization to low-income homeowners began replacing older refrigerators with new energy efficient refrigerators. The Community Service Consortium (CSC) and the Community Action Program East Central Oregon (CAPECO) were among these agencies.

The goal of Oregon HEAT's Refrigerator Replacement Pilot Program was to reduce energy consumption of participating low-income households by replacing their old refrigerator with a new energy efficient refrigerator. All replacement refrigerators were to be Energy Star rated, meeting federal energy efficiency levels. Participants in the program would benefit from the program by receiving a new refrigerator free of charge, hypothetically resulting in lower energy bills.

Program Structure

The Refrigerator Replacement Pilot Program was funded through a $50,000 grant from the Oregon Office of Energy and $50,000 from Oregon HEAT. Oregon HEAT subcontracted with the two nonprofit weatherization agencies mentioned above to recruit participants and coordinate the refrigerator replacement. The nonprofit agencies purchased refrigerators from local retail establishments, who were responsible for delivery and installation of the new refrigerators and the recycling and disposal of the old ones.

Partner Selection

Oregon HEAT selected two nonprofit agencies through a Request for Proposals (RFP) process. Community Services Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO) became subcontracting partners in the program. CSC serves Linn, Benton, and Lincoln Counties and CAPECO serves Umatilla, Morrow, Gilliam, and Wheeler Counties. These agencies had the following responsibilities:

1. Outreach to obtain qualified participants

2. Certification that the participants met participation requirements

3. Ensuring that participants' old refrigerators meet replacement qualifications through monitoring energy consumption

4. Purchasing and arranging for delivery and installation of new energy efficient refrigerators and removing and recycling old refrigerators

5. Providing Oregon HEAT information on participants, including the energy usage of their old refrigerators

Participant Eligibility and Recruitment

Oregon HEAT set eligibility standards for selecting program participants, which CAPECO and CSC were required to follow. Households were eligible to participate in the program if they met the following criteria:

- Own their home and have an income at or below 60% of the Oregon state median income
- Their home is not likely to receive weathization services within the next two years, or their home had previously been weatherized but did not receive a new refrigerator
- Their refrigerator consumes a minimum of 900 kilowatt hours (kWh) per year, determined by monitoring refrigerator usage for at least 24 hours
- Customers of Pacific Power or Portland General Electric

CAPECO and CSC had different methods for recruitment of participants. CAPECO obtained a list of Pacific Power customers who had received energy assistance through the Low-Income Energy Assistance Program or the Oregon Energy Assistance Program. They sent flyers to 350 households on these lists. The flyers explained the program and the qualifications for participation and requested that interested households contact CAPECO by telephone. CAPECO staff made return calls to all interested households and verified that they owned their home and were income eligible. CAPECO staff also asked how old their refrigerator was, with the assumption that refrigerators less than eight years old would be less likely to qualify for replacement. If the homeowner did not know the age of the refrigerator, staff asked them the color of their refrigerator, with the assumption that certain color refrigerators were more likely to be older.

CSC used a one page written application to recruit eligible participants. They sent the application to a wide range of people, including their low-income clients from the previous two years and low-income senior citizens from a list supplied by Oregon HEAT. They asked other social service agencies, such as Senior and Disabled Services, to send

applications to their clients. In addition, this agency put program flyers in low-income neighborhoods. The written application asked questions about income, homeownership, and refrigerator age and color. CSC made the assumption that refrigerators that were less than 10 years old would not qualify for replacement.

Replacement Process

Once CSC and CAPECO recruited eligible low-income households, they determined whether the households had refrigerators that qualified for replacements. To qualify for replacement, the refrigerator had to consume a minimum of 900 kWh per year. Agency staff determined refrigerator energy consumption by monitoring it for a minimum of 24 hours with an electric consumption meter. This required that they visit each home twice, initially to connect and then to retrieve the monitoring equipment.

CAPECO used the initial visit to the potential participant's home for placing the refrigerator monitor to do additional weatherization activities that were not directly related to the Refrigerator Replacement Pilot Program. They did a weatherization assessment of the house, including assessing household airflow and air infiltration with a blower door. They also provided education to the homeowners about ways to save energy, including cleaning their refrigerator's coils and cleaning their furnace's filter. They also installed a carbon monoxide detector and smoke alarms in houses lacking them. Aside from monitoring the refrigerator, these tasks were not part of the Refrigerator Replacement Pilot Program. CAPECO funded these activities through other sources, including grants related to weatherization activities. The crew returned to the house at least 24 hours later to retrieve the refrigerator monitor.

Table 2-1 shows the number of households that had their refrigerator's energy usage monitored by CSC and CAPECO. In total, they monitored 186 refrigerators and replaced 141. The median monitoring time for refrigerators was 95 hours, with a minimum monitoring time of 24 hours. Forty-one of the refrigerators that were monitored consumed less than 900 kWh and did not qualified for replacement. Four eligible households with eligible refrigerators refused replacement refrigerators.

Table 2-1. Households that had their refrigerator's energy usage monitored

	CAPECO	CSC	Total
Refrigerator replacemnts	51	90	141
Refrigeators with usage less than 900 kWh/year	16	25	41
Refused new refrigerators	0	4	4
Total Households Monitored	67	119	186

Source: Refrigerator Replacement program records, 2004

Oregon HEAT required replacement refrigerators to be between 15 to 18 cubic feet and Energy Star certified. Agencies obtained bids for

refrigerators from local appliance retailers. The local retailers were responsible for removing and recycling the old refrigerator and installing the new one. Oregon HEAT required that the recycling process for the old refrigerators be compliant with EPA guidelines, including Freon removal and recycling, recycling of scrap metal, and taking the unused materials to a landfill.

CSC and CAPECO had latitude in choosing specific refrigerators but the replacement refrigerators were similar in size and energy consumption. CSC used two retailers for purchasing and installing the refrigerators, one in Salem and one in Corvallis. CSC selected two models with few amenities. They chose Frigidaire brand refrigerators. Households with one resident were given a 15 cubic foot model and households with more than 1 person were given an 18 cubic foot model.[2]

CAPECO used one retailer for purchase, installation, and removal of the old refrigerators. Like CSC, CAPECO selected two sizes of Roper refrigerators, a 14 cubic foot model and an 18 cubic foot model.[3] They provided each household a refrigerator approximately the same size as their old refrigerator.

Table 2-2 shows the interior size and number of replacement refrigerators. Of the 141 replacement refrigerators, 97 were 18 cubic feet inside, 35 were 15 cubic feet and nine were 14 cubic feet.

Table 2-2. Number of new refrigerators by capacity (in cubic feet)

	CAPECO	CSC	Total
18 cubic feet	42	55	97
15 cubic feet	0	35	35
14 cubic feet	9	0	9
Total	51	90	141

Source: Refrigerator Replacement program records, 2004

Agency staff had varying amounts of contact with participants after installation of the new refrigerator. CSC called each household to verify that they received the correct refrigerator and check that there were no problems. In most cases, CAPECO generally did not have additional contact with participants after a refrigerator installation was completed.

[2] The 15 cubic foot Frigidaire was model number FRT15H and the 18 cubic foot Frigidaire was model number FRT18HC6.

[3] The 14 cubic foot Roper model was number RT14DXKQ00 and the 18 cubic foot Roper was model number RT18DXKQ02.

Chapter 3
Program Benefits and Costs

This chapter presents an analysis of the Refrigerator Replacement Pilot Program's benefits and costs, including energy and financial savings for each model of refrigerator. CPW also analyzed data on the costs incurred by the agencies.

Program Resources

The Refrigerator Replacement Pilot Program received funding from two sources: a $50,000 grant from the Oregon Department of Energy and $50,000 in matching funds from Oregon HEAT. Based on RFP responses, CSC was awarded $56,000 and CAPECO $28,000 with the expectation that they would replace 141 refrigerators in total. Refrigerator replacements included arranging for recycling of the old refrigerators according to EPA standards and providing Oregon HEAT with specific information about each participant.

Other program resources included the existing staff and equipment of Oregon HEAT, CSC, and CAPECO. Oregon HEAT had one staff member who coordinated the program, provided record keeping, and accounts payable functions for the agencies. Oregon HEAT volunteers donated time for tasks, such as writing the grant request to the Oregon Department of Energy, writing the RFP and reviewing and evaluating responses to it, and drafting agency and evaluator contracts related to the Program. CAPECO and CSC also devoted staff time to the program for functions such as record keeping, accounts payable, coordinating purchase of the refrigerators, and refrigerator monitoring.

Program Benefits

Table 3-1 shows the number of refrigerators replaced by CAPECO and CSC. The pilot program resulted in a total of 141 refrigerator replacements. CAPECO provided 51 new refrigerators manufactured by Roper, 41 of which were 18 cubic feet and 9 of which were 14 cubic feet. CSC provided 90 new refrigerators manufactured by Frigidaire, 55 of which were 18 cubic feet and 35 of which were 15 cubic feet.

Table 3-1. Number of new refrigerators and retail cost by capacity (in cubic feet)

	CAPECO	CSC	Total	Retail Cost
18 cubic feet	42	55	97	$479 or $533*
15 cubic feet	0	35	35	$412
14 cubic feet	9	0	9	$404
Total	51	90	141	$66,787

Source: Refrigerator Replacement program records, 2004

*Note: CSC paid $479 for each 18 cubic feet refrigerator and CAPECO paid $533 for each 18 cubic foot refrigerator.

Table 3-2 shows the estimated annual energy consumption from monitoring and annual operational costs of the old refrigerators. Oregon HEAT assumed that residential electricity costs $0.07 per kWh. The median energy consumption for the replaced refrigerators was 1302 kWh per year, which cost an estimated $91 to operate annually. The range of energy consumption for the old refrigerators was between 900 to 3,984 kWh per year, with an operational cost between $63 to $279 per year. Forty-four percent of the replaced refrigerators consumed between 900 to 1200 kWh per year, at an operational cost of $63 to $84 per year. Twenty-two percent of the refrigerators consumed between 1,801 to 3,984 kWh per year and had an annual operational cost between $126 to $279.

Table 3-2. Estimated annual energy consumption from monitoring and operational costs for the replaced refrigerators

			Operational Costs	
Energy Consumption	Number	Percent	From:	To:
900-1200 kWh	61	44%	$63.00	$84.00
1201-1500 kWh	27	19%	$84.07	$105.00
1501-1800 kWh	22	16%	$105.07	$126.00
1801-3984 kWh	31	22%	$126.07	$278.88

Source: Refrigerator Replacement program records, 2004

Oregon HEAT specified that replacement refrigerators must be Energy Star certified and have an interior capacity between 15 to 18 cubic feet. According to the U.S. Department of Energy, a new refrigerator has a useful life span of 15 years.[4]

Our analysis of the savings on electricity costs over the life span of the refrigerator assumes an energy cost of $0.07 per kWh over the lifetime of the refrigerator. According to Pacific Power, the current cost of electricity to their residential customers in Oregon is $0.0625 per kWh[5]. We could not find a forecast of retail electricity prices for the next 15

[4] U.S. Department of Energy, Incorporating Refrigerator Replacement into the Weatherization Assistance Program, 2001.

[5] The retail cost of electricity varies by electric utility. The retail cost of electricity from Pacific Power is lower than the rate that some Oregon utilities charge.

years but found two ways of considering the future cost of electricity: (1) the rate of inflation; and (2) a forecast of wholesale energy cost. According to Pacific Power, the cost of electricity will rise at least at the same rate as inflation. Assuming a yearly 3% rate of inflation, electricity should cost about $0.097 per kWh in 15 years[6]. For simplicity in our analysis, we have assumed that electricity will cost $0.07 per kWh in 15 years.[7]

Table 3-3 shows the manufacturer's projected energy consumption and annual and 15-year operational costs for the four types of replacement refrigerators. They will consume between 394 to 434 kWh per year and the difference in operational costs between the four models of refrigerators is minimal. The least expensive refrigerator to operate is the 14 cubic foot Roper, which is estimated to cost about $28 per year to operate, with a 15-year energy cost of $413. The other three models should cost about $30 per year to operate, with a 15-year operational cost of about $453 each.

Table 3-3. New refrigerator manufacture, model number, size, energy use, annual operational costs, and 15-year operational costs

Manufacturer	Model Number	Size in Cubic Feet	Number Installed	kWh / Year	Yearly Operational Cost	15-Year Operational Cost
Roper	RT18HDXKQ02	18	42	434	$30.38	$455.70
Roper	RT14HDXKQ00	14	9	394	$27.58	$413.70
Frigidaire	FRT18H6C	18	55	432	$30.24	$453.60
Frigidaire	FRT15H	15	35	432	$30.24	$453.60

Source: Refrigerator Replacement program records, 2004

Table 3-4 shows a comparison of the energy consumption and operational costs between the old refrigerators and the replacement refrigerators. Energy use and operational costs for the new refrigerators

[6] CPW used the nominal rate of inflation to project the retail cost of electricity in 15 years because there is no publically available projection for the retail cost of electricity in the Northwest. Electricity costs will rise at least as fast as inflation and may rise substantially faster than inflation.

[7] From a technical standpoint what we are interested in is the *net present value* of program benefits and costs. Net present value is the discounted value of all program costs and benefits over the assumed program life. Estimating net present value requires assumptions about the program time period (called the term) and the discount rate (usually an assumed inflation rate plus the opportunity cost of capital). Since all of the costs occurred in a year, and assumptions about electricity rates are that they will increase at least as fast as inflation, we did not use a discounting method to calculate the net present value of benefits and cost. The limitation of this method is that it may underestimate programmatic benefits of electrical rates increase faster than inflation, which would result in more savings over the live of each refrigerator.

were estimated using the expected annual median energy consumption level of 432 kWh.

The estimated amount of energy to be saved by each participating household varies, depending on the amount of energy that their old refrigerator consumed. Households with refrigerators that consumed more energy will save more on their electric bill than households with refrigerators that consumed less.

A household with a refrigerator that consumed the minimal amount of electricity eligible for replacement in the program, 900 kWh, will save about $33 per year and $495 over 15 years on energy costs for operating their new refrigerator. A household with a refrigerator that consumed 1,302 kWh,[8] the median energy consumption for replaced refrigerators, will save about 870 kWh or $61 per year, and 13,050 kWh or $915 over 15 years on energy consumed by their new refrigerator. Finally, a household with a refrigerator that consumed 3,984 kWh per year, the most energy consuming refrigerator that was replaced, will save $249 per year and $3,735 over 15 years on energy costs with their new refrigerator.

Prior to the Program, Oregon HEAT assumed that the average participating household would save 1,210 kWh on electricity or about $84 annually. Table 3-4 shows that the average annual savings is 1,077 kWh or $75, which is 133 kWh or about $9 per year lower than Oregon HEAT predicted. This is probably because the replaced refrigerators did not consume as much energy as Oregon HEAT predicted.

Table 3-4. Comparison of annual energy consumption and operational costs between the replaced and new refrigerators

	Replaced Refrigerators		New Refrigerators		Annual Savings	
	Energy Use	Operational Cost	Energy Use	Operational Cost	Energy Use	Operational Cost
Median	1302	$91.14	432	$30.24	870	$60.90
Average	1509	$105.63	432	$30.24	1077	$75.39
Minimum	900	$63.00	432	$30.24	468	$32.76
Maximum	3984	$278.88	432	$30.24	3552	$248.64

Source: Refrigerator Replacement program records, 2004

Table 3-5 shows the combined energy and cost savings from the old refrigerators to the new refrigerators. The total program savings of the new refrigerators for one year is estimated to be 151,783 kWh. Over the entire 15-year period, the savings is estimated to be 2,276,745 kWh and $159,372. While the 15-year combined savings is significant, it should be noted that it is unlikely that all of the old refrigerators would have

[8] Table 3-2 shows that 22% of the old refrigerators consumed at least 1,801 kWh per year. The average amount of electricity consumed per refrigerator is about 14% higher than the median amount of electricity consumed per refrigerator. CPW used the median household annual energy savings rather than the average annual energy savings because the median describes the likely savings better than the average savings in this analysis.

continued working for 15 years and that some of the old refrigerators might have been replaced with more energy efficient refrigerators.

Table 3-5. The combined energy and cost savings from the old refrigerators to the new refrigerators for 1 year and 15 years

	Energy in kWh	Operational Cost
Old Refrigerators	212,695	$14,889
New Refrigerators	60,912	$4,264
Difference for 1 Year	151,783	$10,625
Difference over 15 years	2,276,745	$159,372

Source: Refrigerator Replacement program records, 2004

Program Costs

In their RFP, CAPECO estimated costs to be $549 per unit and CSC $622 per unit, including delivery, recycling, and administrative costs. Oregon HEAT granted CSC $56,000 to replace 90 refrigerators and CAPECO $28,000 to replace 51 refrigerators.

CSC and CAPECO combined the grant funds with their existing staff, equipment, and other funds to implement the Refrigerator Replacement Pilot Program. Since the agencies accounting practices and the way that they ran the program are somewhat different, we have presented the program costs separately for each agency.

In their RFP, CSC said that it would cost them $622 to replace each refrigerator. They based this amount on an average cost of $475 for each refrigerator, plus $147 in administrative costs. The actual average cost of the refrigerator was $453 but the administrative costs were closer to $219 per refrigerator, with a total cost of $672 to replace each refrigerator. The refrigerator cost was approximately 67% of the cost of the program and the remaining 33% of the cost of the program was administrative.

Table 3-6 shows CSC's program costs for the Refrigerator Replacement Pilot Program. The replacement refrigerators cost $412 for the 15 cubic foot model and $479 for the 18 cubic foot model, for total expenditures of $40,765 on refrigerators. The cost of a replacement refrigerator included the costs of delivery and installation of the new refrigerator and recycling of the old refrigerator.

Administrative costs consumed and exceeded the remaining $15,253 from the Oregon HEAT grant. They estimate that administrative costs for the program were about $50 per refrigerator, for a total of $4,500 more than the grant amount. Administrative costs included: monitoring energy usage on the old refrigerators, personnel, travel expenses, record keeping, accounting, and office costs such as postage and photocopying. CSC was able to use their existing staff, equipment, and other funding to perform these tasks.

Table 3-6. CSC Refrigerator Replacement Pilot Program Costs

	Cost Per Refrigerator	Number of Refrigerators	Total
Grant from OR HEAT			$56,000
Refrigerator Costs			
15 Cubic Foot Model	$412	35	$14,420
18 Cubic Foot Model	$479	55	$26,345
Total Refrigerator Costs			$40,765
Administrative Costs			
Covered by the Oregon HEAT Grant			$15,235
Additional Costs	$50		$4,500
Total Costs	$672	90	$60,500
Grant from Oregon HEAT minus Total Costs			($4,500)

Source: Refrigerator Replacement program records, 2004

In their RFP, CAPECO said that it would cost them $549 to replace each refrigerator. They based this amount on an average replacement cost for each refrigerator of $469, plus $80 in administrative costs. Table 3-7 shows CAPECO's costs for the Refrigerator Replacement Pilot Program. The actual average cost for the refrigerators was $510. Delivery and recycling charges cost a total of $3,670 or $72 per refrigerator. The approximate administrative costs of replacing the refrigerators, excluding weatherization tasks, was $122 per refrigerator.

CAPECO replaced 9 refrigerators with a 14 cubic foot model that cost $404 each and 42 refrigerators with an 18 cubic foot model that cost $533 each. The cost for recycling the old refrigerators was $2,550 and the cost for delivery of the refrigerators was $1,120. The total amount that CAPECO spent on the refrigerators was $29,692.

CAPECO's total administrative costs were $15,172, which are broken down by type of cost in Table 3-6. Personnel costs for the program were $8,292, which include tasks such as monitoring the old refrigerators' energy consumption, accounting, data collection, and reporting. The second most expensive administrative cost was in weatherization self-help materials, which cost $2,734. The remaining administrative costs were for equipment and monitors, travel costs, and office costs such as supplies and rent.

The total program costs for CAPECO was $44,864, which was $16,864 more than the grant from Oregon HEAT. On a per refrigerator basis, CAPECO spent $880. Part of the reason that CAPECO spent significantly more than the $549 per refrigerator that Oregon HEAT provided was that CAPECO did weatherization tasks, such as testing the house's air flow, providing education on energy saving techniques, and monitoring for carbon monoxide. CAPECO used other grant resources to pay for the additional costs of the weatherization tasks.

CAPECO estimates that the actual cost of replacing the refrigerators, not including the cost of the weatherization services, was $704 per refrigerator. Excluding weatherization costs, CAPECO spent 83% of their budget on the refrigerators, including delivery and recycling. They spent 17% on administrative tasks.

Table 3-7. CAPECO Refrigerator Replacement Pilot Program Costs

	Cost Per Refrigerator	Number of Refrigerators	Total
Grant from Oregon HEAT			$28,000
Refrigerator cost			
14 Cubic Foot Model	$404	9	$3,636
18 Cubic Foot Model	$533	42	$22,386
Delivery			$1,120
Recycling			$2,550
Total Refrigerator Costs			$29,692
Administrative costs			
Personnel Expense			$8,292
Travel			$1,084
Supplies, Photocopies, Postage, etc.			$806
Rent, Utilities, Phone			$400
Self Help Materials			$2,734
Equipment/Monitors			$1,857
Total Administrative Costs			$15,172
Total Costs including weathization activities	$880	51	$44,864
Total Costs excluding weathization activities*	$704	51	$35,904
Grant from Oregon HEAT minus Total Costs excluding weatherization			($7,904)

Source: Refrigerator Replacement program records, 2004

*Note: CAPECO estimated the total cost of the Program excluding weatherization activities.

Key Findings

- The median energy consumption of the replacement refrigerators was 1,302 kWh or about $91 per year. The median savings is estimated to be 870 kWh or about $61 per year.
- The estimated cumulative savings for all replaced refrigerators will be about 151,783 kWh and $10,625 per year. Over the estimated 15-year lifespan of the new refrigerators, this savings will total approximately 2,276,745 kWh and $159,372. The total cost of the program was the original $100,000, plus an estimated $4,500 from CSC and $7,904 from CAPECO. The total cost of the program was $112,404, making

the benefit-cost ratio over the 15-years 1.4:1.[9] The Program was cost effective over the 15-year period, saving participating households more than the Program cost.

- The Program cost more than Oregon HEAT and the participating agencies expected. On a per refrigerator basis, it was estimated that replacements would cost $622 for CSC and $549 for CAPECO. CSC spent approximately $672 per refrigerator and CAPECO spent approximately $704 per refrigerator, excluding the cost of additional weatherization services provided to each household.

[9] The benefit-cost ratio, a common measure used in evaluations, is a course indicator or program success. A benefit-cost ratio greater than 1 indicates that the program has more benefits than costs. A benefit-cost ratio less than 1 indicates that the program has more costs than benefits.If the refrigerators last longer, then the benefit-cost ratio will increase. If electricity is more expensive than $0.07 kWh, the benefit-cost ratio will increase. In the event of either of these changes, the program will become more cost effective.

Chapter 4
Participant Satisfaction

A key component of the program evaluation was to evaluate the level of participant satisfaction with the program—including the application and replacement process. This chapter describes participant satisfaction with the Refrigerator Replacement Pilot Program. CPW conducted the Refrigerator Replacement Survey and the interviews with participants. CPW also interviewed potential participants that declined to participate in the program to better understand why some individuals did not choose to participate. The remainder of this chapter is organized around the two major data collection methods: survey results presents data from the mailed survey of program participants; and participant interviews summarizes comments CPW received in the interview process. Results of the participant survey and interviews are presented in this chapter. Appendix A and B contain detailed survey results, including participants comments from the survey.

Survey Results

CPW mailed participants the Refrigerator Replacement Program Survey, which was designed to assess their satisfaction with the program and ask for suggestions for improvements. The survey instrument and cover letters can be found in Appendix A.

Table 4-1 shows the response rate for the survey. Of the 141 households that participated in the Refrigerator Replacement Pilot Program, 11 of the surveys were returned as undeliverable. Of the remaining 130 surveys, participants returned 78, making the response rate for the survey 60%, which is a high response rate for a mailed survey. The response rate for participants who worked with CSC was 67% and 48% for participants who worked with CAPECO.

Table 4-1. Survey response summary

	Surveys Mailed	Undeliverable	Valid Addresses	Returned	Percent Returned
CSC	90	6	84	56	67%
CAPECO	51	5	46	22	48%
Total	141	11	130	78	60%

Source: Refrigerator Replacement Program Survey, CPW 2004

Demographic Characteristics of Survey Respondents

The survey asked a series of demographic questions. The respondents demographics are summarized below.

- The average age of the survey respondents was 64 years old (median 67), with a range of respondent ages from 25 to 89

years old. Seventy-nine percent of the respondents were female.

- Seventy-seven percent of survey respondents lived in households consisting of one or two people aged 18 or older only, with an average household size of 1.7 people. Twenty-three percent of households had one or more children.
- Thirty-four percent of the survey respondents indicated that one or more member of their household was permanently disabled.
- Eighty-one percent of survey respondents identified themselves as Caucasian, 15% as Native American, 5% as Hispanic or Latino, and 1% as African American.
- All respondents met the income criteria and owned their homes, as these were requirements for participation in the Program.

Participant Recruitment

Participants were asked to indicate all the ways that they learned about the Refrigerator Replacement Pilot Program. Table 4-2 shows that 49% of participants received an application or flyer in the mail, and 27% were contacted by a social services provider. The "other" ways that participants said they learned about the program include: direct contact by the agency staff and through word of mouth.[10]

Table 4-2. Source of information about the program

	Number	Percent
Received an application or flyer in the mail	38	49%
Saw a flyer advertising the program	4	5%
Notified by social service provider	21	27%
Word of mouth	10	13%
Other	12	16%

Source: Refrigerator Replacement Program Survey, CPW 2004

Table 4-3 shows that 82% of survey respondents said they participated in the program to lower utility bills or because their old refrigerator needed to be repaired or replaced. Twenty-seven percent of participants also wanted a free energy assessment of their home.[11] The "other"

[10] CSC mailed applications and program flyers to the households of potential participants. Seventy-two percent of survey respondents participated in the Program through CSC, which may be the reason that most respondents reported that they received information about the Program via an application or flyer.

[11] As part of the Program, CAPECO did an energy assessment of participants' homes. Twenty-eight percent of survey respondents participated in the program through CAPECO. Twenty-seven percent of survey respondents indicated that a reason they participated in the Program was for free energy assessment of their home, which indicates that the home energy assessment was an incentive to participate in the Program.

reasons that respondents gave for participating in the program included: refrigerator was very old, had mechanical problems or no longer functioned.

Table 4-3. Reasons for participating in the program

	Number	Percent
Lower utility bills	64	82%
Old refrigerator needed to be repaired or replaced	64	82%
Concern about environment	9	12%
Free energy assessment of your home	21	27%
Other	4	5%

Source: Refrigerator Replacement Program Survey, CPW 2004

Satisfaction with Program Interactions

Participants were asked to rate their satisfaction with the organization that arranged for replacement of their refrigerator, either CSC or CAPECO. They were also asked to rate their satisfaction with the vendor who installed their new refrigerator. Table 4-4 shows participant satisfaction in these interactions. Ninety-four percent of respondents were very satisfied and 3% were somewhat satisfied with their interactions with CSC or CAPECO.

Ninety-six percent of respondents were very satisfied and 3% were somewhat satisfied with their interactions with the individual who installed their new refrigerator. One respondent was very dissatisfied with his interaction with the refrigerator vendor but did not give a reason for his dissatisfaction.

Table 4-4. Participant satisfaction in their interactions with CSC or CAPECO and the refrigerator vendor

	CSC or CAPECO		Refrigerator Vendor	
	Number	Percent	Number	Percent
Very statisfied	72	94%	74	96%
Somewhat satisfied	3	4%	2	3%
Neutral	0	0%	0	0%
Somewhat dissatisfied	2	3%	0	0%
Very dissatisfied	0	0%	1	1%

Source: Refrigerator Replacement Program Survey, CPW 2004

Property Damage

Table 4-5 shows that two respondents indicated that their property was damaged in the course of participating in the Refrigerator Replacement Pilot Program. Both respondents with property damage indicated that the damage did not affect their level of satisfaction with the program. One respondent indicated that the type of property damage he suffered was torn linoleum and the other did not indicate the type of damage. One respondent said the damage was repaired to his satisfaction and

the other respondent said the damage was not repaired to his satisfaction.

Table 4-5. Incidence of property damage suffered by respondents in participating in the program

	Number	Percent
Property damaged	2	3%
Property not damaged	73	97%

Source: Refrigerator Replacement Program Survey, CPW 2004

Refrigerator Features

CPW asked respondents to rate their satisfaction with the quality and features of their new refrigerator. Table 4-6 shows that 86% were very satisfied and 8% of respondents were somewhat satisfied with their new refrigerator. Four percent were neutral and 1% of respondents were somewhat dissatisfied with the quality and features of their new refrigerator.

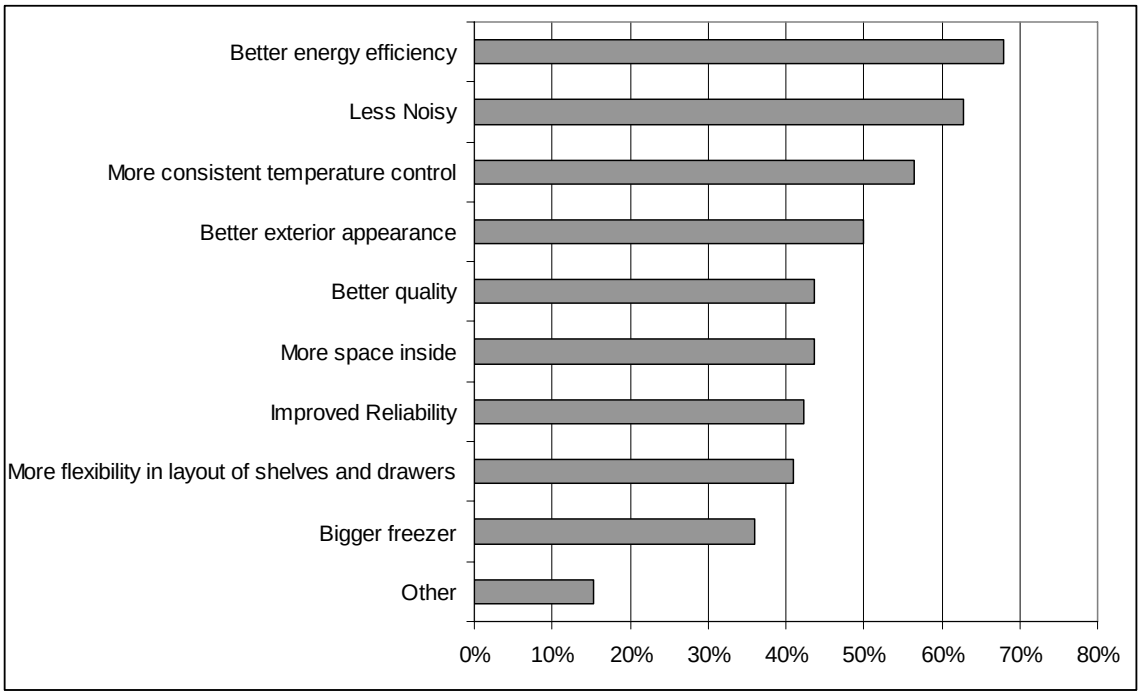
Table 4-6. Respondents' satisfaction with the quality and features of their new refrigerator

	Number	Percent
Very statisfied	61	86%
Somewhat satisfied	6	8%
Neutral	3	4%
Somewhat dissatisfied	1	1%
Very dissatisfied	0	0%

Source: Refrigerator Replacement Program Survey, CPW 2004

Respondents were asked to indicate features their new refrigerator has that their old refrigerator did not have. Figure 4-1 shows the frequency of these new features. Most respondents indicated that their new refrigerator is more energy efficient than the old one (68%), that it is less noisy than their old one (63%), and that it has more consistent temperature controls (56%). "Other" features that respondents most often said their new refrigerators have but their old ones lacked include: frost free and more room in the door.

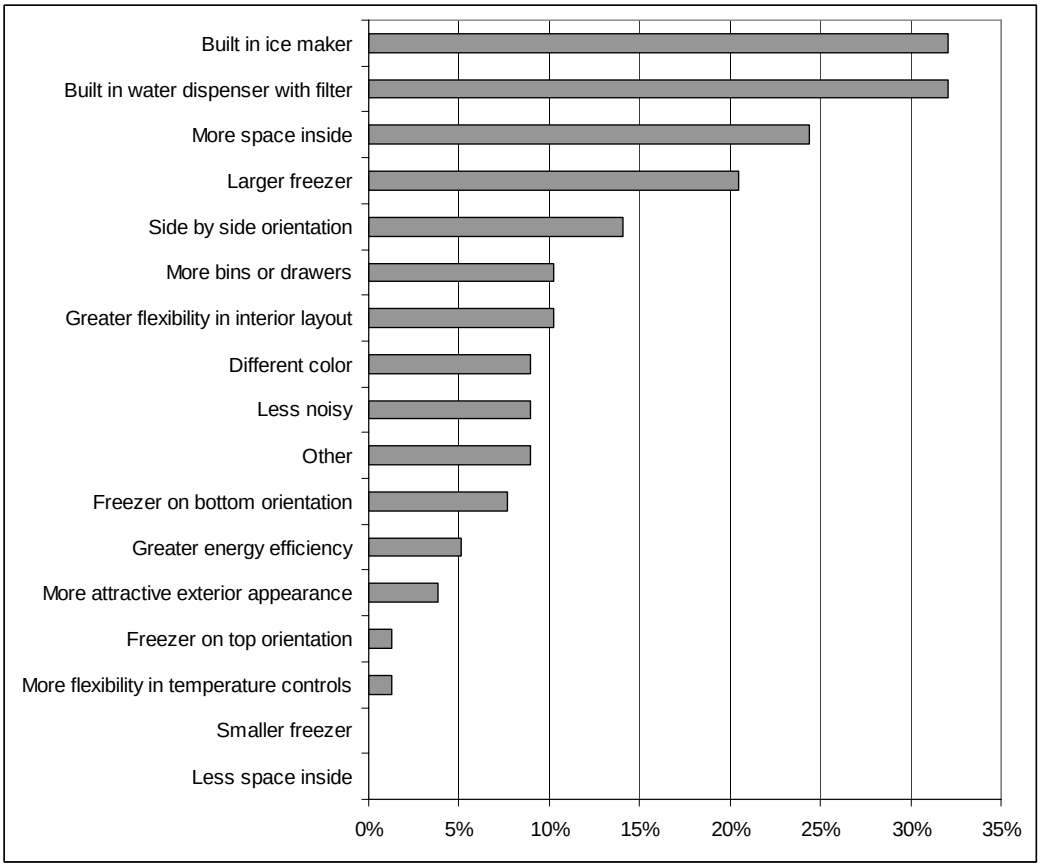
Figure 4-1. Features of the new refrigerators



Source: Refrigerator Replacement Program Survey, CPW 2004

CPW asked respondents if there were any features that they would like but their new refrigerator lacked. The most frequent responses were: a built in ice maker (32%), a built in water dispenser with filter (32%), more space inside (24%), and a larger freezer (21%). No respondents indicated that they would like a smaller freezer or less space inside their refrigerator. Most respondents who selected "other" said that either the refrigerator or freezer was too small or they expressed their gratitude at having a new refrigerator.

Figure 4-2. Features that respondents do not have but would like in their new refrigerator



Source: Refrigerator Replacement Program Survey, CPW 2004

Change in Energy Bill

The goal of the Refrigerator Replacement Pilot Program was to reduce participants' electricity bills by replacing inefficient refrigerators with new, energy efficient refrigerators. CPW asked survey respondents if they noticed a reduction in their monthly electricity bill. Table 4-7 shows that 41% of respondents noticed a reduction in their electricity bill because of their new refrigerator. Survey responders estimated monthly reduction in their electric bill to be $14.83, with a range of $1 to $65 per month.

Table 4-7. Respondents' perception of a reduction in their monthly electricity bill

	Number	Percent
Noticed a reduction	30	41%
Did not notice a reduction	5	7%
Don't know	39	53%

Source: Refrigerator Replacement Program Survey, CPW 2004

Familiarity of Oregon HEAT

CPW asked several questions about participants' familiarity with Oregon HEAT and home weatherization, as well as their willingness to participate in other programs sponsored by Oregon HEAT. The responses are summarized in the list below.

- Fifty-percent of respondents indicated that they were familiar with Oregon HEAT. Of those, 63% were aware that funding for the Refrigerator Replacement Program was provided by Oregon HEAT.
- Fifty-four respondents indicated that they would participate in another program sponsored by Oregon HEAT, with two respondents undecided.
- Thirty-nine respondents had participated in a home weatherization program in the last 5 years and 31 had not participated in a home weatherization program in the last 5 years. Of those respondents who had not, 6 are on a home weatherization program waiting list and 25 are not on a waiting list for home weatherization. Some of these houses may require weatherization but the survey did not ask about the need for weatherization.

Comments on the Program and Suggestions for Improvements

CPW asked survey respondents for general comments and suggestions for improving the Program. Below is a summary of the themes of respondents' comments. The full text of their comments can be found in Appendix B.

- **Happy to Have a New Refrigerator**: Most comments focused on how grateful the respondent was to have received the new refrigerator or how happy they are with their new refrigerator.
- **Refrigerator Size**: Several respondents found the replacement refrigerators too small. Some respondents also mentioned that the freezers were too small.
- **Other Criticisms of the Refrigerators**: Some participants found the refrigerator too deep to easily reach the back of it. Another comment was that the temperature control is in an inconvenient location, in the back of the refrigerator.
- **Recruitment**: Several respondents suggested that it would be helpful to do more advertising, so that eligible households are aware of the Program.
- **Other Appliances**: Several respondents suggested expanding the Program to include replacement of other appliances, such as stoves or freezers.

Participant Interviews

CPW conducted interviews with survey participants who requested a call back to discuss the program. CPW also conducted interviews with participants who refused the replacement refrigerators. The themes of the interviews are summarized below.

Survey Respondents who requested call back

CPW conducted telephone interviews with survey respondents who indicated that they would like to be called to discuss the Program over the telephone. CPW was able to contact 7 of the 15 survey respondents who requested a call back. The interviews were brief and informal; designed to provide the participants with an opportunity to give additional feedback on the Program.

The themes of participants' comments in the interviews were very similar to those in the surveys. All of the participants that CPW interviewed said how pleased they were with the program and their refrigerator and its features, such as its size and automatic defrost. Several of the participants said that the people they interacted with in the course of the program were helpful and treated them respectfully. Several also said that they noticed a decrease in their monthly electric bill as a result of their new refrigerator. The only change that the participants suggested was to expand the Program to include replacement of other appliances, such as stoves or hot water heaters.

Participants Who Refused Refrigerators

CPW contacted the four eligible participants who refused replacement refrigerators and asked them why they refused the replacement refrigerators. Their reasons for refusing the refrigerators are listed below:

- One person has physical illnesses that make bending over difficult. His current refrigerator has the freezer on the bottom and refrigerator on top, which makes accessing the refrigerator easier for him. The new refrigerator had the freezer on top and refrigerator on the bottom. This layout would require him to bend or kneel to access the bottom section of the refrigerator, which is not possible with his illnesses.

- Another person found that the replacement refrigerator was too small, even for a one-person household. Even though his current refrigerator freezes the contents of the vegetable bins, he would prefer to keep this refrigerator than have a new one that is too small to suit his needs.

- Another participant refused the replacement refrigerator because his spouse and he were unemployed when they applied to the program but had found jobs by the time their refrigerator was to be replaced. They felt that they could

afford to replace their refrigerator on their own and that they should refuse the refrigerator so that it was available to someone who needed it more.

- The final household to refuse the refrigerator did so unintentionally. CPW spoke to the son of the person who refused the refrigerator. His mother is 82 years old and confused. He thought that the refusal was a mistake, caused by his mother's confusion. He regretted that the refrigerator was refused because their refrigerator stopped functioning recently.

Overall, flexibility in the replacement refrigerators was not problematic for participants, but both participants who refused the refrigerator based on its physical attributes said that they would have accepted the refrigerator if they had more flexibility in choosing the layout or size of the replacement refrigerator.

Key Findings

- Eighty-two percent of respondents said their main reasons for participating in the Program were to lower energy bills or because their refrigerator needed repair or replacement.
- Nearly all the respondents were either very satisfied or somewhat satisfied with their interactions with CSC or CAPECO and the individual who replaced their refrigerator. In the interviews the respondents expressed their satisfaction with their interactions with staff and vendors.
- The incidence of property damage was low, at 2 incidences out of 75 respondents. These two respondents did not feel that the property damage changed their level of satisfaction with the program.
- Eighty-six percent of respondents were very satisfied and 8% were somewhat satisfied with the features and quality of their new refrigerator. The most common features that respondents would have liked were a built-in water dispenser with filter, a built-in icemaker, a larger interior space, and a larger freezer.
- Forty-one percent of respondents noticed a decrease in their monthly energy bill. They estimated the decrease between $1 and $65, with an average decrease of $14.83.
- The comments about the program in the survey responses and participant interviews were overwhelmingly positive. Participants were grateful to have received a new refrigerator and felt they were treated well through the stages of the Program.

- Although most participants were satisfied with the models of replacement refrigerator, some participants wanted more flexibility in choosing the features of their new refrigerator, including the size of the refrigerator, its layout, and its orientation. In two cases, the lack of choice caused the participants to refuse the new refrigerators.

Chapter 5
Staff Perceptions of the Program

As part of the program evaluation, CPW conducted interviews with key staff members at Oregon HEAT, CSC, and CAPECO. The purpose of the staff interviews was to gather perceptions on what program elements staff considered successful and what elements could be improved. The results of these interviews are presented in this chapter.

Staff Interviews

CPW interviewed five key staff members from Oregon HEAT, CAPECO, and CSC involved in implementing the Refrigerator Replacement Pilot Program. Questions were intended to gauge staff satisfaction with the program, assess staff perception about the effect of the program, ascertain problems with the program, and solicit suggestions for improving the program.

Program Requirements: CPW asked staff if the administrative requirements of the program were a burden and if the selection criteria for the refrigerators were problematic. The administrative requirements included keeping information about participants and accounting for spending. Staff from CAPECO and CSC did not find the administrative requirements a burden. One staff member felt the administrative requirements helped to clarify their agency's responsibilities within the program, making the administrative work an asset.

Refrigerator Selection Criteria: The selection criteria for the new refrigerators required that the refrigerators were Energy Star certified and between 15 to 18 cubic feet in size. Staff from both agencies felt that the selection criteria were broad enough and did not pose a problem, although CAPECO selected a 14 cubic foot refrigerator as their small replacement refrigerator.

Recruiting Participants: The agencies used different techniques to recruit participants to the program, as discussed in Chapter 2. Staff at both agencies did not feel they had a problem in recruiting a combined total of 141 qualified participants for the Program. They felt that recruiting a significant number of additional qualified participants might be more challenging.

Staff had several suggestions for recruiting participants for the program in the future, including: inserting a notice about the program into household electric bills, using a written application (CAPECO had a verbal application process), and prioritizing participants based on their ability to pay their electric bill. Staff suggested that any notice about the Program should contain information about income

qualification requirements, so that households would know up-front if they were eligible.

CAPECO determined program eligibility via telephone interviews, which caused problems with contacting households during business hours. They felt that a brief written application would be a better method for determining eligibility, and that the application should include questions about the following topics: identity of the applicant, their family size and annual income, the age of their refrigerator, and whether they rent or own their home. An application for the program could be included in an electric bill with an informational notice about the program.

The final suggestion for recruiting participants into the program was to assess the household's level of difficulty in paying its electric bill and give first priority to households with chronic problems. Part of this assessment could be to evaluate households with unusually high electric bills who might benefit most from weatherization help and refrigerator replacement.

Effect of Program on Participants: CPW asked staff whether they thought that the program would reduce the need for energy assistance among participants. Staff generally agreed that the program would help reduce the need for energy assistance but felt that it would not eliminate the need for energy assistance, especially in the winter when energy assistance is most important.

One staff member, who had close contact with program participants, said that participants are still calling to express their satisfaction and appreciation about the program. In addition to energy savings, they are especially happy that the refrigerators keep their food cold enough so their food does not spoil as quickly.

Problems with the Program: Staff had two problems with the program: the amount of money to replace each refrigerator was insufficient and CSC experienced delays in ordering the replacement refrigerators.

The main problem with the program according to agency staff was the insufficient amount of funding available for replacing each refrigerator. Both agencies spent more than the grant funds from Oregon HEAT on this program. Staff felt that the program was worthwhile, and that they spent the amount that they needed to implement the program. The problem was that CAPECO and CSC underestimated the costs associated with replacing each refrigerator. These costs included the refrigerator itself, refrigerator delivery and installation, and recycling of the old refrigerator. The actual cost of replacing each refrigerator was $672 and $704. CSC and CAPECO used funds from other sources to fully fund the Program. Both agencies found that administrative costs were higher than they expected. CAPECO found that the cost of the refrigerators, delivery, and recycling were also higher than they expected.

One other problem with the program was that CSC experienced some delays in their vendor's ability to get the refrigerators in stock. This slowed down the replacement process. In the future, CSC would require assurances that their vendor could obtain and deliver a sufficient number of refrigerators in a timely manner.

Suggestions for Improving the Program: Staff made several suggestions for improving the program, including: additional funding, expanding the program to customers of other power companies, replacing other types of appliances, improving the application process, and setting standards for reporting. The issue of additional funding on a per participant basis was the most frequent suggestion for improving the program. CSC suggested that $50 more per household would allow them to operate the Program within the grant funding. CAPECO did not name a specific amount for a funding increase that would allow them to run the Program within the grant budget.

Another concern of staff was that participation in the pilot program was limited to customers of Pacific Power. A suggestion for improving the program was to expand the Program to allow customers of additional power companies to participate.

Staff suggested that the Program could be expanded to include other energy efficient appliances, such as conventional or solar hot water heaters, high efficiency washer and dryers, and stoves. Giving households solar hot water heaters and photovoltaic would reduce the household's level of energy dependence. Replacing washers, dryers, and stoves with appliances that are more efficient would further reduce the household electric bill.

Staff had several suggestions for improving the application process. CAPECO conducted its application process via telephone interviews. Potential participants called CAPECO and left messages expressing their interest in the Program. Then staff called the household back and conducted a telephone interview to determine eligibility for the program. CAPECO staff experienced problems in contacting potential participants and felt that a written application would improve the process for staff and participants.

CSC used a one-page written application, and staff were satisfied with this approach. One suggested change to the application was to include a statement clarifying that only old refrigerators that have high electricity consumption will be eligible for replacement.

The final suggestion for improving the program is to set standards for partner agencies reporting to Oregon HEAT. Staff experienced several problems in exchanging participant data between the partner agencies and Oregon HEAT. Oregon HEAT could set reporting standards such as headings and order of the report, file format, and the methods to be used to exchange data.

Overall Rating of the Program: Overall, staff felt that the program was excellent and would like to see it continued and expanded. Staff suggested that Oregon HEAT continue the program and monitor the results.

Key Findings

- Program staff was satisfied with the program and felt that it made a measurable difference in reducing the participants' energy bills.
- Program staff did not have problems with recruiting enough participants for the pilot phase of the program but might need to use additional recruiting techniques in the future. These techniques might include advertising the Program and sending applications or flyers in household electric bills.
- Agency staff indicated the primary problem with the program is that reimbursement per refrigerator was insufficient to run the program because administrative costs were higher than anticipated. Both agencies suggested raising the amount of funding per refrigerator replaced.
- Program staff and participants would like to see the program expanded to more geographic areas and to include replacement of additional appliances.

Chapter 6
Conclusions and Recommendations

In this chapter, CPW presents the conclusions from our evaluation of the Refrigerator Replacement Pilot Program. We consider information from the cost-benefit analysis, the participant survey and interviews, and the staff interviews. Our recommendations for the Refrigerator Replacement Program follow the conclusions.

Conclusions

Several themes emerged from the cost-benefit analysis, survey, and interviews that CPW conducted for this project:

- Refrigerator replacement resulted in a median savings of about 870 kWh or $61 per year for each household. The cumulative savings for all replaced refrigerators will be about 151,783 kWh and $10,625 per year. The program is cost effective. Within 10 years of replacement, participating households will have saved more than the Program cost. The refrigerators are projected to have a 15-year life span.

- The Program was more expensive than expected. In their RFP CAPECO and CSC underestimated the costs associated with replacing each refrigerator including the refrigerator itself, refrigerator delivery and installation, and recycling of the old refrigerator. CSC spent about $672 per refrigerator and CAPECO spent about $704 per refrigerator. Both agencies found that administrative costs were higher than they expected. CAPECO found that the cost of the refrigerators, delivery, and recycling were also higher than they expected. Both agencies leveraged their existing staff, equipment, and funds to fill the gap in funding.

- Survey respondents were very satisfied with their participation in the program and their new refrigerator. Their comments on the survey and in interviews were overwhelmingly positive, with many expressing gratitude for having been able to participate in the program.

- CSC and CAPECO program staff were satisfied with the program. They felt that it would make a difference in participants' energy assistance needs, but that it would not eliminate the need of some participants for emergency energy assistance, especially in the winter.

- CAPECO and CSC staff would like to see the program expanded to cover more geographic areas and to allow participation of utility customers other than just Pacific Power.
- CAPECO and CSC staff and survey respondents would like to have the program expanded to include replacement of other energy consuming appliances.

Recommendations

The conclusions previously presented suggest that the Refrigerator Replacement Pilot Program provided benefits to the participants and will be successful in reducing the energy bills of participants. In addition, both participants and staff were satisfied with the program and feel that it should be continued and expanded. Below are CPW's recommendations for the Refrigerator Replacement Pilot Program.

- **Continue the Program**: Given the results of the program evaluation, CPW recommends that the program be continued in some form. Understanding that limited resources may exist to continue the program, and that the participating agencies expressed concern about recruiting more eligible participants in the short run, CPW suggests an approach that would focus on specific geographic regions. One way to do this would be to divide the state into regions and focus resources on one or two regions per year. The program could then cycle through the regions every five to ten years.
- **Work with Partner Agencies to Ensure that Program Costs are Estimated Accurately**: CPW recommends that Oregon HEAT change the program Request for Proposals (RFP) to require that agencies provide detailed information about their estimates of the costs involved with implementing refrigerator replacement. This includes the cost of the refrigerator, delivery costs, recycling costs, the cost of staff time for program administration and refrigerator monitoring, and a small contingency fund to repair any damage to participants' homes resulting from the program. This will ensure that agencies are allocating enough funds to replace the targeted number of appliances. Moreover, it will ensure than agencies understand all of the costs that are associated with refrigerator replacements and how to generate accurate estimates of those costs.
- **Encouraging Participation by Other Utility Companies**: To expand the program into regions not served by Pacific Power, Oregon HEAT will need to work with other utilities and other local agencies so that customers of these utilities can participate in the program. This would entail creating relationships with other power companies. CPW has not assessed the feasibility of

developing these partnerships, but many Oregon utilities participate in low-income heating assistance programs. Rising wholesale costs of electricity could make utilities more receptive.

- **Evaluate the Feasibility of Expanding the Program to Include Other Appliances**: Both participant and staff interviews identified a desire to expand the Program to include replacement of other appliances. CPW recommends that Oregon HEAT conduct a preliminary feasibility assessment of expanding the program to include other appliances. The assessment should prioritize the type of appliances replaced based on the energy usage of the appliances and the potential energy savings based on the relative efficiency of new appliances compared to older appliances. Appliances to replace might include hot water heaters, electric dryers, deep freezers, and stoves.

- **Conduct Energy Assessments in Conjunction with Refrigerator Replacements**: Encourage agency partners to combine the opportunity presented in monitoring and replacing a household's refrigerator with the opportunity to perform a household energy assessment. This could result in additional energy savings for participating households and would potentially leverage the program's benefits.

- **Set Program Standards:** It is important to maintain flexibility in the program, so that the partners are able to innovate. It is equally important to set basic standards for the Program to ensure its efficient and equitable operation. One standard could be the electronic exchange of program reports, including standards for file format, mechanisms for exchange, and report layout. Another standard may be a minimum age requirement for refrigerators that are replaced. Refrigerators would need to meet the minimum age requirement before becoming eligible for electricity usage monitoring. Finally, consider setting basic standards for assigning replacement refrigerators to households, so that households of a similar make-up receive similar sized refrigerators, regardless of which partner agency is implementing the Program. This standard should be flexible enough to allow for variance in model availability across the state.

Potential Funding Strategies

CPW investigated potential funding strategies for Oregon HEAT to continue the Refrigerator Replacement Program. We also looked for funding sources specifically for low-income appliance replacement programs but did not find funding specifically for this purpose. We then focused our search on funding sources that focused on energy conservation or weatherization for low-income households. We researched the availability of federal, state, and foundation grants, as

well as State of Oregon weatherization and energy conservation funding.

Grants: Our search for grant funding focused on federal and state governments, concentrating on grants for weatherization or energy conservation programs for low-income households. We also searched for private funding sources, including grants from private foundations. We did not find any grants that could be used for appliance replacement.

State Programs: The Oregon Department of Energy sponsors the Business Energy Tax Credit program, which offers tax credits to those who invest in energy conservation, recycling, renewable energy resources and less-polluting transportation fuels. The Business Energy Tax Credit program offers a "pass-though option" that allows a project owner to transfer a tax credit to a pass-through partner in return for a lump-sum cash payment on completion of the project. The pass-through option allows nonprofit agencies to use the Business Energy Tax Credit. The percentage of the project that can be funded through the tax credit varies between 25.5% and 30.5%. The rate is determined by the Oregon Department of Energy. For more information on the program, contact Barbara Bonnem at the Oregon Department of Energy at 503-378-8444 or toll-free at 1-800-221-8035. The Business Energy Tax Credit program's web site is: http://www.energy.state.or.us/bus/tax/pass-through.htm.

Funding to continue Oregon HEAT's Refrigerator Replacement Program may be difficult to find. Part of the reason for this is that the State of Oregon has a refrigerator replacement program for low-income residents that is run through Oregon Housing and Community Services. Funding for this program comes from the U.S. Department of Energy, Energy Conservation Helping Oregonians (ECHO), and the Federal Low Income Home Energy Assistance Program (LIHEAP). Oregon HEAT is not eligible to receive funding through these programs.

Conclusion

The purpose of this program evaluation was to assess whether the Refrigerator Replacement Pilot Program met its goal of reducing the energy burden of participating households by lowering the amount of energy consumed, resulting in a decrease in monthly electric bills. In addition, the program evaluation was designed to evaluate staff and participant satisfaction with the Program. CPW has found that the Program has resulted in lower electricity bills for participating households. We have also found that staff and participants have a high level of satisfaction with the Program. These successes are due in large part to the combined efforts of Oregon HEAT, CSC, and CAPECO. The Refrigerator Replacement Pilot Program shows promise and the potential to provide relief from high electricity bills to low-income Oregonians if continued in the future.

Appendix A
Survey Methods and Survey Instrument

CPW conducted a mailed survey of participants in the Refrigerator Replacement Pilot Program, which was designed to determine their level of satisfaction with the Program. The survey focused on: (1) participant satisfaction with the Program; (2) participant satisfaction with their new refrigerator; (3) knowledge of and satisfaction with Oregon HEAT; and (4) household demographics. We have provided a copy of the survey instrument and cover letters at the end of this appendix.

CPW used the data collected by the implementing agencies, Community Service Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO), to mail the survey to all participants. The survey was four pages long, with 28 questions and was reviewed by staff from Oregon HEAT prior to administration.

CPW sent the first mailing of the survey to all 141 participants. Three weeks later, CPW sent a second mailing of the survey to 80 participants who had not returned the survey. Table A-1 shows that 11 surveys were returned as undeliverable. Excluding the undeliverable surveys, the survey had a 60% return rate, with 78 of the 130 possible respondents returning the survey, which is a high rate of return for a mailed survey.

Table A-1. Survey response summary

	Surveys Mailed	Undeliverable	Valid Addresses	Returned	Percent Returned
CSC	90	6	84	56	67%
CAPECO	51	5	46	22	48%
Total	141	11	130	78	60%

Source: Refrigerator Replacement Program Survey, CPW 2004

CPW used the Statistical Package for Social Sciences (SPSS) software program to analyze the data using frequency distributions.

Initial Cover Letter

July 2004

Dear Refrigerator Replacement Program Participant,

We need your help!

You recently participated in a refrigerator replacement program sponsored by Oregon HEAT and managed by Community Services Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO). Oregon HEAT is in the process of evaluating this pilot program. As a part of the evaluation, they have contracted with the University of Oregon's Community Planning Workshop to conduct a survey to find out if the program was well received and beneficial.

Please complete the enclosed survey as we value your opinion. Your responses will be used by Oregon HEAT to determine the effectiveness of the program and to make decisions about future programs. All responses will remain confidential.

Please return the completed survey no later than Wednesday, August 11, 2004 in the enclosed postage paid envelope. If you have any questions regarding the survey, please feel free to contact Beth Goodman, Community Planning Workshop Project Manager, at (541) 346- 3889.

Thank you for your participation!

Sincerely,

Bob Parker
Director
Community Planning Workshop

Follow-up Cover Letter

August 2004

Dear Refrigerator Replacement Program Participant,

We need your help!

You recently participated in a refrigerator replacement program sponsored by Oregon HEAT and managed by Community Services Consortium (CSC) and Community Action Program of East Central Oregon (CAPECO). Oregon HEAT is in the process of evaluating this pilot program. As a part of the evaluation, they have contracted with the University of Oregon's Community Planning Workshop to conduct a survey to find out if the program was well received and beneficial.

If you have already completed and returned a previous copy of this survey – Thank you! – *please do not fill out the survey again.*

If you have not filled out the survey, please take the time to do so now. Your responses will be used by Oregon HEAT to determine the effectiveness of the program and to make decisions about future programs. All responses will remain confidential.

Please return the completed survey no later than Wednesday, August 25, 2004 in the enclosed postage paid envelope. If you have any questions regarding the survey, please feel free to contact Beth Goodman, Community Planning Workshop Project Manager, at (541) 346- 3889.

Thank you for your participation!

Sincerely,

Bob Parker
Director
Community Planning Workshop

Place Holder for the Survey

Place Holder for the Survey

Place Holder for the Survey

Place Holder for the Survey

Appendix B
Transcript of Written Survey Comments

The survey included opportunities for respondents to provide written comments. Several comments allowed for respondents to answer "other" and write in the "other." The survey solicited general comments. Specifically Q-14 said "Please share any suggestions for improving the Refrigerator Replacement Program in the space below." And Q-28 stated "Please share any other comments you have about your participation in the Refrigerator Replacement Program in the space below." This appendix includes a verbatim transcript of comments from the survey.

Q-1 How did you learn about the Refrigerator Replacement program? (Check all that apply)

- CAPECO
- CSC (Heating assistance)
- Through a electrical survey at CAPECO
- My son in law looked up for a roof & the consortium group saw my need for a ref.
- A lady called
- Oregon Heat
- Neighbor
- A similar program in Calif. I asked if one was here.
- Thru the man that replaced the old ones.
- I seem some receive one
- Assistance program told me about it.
- Energy Assist program
- Consortium
- Consortium Services, Oregon Heat Electric Bill
- Person from CAPECO

Q-2 Why were you interested in participating in the Refrigerator Replacement program? (Check all that apply)

- My ref was 42 yrs old, my income limited
- Yr. 75. Not self-defrosting and my age any help I get with chores plus lower electric bills
- It was 30 years old side by side.
- Refrigerator completely stopped
- My old fridge ran all the time.
- Consortium Services

Q-3 Refrigerator replacement was coordinated by either the Community Action Program of East Central Oregon (CAPECO) or the Community Services Consortium (CSC), depending on your location. How would you rate your satisfaction with the organization that arranged for the replacement of your refrigerator?

- A++

Q-4 If you answered "neutral", "somewhat dissatisfied" or "very dissatisfied" to Q-3 above, please explain why.

- It was quickly and at the time he promised to be there.
- They are great!
- My only objective was the ref. was small and I'm canner it not very big for large amount of prod to can, its better than not having one
- The door sticks when opening or shutting
- The man from CSC was very rude. I would not allow him in my home again!!
- It took forever it seemed.
- It was very nice. The representatives you sent to my home were highly efficient – well mannered, answered all my silly questions. My husband is disabled, he was not doing well that day. He was a little irritable. The CAPECO people were very patient with us.

Q-5 Please rate your satisfaction with the individual that installed your new refrigerator.

- Very nice kids!

Q-6 If you answered " neutral", "somewhat dissatisfied" or "very dissatisfied " to Q-5 above, please explain why

- He call before & after to make sure thing was ok.
- He put the checker on and was back when time to pickup the meter. Within a week I had a new refrigerator. Very happy & surprised.
- He was helpful and courteous

Q-7A Was your property damaged during the installation of your new refrigerator?

- Torn linoleum

Q-10 Have you noticed a reduction in your electrical bill or electrical use as a result of your new refrigerator?

- New one doesn't run all the time.
- I am sure it does, (my old one was bad)
- I'm not sure about the $ amount. The new refrigerator doesn't run all the time, like the old one did.
- My bill prorated so can't tell by the month but billing not changed.

Q-11 Does your new refrigerator have features that your old refrigerator did not have? (Check all that apply)

- This was my first new and it's more than I could of hoped for. Thank you so very much.
- It is just great, thank you.
- Frost Free
- More room in the door
- My new refrigerator is smaller than my old one.
- Real freezer chest
- Mine wasn't self-defrost
- Smaller size than old one
- Doesn't have drawer on butter shelf
- I really like it
- Frost free
- Smaller than my old one, but so happy I was blessed with a new one!
- It's pretty
- More shelf space on door
- Only the new refrigerator has no meat tray.
- The old fridge ran all the time
- It's a lot smaller!
- Too much smaller inside + smaller freezer

Q-13 Are there any features that your new refrigerator does not have but you would like? (Check all that apply)

- Seems like I'm being a little picky, and I think it's better to help more people than have water & ice in the refrigerator.
- Old one had ice maker & water
- Door open on right
- I am very satisfied
- I'm not asking for something I didn't have. Thank you.
- The top freezer is smaller than what I had. But a new one who can complain.
- Deeper and hard for me to reach back, wrong color for me
- Should have 19' not 15'
- Not really. I just like & appreciate it.
- Just glad to have it the way it is.
- I understand that the size of the new refrigerator depended on the household size

- Large families need more space in the freezer, or maybe a separate freezer
- I'm happy with what I have
- Smaller drawer on bottom – 4 instead of 2 large ones
- Nothing to catch food from falling off the bottom shelf.
- Meat tray

Q-14 Please share any suggestions for improving the Refrigerator Replacement Program.

- My old refrigerator was larger. This is only one feature for new I would like to have for my big family. But I'm very thankful for everything! Thank you very much.
- To fit the person so I could have had room for large amounts of food for freezing & ref.
- Some the next freezer size up because with ice trays not much room for food. Thank you.
- I wish I had been aware of the size difference. Although I like my new refrigerator, it is a LOT smaller & lacks the space I had for 20+ years. I would have comparison shopped to see what the cubic footage really provided.
- The program is very good but I really need a larger one.
- You can't arrange the shelves only one certain way, but it's fine with me, I don't need too much room for just myself.
- The middle controls in the refrigerator is in the way of putting items on shelf. Refrigerator s/b taller – cannot see what's in back of top shelf because refrigerator is too short. Freezer corner control is in the way of storing items. It is noisy whenever door is opened than shut.
- Make the inside easier to get things out of refrigerator. The freezer comes down too far and is down to low. I have to bend down and try to reach items on the shelves.
- I feel this is a great program. I hope others can enjoy something that's new and just may be not only on how great it is in helping lower cost.
- I think the program is WONDERFUL!! Everyone involved was polite & helpful. The refrigerator is great. I couldn't be happier!!
- No suggestions, it's already a good program (if it's not broken, don't fix it)
- You are helping a lot of people, I don't know how to improve that.
- It was a great gift. "Thank you"
- It is just so nice to get a new ref. that didn't cost me anything so what's to comp. about???
- No suggestions – because we were treated with Respect.
- Our contact with the people involved was very good.
- I think it was great.
- My refrigerator is A1 with me. I'm satisfied.

- I think it is great. I'm thankful I could be a part of it.
- The people who delivered and set up did a very good job and were friendly
- They could do a better job at getting the word out to people that could qualify but don't know it.
- To let seniors know more about the program. I found out about it thru CAPECO & Foster Grandparent Program.
- It would be nice if you also offered cooking ranges. Self cleaning ones if possible.
- Maybe there could be expansion to replace or give assistance for a freezer only. Refrigerators have small freezer space no matter how big overall. Families with 4+ people need the extra space for foods.

Q-16 Are you familiar with the Oregon HEAT?

- I get help on electric bill and a letter said I would qualify for a meter check

Q-17 Were you aware that funding for the Refrigerator Replacement Program was provided by Oregon HEAT?

- I thought it was CSC

Q-18 Would you participate in another program sponsored by Oregon HEAT?

- They did a bad job

Q-19 If you answered No or Undecided to Q-18, please explain why:

- I'll try a new stove.

Q-20 Have you participated in a home weatherization program in the last 5 years?

- Not sure but would like to be
- Have had it on for 20 years.
- By CAPECO
- CAPECO put on a new roof earlier this spring.
- I was, but not now.
- Checked air drafts & furnace (1987 model)
- And since they put in new windows half of my plug-ins don't work.
- The back part of our house leaks from the kitchen on back. I need help with it.
- Possible insulation on plywood skirting
- They put newspaper in the walls of our house

Q-24 How many people live in your household, including yourself?

- Just myself.

Q-25 Are you or any member of your household permanently disabled?

- Does handicapped count?

Q-27 Do you rent or own your home?

- Pay space rent
- Rent space
- Rent space

Q-28 Please share any other comments you have about your participation in the Refrigerator Replacement Program.

- This is great program for family with low income, and we are very happy to save money. Huge thanks for all our big family and God bless all people who helping us!!!
- It made my year to get a new refrigerator, and help start saving money. I only wish I could afford all. I know it may be something that I hope to do. But time will tell. Again, thanks for the chance to receive. God Bless ya's.
- My experience has been all good. Thank you.
- All I can say, is Thank-you! We are thrilled that there is a program to help us.
- Just very grateful for the program.
- I think the program is a great one and if it was side spread, it would be nice as there a lot of people need a refrigerator, and this would be a good way of them getting them. Possibly 304 families a year.
- My wife and I have been married for 40 years. The refrigerator is the first brand new one we ever owned. Thank you very much.
- Very satisfied by the young people that put the refrigerator in my home & tested my home for weatherization. This is a very good program. Thank you
- I am so grateful to have a new refrigerator. Thank you.
- I just think it is a wonderful program for seniors, and ones that don't get $1,500 from their S.S. This program sure has helped me, I sent a card to Joe Collet, to thank all the departments that helped me.
- The group who came to install a roof & ref. for me were wonderful young people.
- My ref. came at the right time mine went out. thank you very much.

- I would like to say thank you so much with there was other programs to help seniors with low payments for plumbing, house repairs, etc.
- Really appreciate the opportunity to rec. a new frig/freezer
- It is much appreciated by low income families!
- Food spoilage is greatly reduced. That alone, makes it a saving program, not to mention health.
- Thank you – my husband is on S.S.D and this has helped us with our finances. This is a GREAT program. We hope this program will help others!
- All the people were so nice and really showed interest in helping us. A very good program for retired seniors. Thank you.
- It's the first new refrigerator anyone ever gave us. And we are very proud of it. We thank you so much.
- I am very happy with the replacement program, our refrigerator was about ready to go and it would have been hard for us to replace. Thanks
- I can't thank you in mere words how delighted I am with my fridge. God Bless
- I feel like I been bless I could of not been able to buy me a new one I really like refrigerator Thank you so much
- I would like to take this opportunity to thank people responsible for installing our new refrigerator
- Everyone involved who were that I dealt with did a excellent job very professional. Thanks
- Feel thankful & blessed that I was able to participate in this program – wonderful to know that Oregon Heat is here to help in many areas to many people – Thank you
- It was a great experience and I hope they can continue to help other families.
- I think it is a great program for older people with fixed income.
- Thank you for being so nice. I wrote my letter on the first page.
- It was wonderful. I do not feel I would have to purchase a new refrigerator since the old one was so old and needed some repair. Thank you.
- The men that came out were very polite & respectful. I was very happy when I saw the refrigerator. I didn't expect it to look so nice & I want to thank you with all my heart for making it available to me.
- I'm so glad to get rid of my old refrigerator. It ran all the time. I love my new one. Thanks so much.
- The automatic defroster is a godsend. I never had that feature before. Thank you.
- I am very thankful for the program. Keep up the good work!! Thank you

- It would be easier if it were not so deep. I can only use front of each shelf. Could be wider. But not ungrateful. Thank you!
- Shelves are not as sturdy as I would like them to be.
- Only comment is no meat tray
- How about some new stoves. Mine is elec. and so old only half the burners work, but they are just so exp. even the used ones.
- Wish I could replace freezer now.

Appendix C
Staff Interviewees

Cindy Olmstead, Oregon HEAT

Donna Kinnaman, Community Action Program of East Central Oregon

Debbie McClure, Community Action Program of East Central Oregon

Dave Schmidt, Community Services Consortium

Ron Hayes, Community Services Consortium