Market Potential 72% Consumer Confidence 73% Brand Recognition 82% Energy Savings 69%
3% Energy Efficiency 27% Product Awareness 57% Customer Satisfaction 74% Market Share

research/into/action inc

Final Report

BUILDING EFFICIENCY PROGRAM: FIRST MID-YEAR PROCESS EVALUATION

Funded By:

EnergyTrust

Submitted To:

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We would like to thank Ridge & Associates and Equipoise Consulting for their assistance with the program theory and logic, which they contributed as part of their efforts to develop an impact evaluation methodology for the Building Efficiency program.

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APPENDICES

EXECUTIVE SUMMARY

Energy Trust of Oregon, Inc., (Energy Trust) was incorporated as an Oregon nonprofit public benefit corporation in March 2001, to fulfill a mandate to invest "public purposes funding" for new energy conservation, the above-market costs of new renewable energy resources, and new market transformation in Oregon. It receives funding from a three-percent public purposes charge to the rates of the two largest investor-owned utilities in the state—PacifiCorp and Portland General Electric (PGE). Energy Trust has a responsibility to communicate with the OPUC on how it is spending its funding and what it achieves.

This is the first evaluation of the Building Efficiency program offered by the Energy Trust. The program goal is to acquire large volumes of electric savings at modest cost from a wide variety of efficiency strategies by providing positive financial, energy and related benefits for participating businesses and institutions. The Building Efficiency program began operation in February 2003. The program marks the first major efficiency acquisition effort sponsored by Energy Trust since its inception and agreement with the Oregon Public Utilities Commission (OPUC) in November 2001.

This report provides an early assessment of the program start-up approximately six months after program launch, with the intent of facilitating continuous improvement. It will be followed by an end-of-year evaluation report on the Building Efficiency program. Energy Trust of Oregon hired Research Into Action, Inc. to conduct the process evaluation. The interviews and surveys conducted for this evaluation were completed by the end of June, 2003. Program status is current as of September 15, 2003.

PROGRAM DESCRIPTION

The Building Efficiency program promotes and delivers energy-efficient and solar thermal measures to existing nonresidential sectors that receive electricity from the state's investor-owned utilities. Major renovation projects for existing facilities and industrial process projects are addressed by two other Energy Trust programs.

Energy Trust contracted with Aspen Systems (Aspen) to be the program management contractor (PMC) for the first two years of the program, with an option to continue a third year if requested by Energy Trust.[1] The RFP clearly outlined the anticipated design for Building Efficiency and Aspen proposed a program structure consistent with the RFP.

The program design as put forth in the RFP is market-driven, building on existing market relationships; thus, Building Efficiency is consistent with best practices among resource acquisition and market transformation efforts. Contractors constitute an integral part of the program delivery effort. They obtain customer participants (that is, sell energy-efficient options) and conduct the program-related activities, interfacing with the PMC to relieve customers of the burden and potential confusion of negotiating the steps required to receive a rebate.

Although Building Efficiency's primary goal is the acquisition of energy efficiency resources, Energy Trust intends that its efforts also contribute to the transformation of the existing commercial construction market in Oregon. Energy Trust's use of equipment contractors and engineering consultants to deliver the program to customers serves both its resource acquisition and market transformation goals. A program goal is to change, over the long-term, the behaviors of contractors and consultants so that incorporating energy efficiency into projects will become standard practice in the Oregon existing construction market, with or without incentive programs.

BUILDING EFFICIENCY PROGRAM STATUS AS OF SEPTEMBER15, 2003

As of September15, 2003, 136 Building Efficiency projects have been completed (113 lighting and 23 mechanical) and customers have committed to installing another 73 projects (53 lighting, 20 mechanical).[2] The completed projects obtain annual savings of 5,155 aMWh. Thus, three-quarters of the way through its first year, the program has saved 27% of its first-year goal of 18,862 aMWh..

Projects to which customers have committed will obtain 7,636 aMWh; committed plus completed projects will obtain 68% of the first-year goal.

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1 Use of a PMC contrasts with the alternative model of in-house program management.

2 A customer commits to a project by signing the project application form. The customer's signature indicates agreement to participate in the program by installing one or more of the proposed measures and a willingness to abide by program terms and conditions.

Sixty-three different contractors have projects in some stage of development (proposed through completed). The trade ally networks have 144 contractors and other trade allies.

PROGRAM DESIGN ACCOMPLISHMENTS

The "fast-tracked" program design process has been very successful with respect to the technical facets of the program. The first Building Efficiency projects were completed and incentive checks issued within the first month of operation.

The program launched one month after contract signing with the PMC. For the program's lighting component, all prescriptive measures, prescriptive and custom incentives, and program participation forms were designed and finalized by program launch. For the program's mechanical component, most measures, incentives and forms were designed and finalized by program launch, and the remaining were completed within three months of inauguration.

Prescriptive incentives for unitary HVAC equipment and motors up to 200 hp extend the availability of these incentives to the mechanical sector. Analysis algorithms for variable speed drives (VSD), obtained from manufacturers, simplify custom incentives for VSDs.

The BETC application process has been streamlined. Participants are offered BETC applications with completed project data, which can be automatically generated by the software used to develop and track each efficiency project. Program-generated BETC applications have been accepted by the Oregon Office of Energy.

Building Efficiency program protocols, project and program tracking software, and quality control procedures have been designed and are in use. The project and program tracking software are each automated so that information used or reported in multiple contexts need only be entered once. PMC staff prepare project savings estimates and incentives from vendor-submitted information. Savings estimates for custom mechanical projects are prepared by technical analysis contractors and reviewed by engineers on the PMC staff. Software automatically calculates savings and incentives for prescriptive measures.

CONCLUSIONS DRAWN FROM EVALUATION FINDINGS

The Request for Proposals and the Energy Trust and PMC staff interviewed for the evaluation raised a number of questions about the quality, direction and progress of the Building Efficiency program. The evaluation findings from program activities

through mid-June are summarized in chapter 7 of this report. Based on these findings, the following conclusions are drawn.

1. Is the Building Efficiency program meeting the expectations of participating customers and contractors?

Participating customers and lighting contractors are fully satisfied with the program. More than half of participating contractors expressed greater satisfaction with the Building Efficiency program than they had experienced under prior lighting incentive programs. Customers and contractors said that program PMC staff conducted their activities in a timely manner.

Technical analysis contractors, who have only recently come under contract to the PMC, are confused and uncertain about the program.

2. Is the Building Efficiency program on-track to attain its savings goals?

Completed and committed projects as of September 15, 2003 suggest the program will end the year with completed projects attaining roughly three-quarters of its 2.15 aMW savings goal. Projects entering the program in August suggest the program will end the year generating approximately 2,000,000 kWh in new savings each month (or 2.7 aMW annually). To attain the cumulative 2003-2004 savings goal of 5.5 aMW, the program will need to generate approximately 3,000,000 kWh in new savings each month of 2004 (based on the assumption that the program finishes its first year attaining at least 75% of its 2003 goal). It is too early in the program to predict its success in 2004, as many conditions affecting the attainment of the goal remain uncertain. (Conclusion 9 provides an elaboration of these conditions.)

3. Does a PMC appear to be a successful approach for quickly fielding a program and for its continued implementation?

The use of the PMC to rapidly complete the program design from the outline provided by the Building Efficiency RFP and launch the program has been successful in the view of Energy Trust and PMC staff alike. The program was launched within one month of contract signing between Energy Trust and the PMC. Most of the Building Efficiency program's technical elements—including most of the measures to be incentivised, incentive levels, program forms, program procedures, and program and project tracking databases—were completed

by the time of program launch. The Building Efficiency PMC appears to be implementing the program in a thorough, professional, and timely manner.

4. Was "fast tracking" the Building Efficiency program successful?

Most of the technical components of the program were rapidly formulated and implemented; however, many policy and public communication decisions did not keep pace with program implementation. The policy and related decision-making support for the Building Efficiency program did not appear to program staff of both Energy Trust and the PMC to have been conducted with the same sense of urgency that marked the technical program development. The "fast-tracked" program roll-out and the "business-as-usual" approach to policy and public communication were frequently at odds, with some customers and contractors experiencing adverse affects. For example, key policy and contract decision-making affecting technical analysis contractors were protracted, leaving some customers without the technical studies they requested and reducing the program's early acquisition of mechanical savings.

The technical program development, conducted on the fast track, was demonstrably successful in its objective to "put the customer first". Customers and contractors praise both the program and its implementation by the PMC. The policy development, in contrast, appeared to be more internally rather than customer focused.

5. Do equipment contractor networks appear to be a successful approach for delivering the program?

The lighting contractor network is successful in delivering the program; the mechanical network is still being established and it is too soon to draw inferences about its likely effectiveness. Energy Trust and PMC program staff have concluded: "If you can get there—have an educated, motivated, mature network, like we have in lighting—it can work." It is too early to judge whether the mechanical network can "get there." Furthermore, it remains to be seen what volume of large mechanical projects—with large energy savings—the mechanical network will generate, as opposed to prescriptive projects with small savings. Large mechanical projects are expected to be brought into the program by turnkey and technical analysis contractors, yet it will be to the program's benefit if general mechanical contractors also bring in such projects.

6. Is the program on-track in proportion of savings attained from mechanical projects?

Assuming that most projects to which customers have committed will be installed, the program is approaching its goal of roughly two-thirds of energy savings coming from the mechanical sector. As of mid-September of the program's first year, projects that have been completed or committed to by customers total two-thirds of the first-year energy savings goal. Mechanical projects comprise 46% of these energy savings. The proportion of total savings comprised by mechanical projects has been increasing over time.

7. Is the marketing approach on-track for attaining program goals?

The marketing approach relies primarily on the activities of contractors and utilities and appears to need augmentation by a program-awareness or marketing campaign. Energy Trust has not yet effectively replaced the role that Oregon's investor-owned utilities have historically played in generating participation in efficiency programs. Energy Trust needs a tool to provide, at a minimum, the same level of outreach as the utilities provided. The equipment contractor networks are not, in themselves, sufficient to the task. Furthermore, participating lighting contractors would like to see Energy Trust more actively promote the Building Efficiency program. This recommendation was made by contractors who themselves promote the Building Efficiency program incentives in their own advertisements. Thus, their comments cannot be construed as looking for a "free ride."

8. What can be concluded about Energy Trust's policy regarding an agency relationship between Energy Trust and the PMC?

The policy—to define a relationship with the PMC that reduces the likelihood of a legal determination of "agency"—was formulated too recently to support any definitive conclusions. The policy requires that documents and public communications clarify that Energy Trust is funding the program, but the PMC and its contractors conduct the program work.

The views of participating lighting contractors may be suggestive of future market response to the policy. Three-quarters of participating lighting contractors thought the Energy Trust's name should be most prominent on program materials because the name lends credibility to the program.

The experience of customer participants illustrates the challenge the Energy Trust faces as the successor to utility-implemented efficiency programs. Most customers with completed Building Efficiency projects reported awareness of utility efficiency programs. In contrast, Energy Trust was recognized as the sponsor of Building Efficiency by only half of these participating customers.

9. What current conditions are having a negative impact on the program's attainment of energy savings and which of these conditions might be influenced by Energy Trust and PMC actions?

The current conditions limiting program savings differ in the degree to which they can be influence by Energy Trust and PMC actions. A condition outside the influence of Energy Trust is the economic recession, which reduces the capital that businesses have to invest in reducing their energy costs.

Two conditions outside of the control of Energy Trust and the PMC, but potentially within their sphere of influence, are the participation of turnkey contractors in the program and the participation—through customer referrals—of utilities in the program. As of mid-September, no turnkey contractors had participated in Building Efficiency. Utility referrals of customers, while forthcoming, were much lower than envisioned at the program outset. The program receives, at most, one or two calls from customers a day (resulting from all sources of program communication). A third condition that Energy Trust and the PMC might have some influence on is the synergy between the activities of the Northwest Energy Efficiency Alliance and Building Efficiency.

Conditions currently limiting program savings but which Energy Trust and the PMC could significantly influence include the following. One, current marketing resources made available to Building Efficiency reflect anticipated market conditions that have not materialized, especially concerning the roles of turnkey contractors and utilities in generating program participants and prospective participants. Two, along with marketing resources, the marketing strategy, activities, and assignment of activities to Energy Trust and the PMC have not been reconsidered in spite of anticipated market conditions not materializing. Three, technical analysis contractors do not appear to be ready (or, in some cases perhaps, suitable) to fulfill the role in project generation envisioned for them in the program design. Four, Energy Trust's policy regarding "agency" does not appear to be well matched to the market conditions facing the Building Efficiency program. Energy Trust may need to take a more prominent role in PMC promotion than is possible while the securing distance from the PMC in market relations required by current agency policy.

10. Did Energy Trust's Goldmine contact database serve to funnel customers into the Building Efficiency program?

Findings from a small interview sample suggest that little follow-up occurred with customers who initiated contact with Energy Trust prior to February 2003. Once Building Efficiency was up and running, calls placed to Energy Trust have been forwarded to PMC staff, who respond to them.

11. What progress toward program goals is apparent from the program indicators, and what indicators remain to be explored at the end of the program's first year?

Tables ES.1 and ES.2 present conclusions regarding the program indicators developed from the program theory and logic modeling described in chapter 2. Table ES.1 presents the resource acquisition indicators, and Table ES.2 presents the indicators for market transformation. Both tables provide conclusions on indicator status as of mid-year and identify indicators to be explored in subsequent research to occur at the end of the program's first year.

Table ES.1

RESOURCE ACQUISITION INDICATORS

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Recruits, Trains, and Maintains AIC, ATAC, and Turnkey Contractor Network/ Involvement	Staff report contractor paperwork correct	Generally true for lighting	To do for mechanical; update for lighting
	Review of TAS and proposed projects show contractors recommend cost-effective measures	–	To do*
	Customers report satisfaction with contractor answers to their questions	Generally true for lighting	To do for mechanical
	Numbers of contractors stable or grows	–	To do for all contractor types
	Committed & installed projects have TAS-recommended measures	--	To do

Continued

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Offers Walk Through Audits or TAS	Customers, contractors report understanding & accepting info provided by audits/ TAS	–	To do
	Customers report, and tracking data confirm, proposed, committed, and installed projects have TAS-recommended measures	–	To do
	Simplified, more standardized analyses replace some custom analyses	–	To do
PMC offers Financing Using Energy Trust Incentives, SELP and BETC Options	Customers and contractors report customers consider recommendations & financial options	Generally true for lighting	To do for mechanical
	Customers report, and tracking data confirm, installed projects use BETC or SELP		
	Simplified BETC application process promotes installations		
PMC Collects Information from Contractors on Customers	Customers and contractors report forms easy to use; staff report paperwork correct	Generally true for lighting, per staff report (database not audited)	To do for mechanical
	Data base includes reported information		
	Customers report enthusiasm about Program		
	Tracking system demonstrates program accomplishments		
Energy Trust Uses PMC to Implement Program	Tracking system shows installed projects in less than 4 months from project start	True	Done
	Tracking system shows number of audits/ TAS	–	To do
	Energy Trust staff lessened by existence of PMC staff	True	Done

* *"Review of TAS and proposed projects show contractors recommend cost-effective measures." This could be verified by assuming the adequacy of the TAS and comparing proposed projects with TAS.*

Alternatively, an independent assessment of the completeness of the TAS could be made in addition to comparing the proposed projects with the TAS.

ES.2
MARKET TRANSFORMATION INDICATORS

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Recruits, Trains, and Maintains AIC, ATAC, and Turnkey Contractor Network/ Involvement	Numbers of contractors recruited, trained, and continuing to be involved are stable or growing	Satisfactory (exceptions: mechanical training; involvement of turnkeys)	Verify mechanical training and involvement of turnkeys
	Ongoing, periodic training	–	Verify second training for lighting & ATACs
	Contractors report having a business case for investing in efficiency solutions including NEBs and financial options	Generally true for lighting	To do for mechanical, ATACs, tunkeys
	Customers report satisfaction with contractor answers to their questions	Generally true for lighting	To do for mechanical
	Committed & installed projects have TAS-recommended measures	–	To do
PMC Offers Walk Through Audits or TAS	Customers, contractors report understanding & accepting info provided by audits/ TAS	–	To do
	Customers report awareness, knowledge of energy efficiency measures	–	To do
PMC Offers Financing Using Energy Trust Incentives, SELP and BETC Options	Customers and contractors report customers consider recommendations & financial options	Generally true for lighting	To do for mechanical
	Customers report, and tracking data confirm, installed projects use BETC or SELP		

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
			Continued
Energy Trust Works with Other Organizations to Enhance Program Offerings	Other organizations and program staff report coordinating advertising, communication, and ease of access to different organizations' services and offerings	–	To do
	Organizations report benefits from cooperation		
	Customers report programs they are aware of, sources of awareness, and credibility of sources		
Contractor Networks and Pools Use Advanced Efficient Technologies	Database and contractor report indicate advanced technologies are proposed; customers report awareness	–	To Do
Building Efficiency Delivers Solar Thermal Measures	Database and contractor report indicate solar thermal measures are proposed; customers report awareness	–	To Do

RECOMMENDATIONS

1. Develop a marketing and promotional plan to be funded by additional resources.

Recognize that the resources available to the PMC for marketing were agreed upon by both Energy Trust and the PMC under the presumption of market conditions that have not proved to be true. The presumed conditions include large projects generated by turnkey contractors, significant numbers of customer referrals from utilities, and an active, mature mechanical contractor network. These conditions are not currently present and—without changes in utility and turnkey contractor support—the agreed-upon marketing approach may be insufficient to attain 2004 program savings goals.

The marketing plan needs to support both lighting and mechanical efficiency projects. It needs to reduce the innate distrust of markets to innovative, complex, and often hard-to-understand products and promote the financial and non-financial benefits of the investment. In particular, the plan needs to reflect the complexity of the mechanical market in terms of decision criteria, decision-makers and the decision-making processes. Commercial efficiency program experience has shown that the successful promotion of efficiency requires personal relationships with building owners and trades professionals, backed by technical information that is perceived to be trustworthy.

2. Direct the activities of, and change the "culture" of, Energy Trust administrative staff to provide fast, customer-focused response to Energy Trust staff responsible for programs.

Energy Trust administrative staff should have a goal of providing a rapid response to Energy Trust's Building Efficiency manager, who manages the contract with the PMC. Both Energy Trust and PMC program staff identified the response time of the Energy Trust administrative staff as hindering the rapid deployment of Building Efficiency. Now, mid-way through the program, many key decisions have been made. Nonetheless, findings from this evaluation indicate a significant difference in the urgency with which program staff from both organizations address their work and the speed with which Energy Trust administrative staff provide critical program support.

Administrative decisions would benefit from the same customer-focused approach as guides program staff decisions. For example, now that the challenges facing the program are better understood, risk analyses should reconsider the probability of adverse customer and contractor response, since adverse response would further challenge a program that needs an improvement in current conditions in order to attain its goals.

Further, policy decisions need to explicitly accommodate the characteristics of the energy efficiency market that differ from the market for established building equipment systems. Customers and their suppliers are often unfamiliar with energy efficiency measures and are unable to assess the accuracy of claims made on their behalf; investments are discretionary, with costs loaded up front and uncertain payoffs accruing over time. Opportunities quickly become "lost" as less efficient equipment with long service lives are installed. In the energy efficiency market, a timely, clear, sustained endorsement—backed by facts—from a credible organization is critical to success, as are simple participation procedures such as Building Efficiency offers.

3. Clarify technical analysis contractor confusion about the Building Efficiency program and their role in program delivery.

The training meetings with technical analysis contractors did not succeed in eliminating confusion regarding their role in program implementation and marketing. The PMC program staff should move quickly to clarify the program and expectations held for the contractors. Phone calls placed to individual contractors might be the best approach for opening the lines of communication. In addition, PMC staff should provide contractors with written materials that clearly describe the program structure, the role of the analysis contractor, procedures for contractors and customers seeking to initiate a study for the Building Efficiency program, procedures and incentives for efficiency projects, and contact information for customers and contractors to call for further information.

4. Follow-up with customers who contacted Energy Trust about efficiency programs prior to the launch of Building Efficiency.

PMC staff should ensure that all customers recorded in the Goldmine database as requesting services for existing commercial facilities have had an opportunity to participate in Building Efficiency. A small sample of customers drawn from Goldmine who had called Energy Trust prior to the program's launch included a large proportion who said that no one had followed up and provided them with information about Building Efficiency.

1. INTRODUCTION: PROGRAM BACKGROUND AND STATUS

Energy Trust of Oregon, Inc., (Energy Trust) was incorporated as an Oregon nonprofit public benefit corporation in March 2001, to fulfill a mandate to invest "public purposes funding" for new energy conservation, the above market costs of new renewable energy resources, and new market transformation in Oregon. It receives funding from a three-percent public purposes charge to the rates of the two investor-owned utilities in the state, PacifiCorp and Portland General Electric (PGE). Energy Trust has responsibility to communicate with the OPUC on how it is spending its funding and what it achieves.

This is the first evaluation of the Building Efficiency program offered by the Energy Trust. The program goal is to acquire large volumes of electric savings at modest cost from a wide variety of efficiency strategies by providing positive financial, energy and related benefits for participating businesses and institutions. The Building Efficiency program began operation in early 2003. The program marks the first major efficiency acquisition effort sponsored by Energy Trust since its inception and agreement with the Oregon Public Utilities Commission (OPUC) in November 2001.

This report provides an early assessment of the program start-up approximately six months after program launch, with the intent of facilitating continuous improvement. It will be followed by an end-of-year evaluation report on the Building Efficiency program. Energy Trust of Oregon hired Research Into Action, Inc. to conduct the process evaluation. The interviews and surveys conducted for this evaluation were completed by the end of June, 2003. Program status is current as of September 15, 2003.

This chapter is organized into four sections:

- P*rogram Description*—describes the program's objectives and methods.
- P*rogram Start-up Milestones and Status as of September 15, 2003*—identifies major milestones and progress toward energy savings goals.
- *Evaluation Approach*—describes the data sources used in this evaluation.
- *Organization of the Report*—identifies the subsequent chapters in this report.

PROGRAM DESCRIPTION

In February 2003, Energy Trust began accepting project applications under Building Efficiency. The program promotes and delivers energy-efficient and solar thermal measures to existing nonresidential facilities (commercial, industrial, institutional and agricultural buildings) that receive electricity from the state's investor-owned utilities (PGE and Pacific Power). Major renovation projects for existing facilities—defined as two or more major building systems renovated (lighting, HVAC, fenestration and building envelope), as well as large HVAC system redesign—are treated as new construction under a separate program. Industrial process projects (including wastewater treatment and agricultural irrigation and processing) are also treated independent of program. Facilities owned (but not leased) by public school districts (kindergarten through twelfth grade) are excluded from participation in the program because they receive separate efficiency funding from the State.

Energy Trust contracted with Aspen Systems (Aspen) to be the program management contractor (PMC) for the first two years of the program, with an option to continue a third year if requested by Energy Trust.[3] Aspen responded to a request for proposals (RFP) in October 2002. The RFP clearly outlined the anticipated program design for Building Efficiency and Aspen proposed a program structure consistent with the RFP. A contract was signed in December 2002.

The program design as put forth in the RFP is market-driven, building on existing market relationships; thus, the Building Efficiency program is consistent with best practices among resource acquisition and market transformation efforts.

In Building Efficiency, contractors constitute an integral part of the program delivery effort. Contractors obtain customer participants (that is, sell energy-efficient options) and conduct the program-related activities, interfacing with the PMC to relieve customers of the burden and potential confusion of negotiating the steps required to receive a rebate.[4]

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3 Per the RFP, Energy Trust has approximately $3.7 million per fiscal year (October 1 through September 30) available for 2003 through 2005 for management and implementation of Building Efficiency. Energy Trust reserves the right to modify funding based on funding availability, progress of other programs and program volume.

4 In a typical utility-driven program approach, the utility markets the incentives directly to customers and the contractor or consultant is a passive participant, supplying the equipment or technical studies requested by the customer or utility. Utilities faced the challenge of how much to market their programs to create a demand that would not exceed the limit of their incentive money. Utilities frequently came under fire for not marketing

Although Building Efficiency's primary goal is the acquisition of energy efficiency resources, Energy Trust intends that its efforts also contribute to the transformation of the existing commercial construction market in Oregon. Energy Trust's use of equipment contractors and engineering consultants to deliver the program to customers serves both its resource acquisition and market transformation goals. A program goal is to change, over the long-term, the behaviors of contractors and consultants so that incorporating energy-efficiency into projects will become standard practice in the Oregon existing construction market, with or without incentive programs.

The program efficiency activities are divided into two groups: lighting only and mechanical, including HVAC and motors. Projects may include mechanical and lighting activities, although extensive work on both mechanical and lighting systems would constitute a major renovation and be referred to the New Building Efficiency program.

The PMC tracks all project activities, regardless of the end use, in a program-wide database. However, some program implementation activities differ between the two end uses, as do the PMC staff and equipment contractors involved.

The program uses three tools to acquire savings: incentives for efficiency measures; program network equipment contractors to install (and often sell) the measures; and engineering consultants to conduct audits or technical analysis studies. The technical analysis studies are conducted in anticipation of custom mechanical projects.

The technical studies are intended to effectively sell viable mechanical projects. The energy savings estimates provided by the studies are intended to be "reasonable", not perfect. The analysis reports are to be short letters, with executive summaries that lay out the facts in support of the identified projects: estimated costs, savings, and incentives.

Both prescriptive and custom incentives are available.[5] Incentives pay the lesser of a set proportion of the equipment and installation costs or the amount required to bring the typical customer's payback down to 18 months. The set proportions covered by the incentives are:

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aggressively. On the other hand, when demand exceeded supply, they were criticized for stopping programs abruptly.

5 Custom incentives are only available for measures not covered by prescriptive incentives.

- Prescriptive and custom lighting equipment: approximately 25% of equipment and installation costs[6]
- Prescriptive mechanical equipment: approximately 80% of the *incremental cost* associated with high-efficiency equipment
- Custom mechanical equipment: approximately 35% of equipment and installation costs.

The equipment contractors are organized into contractor networks, with separate networks for lighting and mechanical contractors. Although contractors that are not in the network can conduct participating projects, membership in the network confers some advantages. For example, customers who contact the PMC before locating a contractor are provided with a referral list of three nearby contractors who are in the network.

Custom mechanical projects need to be preceded by a technical analysis or audit to determine the expected measure savings. There are four types of audits. The simplest is a simple walk-through or checklist audit for facilities with peak demand less than 50 kW.[7] A Level I audit is for facilities with peak demand less than 200 kW. (The smallest facilities within this group—those with no demand charge—receive a checklist or walkthrough audit.) Level II audits are for facilities with peak demand over 200 kW. (The PMC also administers a separate incentive program for industrial processes, for which Level III audits are conducted.)

PROGRAM START-UP MILESTONES AND STATUS AS OF SEPTEMBER 15, 2003

Program implementation began the first Monday in February 2003. Below are key accomplishments and milestones, as reported in monthly progress reports submitted by the PMC to Energy Trust. These are followed by the program status as of September15, 2003 in terms of its projects, resource acquisition, recruitment of contractors, and customer inquiries.

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6 Adjusted based on the success of prior utility incentives for specific measures.

7 These facilities can request a Level 1 audit; similarly, the walk-through audit might generate a recommendation for a Level 1 audit.

Key Accomplishments and Milestones

December 5th to February 10th :

- Contract between Energy Trust and the PMC signed (12/5/02)
- PMC's Portland office established and staff relocated or hired
- Prescriptive incentives and deemed savings for lighting and HVAC unitary units identified and approved
- Project tracking software and majority of program forms completed
- Building Efficiency program officially opens (2/3)
- Lighting portion of program kicked off with six training sessions for lighting vendors (2/10 to 2/13)
- Utility customer referral protocol, and Building Efficiency program call center, established
- RFQ to recruit technical analysis contractors issues; replies received (1/29/03)
- General program information piece ("How to Participate in the Building Efficiency program") drafted and submitted to Energy Trust

February 11th to March 10th:

- First Building Efficiency projects implemented
- First requests for incentive checks submitted to Energy Trust
- Draft contract for technical analysis contractors submitted to Energy Trust (2/20/03)
- Prescriptive incentives and deemed savings for motors (up to 200 hp) identified and approved
- Meetings with most of the state's large turnkey contractors conducted

March 11th to April 10th:

- First contract with technical analysis contractor signed

- First technical analysis study completed
- RFQ for commissioning oversight contractors issued
- Draft content for website information about Building Efficiency program for both end-use customers and contractors submitted to Energy Trust

April 11th to May 12th:

- One hundred and twenty contractors and other trade allies recruited into trade ally networks (5/3/03; goal was "90 trade allies in 90 days")
- Twelve turnkey contractors joined network
- All program forms and all prescriptive incentives completed
- Draft content for trade ally network list on Energy Trust website submitted to Energy Trust
- Information about Building Efficiency program for end-use customers and contractors approved and posted onto website
- EZ Sim weather data loaded onto Energy Trust website for access by all technical analysis and commissioning oversight contractors[8]
- Meetings with remaining large turnkey state contractors conducted

May 12th to June 10th:

- Streamlined BETC application generated by PMC's automated spreadsheet accepted by Oregon Office of Energy
- Promotional plan accepted by Energy Trust
- Program brochure finalized and produced for distribution
- Marketed Building Efficiency program by attending trade show and two association meetings, and making group and individual presentations to 11 large turnkey and mechanical contractors

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8 EZ Sim is billing analysis software that uses a facility's actual utility bills and weather data to estimate energy end-uses within a facility, among other things (see www.ezsim.com). Technical assistance contractors use EZ Sim to estimate energy efficiency savings for some facilities.

June 11th to July 9th:

- Contract signing completed with all but one technical analysis contractors and all commissioning oversight contractors
- Trained technical analysis contractors held (6/17 and18)
- EZ Sim Building Audit Software purchased by all technical analysis and commissioning oversight contractors needing to use it; training received
- Marketed Building Efficiency program by attending a trade show, making group and individual presentations to 6 large turnkey and mechanical contractors, and establishing web page links with 17 organizations

Status as of September 15

The first-year energy savings goal is 2.15 aMW, or 18,862,247 kWh. As of September15, savings from completed and committed projects comprise just over two-thirds of the goal.[9] Should all proposed projects come to be installed in 2003, energy savings will exceed the first-year goal. (It is highly unlikely that all proposed projects will be completed or all proposed measures installed in 2003 or 2004.[10] Yet this attrition will be offset to a greater or lesser degree by as-yet-unproposed projects being proposed and completed before the end of the year.)

In addition to the projects shown in Table 1.1, technical analysis studies of 82 facilities are underway or planned.

The average electricity savings per project is increasing over time, as more custom mechanical projects occur. In August 2003, projects totaling 11,200,000 kWh in savings entered the tracking system. Prior to August, the savings of all projects in the tracking system totaled roughly twice the August savings total, so that August bookings constituted one-third of the tracked savings from program inception through August. Prior to August, the savings from completed projects averaged about 37,000 kWh. At the end of August, the savings from all projects in the

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9 A customer commits to a project by signing the project application form. The customer's signature indicates agreement to participate in the program by installing one or more of the proposed measures and a willingness to abide by program terms and conditions.

10 The project tracking database shows 25 projects totaling 2,533,132 kWh that customers have decided not to pursue. Chapter 6 includes a discussion of why some prospective customers have not completed Building Efficiency projects.

tracking system (all stages of project development), averaged about 120 kWh. Assuming the August activity represents a sustainable trend and not simply a pleasing aberration, program activity has reached the point of achieving about 2,000,000 kWh in new savings each month. At this rate, the PMC expects to attain three-quarters of the 2003 savings goal (75% of 2.15 aMW, or 1.6 aMW). If the trend continues upward and reaches 3,000,000 kWh in savings monthly—as the PMC believes is possible—the 2003-2004 cumulative savings goal of 5.5 aMW will be attained.[11]

Table 1.1

PROJECTS AND ENERGY SAVINGS AS OF SEPTEMBER 15

PROJECT TYPE	PROPOSED	COMMITTED	COMPLETED
NUMBER OF PROJECTS			
Lighting	161	53	113
Mechanical*	4	20	23
Total	165	73	136
SAVINGS (KWH)			
Lighting	17,883,755	2,885,902	4,032,997
Mechanical	3,248,331	4,750,429	1,122,040
Total	21,132,086	7,636,331	5,155,037
AVERAGE SAVINGS PER PROJECT (KWH)			
Lighting	111,079	54,451	35,690
Mechanical	812,083	237,521	48,784
Total	128,073	104,607	37,905

* *Mechanical projects typically progress quickly to "committed" status; thus, relatively few mechanical projects are recorded as "proposed".*

[11] Information in this paragraph was obtained during a conversation with the PMC program manager on September 18, 2003, based on analyses conducted by the PMC. The data were not independently verified by the evaluator through an analysis of the tracking database.

As of September15, the smallest completed project had a total cost of $320, with an incentive of $160 (see Table 1.2). The largest completed project cost $145,750. Committed projects include one costing $610,000—the largest project to date.

Table 1.2

SMALLEST AND LARGEST PROJECTS AS OF SEPTEMBER 15

PROJECT TYPE	PROPOSED	COMMITTED	COMPLETED
SMALLEST PROJECTS			
Project Cost	$567	$1,805	$320
Incentive	$150	$377	$160*
LARGEST PROJECTS			
Project Cost	$560,000	$610,000	$145,750
Incentive	$147,640	$76,775	$49,192

* *This proportion of incentive to project cost is atypical. The database indicates the project installed lighting. Measures such as energy efficient exit lights and compact fluorescent lights can show this proportion of incentive to project cost for particular brands and models of lights.*

The Building Efficiency project-tracking database identifies 62 different contractors with lighting projects in some stage of development (proposed through completed) (see Table 1.3).[12] The contractor with the most lighting projects has 36 projects in some stage of development. The project-tracking database identifies 18 different contractors with mechanical projects. The contractor with the most mechanical projects has seven projects in some stage of development.

12 Contractors were distinguished by name. Contractors working from a single firm's offices located in different areas throughout the state are counted as a single firm in this analysis.

Table 1.3

NUMBER OF CONTRACTORS IN PROGRAM TRACKING DATABASE

TYPE	NUMBER
CONTRACTORS WITH PROJECTS IN TRACKING SYSTEM	
Contractors with Lighting Projects	62
Contractors with Mechanical Projects	18
Total Unique Contractors with Projects*	63
ANALYSIS AND COMMISSIONING CONTRACTORS FULLY ON BOARD**	
Level I Technical Analysis Contractors	6
Level II Technical Analysis Contractors	19
Commissioning Oversight Contractors	3

* *Some contractors had both lighting and mechanical projects.*

** *Contractors with signed contracts who have passed all background and financial checks.*

Some contractors are conducting both lighting and mechanical projects. The database includes 63 different contractors with projects in some stage of development. Table 1.3 also shows the number of technical analysis and commissioning oversight contractors under contract to the PMC as of September15; these firms have also passed all background and financial checks.

The Building Efficiency program is intended to promote and install solar thermal measures as well as lighting and mechanical measures. As of September 15, the PMC reports no solar thermal activity. The absence of solar measures will be explored in the year-end evaluation of the Building Efficiency program.

EVALUATION APPROACH

The evaluation activities group into three major components:

- Development of a program theory to guide the evaluation;
- Assessment of program activities from the experiences and vantage points of nine PMC and Energy Trust staff; and

- Assessment of program activities from the experiences and vantage points of participating contractors and participating and prospective participants.

Interviewed Energy Trust staff include both program staff (staff supporting the Building Efficiency program) and administrative staff (staff supporting Energy Trust activities as a whole). All interviewed PMC staff support the Building Efficiency program.

The samples and survey time frames are described in the chapters that present the findings from those samples, as indicated in the next section. Staff interview guides are given in Appendix A; contractor and customer surveys are in Appendix B.

ORGANIZATION OF THE REPORT

Subsequent to this introductory chapter giving background on the program and its status as of September 15, 2003, the report has seven additional chapters.

- Chapter 2 provides the program assumptions and theory. It includes the program logic model.
- Chapter 3 describes program implementation activities and the implementation experiences and assessments of PMC and Energy Trust staff.
- Chapter 4 presents the experience of participating lighting vendors.
- Chapter 5 presents the experience of technical analysis contractors, whose studies precede most mechanical projects.
- Chapter 6 presents the experience of customer participants and prospective participants.
- Chapter 7 provides a summary of findings.
- Chapter 8 presents conclusions and recommendations based on the findings.

Appendices follow the body of the report.

- Appendix A provides the staff interview guides data.
- Appendix B contains the contractor and customer survey instruments.

2. PROGRAM THEORY AND ASSUMPTIONS

The Building Efficiency program is designed both to acquire energy efficiency resources and to contribute to the transformation of the existing commercial construction market in Oregon. The evaluation research began with the explication of the program theory and program logic to ensure that the evaluation monitors program progress in a deliberate manner so that both resource acquisition and market transformation goals can be monitored.

We began with a review of the RFP, the proposal Aspen Systems offered in response, the contract between Energy Trust and Aspen, and operational diagrams, flow-charts, and protocols developed by Aspen to guide program implementation. From these sources, coupled with conversations with Energy Trust and Aspen staff, we articulated the program theory and a program logic model. We identified program activities, program outputs, and short-, medium-, and long-term outcomes as well as indicators for the outcomes.

This effort to understand the program theory and logic of Building Efficiency has benefited from an unusually well developed flowchart for program activities that the PMC developed at the outset of the program. As evaluators, we had a wealth of information to review and digest. There is a clear program implementation model and most of the implementation details can be explicitly identified from the program flowchart.

The PMC, in turn, benefited from the considerable time Energy Trust spent developing a framework for the PMC's program design. The PMC had clear goals and objectives to meet, and a clear vision to actualize prior to developing the program design. Because of this, the inherent program theory can be viewed as emerging from Energy Trust's planning process.

The chapter is organized into three sections:

- *Guidelines and Objectives for Building Efficiency*—discusses the principles guiding the program design.
- *Program Logic Model*—discusses the program theory and logic.
- *Program Assumptions*—identifies assumptions embodied in the program logic.

GUIDELINES AND OBJECTIVES FOR BUILDING EFFICIENCY

The Building Efficiency program design emerged in response to a variety of stated principles. The Board of Directors of Energy Trust established principles in response to their perception of the direction provided in the legislation that established Energy Trust. These principles are:

- Focus on energy, not load or demand reduction.
- Savings at the meter are what count for resource acquisition; power quality and other solutions are okay if they demonstrate verifiable savings at the meter.
- Performance contracting costs too much, thus efforts should be made to facilitate turnkey work without the increased costs of performance contracting.
- Institutional buildings need to be included and efforts to facilitate their inclusion are important.
- There is need to facilitate the development of a viable energy efficiency marketplace with both buyers and sellers actively participating in the market.
- The program must deliver savings in 2003 and beyond.

Out of these principles emerged the following thirteen objectives for the program as detailed in the program RFP to which Aspen, the selected program management contractor (PMC), responded.

1. Achieve customer-responsive electric efficiency.
2. Ensure that results are achieved in 2003.
3. Achieve significant participation by government and nonprofit institutions.
4. Achieve savings at low cost to Energy Trust in order to maximize savings.
5. Avoid creating lost opportunities when providing efficiency solutions
6. Create a market environment for sustainable energy efficiency.
7. Ensure savings to regions beyond the Portland metropolitan area.

8. Encourage increased installation of efficient mechanical equipment and controls.

9. Enhance the market for solar thermal.

10. Demonstrate and evaluate selected technologies and services for field demonstration.

11. Work effectively with community and economic development efforts.

12. Leverage other funding sources.

13. Contribute to efforts to delay or downsize local transmission and distribution projects.

These guidelines and objectives are actualized in the program as two primary anticipated long-term outcomes for Building Efficiency.

1. Achieve by December 31, 2003, 2.15 a MW of annual electricity savings;[13] and

2. Achieve (over time) a viable market environment for sustainable energy efficiency.

The first of these outcomes is known as a resource acquisition goal and the second as a market transformation goal.

PROGRAM LOGIC MODEL

The existence of both resource acquisition and market transformation outcomes results in the need for two program logic models. The resource acquisition program theory is comparatively straightforward; the market transformation theory is more dependent on a set of expectations for market actor performance.

Resource Acquisition

The resource acquisition theory relies on three components to address customer barriers to investing in energy efficiency products. Energy Trust designed Building

[13] Building Efficiency's cumulative goal through the second year goal (2003-2004) is 5.5 aMW.

Efficiency to provide these barrier-reducing components in a set of activities constituting the implementation of the program. These include:

1. Using a PMC for program implementation;

    - Using a PMC: A PMC enables Energy Trust to deliver the program faster than would otherwise be possible and thus meet Objective B to achieve results in 2003. In addition, use of a PMC contributes to Objective F to "create a market environment for sustainable energy efficiency" as the PMC would develop the skills and marketability of Oregon professionals through services provided in training and management of the networks.[14]

2. Recruiting, training, and managing a network of equipment contractors, technical analysis contractors, and turnkey vendors;

3. Offering walk-through audits and technical analysis studies; and

4. Offering rebates and other financing ideas.

    - *Contractor Implementation:* By training lighting, mechanical and motors vendors as well as turnkey equipment vendors in the program process, these trade allies are encouraged to use the rebates and other financial tools to facilitate the sale of energy efficient equipment.

    - *Audits and Technical Analysis Studies:* From the perspective of the resource acquisition theory, these studies reduce the risk of investment in inappropriate equipment by the PMC. They also reduce the likelihood that lost opportunities will be created.[15] In addition, these studies provide the customer with information to potentially reduce barriers to investment in energy efficient products due to the concern that the savings might not be reliable.

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[14] A third reason for Energy Trust's use of a PMC is to keep Energy Trust staff size small.

[15] Avoiding the creation of lost opportunities is the RFP's Objective E, given above. Energy Trust wants the package of installed measures to be the largest possible for the facility subject to the constraint of cost-effectiveness. The easiest measures to install are often the most cost-effective and thus have very short payback periods. Measures with longer payback periods can be coupled with these easier measures and produce a package that is cost-effective, yet not meet the end-user's payback criteria on their own. If only the easiest measures are installed, these measures with longer payback periods are never done and thus are lost opportunities.

- *Rebates and Financial Assistance:* Energy Trust funds custom and prescriptive incentives through Building Efficiency. These are to be coupled with other financial tools such as the Business Energy Tax Credits (BETC) or Small Energy Loan program (SELP).[16]

The RFP's Objective L is to leverage other funding sources. Contractors working on the program are encouraged to promote the BETC and SELP and other financial tools as they emerge.[17] For instance, customers who want to apply for the funds can obtain BETC or SELP applications with all necessary project information recorded from their contractor, working in conjunction with the PMC. This integration of the BETC and SELP into the program increases the cost-effectiveness of energy efficiency measures beyond that which Energy Trust is able to provide through its incentive monies.

The resource acquisition theory is simple and is dependent upon the PMC working with implementation contractors and technical assessment contractors to deliver services and to close sales with customers using the Energy Trust funded prescriptive and custom incentives. These activities will result in kWh and KW savings and the savings will persist if the training and quality control activities (verification and inspection) by the PMC are effective.

Table 2.1 identifies the program activities, outputs, and outcomes serving the resource acquisition goal. (Table 2.1 provides this information for the market transformation goal.) Outcomes include short-term outcomes (defined as those during the first program year, or 2003), medium-term outcomes (those during program years two and three, or 2004-2005), and long-term outcomes (those during program years four through ten, or 2006-2012).

For brevity, the table uses acronyms to describe various players and activities. These acronyms were developed early in the program but typically were replaced over time with a more comprehensible term.

- *ATAC* stands for Allied Technical Analysis Contractor and refers to the engineer or consultant performing the technical analysis studies (TAS)

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16 Operated by the Oregon Office of Energy, the state has a 35% tax credit for business energy efficiency investments. The tax credit can be transferred from an institution or business to another business in exchange for the present value of the tax credit. The Small Energy Loan program is also operated by OOE and offers loans to a commercial and residential for energy efficiency and renewable energy investments.

17 Additional tools may emerge from Alliance commercial buildings initiative or from working with other organizations such as the utilities or municipalities.

- *AIC* stands for Allied Installation Contractor and refers to the equipment contractors that install the measures
- *SELP* stands for the Small Energy Loan program administered by the Oregon Office of Energy.
- *BETC* stands for the Business Energy Tax Credit administered by the Oregon Office of Energy.

Table 2.1

RESOURCE ACQUISITION: PROGRAM ACTIVITIES, OUTPUTS AND OUTCOMES

PROGRAM ACTIVITIES	PROGRAM OUTPUTS	SHORT-TERM (1 YEAR) OUTCOMES	MEDIUM-TERM (2-3 YEAR) OUTCOMES	LONG-TERM (4-10 YEAR) OUTCOMES
Energy Trust Uses PMC for Program Implementation	Program implemented in less than four months	Sufficient number of business owners request site visit/audit	First year targets achieved	KW and kWh savings
	PMC implements quality control mechanisms	Energy Trust administrative staff remains low	Energy Trust administrative staff remains low	Savings persist
PMC Recruits, Trains and Maintains ATAC Network	ATACs complete paperwork correctly	ATACs keep working with program		
	ATACs answer customer questions			
	ATACs make recommendations for cost-effective measures	AICs install recommended measures	Business owners retain equipment	Savings persist to the future
			KWH and kW savings	

Continued

PROGRAM ACTIVITIES	PROGRAM OUTPUTS	SHORT-TERM (1 YEAR) OUTCOMES	MEDIUM-TERM (2-3 YEAR) OUTCOMES	LONG-TERM (4-10 YEAR) OUTCOMES
PMC Recruits, Trains, and Maintains AIC Network	AICs complete paperwork correctly	AICs keep working with program		
	AICs make recommendations for cost-effective measures	AICs install recommended measures	KWH and kW savings	
	AICs answer customer questions		Business owners retain equipment	Savings persist to the future
MC Trains Turnkey Vendors	Turnkey vendors complete paperwork correctly	Turnkey vendors keep working with program		
	Turnkey vendors make recommendations for cost-effective measures	Turnkey vendors install recommended measures	KWH and KW savings	
	Turnkey vendors answer customer questions		Business owners retain equipment	Savings persist to the future
PMC Offers Walk-Through Audits or TAS	Business owners understand and accept information provided by audit or TAS	Business owners agree to install recommended measures	Business owners retain equipment	Savings persist into future years
			Business owners reduce kWh and kW	
PMC Offers Financing Using Energy Trust Incentives, SELP and BETC Options	Business owners review results and consider financial options	Business owners agree to install measures using BETC or SELP and rebate	Business owners reduce kWh and KW	Business owners consider installing new measures

Continued

PROGRAM ACTIVITIES	PROGRAM OUTPUTS	SHORT-TERM (1 YEAR) OUTCOMES	MEDIUM-TERM (2-3 YEAR) OUTCOMES	LONG-TERM (4-10 YEAR) OUTCOMES
PMC Collects Information from AICs and ATACs on Customers	AICs and ATACs find forms easy to use	AICs and ATACs will complete forms with minimal errors		
	Business owners find forms easy to complete	Business owners are enthused about participating		
	Information is collected	Information demonstrate program accomplishments		

Market Transformation

The Building Efficiency program also includes components that facilitate market transformation. There are four key factors that contribute to market transformation.

- Working with other organizations
- Training and maintaining a network of contractors
- Educating contractors on financial tools from other organizations
- Introducing new technologies

As Building Efficiency leverages the various program services and financial tools offered by other organizations, Energy Trust furthers energy efficiency throughout the State of Oregon even where Energy Trust services cannot be obtained directly. This linkage to other programs and financing contributes to transforming the market to one that will make repeated investments in energy efficiency solutions subsequent to Energy Trust support, because business owners and vendors are aware of the variety of services and financial tools at their disposal.

The process of training and maintaining a network of implementation contractors, technical assessment contractors and turnkey contractors also has the potential to

transform the market as these trade allies become more knowledgeable about energy efficient products and gain the skills to sell these products on their non-energy benefits. Training of network contractors also promotes the use of new efficient technologies, such as "super" T8 lamps.

As above, Table 2.2 portrays the market transformation aspects of the program logic.

Table 2.2

MARKET TRANSFORMATION: PROGRAM ACTIVITIES, OUTPUTS AND OUTCOMES

PROGRAM ACTIVITIES	PROGRAM OUTPUTS	SHORT-TERM (1 YEAR) OUTCOMES	MEDIUM-TERM (2-3 YEAR) OUTCOMES	LONG-TERM (4-10 YEAR) OUTCOMES
Energy Trust Works with Other Organizations to Enhance program Offerings	Organizations coordinate services: advertising, communication, ease of access to different organization services and offerings	Organizations experience benefits of cooperation	Organizations continue to participate in network	Other organizations viewed as important source of information on energy efficiency
		Target audience better informed of all organization programs	Legitimacy and reach of program increased	Other organizations more effective subsequent to Trust involvement than prior
PMC Recruits, Trains And Maintains Networks or Pools of ATACs, AICs, and Turnkey Contractors	Training completed (renewed twice annually)	Contractors develop a business case for investing in efficiency solutions including NEBs and financial options		
Contractor Networks and Pools Use Advanced Efficient Technologies	Advanced technologies incorporated in incentives, training, promotion	Awareness of advanced technologies; use by market "leaders"		

Continued

PROGRAM ACTIVITIES	PROGRAM OUTPUTS	SHORT-TERM (1 YEAR) OUTCOMES	MEDIUM-TERM (2-3 YEAR) OUTCOMES	LONG-TERM (4-10 YEAR) OUTCOMES
Contractor Networks and Pools Use Solar Thermal Measures	Solar thermal measures incorporated in incentives, training, promotion	Awareness of solar thermal measures; use by market "leaders"		Widespread use of solar thermal measures
PMC Offers Walk-Through Audits or TAS	Business owners understand, believe and trust information provided by audit or TAS	Business owners become aware & knowledgeable regarding energy efficiency potential	Business owners believe they are saving energy	Business owners see energy efficiency a good investment with sound business case
PMC Facilitates Financing Using Energy Trust Incentives, SELP and BETC Options	Business owners review results and consider financial options	Business owners agree to install measures using BETC or SELP and rebate	Business owners believe they are saving energy	Business owners consider installing new measures without Energy Trust funds using SELP or BETC

PROGRAM ASSUMPTIONS

Drawing upon these matrices, we have identified a number of key assumptions about what will happen. Elucidating these assumptions enables the evaluation to more clearly describe the ways in which a program's design and implementation may falter or have room for improvement.

The program assumes:

- A PMC can: (1) get the program implemented quickly; (2) coordinate, train, and assist vendors; and (3) have credibility with vendors and business owners.
- Coordination with other organizations will: (1) be mutually beneficial in terms of the efficiency and effectiveness as leads are shared; (2) provide the basis for a larger financial package for business owners; and (3) enable vendors to market energy efficiency outside of Energy Trust territory.

- Simple program participation forms will: (1) make it easier for contractors and business owners to participate; and (2) make it easier for the PMC and Energy Trust to track program progress.

- Audits and technical analysis studies will: (1) help maintain program cost effectiveness and reduce lost opportunities; (2) provide credibility to the energy efficiency investment, helping to sell owners on value of efficiency with or without the program; and (3) become simplified and standardized for some market sectors, extending their feasibility both with and without the program.

- Incentives will: (1) help maintain program cost effectiveness and reduce lost opportunities; and (2) support the early replacement of inefficient, functional equipment.

- Trained equipment contractors organized in a network will: (1) be persuasive with owners since owners work more closely with them than other professionals; and (2) want to promote energy efficiency products and financial incentive packages.

- Trained technical analysis contractors will: (1) want to increase market share by participating in Building Efficiency program; and (2) want to promote technical analysis studies and financial incentive packages.

- Trained turnkey contractors will: (1) be the preferred contracting professional for some owners; (2) want to increase market share by participating in Building Efficiency program; and (3) be more effective in selling energy efficiency and using financial incentive packages than other contractors.

- Trained commissioning oversight contractors will: (1) ensure the effectiveness of mechanical measures having more than $50,000 in incentives; and (2) create market awareness of the value of equipment systems commissioning.

- Participating contractors—equipment, technical analysis, turnkey, and commissioning oversight—will: (1) be more successful with efficient products and services as a result of training and program/ network involvement; and (2) if successful, want to promote energy efficiency products and services and non-Energy Trust financial incentive packages outside of Energy Trust territory and after program ends.

2. Program Theory and Assumptions

3. PROGRAM IMPLEMENTATION: ACTIVITIES AND EXPERIENCES

This chapter discusses the program implementation activities during Building Efficiency's first half-year and presents the experiences of nine Energy Trust and PMC staff involved in these activities. In this chapter as well as throughout the report, Energy Trust staff are characterized—when relevant to an understanding of the findings—into two types. These types are: program staff, who are directly support Building Efficiency, and administrative staff, who support all Energy Trust efforts, such as through such activities as promotional and contractual support.

The chapter is organized into five sections:

- *Program Start-Up*—discusses the activities of, and experiences in: getting the PMC on board to implement the program, using a PMC to speed program delivery to customers, and designing the program and incentives, including a discussion of program's energy and load saving goals
- *Establishing Contractor Networks and Pools*—discusses the creation of lighting and mechanical equipment contractor networks, the selection of a pool of technical analysis contractors and a pool of commissioning oversight contractors, and the recruitment of turnkey contractors.
- *Program Implementation and Tracking*—discusses project procedures, staffing, project and program quality assurance (QA) and quality control (QC) activities, and customer and contractor response to the program as conveyed to program staff
- *Marketing, Communication and Decision Making*—discusses marketing and communication with the market, communication internal to the program, and program decision-making.

PROGRAM START-UP

Getting the PMC on Board

Contracting between Energy Trust and the PMC went smoothly and quickly, according to everyone involved. Contract negotiations and the award of the contract occurred on schedule.

Energy Trust negotiated a lower price for the work than Aspen had bid. In the words of Energy Trust's program manager, "As a consequence, they have been starved for funds. This has been a major issue."

One way that Aspen lowered its cost was to reduce the services to be provided by its subcontractor Evergreen. Evergreen's role is to manage the lighting contractor network and process the lighting applications.

Subsequent to the contract signing, two significant issues have arisen regarding the scope of work and associated budget. These issues concern program design and marketing.

Negotiated Budget and Program Design Activities

Aspen's proposed budget had not included time for Evergreen to work on the lighting incentive and program design. Yet Evergreen was of critical importance to these tasks and was heavily involved in their completion. Evergreen's owner had worked for the previous seven years managing a lighting contractor's network for PacifiCorp. This omission in the proposed budget of design time for Evergreen was exacerbated by the final negotiated contract price.

Negotiated Budget and Marketing Activities

Aspen's proposal included marketing time for one-on-one and small-group types of promotional activities. One staff person is dedicated to this activity for mechanical projects, both prescriptive and custom. This person is charged with creating and maintaining a network for mechanical contractors and promoting the program to building owners and the engineering community. The task of creating a mechanical contractor network involves considerably more marketing than the lighting network necessitates, since the lighting network was already in existence through the PacifiCorp program.

Aspen's proposal did not include resources for mounting an advertising campaign. Aspen had assumed, based on its experience implementing incentive programs under two statewide market-driven programs similar to Energy Trust activities, that Energy Trust would be conducting activities necessary to generate customer

awareness of, and brand identify for, its programs.[18] Energy Trust, on the other hand, intentionally keeps its overhead low and does not have the staff to conduct such campaigns, nor did it mention any such campaigns in the RFP.

The RFP that sketched out Building Efficiency and sought a management contractor (PMC) was clear in its description of a market-driven program. It was less clear in its formulation of the nature and amount of marketing activity that was to accompany the program, and which organization—Energy Trust or PMC—was responsible for what activity.

The role of the PMC in marketing[19] states: "Energy Trust anticipates high levels of participation generated by the Utilities and vendor referrals and therefore does not foresee a major media campaign or other general marketing campaign for this program. However, the PMC is expected to play a role in an integrated web of marketing entities and activities." The RFP then lists specific subtasks, the first of which is "develop and implement a program outreach and awareness plan for potential participants." The other subtasks include managing the pace of activity, closing sales prospects, working with Energy Trust as requested to market to national and regional organizations, and integrating with the ongoing marketing efforts of other entities.

Energy Trust's role was spelled out in 11 categories, including 3 relating to marketing. These are: "Marketing to national and statewide businesses and government entities, working with the NW Energy Efficiency Alliance and the PMC." "Maintain relationships with large potential participants. Inform them about program options." Lastly, "Work with the Utilities and Energy Trust information services to identify leads for this program."

In addition to the PMC's role, the 36-page RFP refers to PMC marketing activities in three other passages. Page 4 states: "The program will utilize marketing by the PMC and others".[20] Page 8 includes marketing as one of the cost categories covered by program funds and page 18 includes it as a suggested cost category in the bidder's price proposal.

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18 Aspen had previously implemented programs for Wisconsin's Focus on Energy and NYSERDA's Energy $mart. Both programs are aggressively promoted by the sponsoring states. According to the PMC program manager, for example, during its first year Focus on Energy spent $2.5 million to create customer awareness and brand identity.

19 The role of the PMC appears on pages 27-29 of the RFP; marketing (item #7) is on page 28.

20 The full passage is: "The program will utilize marketing by the PMC and others, walk-through scoping services, technical analysis studies, and custom and prescriptive incentives for a wide variety of measures."

Thus, the RFP did not sketch a vision for marketing the program. The RFP's vision concerns a program design that comes as close to selling itself as is possible through best practices.

Although suggesting unspecified marketing activities and a role for the PMC "in an integrated web of marketing entities and activities," the RFP also established a disincentive for marketing. The bidder's proposal needed to include demonstration of how program objectives would be achieved "while minimizing the proportion of the budget that goes to services provided directly by the PMC" (page 15). Thus, the winning proposal would have low overhead, without resorting to unrealistically suppressing management hours, which Energy Trust would judge on the basis of the itemized categories in the bidder's price proposal.

Both Aspen and Energy Trust staff reported the two organizations had unstated expectations regarding what marketing and promotion would be conducted in support of the program and who what conduct what pieces. The program management contract was signed without either party recognizing that its expectations were unverified.

Use of PMC to Speed Program Delivery

Energy Trust decided that it could best meet its goal of quickly obtaining energy savings by using a PMC to complete the program design and launch the program. Both Energy Trust and PMC staff agree that the use of a PMC was successful in attaining a speedy start. Energy Trust's program manager expressed a view shared by many, "The quick roll-out happened and going the PMC route made it happen." He continued, "Does this approach [of using a PMC] provide a good model for other Energy Trust programs? As of now [mid-May], I'd say yes. Of course, time will tell."

Resource Acquisition Target

Energy Trust staff set the resource acquisition target using a top-down approach of allocating a rough estimate of the technical potential for energy efficiency in Oregon among the different energy-using sectors (e.g., existing commercial facilities, new commercial facilities). Given Energy Trust's mandate to achieve savings quickly and with low administrative overhead, there was no detailed study of the market potential for energy efficiency.

The program managers hope to obtain two-thirds of the savings from mechanical equipment and one-third from lighting equipment. (Note that this is an aggressive goal for mechanical savings and is an increase from the proportion utilities

historically achieved.) As of September15, the mechanical projects in the pipeline (proposed through completed) averaged about two and one-half times as large as the lighting projects (about 194,000 kWh compared with about 76,000 kWh). From these early results, a goal of obtaining two-thirds of program savings from mechanical equipment suggests the desirability of having roughly equal numbers of lighting and mechanical projects.

To date (September15), the sum of committed and completed projects comprises two-thirds of the first-year goal. The current mix of committed and completed projects is 79% lighting and 21% mechanical; mechanical projects are responsible for nearly one-half (46%) of the committed and obtained energy savings.

Program Design

The program RFP laid out the major components of the program. These components were developed through a combination of public process and the program design expertise brought by Energy Trust staff.[21] The staff worked from information on the technical potential for energy efficiency in the service territory, but conducted no formal market or customer research.

The responsibilities of the PMC include designing the remainder of the program policies, procedures, and activities to implement the major components of the program. All decisions made by the PMC are reviewed by Energy Trust, so that all program elements benefit from the expertise of Energy Trust and PMC staff.

The program design—from the contract with the PMC to the public launch of Building Efficiency—occurred in just over 30 days. One of the people closely involved in the design describes the process as "one of the proudest professional accomplishments I am party to." A core group of several people worked long hours to be able to roll out the program on the first Monday in February 2003.

The project application form is a small but key accomplishment of the program design. The application form is one sheet with the application information on one side and the terms and conditions on the other. This is in contrast to PacifiCorp's form, which contained nine pages of what some contacts described as "indigestible" terms and conditions. This succinct project application form meets the RFP's

[21] Public feedback is obtained during meetings of the Conservation Advisory Committee (CAC). These meetings are open to the public; attendees who lack formal membership on the committee are invited to share their views. Thus, in the words of one contact, "we have a constantly changing set of people that give us advice on conservation."

objective that the program forms would be simple, thus eliminating a barrier to participation characteristic of some programs.

Given its objective of achieving savings in 2003, Energy Trust has decided to launch the program and modify it as experience dictates. This willingness of Energy Trust to start quickly and embrace flexibility are strengths; this attitude, in fact, has resulted in the current evaluation mid-way through the program's first year, to provide guidance. This quick-start or fast-track approach contrasts with the historically more common approach of having a most of the program details worked out prior to its launch.[22] As will be evident in a subsequent section on the establishment of contractor networks and pools, this approach has its drawbacks.

While acknowledging the extensive program and customer experience of the Energy Trust and PMC staff involved in the program, one Energy Trust contact nonetheless would like to see the program development process include a market planning step. He would like Energy Trust to have more specific information on where the technical potential lies and how to reach it. "We obtain feedback on the program during the public process. But I don't know if our features and benefits—and our marketing messages—will move the market *as much* as we want."

PMC program staff characterize the efficiency goals (2.15 aMW or 18,862,247 kWh) as very aggressive; perhaps unrealistic during the current economic recession. And, as noted above, the goals were derived largely in a top-down manner from basic information on technical potential, and not from a market potential analysis.

Certainly, the goal is sufficiently ambitious that every delay and implementation challenge the program encounters jeopardizes the attainment of 2003 energy-saving goals. One of the risks of the fast-track program rollout appears to be that design and procedural challenges get worked out during program implementation rather than prior to its launch.

Incentive Design

The program offers both prescriptive and custom measures through one streamlined process and set of forms. Commonly, utilities use separate programs to deliver prescriptive and custom measures or had the customer follow two distinct program tracks. In the words of one interviewed staff: "The complexity of the

[22] Of course, all programs have a shakeout period in which the plans are adjusted to better meet actual conditions.

prescriptive and custom incentives is both a strength and a weakness. The prescriptive incentives were embraced quickly. Most contractors are familiar with it. Aside from a few start-up squawks [about the measures and levels], they've been very successful.[23] For custom incentives, we've had to remind contractors that measures that are *not* on the list are *not* a problem. We tell them, 'Go ahead and do it.' So the custom incentives were a start-up problem, as well as a problem with each new contractor."

Energy Trust has, as one of the goals shaping the incentive level, the objective of creating a fairly steady level of demand, so that incentive monies allocated for a year are used but not exceeded. This goal notwithstanding, staff also sought to be roughly consistent with the incentives previously offered by PGE and PacifiCorp. Staff sought to not have a negative impact on the contractors who had been doing work under those programs.

The RFP (page 10) describes principles for incentive design and states that incentives may need to be revised if the market is not being adequately stimulated. In practice, given the variety of potential issues, it may be very difficult to distinguish a failure to achieve the energy saving goals that stems from the incentive design from any other aspect of program planning and implementation. The latter include a lack of market potential (i.e., the magnitude of the savings goal), marketing, and delivery.

ESTABLISHING CONTRACTOR NETWORKS AND POOLS

Equipment Contractor Networks

The Building Efficiency program has created separate networks for lighting and mechanical contractors. The networks are managed by PMC team members that act, in many ways, like a field sales force manager, with the addition of having responsibility for overall technical quality. They provide contractors with training in the program and qualifying equipment, support and encouragement to sell energy efficiency, and analysis assistance. On occasion, PMC network staff accompany contractors to talk with customers about the program and high-efficiency equipment. Networks are intended to build a long-term relationship between PMC network staff and contractors.

[23] See Appendix A, Lighting Training Report, for examples of vendors' statements of dissatisfaction immediately after the training—prior to their experience with the program.

Lighting Contractor Network

The PMC quickly established a network of lighting equipment contractors. The network came together quickly because a similar network, with many of the same contractors, had been operating to serve the PacifiCorp program. In addition, the manager of PacifiCorp's network was again at the helm for Building Efficiency lighting network.

The program lighting network was initiated, through a weeklong series of vendor trainings held in six locations throughout the state between February 10 and 13. A total of 132 individuals from 90 firms participated in the training.

As of early June, the lighting network manager estimated that approximately 80% of the lighting equipment vendors he might expect to eventually belong to the network have already joined it. These vendors represent broad geographic coverage, although there are a few areas of the state where only one network contractor resides. Active recruitment for the network has generally ended; yet the network manager would like to see all customers having a choice of two or three network contractors. He estimates that the vendors already in the network conduct about 90% of all lighting installation jobs that occur within the program area.

The network manager hopes to conduct two trainings a year, on topics including energy efficient lighting technologies, sales approaches, and program procedures and forms. These trainings will be aimed at keeping contractors up-to-date with technologies and the Building Efficiency program, expanding their skills in selling energy efficient technologies, and training contractors that have joined the network in the interim.

By September15, 62 lighting vendors had a total of 327 projects in Building Efficiency tracking system, in all stages of development (proposed, committed, and completed).

Mechanical Contractor Network

Generally speaking, the mechanical contractor network markets prescriptive mechanical measures to customers. Again speaking generally, custom mechanical measures are promoted to customers by technical analysis contractors and turnkey

contractors, each of whom are discussed in subsequent sections.[24] However, the distinction between contractors based on the delivery of prescriptive or custom measures is by no means absolute. As of mid-September, the project tracking database showed over a dozen custom HVAC projects in some stage of development with a mechanical contractor (as opposed to arising from the involvement of a technical analysis contractor or turnkey contractor). In particular, two large mechanical contractors in the network are each involved with several custom HVAC projects.

The establishment of a network of mechanical equipment contractors has been much more difficult than that for lighting, primarily because there was no pre-existing network of such contractors as there was with lighting contractors, and is perhaps the weakest area of program performance to date.

The PMC began recruiting mechanical contractors by meeting with mechanical distributors. Distributors joining the network are listed on the program website. Staff asked distributors to both to join the network and to identify the contractors responsible for the majority of their equipment sales. Program staff then placed calls to the contractors, as well as asking the distributors for help in setting up individual meetings to discuss the program. Staff met with the willing firms. Letters were sent to the identified contractors as well. This approach to identifying prominent mechanical contractors was augmented by lists of contractors identified by other sources, including the past experience of program staff.

PMC program staff produce a monthly newsletter, distributed in paper and on the website, to motivate program participation. The newsletter includes a "Technical Corner" article that highlights high-efficiency equipment carried by distributors.

The Oregon Downtown Development Association has been promoting Building Efficiency in its talks to cities throughout the state. The association seeks to help cities rebuild their core areas. Working with the Northwest Energy Efficiency Alliance's BetterBricks program, the group has conducted design charettes that included energy-efficient lighting. The PMC's mechanical program staff hope to include mechanical systems in future charettes when they can draw from local network contractors.

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[24] Prescriptive HVAC measures are unitary HVAC systems and are most frequently installed to replace a failed unitary HVAC system (termed a replacement installation). Custom HVAC measures include all non-unitary systems and can be installed at the time of failure of the previous system or, more commonly, installed when functioning equipment is removed and replaced with a more effective and efficient system (termed a retrofit installation).

The PMC also has contacted large commercial enterprises, talked with them about the program, and inquired as to whom their mechanical vendors are. Currently, the manager of the mechanical network and the marketing coordinator (responsible for mechanical contractor recruitment) meet in person with contractors and customers to promote the program.

One PMC staff member gave the following anecdote about their experiences recruiting mechanical vendors. "We spoke with [one large customer] who required its mechanical vendor to come to us and get training on the program. The vendor reluctantly came. Yet by the end of the 90-minute training, the vendor was excited about the program. But for the market as a whole, it's very slow going."

Several PMC staff members described the nature of resistance that Building Efficiency faces among mechanical contractors. The mechanical contractor community includes a few "early adopters" who are excited about the program and think it will be a great aid to selling both prescriptive (typically, replacement) and custom (typically, retrofit) mechanical equipment. But the majority of vendors do not hold this view. Staff explained that most vendors have built a business beating their competitors at basic equipment sales. They don't want to change a sales approach that is working for them. Their fears include that by proposing high-efficiency equipment, they will lose the job to the lower-priced bid for standard- or low-efficiency equipment. Or they think the program will jeopardize the sale by slowing it down. Overall, they had little past involvement with utility programs, a situation that was explicitly recognized in the objectives and design of Building Efficiency. And now here is a new program, with a new approach (one that makes contractors integral to program delivery) offered by an unknown entity (Energy Trust).

In the face of this response, much work will be required to get mechanical contractors into the network. As a third PMC staff person summarized, "We're having a problem recruiting mechanical contractors. Given the challenges, we are not working as quickly or effectively as we had hoped."

A planned kickoff training for the mechanical network, analogous to the one held for the lighting network, has not occurred as a "network" is not yet in place. As of September15, 18 mechanical equipment contractors had a total of 47 projects in the Building Efficiency tracking database, in all stages of development (proposed, committed, and completed).

Technical Analysis Contractors

Technical analysis contractors, along with turnkey contractors, comprise the main delivery method for custom, complex mechanical measures and retrofits.

As of mid-July, 25 technical analysis contractors have come under contract to Building Efficiency. However, the process of soliciting the analysis contractors and entering into contracts with them was protracted and difficult for program staff (both Energy Trust and PMC) and contractors alike.

Technical analysis contractors conduct the studies that generate energy savings estimates for mechanical projects, especially custom ones.[25] Thus, the delay in bringing these contractors on board has delayed the acquisition of mechanical projects. As of September15, 23 mechanical projects were completed in Building Efficiency—compared with 113 lighting projects, and customers had committed to an additional 20 projects—compared with an additional 53 lighting projects.

By mid-January, the PMC had posted on the Energy Trust web site a Request for Qualifications (RFQ) to obtain proposals from individuals and firms interested in conducting technical analysis studies for Building Efficiency. Interested parties responded by the end of January. PMC program staff previously involved with state and utility audit programs ensured auditors working for those programs were aware of the RFQ.

It took longer than both Energy Trust and PMC program staff anticipated for the contract between the PMC and the technical analysis contractors to be reviewed and approved by all parties (the PMC's headquarters and Energy Trust). Although Energy Trust is not a party to the contract, Energy Trust staff and their legal council took a careful read of the contract and made modifications. The PMC submitted a draft contract on February 20. Final contractual issues were not settled until the end of May.

One problematic contract condition was the delineation of the insurance requirements technical analysts needed to have. The initial contract language

[25] The technical analysis contractors can be considered to extend the capabilities of mechanical equipment providers and "level the playing field" for the latter's participation in the program. Because most large mechanical projects are uniquely tailored to the facility, they will need custom incentives. Yet to apply for the incentives, the project's energy savings need to be estimated. Few mechanical contractors—and very few of the smaller ones—are able to develop savings estimates. It is this situation that the use of technical analysis contractors is designed to address. Without these contractors, many mechanical equipment contractors would be shut out from the program.

specified, for all firms, (1) State Accident Insurance for Employees (SAIF)—a workers' compensation insurance; (2) business auto insurance of $1 million; (3) commercial general liability insurance of $1 million; and (4) professional liability insurance of $1 million.

The requirements for SAIF, the business auto insurance, and for commercial general liability insurance did not pose any particular concern for contractors. These types of insurance are not particularly expensive and are typical costs for any business. The requirement for professional liability insurance is more costly than general liability.[26]

The requirements of professional liability insurance included by Energy Trust in the contract came as a surprise to the PMC program staff, several of whom had experience with utility- and state-run audit programs in Oregon that did not require such insurance. Energy Trust and PMC program staff expressed concern to Energy Trust administrative staff that the insurance requirements would likely result in only large firms contracting to provide the technical studies. Were this to occur, it would both increase the cost of Level I audits and eliminate small firms—many of whom have established reputations in the business—from program participation

The program RFP, to which the PMC responded, required the bidder have $1 million in insurance coverage for each of general liability, automobile liability, and professional liability, and that Energy Trust be named as an additional party insured. The RFP continued, "Bidders will be responsible for ensuring similar insurance coverage of subcontractors working in this program." The word "similar" has a dictionary definition of "marked by a correspondence." Synonyms include "comparable, parallel." The PMC has assumed that key subcontracts—such as with the lighting network manager—would include the same insurance requirements as for the PMC. Minor subcontracts—such as with technical analysis contractors—were assumed to have insurance requirements that "corresponded" to the minor role the party played within the entire Building Efficiency program.

Several of the proposing technical analysis contractors were dissatisfied with the insurance requirements and appealed to Energy Trust to change them. Some of

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[26] As it unfolded, professional liability insurance to cover technical studies was found to be considerably less expensive than such insurance to cover design activities. Chapter 5 presents findings from a survey of a sample of the technical analysis contractors. Three of the 15 interviewed contractors expressed dissatisfaction with the insurance requirements; one respondent thought the requirements were necessary and served to distinguish legitimate firms from others (Table 5.12).

these contractors expressed their strong opinions during the public Conservation Advisory Council (CAC) meetings held by Energy Trust.

Lawyers representing Energy Trust and the PMC debated the contract terms. At some point (likely April, although precise documentation was not available), Energy Trust staff said definitively that the insurance requirements for Level II contractors would remain at $1 million. By the end of May, Energy Trust staff decided that professional liability coverage would not be required for Level I contractors.

According to PMC program staff, 32 contractors who had done technical studies for the PGE and PacifiCorp programs "showed an interest in working with us." Thirty-one contractors responded to the RFQ, 30 of whom were judged capable of providing program technical analyses. Some of these firms quickly agreed to the contract terms, including the insurance requirements.

The first contract was signed on March 13, 2003, and four more contracts were signed by the end of that month. (Three contracts were for Level II audits; one contract was for Level I audits.[27]) Eight firms came under contract in April, followed by another six firms in May (all Level II firms). In June, six Level I auditors submitted signed contracts. PMC program staff note that the debate over insurance requirements was not solely responsible for the protracted sign-up of technical analysis contractors. Several contractors simply "dragged their feet."

Ten of the Level II firms are located in the Portland metro area, five are located in other parts of the state, and four are headquartered out of state. Three Level I firms are in the metro area, three are in other parts of the state, and one is located out of state.

As demonstrated by the interviews with technical analysis contractors described in Chapter 5, in the final analysis the insurance requirements are unlikely to have an ongoing impact on contractor participation.

The importance of the contracting delay lies in the significant setback to the acquisition of mechanical projects.

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27 Firms authorized for Level II audits are qualified to conduct Level I audits as well, In addition, they have the technical qualifications to conduct Level III (industrial) audits. However, the final resolution of the insurance-requirements issue requires firms conducting Level III audits to have $2 million in professional liability insurance.

A few technical analysis studies were assigned prior to the resolution of the contracting issues, under special approval from Energy Trust. From these studies, the first analysis report was delivered on June 2.

Subsequent to the resolution of the contracting issues, the first wave of technical analysis studies was assigned on June 5. By the end of June, five Level II studies and 23 Level I studies were assigned to contractors. The PMC conducted kickoff training meetings for Level I and Level II contractors on June 17 and 18. Biannual training sessions are planned.

The technical analysis studies are intended to persuade the building owners to install the recommended measures, rather than study building energy use in general.

Commissioning Oversight Contractors

Three commissioning oversight contractors have been brought on board to ensure that large mechanical projects are commissioned and work properly. The RFQ for these contractors was issued shortly after the RFQ for the technical analysis contractors and the contract terms and conditions went through a similar review. Contracts were signed with the three commissioning oversight contractors in the latter part of June. No commissioning oversight work was underway at the time of this evaluation.

Turnkey Contractors

Turnkey contractors, along with technical analysis contractors, comprise the main delivery method for custom, complex mechanical measures and retrofits.. The RFP asked bidders to propose how they would work effectively with turnkey contractors (also known as energy service companies, or ESCOs). As shown in the program logic model in chapter 2, turnkey contractors have an important role in program delivery. "The big ticket sellers of mechanical energy efficiency projects are ESCOs," said one staff member. Turnkey contractors can propose equipment installation projects and provide the PMC with energy savings estimates without using the services of a technical analysis contractor.

As discussed in Chapter 2, Building Efficiency was designed to "sell itself" to the extent that good program design can accomplish this objective. It was foreseen that turnkey contractors, as well as equipment contractors and technical analysis contractors, would bring in projects. The PMC was expecting that about half of all mechanical projects would come through ESCOs.

As of July, the PMC has met with little positive response in its efforts to recruit them to the program. Many of the turnkey contractors working in the state are fully committed to energy efficiency projects in the public schools. Funding for these projects was established at the same time, and from the same ratepayer mechanism, as the Energy Trust funding. The school efficiency projects got bogged down in the audit stage. It was not until this year (2003) that equipment bidding and installation began. The turnkey contractors have been very busy.

PROGRAM IMPLEMENTATION AND TRACKING

Project Procedures

Prior to program launch, the PMC developed detailed procedures for the various program components, including enrolling equipment contractors into the networks, handling leads to prospective program participants, conducting facility audits, database management, project management, pre- and post-installation inspections, and rebate processing. These components distinguish, and call for different procedures based upon, the source of the lead, type of equipment to be installed, and size of the job.[28] For example, pre-installation and post-installation inspection procedures vary with the size of the job, with very small jobs requiring no pre-installation inspection and large jobs requiring independent third-party inspectors for both pre- and post-installation inspections.

Based on the findings from Energy Trust and PMC staff interviews, a review of the project-tracking database, and comments from lighting-equipment vendors and customers, detailed procedures are in place for all aspects of program implementation. PMC staff are following established procedures for responding to inquiries, recording and tracking inquiries and projects, establishing, training and tracking the contractor networks and pools, and managing projects from initial contact through processing and paying incentive rebates.

In particular, according to vendor and customer comments to program staff and to us, the program forms make the paperwork associated with projects faster and easier than was the case with incentive programs managed by the utilities.[29] In addition, the program has a quick response time. Some project proposal forms are

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28 Regarding the source of the lead: staff estimate that 90% of the lighting projects have come through contractors, while 10% have come through calls placed directly by the end-use customer.

29 Findings from interviews lighting contractors comprise chapter 4, and findings from interviews with end-use customers comprise chapter 6.

generated from the contractor-submitted equipment worksheets and returned to the contractor in less than 24 hours.

Two computer programs, designed by PMC staff, are used in program implementation. One is used in the development of incentive and application information for each job. Another tracks all Building Efficiency program jobs and reports on program progress. Both systems are fully automated, multi-spreadsheet workbooks. Data need only be entered in one place; computer code accesses the data for manipulation and reporting in various formats and levels of aggregation.

One PMC staff member who is a heavy user of the system describes it as "an absolute dream." In addition to facilitating project development—producing the application forms for customers to sign—it enables project forms to be transmitted between the PMC and contractors by email, for those contractors who prefer to use email.

This same staff member continued, "From my experience, the entire program implementation procedures are very simple. They are cleaner, quicker, and faster than I had experienced working for the PacifiCorp program." Examples of program ease include the following. Customers sign only three forms (to authorize their utility to release their billing history, to authorize the project to proceed, and to confirm the project was completed).[30] Customers are offered the BETC tax credit form with the project information completed. In contrast to the Utility programs, there are fewer restrictions on what energy-efficient equipment is eligible for incentives.

Staffing

Lighting staff on the PMC team indicate they are operating near their capacity. At least one staff member is working more hours than contracted for at no additional compensation in order to accommodate the workload, and staff anticipate that more staff would be needed to if the rate of projects were to increase. (As reported in chapter 4, one lighting contractor specifically identified a need for more program staff.)

Staff from Energy Trust and the PMC praised the hard work and dedication of their own and the other organization's staffs. Staff from both organizations used phrases such as "I can't say enough good things" to describe the professionalism, expertise,

[30] PMC staff report no problems in receiving from utilities the customer billing data they request.

and hard work of their program colleagues. One staff member said, "The Energy Trust program manager is a dream." Another said, "Given all the pressure everyone is under, all the challenges we face, I think we've all accomplished our work with a certain amount of reasonableness and grace."

Project and Program QA/QC

Project quality assurance and control guidelines include third-party, pre-installation inspections for all lighting projects over $5,000 if the project is done by a vendor who is a member of the equipment contractor network. For those projects not done by a member of this network, the threshold for such pre-inspections is only $2,000. All mechanical projects that are not merely prescriptive require a technical analysis study. PMC program staff reviews each study before the project may proceed.

Post-installation inspections are to be performed randomly on ten percent of the projects that qualify for incentive rebates of less than $5,000, and on all projects for which the rebate exceeds $5,000. PMC program staff or equipment contractor network members conduct the post-installation inspections. Finally, very large projects, that is, those where the incentive rebate exceeds $50,000, require satisfactory execution of a building commissioning plan before payment of the rebate will be approved.

According to one PMC staff member: "We review every single project that's handed in to us. The contractors provide the raw data on existing and proposed equipment. We fill out the application that the customer signs. So we are the final arbiter of savings. And this information is electronically sent to the contractor in a PDF [image] file, so they are not able to monkey with it.[31] Plus, the program uses automated spreadsheets that calculate the energy savings and the incentives for prescriptive measures. We can print this as documentation to support the application for the customer."

Customer and Contractor Response to Program as Conveyed to Staff

PMC program staff report lighting vendors are pleased with the program, finding it easier and faster than the utilities' programs. "We've received nothing but praise on the program design—for its simplicity, for ease of use of the forms, and for the

[31] Contractors without electronic communication receive paper copies.

program as a whole." Indeed, comments the evaluators obtained directly from contractors and customers (see chapters 4, 5, and 6) support this statement.

Staff identified two elements of negative response. Some technical analysis contractors were disappointed that the contract was offered to them on a "take it or leave it" basis; there was no flexibility to negotiate any elements to reflect a contractor's specific situation. This point was corroborated by comments directly obtained from the contractors (see Table 5.12 and subsequent discussion, in Chapter 5). In other customer feedback, program staff reported that customers have expressed frustration with the number of people they had spoken with prior to reaching the staff member who could help them with an application. Some customers talk with both Energy Trust and PMC receptionist staff before reaching the project implementation staff.

MARKETING, COMMUNICATION, AND DECISION MAKING

Marketing and Communication with the Market

The overall resources that Energy Trust devotes to promotion and marketing are allocated into two broad categories. Energy Trust marketing staff estimate that about two-thirds to three-quarters of Energy Trust's total resources allocated to marketing support of the programs individually (for use by Energy Trust program managers and PMCs.) The remainder of the marketing resources fund Energy Trust marketing staff activities in support of the Energy Trust as a whole. The two Energy Trust marketing staff conduct activities that cut across multiple programs (such as coordinating among programs) and provide consultative assistance to the individual programs.

In addition, Energy Trust marketing staff communicate with the public about Energy Trust "as a whole." They present Energy Trust, its mission, and its accomplishments to people around the state, including potential participants (especially large organizations), stakeholders, and groups that influence public policy. For example, Energy Trust marketing staff placed an advertisement in the Association of Oregon Industries Magazine.

Energy Trust marketing staff plan to monthly issue a glossy two-page promotional piece (in print and on the web site) to promote successful Energy Trust projects. Plans are to also include one paragraph describing the projects of each of six customer participants, so potential participants might "see themselves."

To guide program marketing activities within each program, Energy Trust staff have prepared a guidebook. This guidebook provides formats to be used that ensure

a consistency across programs of the basic messages regarding the Energy Trust, benefits of program participation, and the PMC as program manager. The guidebook also provides formats so that published material (e.g., brochures, web pages) will have a common, professional, attractive "look and feel". These publishing formats include font, color, and types of visual images.

The Energy Trust marketing guidebook was under revision at the time of the staff interviews in late June.[32] The revisions were prompted by a change in Energy Trust policy with respect to the public role of its PMCs, as discussed in the subsequent section "Positioning of the PMC in program Communications".

Energy Trust staff review the marketing plans put forth by the program managers or PMCs, as well as the content and the visual layout of marketing pieces. As part of this review, Energy Trust staff look for opportunities to promote multiple programs.

As implied by the above description of the Energy Trust's marketing activities, the program PMC has the responsibilities of developing and implementing a marketing plan and developing the content and format, following Energy Trust guidelines, of all written promotional material. As stated in the first section of this chapter, "Getting the PMC on Board," the PMC was not prepared for the extent of marketing activities that Energy Trust was expecting. The PMC has one staff member devoted to recruiting mechanical contractors and projects, but this staff is primarily engaged in relationship-building activities, such as presentations, phone calls, and letters. For example, all lighting applications approved for incentive payment are referred to the PMC's Technical Manager for follow-up to determine whether the customer is interested in pursuing additional energy-saving opportunities. The lighting network manager also uses a relationship approach to promoting lighting projects.

Energy Trust and the PMC marketing staff meet monthly to discuss Building Efficiency. They have meet on an "as-needed and frequent basis" with the PMC staff person responsible for marketing to the mechanical sector. These meetings have addressed, for example, a trade show presentation, the program brochure, and the placement of ads that meet Energy Trust marketing objectives that also highlight the Building Efficiency program. Both Energy Trust and PMC staff who are engaged in promotional activities report a good working relationship.

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32 The end-of-year report on Building Efficiency will update information on the guidebook.

Energy Trust's review and approval of the program brochure took longer than either Energy Trust or PMC staff anticipated. Although Energy Trust program staff expressed dissatisfaction with the draft brochure, PMC staff thought the changes from the draft to the final brochure did not account for or warrant the time that elapsed before the final brochure was approved by Energy Trust. Program brochures were finalized and produced for distribution at the end of May. According to an Energy Trust staff member, "The Building Efficiency program was the first program to launch, yet was next-to-last to have a published brochure."

Energy Trust program staff were disappointed in the first promotional plan developed by the PMC; the poor quality of the first document was attributed to the differing expectations about marketing held by Energy Trust and the PMC. The Energy Trust program staff worked closely with PMC staff to develop a second promotional plan, which was accepted by Energy Trust in late May. The plan has subsequently directed many of the PMC's outreach activities. Activities include trade show displays, presentations to professional organizations and large mechanical and turnkey contractors, and web links to Building Efficiency from the websites of a number of appropriate organizations.

The PMC's staff and resource constraints limit marketing to equipment vendors and prospective program participants. Rapid success of the program's lighting portion has left those staff in what one PMC staff member considers to be a primarily "responsive mode." "We field calls and emails. We have quick turn-around of program forms. But we are not communicating with our customer base—building owners—to generate more projects. We're doing as well as we can within the current budget. But we need to do more: more outreach, more face-to-face interactions, targeting areas for mass communication." One lighting contractor specifically suggested that Energy Trust hire more program staff in response to a query asking what Energy Trust might do to create greater program awareness (see Chapter 4).

The converse situation affects the mechanical portion of the program. Establishing a mechanical contractor network—itself a marketing task—and bringing technical analysis contractors on board was far more problematic and time consuming than anticipated, and continues to be so. Mechanical staff on the PMC team face a backlog of work that they had expected would be behind them mid-year into the program. For example, the delay in getting technical analysis contractors on board and, to a lesser extent, the low numbers of mechanical contractors in the network, have caused a backlog of potential projects. Requests for technical analysis studies are not being met and end-use customers who have contacted the Energy Trust about services have not been attended to (see Chapter 6).

Thus, the success of the lighting portion and the challenges of the mechanical portion are straining resources and have left little available for marketing beyond that which the PMC envisioned in its proposal to Energy Trust. As stated, the mechanical portion has one staff devoted full-time to marketing. While the marketing approach and resources were seemingly adequate when the proposal was accepted, current market conditions pose unforeseen challenges to the program. These conditions include:

- Unavailability of most turnkey contractors until multi-year projects underway with schools conclude,
- Unanticipated difficulty in recruiting mechanical contractors into the network, and
- Low numbers of referrals (averaging between one and two referrals a day) from the two investor-owned utilities.[33]

These market conditions undercut some basic assumptions about program marketing set forth in the RFP. As stated on page 28 of the RFP, "Energy Trust anticipates high levels of participation generated by the Utilities and vendor referrals and therefore does not foresee a major media campaign or other general marketing campaign for this program."

In addition to these unexpected conditions, the organization of the mechanical systems market itself poses challenges to program marketing. According to PMC staff, most mechanical system sales to owners follow bid specifications designed by engineers. This can be true for unitary HVAC systems, and is definitely the norm for complex mechanical systems. The bid specifications may preclude energy-efficient equipment unless the engineer specifies the equipment to be "better or equal to" the delineated specs. Thus, marketing of mechanical equipment may need to reach and convince engineers—and the building owners they work for—long before a mechanical contractor in the program network attempts to sell a project, especially a custom mechanical project.

[33] This referral rate contrasts with that experienced by the PMC in its work for Wisconsin's Focus on Energy program. In that program, the PMC received on average eight to ten calls a day. Roughly one-in-eight calls leads to a completed project.

Positioning of the PMC in Program Communications

According to Energy Trust staff, prior to May the PMCs operated as agents of Energy Trust. The PMCs were invisible to the public. When Energy Trust received a call about efficiency services, staff responded "Yes, we do that. Let me transfer you to the person who can help you." The call would be transferred to the PMC (Aspen, in the case of Building Efficiency), who would say, "Energy Trust Building Efficiency program, how may I help you?" All written materials (program forms, business cards, brochures, etc.) identified Energy Trust only. The PMC was not identified.

Again according to Energy Trust and PMC staff, during the process of developing the contract between the technical analysis contractors and the PMC, Energy Trust staff became concerned that Energy Trust was vulnerable to risk from the actions of its PMCs—its apparent agents. A decision was made to create a more distant relationship between Energy Trust and its PMCs as a means of decreasing Energy Trust's vulnerability.

In practice, this distancing means that a caller to the Energy Trust now hears, "Yes, we have a program for that. Let me transfer you to Aspen Systems [e.g., for Building Efficiency], who runs that program for us." In turn, the PMC staff would answer the phone, "Aspen Systems, Building Efficiency program manager, how may I help you?" Business cards will have the staff member's name, Aspen as the employer, and a phrase indicating that Aspen is the contractor managing Building Efficiency. The back of the card will say that Energy Trust is sponsoring Building Efficiency program. Program forms will identify Aspen as program manager and have a tag line identifying Energy Trust as program sponsor. (The exact wording for these changes had not been determined at the time of the interview in late June. The end-of-year evaluation for Building Efficiency will provide an update on these changes.)

According to three Energy Trust administrative staff expressing a similar viewpoint, "I think in practice the differences we will see from this policy are minor. It is a philosophical difference, but not much practical." However program staff for both Energy Trust and the PMC expressed fear that the philosophical difference may have a practical significance that goes beyond the phrasing of the phone script, business cards, and written communication.

Energy Trust and PMC program staff expressed concern that the steps will result in a distancing of Building Efficiency—not simply its PMC—from Energy Trust. In the words of one person, "Energy Trust follows and replaces a 25-year history of the two utilities conducting efficiency programs. This change to an unknown player is a

hard enough hurdle to jump. Now, for people to contact Energy Trust and hear 'I'll hand you over to Aspen'—well, I'm not convinced." Said another, "The utility company has the credibility to run efficiency programs. Where does the credibility to run programs rest in our program model? I think this is a key, core issue for the long-term viability of our programs."

As stated, the specific changes to program promotion and implementation necessitated by what Energy Trust and PMC staff referred to as this "distancing" policy had not been implemented at the time of the market interviews conducted for the current evaluation. Thus, the evaluation is unable to provide direct evidence in support of either view—the view held by administrative or by program staff. The market interviews, the results of which are presented in chapters 4 through 6, explored respondents' awareness of Energy Trust and opinions on which entities' names should be associated with the program in marketing and participation materials. As points of comparison, the interviews also explore respondents' awareness of utility efficiency programs.

Communication Internal to Program

Communication internal to the program is generally good. More specifically, communication between the PMC and its subcontractors, between the subcontractors themselves, and between these entities and the Energy Trust Building Efficiency program manager is frequent and regular.

Nonetheless, the PMC staff expressed a sense of not being timely and fully informed of Energy Trust activities and programs. Said one PMC staff person, "I am hearing more things about Energy Trust activities that have implications for the Building Efficiency program after the fact than I would like." Numerous PMC staff described disappointment stemming from their sense that Energy Trust did not consider PMC staff to be members of the Energy Trust team. It was suggested that budget constraints might be limiting full communication between Energy Trust and the PMC by limiting meeting attendance. However, the only specifically referenced communication problem between the two organizations was the failure of Energy Trust staff to forward the evaluation report on the lighting vendor training to the program manager's staff.

Decision-Making

Energy Trust has embraced the goal of delivering energy savings very quickly, as reflected in an objective for the Building Efficiency program to obtain energy savings early in 2003. Consistent with that goal, the program is operating under a

"design as you implement" approach. As described in the first section of this chapter ("program Start-up: program Design"), the RFP set forth the basic outline of the program. The PMC fleshed out many key program elements—but by no means all program elements—prior to the program launch in early February. According to Energy Trust's Executive Director, Energy Trust intends to refine its approach as it goes along. "We got out the door quickly. We had a 'soft launch.' But we did not dot and cross each 'i' and 't'."

Clearly, Building Efficiency is intended to be on a fast track. This fast-track approach contrasts sharply with typical program development approaches, which several staff described as taking about two years.

Decision making for Building Efficiency, in many cases, has not been congruent with a fast-track program approach. Most of the lengthy decisions concern issues that can be construed as relating to policy and public communication. Contract language is included in this categorization, as it embodies policy and communicates intentions and responsibilities between the signing parties.

The delay in contracting with technical analysis contractors has delayed the acquisition of mechanical measure savings, as discussed in detail in a preceding subsection of this chapter. This delay in contracting followed on the heels of what PMC program staff considered a lengthy Energy Trust approval process for the ATAC RFQ.

The delay in publishing a program brochure has impeded basic communication with contractors, customers, and utilities. Speaking to this point, one PMC staff person described being asked by a utility staff member to immediately provide a written description of the program for an eminent customer meeting. The PMC staff person had nothing officially approved by Energy Trust to give the caller.

In a related example, a PMC staff person described writing a draft introductory letter describing the program to be sent to a list of mechanical contractors obtained from the Construction Contractors Board. But approval for the draft letter was not forthcoming "and the whole thing got so complicated that the letter just 'slipped off the table.' It remains to be done."

As another example, during the program's first few weeks, one customer with a project for a multifamily residence sought to participate. Yet the decision had not been made as to whether multifamily projects fell under Building Efficiency. The decision was not made until mid-May, when Energy Trust issued a written policy on this point. In early June Energy Trust produced a flow chart allocating the

universe of potential projects into the programs it sponsored. Even at that point, the copy provided to the evaluation team was marked "draft."

Yet another example concerns the evaluation of the lighting vendors training conducted in February. The evaluation was conducted with the purpose of providing program staff with early feedback, consistent with the fast-track philosophy of refining programs as they are implemented. The draft report was submitted to Energy Trust by the current evaluation team in mid-March. The PMC did not learn the report had been submitted until it was informed of this in early June by the current evaluation team. The PMC staff person then asked Energy Trust why he had not received a copy of the draft report and was told that it had not yet been approved for dissemination.

Relating to these issues, both Energy Trust and PMC staff reported that the PMC's work products go through several layer of Energy Trust staff before obtaining final approval. Approvals required from Energy Trust's legal and contracts staff was so drawn out, in particular, that Energy Trust program staff requested a transmittal tracking system be established.

The multiple layers offer the advantage of multiple perspectives, but at the expense of extended time. In addition, according to several responses, this process has tended to result in inflexible outcomes.

At least half of the PMC and Energy Trust staff interviewed echoed these comments about Energy Trust decision making. Staff members from both organizations used nearly identical phrasing while describing their experience. In the words of one of the staff members, referring to Energy Trust decision makers, "I don't sense their actions are marked by the level of urgency the rest of us are acting with."

4. EXPERIENCE OF PARTICIPATING LIGHTING VENDORS

We explored and assessed the experiences of lighting vendors with the Building Efficiency program. The survey sample consisted of 25 lighting vendors selected as a sample from all such vendors who, as of the date of the survey, had participated in the program by selling to their commercial customers energy-efficient lighting equipment, which qualified for Building Efficiency program incentives. They survey was conducted between June 2 and June 13, 2003.

The chapter is organized into the following sections:

- *Description of Sample*—describes the sample and population of participating lighting trade allies.
- *Customer Awareness and Marketing*—describes respondents' perceptions of customers' awareness of incentive programs and of Energy Trust, the respondents' marketing activities, their opinions of the marketability of an incentive program sponsored by Energy Trust, respondents' opinions of the importance of Energy Trust branding, and their suggestions for additional Energy Trust marketing.
- *Energy-Efficient Equipment Experience*—describes the types of lighting equipment respondents have installed and the numbers of program and non-program lighting projects they have undertaken.
- *Program Steps*—describes respondents specific experiences with the various program steps, including the application process and pre-installation inspection, project completion and final inspection, incentive payments, and forms.
- *Program Satisfaction*—describes respondents' satisfaction with the program and compares these findings with vendors' expectations formulated after the vendor training.
- *Summary of Survey Findings*—summarizes key findings.

DESCRIPTION OF SAMPLE

The vendors' firms varied widely in size, ranging from one employee to 600 employees. However, most were small, with about two-thirds (68%) of them having ten or fewer employees. Forty percent of the survey sample had done only one program job. More than one-quarter (28%) had done from two to five Building Efficiency projects, and roughly another quarter (28%) had done six to ten program jobs (Table 4.1).

Table 4.1

LIGHTING TRADE ALLY POPULATION AND SURVEY SAMPLE CHARACTERISTICS

CHARACTERISTIC	PERCENT OF PARTICIPATING LIGHTING TRADE ALLIES (N=34)	PERCENT OF SURVEY SAMPLE (N=25)
BY BUILDING EFFICIENCY PROGRAM VOLUME		
Only One program Job	41%	40%
Two through Five program Jobs	32%	28%
Six through Ten program Jobs	24%	28%
More than Ten program Jobs	3%	4%
BY LOCATION		
Located in 503 Area Code	68%	64%
Located in 541 Area Code	24%	28%
Located in Other Area Codes	6%	8%

About two-thirds (64%) of the survey sample were located within the 503 area code, while about one-quarter (28%) was located within the 541 area code. The remaining respondents were located outside of Oregon.

Almost three-quarters (72%) of the surveyed lighting vendors had attended the kick-off and training meeting conducted in various locations around the State by Roger Spring in the first week of February 2003. We interviewed a sample of vendors immediately after the training to obtain their responses to the training

meeting and to Building Efficiency as they understood it at that time. We concluded the lighting trade ally training was effective in presenting the program to lighting trade allies, eliciting their engagement in the network, and describing the program participation procedures. Contractors predicted, on average, that their customers would participate in the Energy Trust program at the same rate that they participated in utility incentive programs.

CUSTOMER AWARENESS AND MARKETING

Roughly half (43%) of the lighting vendors reported that one or more of their customers had inquired generally about incentive programs for energy-efficiency before the vendor mentioned the Building Efficiency program to the customer. Two of the vendors said one or more of their customers had specifically mentioned Energy Trust or its incentive program. About one-quarter (28%) of the lighting vendors reported one or more of their customers had mentioned energy-efficient equipment before the vendor mentioned it. The proportion of any given vendor's customers who initiated conversations about energy-efficient lighting equipment ranged from less than two percent to 90% of the customers.

Table 4.2 shows the lighting vendors' perceptions of customer awareness of the utilities' incentive programs and of Energy Trust.

Table 4.2

LIGHTING VENDORS' PERCEPTIONS OF CUSTOMER AWARENESS OF UTILITY INCENTIVE PROGRAMS AND OF ENERGY TRUST

PORTION OF LIGHTING VENDORS' CUSTOMERS	PERCENT OF VENDORS SAYING CUSTOMERS AWARE OF UTILITIES' PROGRAMS (N=24)	PERCENT OF VENDORS SAYING CUSTOMERS AWARE OF ENERGY TRUST (N=23)
All Customers	13%	4%
About Three-Quarters of Customers	29%	13%
About Half of Customers	38%	22%
About One-Quarter of Customers	21%	30%
None of Customers	0%	30%

More than 40% of the lighting vendors estimated that three-quarters or more of the customers with whom they have worked during the past two years were aware the utilities offered energy-efficiency incentive programs. An additional 38% estimated half of their customers were aware of those programs.

This compares with 17% of the lighting vendors who estimated three-quarters or more of their customers were aware of Energy Trust before the lighting vendor told them about it. An additional 22% said half of their customers had heard of Energy Trust before they talked to the lighting vendor. Thirty percent of the lighting vendors said none of their customers had heard of Energy Trust before hearing about it from the lighting vendor.

Nearly half (48%) of the lighting vendors' firms advertise the lighting incentives in their marketing materials. However, in the survey sample, there is no correlation between lighting-incentive advertisement and the frequency of customer-initiated conversations about such incentives.

Sixty-four percent of the lighting vendors mention the Building Efficiency program to all of their customers. An additional 32% said they target all appropriate customers. "Appropriate customers" were defined most often as customers who will derive financial benefit from the incentives, the energy tax credit, or energy-use savings. The remaining 4% (one vendor) targets "bigger buildings."

Lighting vendors offer their customers a variety of reasons to install energy-efficient lighting equipment (Table 4.3). Almost 90% tell their customers that the lighting equipment will decrease the customer's energy use, electrical load or utility bill. About two-thirds (68%) tell their customers the energy-efficient equipment has higher quality or better color light. More than half (56%) of the vendors tell their customers the incentive payment will lower their initial equipment costs. Forty-four percent mention decreased maintenance costs, and about one-third (36%) mention the tax credit as reasons their customers should install the equipment. More than one-third (36%) of the lighting vendors give other reasons to their customers. These other reasons include environmental benefits (12%), and reduced flicker (8%). "It's a high-return investment," "the program is already paid for by ratepayers," "it's a new technology," and the lighting vendor's own guarantee were also each mentioned once by different lighting vendors as reasons to install energy-efficient equipment.

Table 4.3

REASONS GIVEN TO INSTALL ENERGY-EFFICIENT LIGHTING EQUIPMENT (MULTIPLE RESPONSES ALLOWED)

REASON TO INSTALL	PERCENT OF VENDORS GIVING REASON (N=25)
Decrease Energy Use, Load or Utility Bill	88%
High Quality, Better Color of Light	68%
Incentive Payment Lowers Cost	56%
Decrease Maintenance Costs	44%
Tax Credit	36%
Other	36%

Although none of the lighting vendors said they give their customers reasons not to purchase energy-efficient lighting, almost one-quarter (24%) of them occasionally discouraged customers from installing such lighting equipment. All but one of those vendors did so on the grounds that the customer's particular job was too small to warrant the additional expense of the equipment. The one lighting vendor who offered another reason said he discouraged the installation of the equipment because his customer's budget was too tight.

Since February, just over half (52%) of the lighting vendors have been asked by their customers for an explanation of who Energy Trust is. As shown in Table 4.4 lighting vendors responded to their customers with one or more of four types of descriptions. The descriptions were that it promotes energy conservation, that Energy Trust is funded by a portion of our utility bills, that it took over the energy-efficiency incentive programs from the utilities, and that it is a State or quasi-State agency. In addition, two of these lighting vendors respond to their customers' inquiries by giving them printed information about Energy Trust.

Only three lighting vendors had customers who expressed reactions to Energy Trust's sponsorship of the incentive program. All of these reactions were positive.

Table 4.4

LIGHTING VENDORS' DESCRIPTIONS OF ENERGY TRUST (MULTIPLE RESPONSES ALLOWED)

DESCRIPTIONS OF ENERGY TRUST	PERCENT OF LIGHTING VENDORS (N=13)
Promotes Energy Conservation	54%
Funded by Portion of Utility Bills	46%
Took over program from Utilities	31%
State or Quasi-State Agency	15%

Table 4.5 sets forth the lighting vendors' attitudes towards the ease or difficulty of selling Energy Trust's incentive program versus selling incentive programs sponsored by the utilities. More than four-fifths (84%) of the vendors said the program is about the same or easier to sell under Energy Trust sponsorship. More specifically, 32% believe it is easier to sell the program with Energy Trust as the sponsor, while 16% of the lighting vendors believe Energy Trust's sponsorship makes the program harder to sell. Thirty-six percent believe their ability to sell the program is about the same with either sponsorship. Twelve percent had no opinion.

Table 4.5

LIGHTING VENDORS' OPINIONS OF EASE AND DIFFICULTY OF SELLING THE INCENTIVE PROGRAM UNDER ENERGY TRUST SPONSORSHIP

EASE/DIFFICULTY OF SELLING ENERGY TRUST PROGRAM	PERCENT OF LIGHTING VENDORS (N=25)
Easier	32%
Harder	16%
About the Same	40%
No Opinion	12%

All of the lighting vendors who said the program is easier to sell with Energy Trust sponsorship gave as their reasons one or more ways in which the program is now easier to work with. These reasons included easier or less paperwork, less program rigidity, and the simplicity of working with a single program for all of their customers instead of having to work with multiple programs as they had to do under the utilities sponsorship. One of these vendors stated the utility had not been "lighting vendor friendly."

Reasons lighting vendors gave for the incentive program being harder to sell under Energy Trust sponsorship included that without utility backing, there is lower customer awareness of the program. One lighting vendor mentioned that a representative of the utility used to go with him to help sell the program. One vendor said the reason for the program being harder to sell is that the incentives are lower. However, as reported in the program Satisfaction section below, a total of 20% of the respondents, including the latter vendor, made some comment during the interviews about lower incentives under the Building Efficiency program.

Only 16% (four respondents) of the lighting vendors mention Aspen Systems or Evergreen Consulting in their conversations with customers. Half of these mention one of these organizations only in response to customers' questions. When these lighting vendors do mention Aspen or Evergreen, they refer to them as having a managerial or administrative capacity with regard to the Building Efficiency program. Lighting vendors reported no customer reactions to either of these organizations acting in this capacity.

When asked whether Energy Trust, Aspen Systems, Evergreen Consulting, or some other name should be most prominent on the program materials, 76% of the lighting vendors responded with "Energy Trust". The balance of the lighting vendors were evenly split between those who had no opinion and those who said it makes no difference which name is most prominent. The three reasons cited most often for Energy Trust's name prominence, each given roughly one-third of the time, were Energy Trust is the sponsor or administrator of the program, greater recognition of the name Energy Trust, and the intrinsic merit of the name (Table 4.6).

Table 4.6

REASONS FOR ENERGY TRUST'S NAME PROMINENCE (MULTIPLE RESPONSES ALLOWED)

REASON FOR NAME PROMINENCE	PERCENT OF LIGHTING VENDORS (N=19)
Energy Trust is Program Sponsor	37%
Greater Recognition of Name	32%
Intrinsic Merit of Name	32%

When asked how Energy Trust might increase customer awareness of the lighting incentive program, lighting vendors replied with one or more of four kinds of responses: advertise in newspapers or magazines, print flyers or brochures, enclose information with utility bills, and other (Table 4.7). The other suggestions included: provide a simpler or cost-per-unit breakout of lighting applications and costs (two respondents), provide lists of participating lighting vendors (two respondents), add staff to be able to serve more people (one respondent), and encourage bank loans to cover non-reimbursed costs (one respondent). The firms of all but one of the vendors who suggested advertising, mention lighting incentives in their marketing.

Table 4.7

SUGGESTED WAYS TO INCREASE CUSTOMER AWARENESS OF BEP (MULTIPLE RESPONSES ALLOWED)

SUGGESTION	PERCENT OF LIGHTING VENDORS (N=14)
Newspaper, Magazine Ads	50%
Utility Bill Enclosures	29%
Printed Flyers, Brochures	29%
Other	43%

ENERGY-EFFICIENT EQUIPMENT EXPERIENCE

The types of lighting equipment installed by the vendors prior to the Building Efficiency program and frequency of installation of each type of equipment are shown on Table 4.8. Since January 2000, but prior to the program this year, 92% of the lighting vendors installed electronic ballasts and T8 lamps on two-thirds or more of their jobs. "Efficient" electronic ballasts and "super" T8 lamps were used far less frequently, and were never used by almost half (48%) of the lighting vendors. Sixty percent of the lighting vendors installed compact fluorescent lighting in place of incandescent lighting on two-thirds or more of their jobs during that time, and 80% of them installed energy-efficient exit signs on two-thirds or more of their jobs. Energy-efficient exit signs were defined as those using LEDs, cold cathode or electroluminescence. Eighty-four percent of the lighting vendors installed high-intensity discharge lamps in place of mercury vapor or incandescent lights on some of their jobs during that time.

Table 4.8

LIGHTING EQUIPMENT TYPES INSTALLED JANUARY 2000 TO 2003

EQUIPMENT TYPE	PERCENT OF LIGHTING VENDORS INSTALLING VARIOUS LIGHTING EQUIPMENT (N=25)				
	NEVER INSTALLED	1%-33% OF JOBS	34%-66% OF JOBS	67%-99% OF JOBS	ALL JOBS
Electronic Ballasts	0%	8%	0%	40%	52%
T8 Lamps	0%	8%	0%	44%	48%
"Efficient" Electronic Ballasts	48%	12%	8%	20%	8%
"Super" T8 Lamps	48%	32%	4%	12%	4%
Compact Fluorescent Lights	4%	20%	16%	28%	32%
Energy-Efficient Exit Signs	4%	8%	8%	20%	60%
High-Intensity Discharge Lamps	16%	24%	20%	16%	24%

Eighty-four percent of the lighting vendors also installed some type of lighting controls on their jobs. Of these vendors, 95% installed occupancy sensors on one or more of their jobs, including two vendors who installed HID high/low controls to

lower light levels in temporarily unoccupied large spaces (Table 4.9). More than half (57%) the vendors installed on/off photocells. More than 40% of them installed manual dimmers, and almost 20% installed timers. Ten percent installed other lighting controls. These lighting controls included a computer-controlled system (one respondent) and power-line technology (one respondent).

Table 4.9

LIGHTING CONTROLS INSTALLED
(MULTIPLE RESPONSES ALLOWED)

TYPE OF LIGHTING CONTROL	PERCENT OF LIGHTING VENDORS (N=21)
Occupancy Sensors	95%
On/Off Photocells	57%
Manual Dimmers	43%
Timers	19%
Photo Dimmers	10%
Multilevel Switching Controls	10%
Other	10%

The numbers of lighting jobs in total the lighting vendors reported have worked on since the Building Efficiency program began in February ranged from two or three to between 200 and 300 (Table 4.10). However, 48% of the lighting vendors had worked on ten or fewer projects during that time. An additional 28% had worked on 11 to 20 jobs. Only 16% of the lighting vendors had more than 30 jobs since February.

Table 4.10

NUMBERS OF ALL REPORTED LIGHTING JOBS SINCE FEBRUARY

TOTAL NUMBER OF JOBS	CONTRACTORS REPORTING JOBS (N=25)
1-10	48%
11-20	28%
21-30	8%
>30	16%

The number of Building Efficiency program lighting jobs reported by each lighting vendor ranged from one to 45 (Table 4.11). But almost two-thirds (64%) of the lighting vendors said they had from one to ten program jobs. About one-quarter (24%) of the lighting vendors had from 11 to 20 program jobs, with only 12% having more than 20.

Table 4.11

NUMBERS OF REPORTED AND ACTUAL BEP JOBS SINCE FEBRUARY

NUMBER OF JOBS	VENDORS REPORTING JOBS (N=25)		VENDORS' NUMBER OF JOBS FROM TRACKING DATABASE (N=25)	
	NUMBER	PERCENT	NUMBER	PERCENT
0	2	8%	0	0%
1-5	12	48%	17	68%
6-10	2	8%	7	28%
11-20	5	20%	1*	4%
21-30	2	8%	0	0%
>30	1	4%	0	0%

* *Vendor reported "two or three" Building Efficiency program jobs.*

However, these vendor-reported program job numbers are inconsistent with the number of such jobs for each vendor shown on the program-tracking database. Specifically, the tracking database shows from one to ten Building Efficiency jobs for all but one of the 25 vendors. The remaining vendor has 14 Building Efficiency projects shown on the tracking list. Curiously, this latter vendor, the one with the most program projects, reported doing only two or three such projects, whereas the vendor who reported the most program projects (45 projects) had done only one such project. More vendors (14 respondents) over-reported their number of program projects than under-reported (11 respondents). Only three accurately reported the number of program projects they had done.

The 18 lighting vendors who reported having non-program jobs since February were asked whether they discussed the incentive program with their non-program customers. Half of them said they did. The reasons given by the others for not discussing the incentives were that the jobs were outside of Energy Trust's territory, or that the jobs were too small for the program. One lighting vendor said he did some jobs before he was aware of the program. In one case, the customer made it clear it had no interest in the program.

PROGRAM STEPS

Application and Pre-Installation Inspection

All but one of the lighting vendors expressed satisfaction with the amount of time it took to receive their Project Proposal Forms from the program staff. Thirty-two percent said it took less time than expected to receive the forms. An additional 44% of them said they received the forms within the amount of time they expected. Almost half (48%) said the forms were received in three days or less. Only one of the vendors said it took longer than expected to receive the forms (more than a week).

Just over one-third (36%) of the lighting vendors had jobs that had undergone pre-installation inspections. All of these vendors said the inspection results were generally what they expected.

Ordering and Installation

All but one of the lighting vendors order the equipment needed for some of their incentive projects, rather than keeping the needed equipment in stock. Almost 90% order equipment for at least half of their incentive projects, and nearly two-thirds (64%) order equipment for all of their incentive projects (Table 4.12).

Table 4.12

PERCENT OF BUILDING EFFICIENCY PROGRAM JOBS FOR WHICH VENDORS ORDERED LIGHTING EQUIPMENT

PERCENT OF INCENTIVE PROJECTS	PERCENT OF LIGHTING VENDORS (N=22)
100%	64%
75-99%	9%
50-74%	14%
25-49%	5%
1-24%	9%

Table 4.13 shows the lighting vendors' experiences with lighting equipment orders, order delays and equipment availability for the incentive projects they have worked on. More than half (52%) of the lighting vendors order exclusively from distributors, and just over 20% order exclusively from manufacturers. The remainder order equipment from both distributors and manufacturers.

Table 4. 13

LIGHTING EQUIPMENT ORDERS, DELAYS AND AVAILABILITY

EQUIPMENT EVENT	PERCENT OF LIGHTING VENDORS (N=23)
Order for Some Incentive Projects	96%
Order from Distributor	52%
Order from Manufacturer	22%
Order from Both	26%
Experienced Delays	30%
Equipment Unavailable from Usual Suppliers	4%
Equipment Completely Unavailable	9%

About one-third (30%) of the lighting vendors reported delays in receiving equipment ordered for some of their incentive projects. Delayed equipment included 400-watt metal-halide replacements, special and custom fixtures, certain colors, various lights (including T8s), and ballasts. Only one of the lighting vendors was unable to obtain the equipment for his incentive projects from his usual suppliers. Only two of the lighting vendors found certain equipment to be completely unavailable. In both cases, the unavailable equipment was "efficient" or "ultra" electronic ballasts, i.e., the highest efficiency ballasts, which receive an additional incentive.

About one-quarter (28%) of the lighting vendors had incentive projects for which efficiency measures were proposed but not installed. In all but one of these projects carried through to completion by the lighting vendor, it was the customer's budget that limited the installation of the proposed measures. The lighting vendor who gave a different reason for not installing the proposed efficiency measures said the compact fluorescent lighting did not fit into the customer's fixtures.

Twenty percent of the lighting vendors said they encountered one or more problems while installing energy-efficient lighting equipment. Three of these five vendors had problems with the way the equipment fit, one because there were four different kinds of fixtures in the project. Two of the vendors had problems with incompatible voltage systems, and one had unspecified problems with a particular brand of compact fluorescent lighting.

Project Completion Form and Inspection Process

Fifty-six percent of the lighting vendors had submitted paperwork to the program staff for projects where the equipment installation was complete. More than 40% of these vendors had had projects inspected by a program representative. Only one vendor had been present during these inspections. None of the projects failed to pass its inspection. Two-thirds of the lighting vendors who had projects inspected reported being very satisfied with the process. Most based their satisfaction on the hard work, experience and knowledge of the inspectors. "No problems with the inspections" was given as the other reason for a "very satisfied" response. Of the vendors who said they were only somewhat satisfied or neutral, the reason given was insufficient experience with the inspections to rate them differently.

The lighting vendors surveyed universally have the incentive-payment checks sent directly to their customers.

Forms

One-quarter of the lighting vendors said they had received feedback on their Project Data Sheet Form. All of the feedback was in the nature of questions about the appropriateness of certain equipment or other aspect of a project, rather than being a concern about how the form itself had been filled out.

Sixteen percent of the lighting vendors had had other forms returned by the program staff because they were incomplete. The returned forms included the Application for Incentive Form, the Completion Form, and the Proposed Lighting Detail Form. Each of the forms was returned because of missing information such as an account number, a taxpayer identification number, a price, or a signature. The vendors easily completed the forms. None of the vendors said they had any difficulty meeting the requirements of the forms.

Nearly half (44)% of the lighting vendors offered further feedback about the program's forms (Table 4.14). These comments fall into three general categories: compliments, suggestions for possible improvements, and communication issues. Compliments were the most common, being expressed by more than 80% of those making additional comments. Two-thirds of the compliments were in reference to a specific item, including the spreadsheet setup for the initial survey, the fact that the forms are on-line, the hours of operation on Form 100, and kudos for Form 103's hours-of-use column and the way in which that form calculates. One-third of the compliments praised the overall simplification of the forms.

Table 4.14

TYPES OF ADDITIONAL COMMENTS ABOUT BEP FORMS (MULTIPLE RESPONSES ALLOWED)

TYPE OF COMMENT	NUMBER OF LIGHTING VENDORS
Compliment	9
Improvement Suggested	7
Communication Issue	2

Suggested improvements were the next most common type of comment. Almost two-thirds (64%) of the additional comments were of this type, and more than half (57%)

of these suggestions were for different or additional ways to enter and compute data. For example, four vendors prefer PGE's worksheet. One of them still uses it to derive wattages, annual kW savings, and rebates for customers, because that form allows greater specificity than Energy Trust's form. The same vendor also pointed out that Energy Trust's worksheet has no option to de-lamp three or fewer lamps. Another vendor would like to have the form available on a computer disk, and yet another said it would be helpful to have codes like the energy-efficiency measure codes PGE used.

Other improvements were suggested by two vendors who said the dollar-incentive-per-fixture and other aspects of the website forms seem out of date. One vendor observed that because different parts of buildings can be on different schedules, Form 100's day-to-day listing for hours of operation doesn't make sense. Suggestions also included, in contradiction of many of the compliments, pleas for simplification. One lighting vendor remarked that the equipment-information section of the forms is superfluous to him.

There were only two additional comments about forms. One vendor commented on confusion over whether the BETC tax form was an Energy Trust or State of Oregon form. Another vendor said customers questioned the need to report prior year's energy use on Form 110.

PROGRAM SATISFACTION

Almost 60% of the lighting vendors who compared the Building Efficiency program with utility incentive programs were satisfied with the program, and nearly 40% were "very satisfied" (Table 4.15). Table 4.15 also reports vendors' comparative assessment of the program when asked immediately after the training program in February. The comparison between the responses from the two surveys suggests that as vendors have gained participation experience in the program, their comparative assessment has become more favorable.

Table 4.15

SATISFACTION LEVEL WITH BUILDING EFFICIENCY PROGRAM COMPARED TO UTILITY INCENTIVE PROGRAMS

SATISFACTION WITH ENERGY TRUST PROGRAM*	PERCENT OF LIGHTING VENDORS	
	CURRENT SURVEY (N=24)	SURVEY IMMEDIATELY AFTER TRAINING (N-29)
Very Satisfied	38%	24%
Somewhat Satisfied	21%	21%
About the Same or No Opinion	25%	41%
Somewhat Dissatisfied	17%	7%
Very Dissatisfied	0%	0%
Don't Know	0%	7%

* *In vendor survey immediately after the training in February, the question asked respondents to compare the Energy Trust incentive approach with that of utilities. The response categories were: much better, better, neither better nor worse, worse, and much worse.*

One-quarter of the vendors responding to the current survey said the programs were about the same or had no opinion. Less than one-fifth (16%) said they were "somewhat dissatisfied" with the Building Efficiency program. None of the vendors reported being "very dissatisfied" with the program.

However, of the four respondents who reported dissatisfaction with the program, only one of them gave a reason for dissatisfaction that was not contradicted by the reasons for satisfaction with the program given by other vendors. In the study conducted immediately after the training, two of the 29 respondents reported less satisfaction with the Building Efficiency program than with utility programs.

That one vendor responding to the current survey whose reason for dissatisfaction was not contradicted by the positive comments of others said his dissatisfaction stemmed from lower incentive payments under the Building Efficiency program. In fact, 20% (five respondents) of the lighting vendors made comments about lower incentives being a problem, although as just stated, only one expressed this as a reason for comparative dissatisfaction with the program. In the survey conducted immediately after the training in February, 31% of vendors thought the program incentives are too low. The reduction in proportion of vendors expressing this

view—from about one-in-three respondents to one-in-five, suggests the lower incentives have not been as great a problem as they were anticipated to be.

The other reasons given for comparative dissatisfaction with the Building Efficiency program—namely, that the program is more difficult to deal with and requires more paperwork, the program staff is too impersonal, and the program needs to be "automated" so information doesn't have to be mailed—were each directly contradicted by comments made by other vendors. Specifically, as a reason for satisfaction with the program or as a final comment, more than 40% of the lighting vendors said the program staff is easier to work with and/or there is less paperwork than with the utility-sponsored incentive programs. Twelve percent indicated the Building Efficiency program staff is more personal and easier to get to know than was the case with the utility programs, and regarding automation, 12% of the vendors mentioned the availability of a web site and email. Two vendors prefer the current program because of its increased flexibility. Finally, 40% of the vendors offered comments that the program staff is doing a very good job.

The final comments of one of the lighting vendors were unique and of sufficient specificity that they may be of interest. Therefore, without wishing to give them undue weight, we report them for your consideration. The vendor suggested Energy Trust is uncritically using the manufacturers' criteria to define "good" and "bad" lights. This vendor claims that the color-temperature of lighting equipment is actually the critical criterion. More specifically, he said lights of 5,000 degrees Kelvin and above are "good." Thus, according to him, the 765 is the best T8 light, and the 830, 835, and 841, along with the 730, 735 and 741—which do not meet this criterion—are "bad" lights, with inaccurate color. As this suggests, he would like the 765 to be accepted for use in the program.

In contrast to this one vendor responding to the current survey who expressed dissatisfaction with the qualifying lighting equipment, 12 of 29 vendors surveyed immediately after the training held such views. Most of their remarks reflected opinions that the standards for the efficiency of the equipment were too stringent, that equipment had been selected based on one efficiency factor, without taking the circumstances of its application into account, or that specific brands or types of equipment that had qualified for other programs did not appear on the Energy Trust list of qualifying equipment.

As with the issue of the incentive levels, the issue of eligible equipment appears to be less problematic for most vendors as they have gained experience with the program.

SUMMARY OF SURVEY FINDINGS

The lighting contractor network is operating well and generating Building Efficiency projects, according to program staff (Energy Trust and PMC) and contractors alike. Of the 85 trade allies that have joined the lighting network, 62 contractors have proposed or completed a total of 327 Building Efficiency program lighting projects, for an average of 5.3 projects each.

About half of participating lighting contractors advertise the Building Efficiency program incentives, and all contractors mention the program to all customers with potentially qualifying projects.

Three-quarters of participating lighting contractors rate the satisfaction with the Building Efficiency program as greater than or equal to their satisfaction with utility programs in which they have participated. Over one-third described themselves a "much more satisfied". Virtually all contractors were satisfied with the participation forms and turn-around times. While 16% of contractors expressed some dissatisfaction with some aspect of the program, no one reported a high degree of dissatisfaction.

Thirty percent of surveyed participating lighting contractors estimated that none of their customers are aware of Energy Trust.

Three-quarters of surveyed participating lighting contractors said "Energy Trust" should be the most prominent name on program materials, when asked to respond to a choice of "Energy Trust", "Aspen Systems" or some other name. The remaining contractors suggested it makes no difference which name is more prominent. The reasons cited most often for Energy Trust's name prominence, each given roughly one-third of the time, were Energy Trust is the sponsor of the program, greater recognition of the name Energy Trust, and the intrinsic merit of the name.

4. Experience of Participating Lighting Vendors

5. EXPERIENCE OF TECHNICAL ANALYSIS CONTRACTORS (MECHANICAL)

Technical analysis contractors have been recruited to allow the Building Efficiency program to offer appropriate custom incentives for mechanical systems energy savings measures. Firms have been selected to perform either Level I or Level II technical analysis studies or audits.[34] We spoke to principals at nine of the firms; at the remaining six firms we spoke to some other executive or manager.

We interviewed representatives at three of the Level I firms and 12 of the 19 Level II firms. Interviews were conducted between July 15 and July 21, 2003, which was very early in the course of technical analysis contractors' participation in the program. The PMC had received signed contracts from some technical analysis contractors less than four weeks before the interviews were conducted. The first audit assignments had been given to some contractors about one week before these interviews were conducted.

This chapter is organized into the following sections:

- *Professional Services, Customer Base, Marketing Activities*—describes firms' activities prior to program, including technical analysis experience, marketing efforts and targets, and sources of business.
- *Program Experience to Date*—describes why firms applied to participate in the program and their involvement with the program so far.
- *Plans and Expectations*—describes expectations firms have for the program audits, how many audits they will do, and where customers for them will come from.
- *Feedback, Suggestions, Concerns*—describes respondents' satisfaction with the program and concerns raised about the program and their involvement with it so far.

[34] Level I firms may perform "walkthrough" audits at facilities with peak loads under 50kW, and full Level I audits at facilities with peak loads between 50kW and 200kW. Level II firms may perform audits at facilities with peak loads greater than 200kW, and are also accepted to perform Level III audits, that is audits of industrial facilities under a separate incentive program (also administered by Aspen Systems).

- *Summary of Survey Findings*—summarizes key findings.

PROFESSIONAL SERVICES, CUSTOMER BASE, MARKETING ACTIVITIES

Professional Services

Most of the firms had a specialty in conducting energy efficiency projects or technical analyses (Table 5.1). For all respondents, when their firm performs studies, their firm typically does not install the equipment required to implement their recommendations, though some firms sometimes install such equipment. All said their firms had done similar audits and had done audits in connection with a utility incentive program.

Table 5.1

DISCIPLINES PRACTICED BY FIRMS IN SAMPLE (MULTIPLE RESPONSES, N=15)

DISCIPLINE	COUNT
Energy Efficiency Projects	11
Technical Analysis/Audits	9
Engineering	4
Equipment System Design	3
Architecture	1
Turnkey Implementation	1

Nearly all firms had performed at least some audits in Oregon last year (Table 5.2). Level I firms performed a median of five audits in Oregon in 2002. Level II firms performed a median of 20 audits.

Table 5.2

AUDITS FIRMS PERFORMED IN OREGON IN 2002
(N=15)

NUMBER OF AUDITS	COUNT
Zero	1
1 to 10	7
20 to 40	5
75 to 100	2

Employees and Customer Base

Level I firms are small: one firm has three employees and the other two are sole proprietorships. Level II firms range from sole proprietorships to corporations with 200 employees. Eight of the Level II firms have 12 or fewer employees, while the other four firms have more than 50 employees.

We asked respondents to estimate the number of end-user facilities at which their firm typically performs any sort of work in a year (not just audits). Table 5.3 shows that Level I firms typically work at less than ten facilities per year, while most Level II firms typically work at considerably more facilities.

The data presented in Table 5.3 also speak to how many utility customers firms typically come into contact with per year. Were these contractors to market Building Efficiency program audits and incentives to their past customers, these data provide an estimate of the pool of past customers they would have to work with.

Table 5.3

TYPICAL YEARLY WORKLOADS (N=15)

NUMBER OF FACILITIES FIRMS WORK AT PER YEAR	COUNT	
	LEVEL I	LEVEL II
Less than 10	2	2
Between 20 and 60	0	4
100 or More	0	5
Don't Know/Not Applicable*	1	1

* *One sole proprietor accepted to perform Level I audits had established his own business solely to perform audits under this program, and therefore this question was not applicable to him*

Sources of Business

To get a sense of how customers find their way to the firms, we asked respondents to estimate how much of their business comes from repeat commercial customers (end users), and how much comes from new customers. We also asked about how many of the new customers typically find the firm independently of any marketing effort on the firm's part. Respondents had a hard time answering these questions.

In general, most of the business the contractors do is not from repeat end-user customers. Many respondents said the lion's share of their business comes from referrals.

Respondents from larger firms often explained their clients are usually architecture firms, utilities, or government entities and they might serve dozens of end users through one such client. Three larger firms said they maintain long-term contracts with a few end users. One respondent from a larger firm said though his firm does not currently maintain relationships with end users, it is considering doing so in the future.

Smaller and medium-sized firms were about equally likely to say that all or most of their business comes from referrals with no effort on their part, all or most is generated by their marketing efforts, or any other combination.

Baseline Marketing Activities

We asked respondents whether they use certain traditional marketing methods. Most firms (12) use brochures or qualifications packages (Table 5.4). Most qualified this by saying these are not generic marketing tools but are customized to particular RFPs. While 11 respondents said they make cold calls to generate business, four of those qualified this by saying they rarely did so.

Table 5.4

MARKETING METHODS FIRMS USE
(MULTIPLE RESPONSES, N=15)

METHOD	COUNT
Brochures or Qualifications Packages	12
Website	11
Cold Calls	11
Advertisements	3
Direct Mail	3
Other: E-Mail Newsletters	2
Other: Speaking at Conferences	1
Other: White Papers	1

Additionally we provided respondents the opportunity to volunteer other methods they use to generate business. Two mentioned that they use e-mail newsletters, one said his firm creates "white papers", and one said his firm does presentations at industry workshops and conferences.

Respondents from all but three firms said they use at least one of the above marketing methods at least sometimes. Two of the three firms that use none of the above methods are Level I firms.

Table 5.5 shows that 11 respondents said their firms specifically market their auditing services, as opposed to simply marketing their professional services in general.

Table 5.5

PAST MARKETING OF AUDITING SERVICES
(N=15)

MARKETS AUDITING SERVICES	LEVEL I	LEVEL II
Yes	1	10
No/Don't Know	2	2

Types of Customers Targeted

To get a deeper understanding of firms' marketing practices, we asked the 11 respondents whose firms market their auditing services whether they target past customers, current customers of another of their firm's services, or new customers. Most respondents said they try to reach all three categories of customers (Table 5.6).

Table 5.6

PAST MARKETING TARGETS FOR AUDITS
(MULTIPLE RESPONSES, N=15)

FIRMS MARKET AUDITS TO	COUNT
Past Customers	10
Current Customers of Another Service	9
New Customers	11

BUILDING EFFICIENCY PROGRAM EXPERIENCE TO DATE

Most technical analysis contractors had no experience with the program other than responding to the RFQ and going through contract negotiations. At the time of the survey, two of the three Level I firms we interviewed and three of the 12 Level II firms reported having been assigned audits by the PMC. Two respondents had completed at least one audit, one of whom had received payment.

Why Firms Responded to the RFQ

Table 5.7 shows that the majority of firms (12) signed up to be accepted as technical assistance contractors because that's their core business. Another reason given frequently was to obtain more work for their firm.

Table 5.7

WHY FIRMS RESPONDED TO RFQ
(MULTIPLE RESPONSES, N=15)

WHY FIRM JOINED PROGRAM	COUNT
It's What We Do	12
To Get More Work	8
Program Incentives Will Benefit Our Customers	2
Want to Help Promote Energy Efficiency	1
Program Audits Will Be Quick and Easy*	1

* *Comment was made by a respondent from a Level II firm.*

Contracting Period

The first technical analysis contractors had completed the contracting process as early as March 20, 2003, while some had completed the process as late as June 23 (less than one month before this survey was conducted).

Some respondents reported having customers who had to wait for audits while contract negotiations were taking place. Three respondents each had one customer waiting but all of these customers who qualify for the program are still interested in having an audit. A fourth respondent said he had five customers waiting during the contracting process, four of whom had lost interest by the time of the interviews.

Instruction and Training

Two-thirds of respondents (10) said they or member of their firm had received some instruction from the PMC. All were referring to a kickoff meeting that focused on

EZ Sim software and forms required for program, except for one firm that had arranged a special training session with the PMC for its auditing staff.

PLANS AND EXPECTATIONS

Program Audits

We asked respondents in what ways they thought Building Efficiency program audits would differ from those they might have done before. The most frequently given response (seven respondents) was that program audits will be the same. Two respondents said they think program audits will be simpler and more result-driven than audits they had previously done.

Expected program Workload

When asked what expectations they have as to how many audits their firm will conduct per year, a majority of respondents (13) said they don't know what to expect. Of the other two respondents, one said he expects his firm will do four or five program audits per year and the other said he expects his firm will do less than 10.

Source of Customers

We asked respondents about their expectations regarding the proportion of Building Efficiency program audit customers they might bring into the program as opposed to those the PMC will assign their firm. Seven respondents anticipate all or most program audit customers will come from the PMC while five think their firm will be able to generate about half of its own leads, and one anticipates generating most of his own leads, at least at first (Table 5.8).

Of those who say they'll generate half or more of their own customers for Building Efficiency program audits, two are from Level I firms and the other four are from Level II firms. The Level I firms who said they'd generate half or more of their own leads had not done many audits in Oregon in 2002. One had only worked in Washington, and the other estimated he had done about six audits that year. Of the four Level II firms anticipating they would generate half or more of their own leads, the number of audits they had conducted in Oregon in 2002 ranged from about six to about 30, with a mean of 19.

Table 5.8

SOURCE OF AUDIT PROJECTS
(N=15)

SOURCE OF PROJECTS	COUNT
All From PMC	4
Most From PMC	3
About Half From PMC, Half From Own Firm	5
Most From Own Firm	1
Don't Know/No Idea	2

We asked respondents what methods they plan to use to market program audits to customers (Table 5.9). A typical response was "we haven't really formulated a game plan". Several respondents said they have not yet been expending effort on marketing program audits because they didn't understand the program procedure well enough yet. One respondent said he is waiting for the PMC to provide information on what sorts of marketing methods the technical analysis contractors are allowed to employ under the program.

Table 5.9

MARKETING PROGRAM AUDITS
(N=15)

HOW FIRMS WILL MARKET PROGRAM AUDITS	COUNT
Face to Face Conversations with Customers	6
Not Planning to Do Anything	6
Marketing Audits Is PMC's Job	2
Referrals	1

Many were surprised to be asked about their plans to market program audits. Some felt these questions implied they are supposed market the program, and stated that

this implication was the first time they had heard anything about technical analysis contractors sharing the responsibility for marketing the program.

Incentives

Respondents from 12 of the 15 interviewed firms said they plan to promote the incentives available, though most said their promotion of the incentives would be limited to mentioning it to their prospective customers. Some said they think the incentives available will be the primary selling point for audits. Seven of the 12 respondents expect they will make all customers aware of the incentives available. Of the remaining five respondents, some said they expect they will only mention incentives to a customer if they think he or she will particularly benefit, and others said they have not yet decided on a strategy.

If respondents said their firms plan to promote the incentives available for the audits, we asked if they expect they will typically mention Energy Trust by name, and also if they expect they will mention Aspen Systems (the PMC). All said they expect they will mention Energy Trust, and none said they expect to mention Aspen Systems.

Most firms with staff that don't conduct audits said it's conceivable such staff might mention Building Efficiency program audits and incentives in their conversations with customers. Some respondents qualified this by saying they don't expect such staff will go out of their way to do so.

FEEDBACK, SUGGESTIONS, CONCERNS

We asked respondents whether their involvement so far had met their expectations. The most frequently given answer (seven respondents) was that expectations had not been met (Table 5.10). Expectations for the contracting period in particular were not met either, with nine respondents saying that took longer than expected.

Table 5.10

EXPECTATIONS FOR INVOLVEMENT (N=15)

INVOLVEMENT MET EXPECTATIONS	COUNT
No	7
Yes	4
Don't Know	4

With most respondents having had only minimal involvement with the program so far, only eight respondents felt comfortable giving an overall satisfaction rating for the program at this point, saying things like "we're in wait and see mode". Table 5.11 shows that, of those who did give a rating, only one response was positive (column "overall").

Even fewer respondents (5) felt comfortable giving the program a rating in comparison with prior utility audit programs in which they have participated. Of those who felt comfortable giving a rating, responses were divergent, but again only one response was positive, coming from the same respondent who gave the positive rating for overall satisfaction (Table 5.11, column "compared to utility").

Table 5.11

SATISFACTION RATINGS

SATISFACTION RATING	OVERALL N=15		COMPARED TO UTILITY N=15		INSTRUCTION SESSION N=10	
	LEVEL I	LEVEL II	LEVEL I	LEVEL II	LEVEL I	LEVEL II
Very Unsatisfied	0	0	0	1	0	0
Somewhat Unsatisfied	0	4	0	1	0	1
Neutral	1	2	1	1	2	2
Somewhat Satisfied	1	0	1	0	1	3
Too Early to Say	1	6	1	9	--	--

5. Experience of Technical Analysis Contractors (Mechanical)

We asked the 10 respondents who had attended the kickoff meeting or some other instruction session with the PMC how satisfied they were with the instruction. In contrast to other satisfaction questions, only one response was negative. Some respondents said the session was helpful, while others felt it focused too much on the EZ-Sim software. One respondent characterized the instruction session as the high point of his participation in the program to date.

Comparing ratings of respondents from Level I and Level II firms, it seems that respondents from Level I firms may be more satisfied than respondents from Level II firms. The single respondent who gave positive ratings for overall satisfaction and comparative satisfaction was from a Level I firm. And across the three satisfaction questions, only respondents from Level II firms gave negative responses.

After each question about expectations and satisfaction, we asked respondents to elaborate on the reasons for their answer. In addition, we asked what concerns they might have, if any, about the program or the contracting process, and what, if anything, they would like the PMC or Energy Trust to do to raise awareness about the program. If respondents raised any concerns, we asked whether they felt those concerns would have an ongoing effect on their participation in the program or on their customers. Respondents tended to visit the same themes in answers to these open-ended questions.

Seven respondents made positive comments in their responses to one or another of the open-ended questions. Two of these respondents mentioned liking the idea of making the program contractor-driven; they believe this approach will translate into more installations following audits and more energy savings. One respondent thought the program was "well-done and creative." Another respondent said the PMC had been "professional and competent." One respondent who had completed some program audits said he liked doing them and found customers receptive.

Respondents raised a number of concerns in their responses to the open-ended questions as well. Table 5.12 reports the themes that came out of their responses; themes are discussed in sections following the table.

Table 5.12

THEMES IN OPEN-ENDED RESPONSES
(MULTIPLE RESPONSES, N=15)

THEME	RESPONDENTS MENTIONING THEME	ANTICIPATE WILL AFFECT PARTICIPATION	ANTICIPATE WILL AFFECT CUSTOMERS
Communication Problems	12	3	6
program Marketing Insufficient	9	2	3
Rules Too Restrictive	6	2	3
Contract Too Legalistic/Inflexible	6	0	0
Fees Too Small	4	1	2
Insurance Requirement	4	1	0

Communication Problems

A strong majority of respondents (12) touched on different types of communication problems in their open-ended responses. One respondent had not been notified about the training session. Nine of the 12 mentioning communication problems said they are confused or "extremely confused" about the Building Efficiency program procedure, incentives, or rules; six these nine respondents had attended instruction with the PMC. One such respondent said when he asked questions at the instruction session the answers were equivocal. Another said the program was "over-documented to the point of blurriness." One respondent was confused about whether he had been assigned any audits because he received customer-billing information from the PMC without a formal work order. In the three weeks he waited for the work order he was not given an explanation for the delay.[35]

Many respondents said they are confused by the fact they are getting little or no work from the program manager. Most of these interpret the lack of work to mean the marketing strategy for the program is inadequate, a theme that is discussed

[35] The price schedule had just been revised for the type of audit this respondent had been assigned. The work order was delayed while program staff decided whether the new or previously quoted price schedule should apply to the audits he was assigned.

further in the "insufficient marketing" section below. Others guess the lack of work may signal that technical analysis contractors are supposed to market the program.

Of those who guess they are supposed to help market the program, three said their confusion about the program will have an ongoing effect on their participation. They said they would not be able to play their role effectively if they don't know what it is. One respondent said that if technical analysis contractors are supposed to market program audits, someone should tell them so.[36] One respondent said he is waiting to begin promoting the program until the PMC tells him what marketing practices firms may employ; he assumes there are rules restricting such practices.

Three of these respondents who guess they're supposed to help market program audits said they do not currently understand the program well enough explain it, let alone promote it to customers. They asked for a flyer or a website they can give to customers that will clearly and concisely explain incentives, steps for participation, and who customers should call with questions.

Six respondents concerned about communication problems think these problems will have a direct effect on customers (Table 5.13).

Table 5.13

EFFECTS OF COMMUNICATION PROBLEMS ON CUSTOMER (MULTIPLE RESPONSES, N=6)

ANTICIPATED EFFECT ON CUSTOMERS	COUNT
Will Be Confused, Won't Participate	3
Will Be Misinformed, Therefore Unsatisfied	3
Will Be "Bounced" Among Entities, Get Bad Service*	1
Will Be Uninformed , Won't Participate	1

* *Entities include Energy Trust, the PMC, and technical analysis contractors.*

[36] The only mention of marketing in the RFQ is in section 1.3 Objectives, in a list of "additional program objectives that ATACs should be aware of". The stated objective is to "Leverage other funding sources, including state tax credits, state loans, private sector capital, and participant investment and marketing by others." The "others" in question are not defined.

Table 5.13 shows that three anticipate the communication problems will cause some customers to be confused about the program and, not knowing how to participate, will give up on the program. Three anticipate the communication problems will create misinformed customers—that confused contractors may make bad promises for example—leading to unsatisfied customers.

Insufficient Marketing

Table 5.12 also shows that many respondents (9) said they are concerned that the program is not getting marketed enough, that customers are not aware of the program and will not be made aware of it. As previously stated, those concerned about insufficient marketing were responding to the fact that they were not yet getting assignments, or very many assignments, from the PMC. Few respondents had any direct knowledge of the program's marketing strategy.

Several respondents who said they guess they are supposed to market the program said they don't feel this is a good idea, or that their efforts cannot be enough to make the program successful. These respondents said Energy Trust or utilities are in a unique position to market the program because they have privileged access to customers. Two respondents specifically said program marketing should leverage the established relationship utilities have with customers, putting flyers in customer bills or sending account executives to large customers to convince senior management to participate. One respondent said that since equipment retrofits can be extremely intrusive to a company, the facilities or operations directors to whom technical analysis contractors have access simply do not have the authority to approve such a project. Two respondents were concerned that if they tried to market the program they would be poorly received by customers who would see them as trying to make a buck as opposed to offering them a valuable service.

Rules Too Restrictive

Six respondents have concerns about the rules of the program being too restrictive. Two of these thought there is, in general, too much focus on rules and program infrastructure as opposed to customers. One thinks the focus should be more on getting customers to participate. The other anticipates the emphasis on rules will take focus away from the technical services themselves and therefore reduce their quality.

Three respondents from Level II firms and one from a Level I firm said they feel they are in the position of being asked to bring work to their competitors. Two of these four respondents, whose firms were accepted to do Level II audits, said their

core business is not audits; they are concerned that customers they bring into the program will be directed to competitors after their firm does the audit. The respondent from the Level I firm was similarly concerned about customers he brings to the program being directed to competitors. Though none of the firms we interviewed typically install equipment following an audit, several typically design systems or manage projects from scoping to completion.

Two respondents (from Level II firms) said the restrictive rules would have an ongoing effect on their participation, in that they will be less aggressive about bringing customers into the program. One said his firm will have to calculate carefully which path to take with each customer on a case by case basis, choosing whether it's worthwhile to bring the customer into the program, and if so, whether to play the technical analysis contractor role or that of the turnkey contractor. He balked at having to make all these business decisions instead of being able to focus on doing good technical work.

One respondent who was concerned about bringing work to competitors worried that the PMC may also be conducting program audits, and thought this would create a conflict of interest.[37] Another of these respondents was concerned about bringing work to a competitor in the context of another Energy Trust program.[38]

Contract Too Legalistic/ Inflexible

Six respondents were unhappy with the contract language because it is legalistic, unfriendly to contractors, or inflexible.[39] No respondents said they anticipate this will have an ongoing effect on their participation or customers. One respondent, however, said his insurance company had asked him to obtain clarification on some issues in the contract. According to his insurance company certain language in the contract leaves Energy Trust open to unnecessary risk and Energy Trust would benefit from clarifying it. When he brought this up with program staff the response was that the language could not be changed.

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37 There was a time when the PMC was planning to do "walkthroughs" but that is no longer the case.

38 As mentioned previously, all Level II firms are also accepted to do Level III audits, that is audits of industrial facilities under the industrial program, also managed by the PMC. This respondent, from a Level II & III firm, was concerned because a competitor had recently been chosen as a "program delivery contractor" (PDC) for the industrial program, creating an apparent conflict of interest.

39 Per the PMC's Monthly Progress Report, February 11 to March 10, the PMC had expected that "some negotiation will be necessary before some of the contracts are signed." After the subsequent difficulties in finalizing the contract, the PMC told firms that the contracts were a "take it or leave it" proposition.

Fee Structure

Also a frequently raised concern (4 respondents) shown in Table 5.12 was that the fees for the audits are too low. All respondents who raised this concern are from Level II firms. Two of the four anticipate the fee structure will limit their participation in the program. One of these respondents said in particular fees for Level I audits are too low and fees for Level II audits are as well but to a lesser extent, causing his firm to eschew Level I audits.[40]

One respondent said he thinks the fee structure will affect customers because only under-qualified contractors will perform the audits at present rates, or qualified contractors will not do a good job because they aren't being paid adequately for the time involved. He predicted, "Cookie-cutter solutions at best will result." He explained "your choices are going to be to take a loss on audits and do a careful job, or do a less intensive audit that usual, focusing on easy, quick stuff that has a high payback." An example he gave of an opportunity that would be skipped over in the kind of cursory audit he expected he might perform under the program was primary/secondary pumping. "It takes a significant amount of analysis and the payback is five years rather than two. In a quick audit you wouldn't have time and energy to do complex analysis and calculate payback."

In contrast, while two other respondents echoed the belief that audits would be "quick" or "easy" both of these respondents characterized this as a strength of the program, not a weakness: "It'll get lots and lots of people to do the easy stuff".

Insurance Requirement

Four respondents raised concerns about the insurance requirements, but only one respondent anticipates this will have an ongoing effect on his participation, and no one thought it would affect customers. Three respondents said the insurance requirements were inappropriately high. The respondent who anticipates it will affect his firm's participation said that for his firm to continue participating in the program, the amount of work assigned by the PMC must justify the high insurance premiums they must pay—which he did not feel was currently the case.

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40 Level II firms are unlikely to be assigned Level I audits. Fees paid to technical analysis contractors are as follows. "Walkthroughs": $100, Level I audits: $180, Level II audits: negotiated on a case by case basis –Level II contractors receive $150 for performing a scoping audit in which they survey the facility to estimate cost of the audit,

One respondent who was concerned about the insurance requirements had a much different view than the others. But in stark contrast to other views respondents expressed about the insurance requirement, he said he believes the insurance requirement is not only appropriate but also necessary to prevent unqualified firms from conducting program audits. He said firms who know their business well know that such insurance is a necessary cost of doing business, and maintain the insurance despite the high cost.

SUMMARY OF SURVEY FINDINGS

Twenty-five technical analysis contractors are under contract to the program (six Level I contractors and 19 Level II contractors).

The studies program technical analysis contractors will produce are intended to lead directly to project implementation, which represents a difference in emphasis from other audit programs. A more significant difference between past audit programs and the Building Efficiency program, however, is the role of the technical analysis contractor. Currently, the program contractors lack a clear understanding of their role in the Building Efficiency program and in program marketing, and of program procedures and incentives. This confusion appears to be a result, in part, failure of the RFQ to call attention to unfamiliar aspects of the program design and to set appropriate expectations. This confusion was not eliminated for those contractors attending the training.

Most contractors expressed disappointment or dissatisfaction about the scarcity of assignments they had received, if any, and said that neither the PMC nor Energy Trust had communicated a rationale for the weak start. Most contractors had formulated their own explanations, such as the program was not being marketed sufficiently to generate projects or that they were expected to bring in their own projects.

Two-thirds of technical analysis contractors expect the PMC will assign them all or most of the program studies they will conduct; the remaining anticipate their own marketing efforts will generate one-half or more of the technical analysis studies they conduct for the program. The Level II contractors expecting to bring in projects had conducted an average of 19 studies in Oregon in 2002.[41] In prior years, most

[41] Twelve of 19 Level II contractors were interviewed. In addition to the Level II contractors, two of three interviewed Level I contractors said they expected to generate one-half or more of the projects they conduct for Building Efficiency. However, in the previous year, one of these contractors had only worked in Washington and the other had conducted only four audits in Oregon.

interviewed contractors were dependent on referrals from established audit programs, or referrals resulting from their reputation, for projects. Few actively marketed their technical analysis services.

Surveyed technical analysis contractors who plan to promote the incentives available for the audits expect they will typically mention Energy Trust by name. None expect to mention the PMC by name. Sixteen percent of participating contractors had mentioned to their customers the name of the PMC or its lighting network management subcontractor.

5. Experience of Technical Analysis Contractors (Mechanical)

6. EXPERIENCE OF CUSTOMER PARTICIPANTS AND PROSPECTIVE PARTICIPANTS

We explored the awareness and experiences of customers with the Building Efficiency program. The survey sample consisted of 21 customers who had participated in the program by installing energy-efficient equipment[42] and applying for program incentive rebates, and 10 customers in each of two groups of prospective program participants who had not participated in the program.

This chapter is organized into the following sections:

- *Survey Sample*—describes the sample of participants and the two samples of prospective participants who differ in their extent of contact with the program.
- *Program Awareness*—describes how the respondents learned of the Building Efficiency program and their awareness of other incentive programs, of the program manager, of the source of the incentives, of Energy Trust, and of the Business Energy Tax Credit.
- *Program Participation*—describes respondents' reasons for participating in the Building Efficiency program, their satisfaction and concerns arising from program participation, the reason they selected the lighting vendor with whom they worked, their experiences and satisfaction with the vendor's work, and their participation in other incentive programs.
- *Prospective Building Efficiency program Participation*—describes non-program lighting changes made by prospective program participants, and their reasons for not participating in the Building Efficiency program.
- *Energy-Efficient Equipment Awareness*—describes respondents' awareness of various types of energy-efficient lighting and mechanical equipment.

[42] These customers installed lighting equipment, as few mechanical projects had been completed by the time of the interviews.

- *Customer Characteristics*—describes respondents' energy-audit history, their interest in learning more about various types of energy-efficient mechanical equipment, the primary uses of their facilities, and the numbers of employees in those facilities.
- *Feedback, Suggestions, Concerns*—presents respondents' final comments.
- *Summary of Survey Findings*—summarizes key findings.

SURVEY SAMPLE

The survey sample may be thought of as reflecting a participation continuum from the earliest stage of first contact to inquire about a commercial efficiency program through full participation in the program. Customers who had contacted Energy Trust but not contacted the PMC nor received project numbers are at the beginning of the continuum, and are the first of the two "prospective customer" samples.[43] Customers to whom the PMC had assigned a project number, but who had not completed a Building Efficiency project, are in the middle of the continuum, and are the second of the two "prospective customer" samples.[44] Those respondents who have installed qualifying equipment and applied for incentive rebates are at the end of the continuum.[45] Thus, tables reporting on all interviewed customers have the following column headings, reflecting the three positions on the continuum:

- Prospective participants: Energy Trust contacts
- Prospective participants: Program contacts
- Program participants

The reader should note that the prospective participants are not representative of the nonparticipant population. In the first group, the customers are entirely self-selected, as they initiated contact with Energy Trust. Customers in the second group either self-selected by contacting the PMC about the program or were contacted by vendors. It is not fruitful to explore program awareness and reasons

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43 These customers were drawn from the Energy Trust's Goldmine database.

44 These customers were drawn from the PMC's project tracking database, from among the list of proposed yet not completed projects.

45 These customers were drawn from the PMC's project tracking database, from among the list of completed projects.

for nonparticipation with a random nonparticipant group until the program has established some degree of a market presence.

The survey was conducted from June 24 through July 2, 2003.

PROGRAM AWARENESS

All but one of the prospective program participants learned of the Building Efficiency program in conversations.

That one respondent said he learned of the program from a utility bill enclosure. Not surprisingly, the most common source from which the prospective program participants in the Energy Trust contact sample learned of the Building Efficiency program was Energy Trust (40% of the Energy Trust contact sample) (Table 6.1). The respondents initiated three-quarters of those conversations.

Table 6.1

SOURCE OF BUILDING EFFICIENCY PROGRAM AWARENESS

SOURCE OF BUILDING EFFICIENCY PROGRAM AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Lighting Vendor Initiated Conversation	10%	40%*	57%
Lighting Vendor: Respondent Initiated Conversation	20%	20%	24%
Energy Trust Initiated Conversation	10%	0%	0%
Energy Trust: Respondent Initiated Conversation	30%	0%	0%
Utility Initiated Conversation	10%	10%	0%
Utility: Respondent Initiated Conversation	0%	10%	0%
Colleague or Acquaintance Mentioned	20%	10%	19%
No Recollection	0%	10%	0%

* *Includes conversations initiated by an architect (10%.*

Overall however, the most common source from which prospective program participants learned of the program was lighting vendors. Thirty percent of the Energy Trust contact sample learned this way, and 60% of the Building Efficiency program contact sample learned this way. Among the Energy Trust contacts, respondents more frequently initiated the conversations with the vendors, whereas among the Building Efficiency program contact respondents vendors more often initiated those conversations.

Following lighting vendors and Energy Trust as sources of program awareness for prospective participants were the utilities. The respondent mentioned earlier who learned of the Building Efficiency program from a utility bill enclosure represents 10% of the Energy Trust contact sample. Twenty percent (two respondents) of the program contact sample learned in conversations with utilities, with one of those conversations initiated by the respondent and the other initiated by the utility.

For program participants, lighting vendors were an even greater source of first awareness of the Building Efficiency program than they were for prospective participants. About four out of five (81%) program participants learned of the Building Efficiency program from lighting vendors. However, in contrast to the prospective participants, the program participants initiated the conversation in which they learned of the Building Efficiency program less than one-third of the time. No interviewed program participants learned of the Building Efficiency program from a utility. Other ways in which participants heard of the Building Efficiency program were from another store in the respondent's chain (two), the owner of the business (one), and a client (one).

None of the respondents, whether participants in the Building Efficiency program or not, became aware of the program through an advertisement or a web site, and none of the respondents with a program number or project had first heard of the program from Energy Trust.

Since becoming aware of the Building Efficiency program, no more than two respondents from any of the samples had heard about the program from an additional source (Table 6.2). These additional sources of program information were other lighting vendors in 60% (three) of the cases and utilities in the other two cases.

Table 6.2

OTHER INCENTIVE PROGRAM AWARENESS

AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Subsequently Heard of Building Efficiency program from Another Source	20%	10%	10%
Aware of Utility programs	90%	90%	71%

There was a high awareness of earlier, utility-sponsored, incentive programs among both participants and prospective participants. Ninety percent of all prospective participants were aware of such programs, and almost three-quarters (71%) of the participants were aware of those programs.

Among prospective participants, there was a high degree of recognition of Energy Trust as the Building Efficiency program manager. Specifically, 60% of the Energy Trust contact sample named Energy Trust as the Building Efficiency program manager, and another 30% said they recognized Energy Trust as the program manager when prompted with the name (Table 6.3). Sixty percent of the Building Efficiency program contact sample named or recognized when prompted Energy Trust as the manager. Other prompted names each recognized by one of the prospective participants as the Building Efficiency program manager were the State of Oregon, the Northwest Energy Efficiency Alliance, the respondent's lighting vendor, and the respondent's utility. Three respondents from the Energy Trust contact sample each said they recognized one of the immediately foregoing names as the Building Efficiency program manager along with Energy Trust.

Only 14% of the Building Efficiency program participants named Energy Trust as the Building Efficiency program sponsor or manager. However, another 33% of the participants recognized Energy Trust as the manager when prompted with the Energy Trust's name. Other entities whom program participants recognized as the manager when specifically prompted with these names were the Northwest Energy Efficiency Alliance (recognized by three respondents), their utility (recognized by three respondents), the State of Oregon (recognized by two respondents), and their lighting vendor (recognized by one respondent). No respondents, whether program participants or not, named Aspen Systems as the program manager even when specifically prompted with that name.

Table 6.3

BEP MANAGER NAMED OR RECOGNIZED (MULTIPLE RESPONSES ALLOWED)*

BUILDING EFFICIENCY PROGRAM MANAGER NAMED OR RECOGNIZED	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Energy Trust (Named)	60%	30%	14%
Energy Trust (Recognized)	30%	30%	33%
State of Oregon	10%	0%	10%
Northwest Energy Efficiency Alliance	10%	0%	14%
Respondent's Utility	10%	0%	14%
Respondent's Lighting Vendor	0%	10%	5%
Aspen Systems	0%	0%	0%
No Name Recognition	10%	30%	38%

* *Respondents who could not name the program manager were prompted with the above names. Some respondents said they recognized more than one name as the Building Efficiency program manager.*

About one-half of all prospective participants (40% of the Energy Trust contact sample, 50% of the program contact sample) said they knew the source of the incentive rebate funds, and more than three-quarters of these gave utility bill charges as the source (Table 6.4). Other sources of the incentive funds mentioned were utilities, the State of Oregon, and the federal government. Approximately sixty percent of the prospective participants said the source of the funds is not important to them.

Program participants interviewed were much less knowledgeable about the source of the incentive funds than were the prospective participants. Specifically, only 14% of the program participants said they knew the source of the incentive rebates, and they gave the State of Oregon (two respondents) or a tax credit and PGE (both given by the same respondent) as the source. None of the program participants said Energy Trust or utility bills are the source of the incentive rebates. More than three-quarters (76%) of the participants said the source of the funds is not important to them.

Table 6.4

AWARENESS AND IMPORTANCE OF INCENTIVES' FUNDING SOURCE

AWARENESS AND IMPORTANCE	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Stated Awareness of Source	40%	50%	14%
Correctly Identified Source	30%	40%	0%
Source Not Important	60%	56%*	76%

* *Nine respondents answered the question.*

Prospective program participants were also more knowledgeable than program participants about Energy Trust of Oregon, reflecting their different sources of program awareness as shown in Table 6.1.

Table 6.5

PRIOR AWARENESS AND KNOWLEDGE OF PURPOSE OF ENERGY TRUST

AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Prior Awareness of Energy Trust	100%	100%	52%
Purpose: Energy Savings	50%	40%	38%
Purpose: Incentive Management	20%	20%	5%
Purpose: Unknown	30%	40%	57%

All of the prospective participants said they were aware of Energy Trust before being interviewed (Table 6.5). About one-half of the prospective participants (50% of the Energy Trust contact sample, 40% of the program contact sample) described the Energy Trust's purpose as energy savings. One-fifth of the prospective participants

said providing or managing incentive funds was the Energy Trust's purpose. Thirty percent of the Energy Trust contact sample and 40% of the program contact sample were unable to ascribe a purpose to Energy Trust.

Just over one-half (52%) of the program participants said they had heard of Energy Trust of Oregon before being interviewed. Of these, almost three-quarters (73%, corresponding to 38% of the total sample) described the Energy Trust's purpose as being energy savings, with one respondent saying providing incentives is its purpose. More than one-half (57% of program participants) were unable to describe the purpose of Energy Trust.

By definition, all of the respondents in the Energy Trust contact sample had called Energy Trust. However, one such respondent could not remember making a call, and is, therefore, omitted from the immediately following remarks. All but one of these calls were made to inquire about incentive programs (Table 6.6).

Table 6.6

RESPONDENT CALLS TO ENERGY TRUST

CALLERS' IMPRESSIONS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=2)
	ENERGY TRUST CONTACTS (N=9)	PROGRAM CONTACTS (N=3)	
SATISFACTION WITH INFORMATION RECEIVED FROM ENERGY TRUST			
Satisfied with Information	33%	67%	50%
Neutral or No Opinion	22%	0%	50%
Dissatisfied with Information	44%	33%	0%
SATISFACTION WITH CUSTOMER SERVICE FROM ENERGY TRUST			
Satisfied with Customer Service	56%	67%	50%
Neutral or No Opinion	22%	0%	50%
Dissatisfied with Customer Service	22%	33%	0%

The other call was made to request an energy audit. Of these callers, one-third was satisfied with the information they received. Almost one-half (44%) of these

respondents were dissatisfied with the information received from Energy Trust. The two remaining respondents expressed a neutral opinion about the information they received. All of those who rated the information unsatisfactory said they were unable to get the information they wanted, either because Energy Trust did not have it or did not follow up on the respondent's communication. More than one-half (56%) of these respondents rated the Energy Trust's customer service as satisfactory. Twenty-two percent (two respondents) rated the customer service as unsatisfactory because they had been able to reach only an answering machine, or had found the process too difficult to follow through with a rebate claim.

It is noteworthy that looking at the foregoing comments from the Energy Trust contact sample together with other comments made during the interviews reveals that more than one-half (58%) of these respondents said they had difficulty working with Energy Trust. More is said about these difficulties in the section titled Prospective Program Participation below.

Only 30% (three respondents) of the program contact sample had called Energy Trust. Two of these calls were to make inquiries about the incentive programs, and one was to ask about the consequences of a project delay. These callers rated both the information they received and the Energy Trust's customer service the same. Specifically, two were satisfied with the information and customer service, and one was dissatisfied with both because Energy Trust did not spend the amount of time explaining the Building Efficiency program to him that PGE used to spend.

Ten percent (two respondents) of the program participants had called Energy Trust, and only one of those could remember the reason for his call, which was to inquire about incentive programs. That person said he was satisfied both with the quality of the information he received from Energy Trust and with the Energy Trust's customer service. The other person rated the Energy Trust's customer service as neither satisfactory nor unsatisfactory due to his confusion over whom to call among the different telephone numbers in his possession.

Eighty-six percent of the program participants were aware of the Business Energy Tax Credit (BETC), and three-quarters of the prospective participants were aware of this tax credit. Anecdotally, it was mentioned by both nonprofit organizations included in the samples that the BETC is of no benefit to them, suggesting there may be a broader lack of awareness on the part of nonprofits of the credit's pass-through provision. The awareness of the nonprofits contrasts with that of the two municipalities in the sample, who were aware of the credit's pass-through provision.

PROGRAM PARTICIPATION

The reasons for the program participants' decisions to participate in the program fall into two broad categories, namely, an awareness of the benefits afforded by the Building Efficiency program, and that their job was being undertaken for reasons unrelated to Building Efficiency program considerations. Almost two-thirds (65%) of the participants proceeded when they did because they became aware of the Building Efficiency program's benefits at that time. A lighting vendor had brought the program benefits to the attention of almost two-thirds (seven respondents) of these participants.

The 35% of program participants who undertook their jobs for reasons unrelated to program considerations did so variously because they had construction projects already underway, because funding had become available for their project, because a fire had destroyed their facility, to meet the standards of an oversight agency, or to replace old, no-longer-working equipment.

Eighty-five percent of the program lighting customers had completed their jobs and received their incentive checks. The remaining three participants had completed their jobs and two of those jobs had been inspected. Only ten percent (two respondents) of the program participants reported experiencing delays occasioned by the program. One said the incentive check was slow to arrive. It took two-and-one-half months to arrive, when he had expected it would take seven to ten days. The other experienced a "short" delay, but could not remember what it was.

Fifty-eight percent of the participants expressed satisfaction with the Building Efficiency program's information or forms. The remaining 40% were neutral, expressing neither satisfaction nor dissatisfaction. However, one-half of the neutral ratings were given because the lighting vendor had filled out all of the forms, leaving the customer nothing more to do than sign them. Thus, these neutral ratings should be interpreted as a highly satisfactory program experience for the participants.

The only criticisms of the information and forms came from a respondent who said, without further elaboration, that the process was bureaucratic, and from one respondent who said he would have preferred to receive all of the forms at once as a package.

None of the participants expressed concerns about the program agreements they had to sign, or about any of the conditions placed on them as a program participant.

There were four ways in which the program participants came to be working with their lighting vendor (Table 6.7). More than 40% found the lighting professional

through the Yellow Pages or the suggestion of an acquaintance. Vendors initiated the approach with more than one-quarter (26%) of the participants. About 20% of the participants had worked with their vendor before. The remaining respondents (two) were public entities that bid their jobs out with RFPs. None of the participants had been referred to a vendor by Energy Trust.

Table 6.7

PROGRAM PARTICIPANTS' METHODS OF FINDING LIGHTING VENDORS

METHOD OF FINDING VENDOR	PROGRAM PARTICIPANTS (N=19)
Yellow Pages or through Acquaintance	42%
Vendor Approached Participant	26%
Worked with Vendor Before	21%
RFP	11%

All of the program participants who said they were given reasons by a lighting vendor to purchase energy-efficient lighting equipment were told the installation would decrease their energy use (Table 6.8). The next most commonly given reason was the incentive rebates, reported by almost one-third (31%) of the respondents. Better quality or color of lighting, decreased maintenance costs, and reduced electrical load on the building were other reasons given to these respondents. None of the respondents were given reasons not to purchase energy-efficient lighting equipment.

Table 6.8

REASONS TO INSTALL ENERGY-EFFICIENT LIGHTING (MULTIPLE RESPONSES ALLOWED)

REASON TO INSTALL	PROGRAM PARTICIPANTS (N=16)
Decreased Energy Use	100%
Incentive Rebate	31%
Better Light	19%
Decreased Maintenance Costs	6%
Reduced Electrical Load	6%

More than one-quarter (26%) of the program participants said they did not install all of the equipment suggested by their lighting vendor. Of those who did not install all of the suggested equipment, 40% (two respondents) could not remember what equipment had not been installed. The others (three respondents) installed exit signs only, used CFLs instead of T8s in a low-use area, or did not replace incandescent lights with T8s because of the difficulty of dimming T8s. Only the latter participant said he plans to install the suggested equipment (T8s), but not until there is a dimmable replacement for 500-watt incandescent lights.

None of the participants expressed dissatisfaction either with the installation of their lighting equipment or the vendor's customer service (Table 6.9). However, more than ten percent (two respondents) rated their satisfaction with the installation as neutral, one of those because they were apparently flimflammed by the first vendor with whom they worked.[46] This same respondent was the only one who gave their satisfaction with the vendor's customer service a neutral, rather than a satisfied, rating.

[46] The respondent did not indicate whether or not the offending vendor operated under the program. The respondent went on to say she was very happy with the subsequent vendor, who was in the program network.

Table 6.9

PARTICIPANT SATISFACTION WITH VARIOUS ASPECTS OF BEP PROJECTS

PROGRAM ASPECT	PROGRAM PARTICIPANTS		
	VERY SATISFIED	SOMEWHAT SATISFIED	NEUTRAL
Lighting Installation (N=17)	65%	24%	12%
Vendor Customer Service (N=17)	82%	12%	6%
Lighting Equipment (N=20)	80%	15%	5%
Overall program Participation (N=20)	60%	25%	15%*

* *Two of these three respondents gave a neutral rating because they were insulated by the lighting vendor from any apparent program involvement or burden. Thus, those two neutral ratings reflect a positive program experience.*

Only one participant gave a less than satisfied—that is neutral—rating to their lighting equipment, saying their experience with the equipment was insufficient for them to be able to judge differently.

All but 15% (three respondents) of the program participants said they were satisfied with their participation in the program. Those three respondents gave a neutral rating for their satisfaction level, and two of those gave that rating because they were insulated by the lighting vendor from any actual program involvement or burden. Again, these neutral ratings reflect a positive program experience. The remaining neutral rating was based upon a lack of conviction that the program is as economically beneficial as it has been represented to be.

Forty percent of the program participants had installed energy-efficient equipment prior to their participation in the Building Efficiency program. Almost two-thirds (five respondents) of those installations were part of an incentive program. One-quarter of those (three respondents) who had not previously installed energy-efficient equipment said they had considered doing so.

Of those who had participated in a utility incentive program, all but one rated their satisfaction with the previous program and the Building Efficiency program about equal, but gave non-specific reasons for this comparison or said they could not remember. The other participant said he was more satisfied with the Building

Efficiency program because both the job and the paperwork were easier through the Building Efficiency program.

PROSPECTIVE PROGRAM PARTICIPATION

About one-half of the prospective participants (50% of the Energy Trust contact sample, 40% of the program contact sample) had made energy-saving changes to their lighting equipment that were not part of the Building Efficiency program. Two of these nine prospective participants installed efficient equipment in the first few months of the program; the remaining seven had installed the equipment a year or two prior to the program. The changes included fixture replacements and upgrades to electronic ballasts and T8 lamps, installation of occupancy sensors, and replacement of incandescent lights with high-pressure-sodium or metal-halide lights. All of these changes were made specifically to lower energy use, although an incentive rebate, tax credit, and simply a space upgrade were also mentioned as reasons for the changes.

There is a marked difference between the Energy Trust contact sample and the program contact sample regarding reasons for not participating in the Building Efficiency program (Table 6.10).

Table 6.10

REASONS FOR NOT PARTICIPATING IN THE BUILDING EFFICIENCY PROGRAM (PROSPECTIVE PARTICIPANTS)

REASON FOR NON-PARTICIPATION	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)
Lack of Funding	0%	60%
Difficulty Getting Information	50%	0%
Planning Time	10%	20%
Too Busy	20%	0%
Other	20%	20%

The most common reason for non-participation, given by almost two-thirds (60%) of the program contact sample, was lack of funding. The most common reason for non-participation given by the Energy Trust contact sample was inadequacy of, or difficulty in obtaining, information. This reason was given by one-half of these respondents. None of the respondents from the Energy Trust contact sample mentioned lack of funding as a reason for not participating in the Building Efficiency program, and none of the respondents from the program contact sample mentioned inadequate information as a reason for non-participation. (Recall that neither of the two groups of prospective participants are representative of the nonparticipant population.)

Other reasons given for non-participation in the Building Efficiency program were the time it takes for planning, the respondent has been too busy, and the job did not qualify either because it was too small or already underway when the program started.

One respondent from the program contact sample and one-half of the Energy Trust contact sample said what they learned about the Building Efficiency program influenced their plans. All but one of these respondents said their plans were to some extent tailored in response to the cost savings resulting from the incentives. One respondent from the Energy Trust contact sample said his plans were influenced negatively because of the difficulty in obtaining information.

However, when further asked about reasons for non-participation in the Building Efficiency program, one-half of the Energy Trust contact sample said difficulty in obtaining information was the reason for their non-participation in the program. At other points during the interviews, other respondents from both contact samples mentioned having difficulties with the program that can be attributed to information or communication issues. Other specific problems or concerns mentioned were that the Building Efficiency program was too difficult to pursue (discussed earlier), a lack of conviction that the program is really worthwhile, the failure of Energy Trust to respond to a fax communication, confusing website information, and the absence of information about the program for mechanical equipment. Of the ten respondents who cited difficulties, eight were from the Energy Trust contact sample, representing 80% of that sample.

These difficulties notwithstanding, the entire the Energy Trust contact sample and one-half of the program contact sample said they might participate in the Building Efficiency program in the future. Of these, 40% of the Energy Trust contact sample and 20% of the program contact sample said they are likely to participate before the end of 2003. None of these respondents said they would not participate in the Building Efficiency program, but 40% of the program contact sample said they were

uncertain whether they would participate. Of those who expressed reasons for their uncertainty, the reasons were equally divided between the planning time required and uncertain funding.

ENERGY-EFFICIENT EQUIPMENT AWARENESS

The extent to which participants and prospective participants are aware of various energy-efficiency measures provides a baseline for the program. In this section, we explore whether the respondents are aware of specific measures, and if they are aware, whether they discussed the measure with a lighting vendor. With those who had discussed the measure with vendors, we explored whether the respondent or the vendor initiated the discussion of the measure. This information will be useful for tracking market changes in measure awareness and vendors' roles over time.[47]

Electronic Ballasts and T8 Lamps

About three-quarters of the prospective participants (70% of the Energy Trust contact sample, 80% of the program contact sample) had heard of electronic ballasts (Table 6.11). From the Energy Trust contact sample, only one respondent had discussed such equipment with his lighting vendor; that respondent learned of such equipment for the first time from his vendor's conversation. One-half (four respondents) of the program contact respondents who had heard of electronic ballasts had discussed them with their lighting vendors. Three of these respondents reported asking their vendors about electronic ballasts, while one respondent first learned about the ballasts when the vendor mentioned them.

More than 80% of the program participants had heard of electronic ballasts, and almost two-thirds (62%, 13 respondents) of them had discussed such equipment with their lighting vendors. Typically (for nine respondents), it was the vendor who first suggested electronic ballasts, and when they did, one-third of the participants with whom they spoke (three respondents) were learning about electronic ballasts for the first time.

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47 Although these data are useful in tracking changes over time, one caveat needs to be borne in mind when drawing interpretations from differences across the sample. Building Efficiency participants, by definition, had spoken with vendors about lighting equipment since February 2003. Most, but not all, of the respondents from the Building Efficiency contact list had similarly spoken recently with vendors. Respondents from the Energy Trust contact list had not yet spoken with vendors about the Building Efficiency program. In responding to the equipment awareness questions, they were recalling interactions with vendors prior to the program. Thus, one might expect their recall of more distant events to be less accurate than the other groups' recall of more recent events.

Table 6.11

AWARENESS OF ELECTRONIC BALLASTS AND T8 LAMPS

EQUIPMENT AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
ELECTRONIC BALLASTS			
Heard of Electronic Ballasts	70%	80%	81%
Discussed with Vendor	10%	40%	62%
Vendor Mentioned First	10%	10%	43%
Respondent Learning of for the First Time	10%	10%	14%
T8 LAMPS			
Heard of T8 Lamps	80%	70%	52%
Discussed with Vendor	20%	60%	33%
Vendor Mentioned First	10%	10%	29%
Respondent Learning of for the First Time	0%	10%	14%

About three-quarters of the prospective participants (80% of the Energy Trust contact sample, 70% of the program contact sample) had heard of T8 lamps. Only two respondents (20% of the sample) had discussed T8 lamps with vendors; one of these conversations was initiated by the respondent and one by the vendor, yet the respondent in this case was already aware of the lamps. Most (six out of seven) of the respondents from the program contact sample who had heard of T8s had discussed them with their lighting vendors. Five of these respondents reported having suggested T8s in conversations with the vendor; one respondent learned of T8s for the first time when the vendor mentioned it.

Just over one-half (52%) of the program participants had heard of T8 lamps, and about two-thirds of those had discussed such equipment with their vendors. In six of these seven discussions, the vendor first mentioned the lamps, and three of these respondents were learning of T8s for the first time.

Compact Fluorescent Lighting and Energy-Efficient Exit Signs

Most of the prospective participants (70% of the Energy Trust contact sample, 90% of the program contact sample) had heard of compact fluorescent lights (CFLs) (Table 6.12). None of the Energy Trust respondents reported having discussed this equipment with their vendors. Almost one-half (four of nine respondents) of the program contact respondents who had heard of CFLs discussed them with their vendor. In only one of these discussions was the vendor the first to mention CFLs, but the respondent had already heard of them.

Table 6.12

AWARENESS OF COMPACT FLUORESCENT LIGHTING AND ENERGY-EFFICIENT EXIT SIGNS

EQUIPMENT AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
COMPACT FLUORESCENT LIGHTS			
Heard of Compact Fluorescent Lights	70%	90%	76%
Discussed with Vendor	0%	40%	48%
Vendor Mentioned First	N/A	10%	43%
Respondent Learning of for the First Time	N/A	0%	10%
ENERGY-EFFICIENT EXIT SIGNS			
Heard of Energy-Efficient Exit Signs	60%	80%	38%
Discussed with Vendor	10%	30%	14%
Vendor Mentioned First	10%	20%	14%
Respondent Learning of for the First Time	0%	0%	10%

About three-quarters (76%) of the program participants had heard of CFLs, and about two-thirds of these (ten respondents) had discussed them with their vendor. In nine of these ten discussions, the vendors were first to mention the equipment, two of which mentions were the first time the respondents had heard of CFLs.

Roughly three-quarters of the prospective participants (60% of the Energy Trust contact sample, 80% of the program contact sample) had heard of energy-efficient exit signs. Only one respondent from the Energy Trust contact sample had discussed such equipment with their lighting vendor. Although it was the vendor who first suggested the equipment, the respondent had already heard of it. Almost one-half (three of eight respondents) of the program contact respondents who had heard of energy-efficient exit signs had discussed them with their vendor. The vendor mentioned the equipment first in two of those conversations, but both respondents were already aware of these measures.

More than one-third (38%) of the program participants had heard of energy-saving exit signs, and one-third of these (three respondents) had discussed them with their vendor. The vendor was the party to mention the equipment in each of these discussions, newly informing two of the respondents about energy-efficient exit signs.

High-Intensity-Discharge Lamps

One-half of the Energy Trust respondents and 80% of the program contact respondents had heard of high-intensity-discharge (HID) lamps (Table 6.13). HIDs were discussed with vendors by 60% (three of five respondents) of the Energy Trust respondents who had heard of such equipment, and by one-quarter (two respondents) of the program contact respondents who had heard of such equipment. The vendors initiated the mention of the equipment in all of these conversations, and in all of the conversations, the respondents had already heard of the equipment.

More than one-half (52%) of the program participants had heard of HID lamps, and more than one-third of these (four of eleven respondents) had discussed the suitability of such equipment for their job with their vendor. Vendors were the party to mention the equipment in three of these four discussions, including one in which the respondent was hearing about the measure for the first time.

Table 6.13

AWARENESS OF HIGH-INTENSITY-DISCHARGE LAMPS AND OCCUPANCY SENSORS

EQUIPMENT AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Heard of High-Intensity Discharge Lamps	50%	80%	52%
Discussed with Vendor	30%	20%	19%
Vendor Mentioned First	30%	20%	14%
Respondent Learning of for the First Time	0%	0%	5%

* *Respondents unable to recall whether conversation with vendor was the first they had heard of the equipment.*

Occupancy Sensors and Photo Dimmers

Ninety percent of the prospective participants (nine respondents from each sample) had heard of occupancy sensors, and from one (Energy Trust contact sample) to three (program contact sample) of these respondents had discussed this equipment with their vendors (Table 6.14). The vendor was the first to mention the sensors in only one of these four discussions, which was with a respondent from the Energy Trust contact sample. That respondent had already heard of occupancy sensors before the vendor mentioned them.

Roughly two-thirds (13 respondents) of the program participants had heard of occupancy sensors, and fewer than one-quarter (three respondents) of these discussed this equipment with their vendor. The vendor was the first to mention occupancy sensors with two of these respondents. In both cases the respondents were unable to remember whether that conversation was the first time they had heard of such equipment.

Table 6.14

AWARENESS OF OCCUPANCY SENSORS AND PHOTO DIMMERS

EQUIPMENT AWARENESS	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
OCCUPANCY SENSORS			
Heard of Occupancy Sensors	90%	90%	62%
Discussed with Vendor	10%	30%	14%
Vendor Mentioned First	10%	0%	10%
Respondent Learning of for the First Time	0%	0%	N/A*
PHOTO DIMMERS			
Heard of Photo Dimmers	50%	50%	29%
Discussed with Vendor	10%	10%	0%
Vendor Mentioned First	10%	0%	N/A
Respondent Learning of for the First Time	10%	0%	N/A

* *Respondents unable to recall whether conversation with vendor was the first they had heard of the equipment.*

One-half of the prospective participants had heard of photo dimmers, and almost one-quarter (20%) of these discussed such equipment with their vendor. The vendor was the first to mention photo dimmers in only one of the discussions, which was with a respondent from the Energy Trust contact sample. That conversation was the respondent's first awareness of photo dimmers.

More than one-quarter (29%) of the program participants had heard of photo dimmers, but none of them discussed using such equipment for their job with their vendor.

Non-Lighting Equipment

Table 6.15 displays the levels of awareness of various non-lighting equipment by prospective program participants. Eighty percent or more of the prospective

participants had heard of programmable thermostats. One-half or more had heard of energy management systems. Only 20% of the Energy Trust contact sample had heard of economizers for cooling systems, whereas almost 80% of the program contact sample had heard of such equipment. About two-thirds of the prospective participants had heard of variable-speed motors.

Table 6.15

AWARENESS OF NON-LIGHTING EQUIPMENT (PROSPECTIVE PARTICIPANTS)

TYPE OF EQUIPMENT	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=9)
Programmable Thermostats	80%	89%
Energy Management Systems	50%	67%
Economizers	20%	78%
Variable-Speed Motors	70%	67%

One-half or more of the Energy Trust contact sample expressed a high interest in learning more about non-lighting, energy-efficient equipment such as heating, cooling and ventilation (HVAC) systems, controls for HVAC systems, and variable-speed motors (Table 6.16).

The program contact sample was most interested in learning about HVAC controls and variable-speed drives, but with only one-third of the sample expressing a high interest in learning more about these items. At the same time, members of this group also expressed the least interest in variable-speed drives, with 44% saying they had no interest at all in learning more about such equipment.

The program participants with a high interest in learning more about non-lighting, energy-efficient equipment ranged from roughly one-third (35%) of the group for HVAC controls to nearly one-half (47%) of the group for motors. At the same time, motors were also of least interest to this group, with more than one-third (35%) of them having no interest in additional information about motors.

Table 6.16

INTEREST IN LEARNING ABOUT NON-LIGHTING EQUIPMENT

INTEREST LEVEL	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=17)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
HEATING, COOLING AND VENTILATION SYSTEMS			
High	60%	22%	41%
Medium	30%	44%	24%
Low	10%	11%	24%
None	0%	22%	18%
HVAC CONTROLS			
High	50%	33%	35%
Medium	30%	33%	24%
Low	10%	11%	18%
None	10%	22%	24%
VARIABLE-SPEED DRIVES			
High	50%	33%	47%
Medium	20%	11%	12%
Low	10%	11%	6%
None	20%	44%	35%

CUSTOMER CHARACTERISTICS

Three of the Energy Trust contact sample, and four of nine respondents from the program contact sample said an energy audit had been conducted on their facilities (Table 6.17). From one-third (Energy Trust contact sample) to one-half (program contact sample) of those prospective participants said the audit was either currently underway or had occurred within the last nine months. The others either could not remember or said the audit occurred more than two years ago. Two respondents

from each of the prospective-participant sample groups whose facilities had been audited said some of the audit suggestions had been implemented.

Table 6.17

ENERGY AUDITS
(MULTIPLE RESPONSES ALLOWED)

AUDIT INFORMATION	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=9)	
Audit Conducted	30%	44%	24%
Audit Conducted within Last Year	10%	22%	0%
Audit Conducted More than Two Years Ago or Unknown	20%	33%	100%
Some Audit Suggestions Implemented	20%	22%	N/A

Less than one-quarter (24%) of the program participants said an energy audit had been conducted on their facilities at some time. All of those who could remember when the audit was conducted said the audit occurred more than two years ago.

The most frequent primary use of the prospective participants' facilities was office at 30% for both samples (Table 6.18). The next most common primary uses were retail (20% of the program contact respondents) and warehouse/wholesale (20% of the Energy Trust respondents), followed by apartments and food service at 10% for each sample. Other prospective participant facility uses were classrooms and lecture halls, fire station, research and development shop, health-care residential, and machine shop.

The primary use of the facilities of program participants was also most frequently office, with one-third of the program participants reporting this use. The next most common use was retail space (24%), followed in equal numbers by warehouse-wholesale, manufacturing, hotel, and church. The other primary use of one of the participant's facilities was residential apartments.

Table 6.18

PRIMARY FACILITY USE

PRIMARY FACILITY USE	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=21)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=10)	
Office	30%	30%	33%
Retail	10%	20%	24%
Warehouse-Wholesale	20%	0%	10%
Apartments	10%	10%	5%
Food Service	10%	10%	0%
Manufacturing	0%	0%	10%
Hotel	0%	0%	10%
Church	0%	0%	10%
Other	20%	20%	0%

The number of employees at facilities in the Energy Trust contact sample ranged from two to 2,500, with one-half having 20 or fewer employees, and ten percent (two respondents) having more than 1,000 employees (Table 6.19). One-third of the facilities of the program contact sample had 20 or fewer employees, while more than one-half (56%) had from 21 to 100 employees. The number of employees working in the facilities of program participants ranged from one to 200, with more than one-half (55%) having 20 or fewer employees.

Table 6.19

NUMBER OF EMPLOYEES AT FACILITIES

NUMBER OF EMPLOYEES	PROSPECTIVE PARTICIPANTS		PROGRAM PARTICIPANTS (N=20)
	ENERGY TRUST CONTACTS (N=10)	PROGRAM CONTACTS (N=9)	
1 to 20	50%	33%	55%
21 to 100	30%	56%	35%
101 to 1,000	0%	11%	10%
More than 1,000	20%	0%	0%

FEEDBACK, SUGGESTIONS, CONCERNS

The final comments of the prospective program participants offered suggestions for an outreach person, program, or visits to help provide program information, and were generally suggestive that more information about the benefits—especially economic—of the Building Efficiency program would be useful. One prospective participant would simply like to have a response to the information he faxed to Energy Trust several months ago.

The final comments of the program participants were, with two exceptions, laudatory and expressive of pleasure with the Building Efficiency program, and the exceptions were not criticisms. Rather, they were suggestions for expanding the program. One respondent suggested the Building Efficiency program should be offered to older buildings, and the other suggested the State of Oregon should be making the case for the program and providing lists of recommended lighting vendors.

SUMMARY OF SURVEY FINDINGS

Prospective Participants

Prospective Building Efficiency program customers were identified from two sources. One set of prospective customers had contacted Energy Trust and were

recorded in the Energy Trust's Goldmine database of market contacts. The other set of prospective customers had projects proposed but not undertaken; these customers were drawn from the PMC's project tracking database.

Nearly all prospective customers who had contacted Energy Trust reported they had not participated in the Building Efficiency program because of the difficulty they had in obtaining program information. In contrast, 60% of the prospective program customers with proposed projects reported they had not participated because their organization lacked the funding to undertake the project.

Participants

All surveyed participating lighting customers were satisfied with their overall experience with the Building Efficiency program, and with their lighting equipment, the equipment installation, and the contractor.

More than half of the lighting participants said their contractor had brought the Building Efficiency program to their attention; another quarter of participants had asked their vendor whether an efficiency program was available. The remaining participants had learned of the program from their colleagues.

About half of surveyed participating customers were familiar with Energy Trust's name and identified Energy Trust as the Building Efficiency program sponsor.[48] About one-quarter of program participants had previously participated in a utility incentive program and about three-quarters were aware that utilities have offered efficiency programs.

[48] Among surveyed prospective participants, 60% of the Building Efficiency contact sample and 90% of the Energy Trust contact sample identified Energy Trust as the Building Efficiency sponsor. All of the prospective participants had heard of Energy Trust.

6. Experience of Customer Participants and Prospective Participants

7. SUMMARY OF FINDINGS

This chapter summarizes the evaluation findings. The summary is organized into the following five sections:

- *Building Efficiency Status as of September 15, 2003*,
- *Program Design Accomplishments*,
- *Market Response to Building Efficiency Program*,
- *Market Recognition of Energy Trust*, and
- *Program Marketing, Communication, and Decision Making*.

BUILDING EFFICIENCY PROGRAM STATUS AS OF SEPTEMBER15, 2003

As of September 15, 2003, 136 Building Efficiency projects have been completed (113 lighting projects and 23 mechanical) and customers have committed to installing another 73 projects (53 lighting, 20 mechanical). The completed projects obtain annual savings of 5,155 aMWh. Thus, mid-way through its first year, the program has saved 27% of its first-year program goal. Mechanical projects comprise 46% of these energy savings. The proportion of total savings comprised by mechanical projects has been increasing over time.

Projects to which customers have committed will obtain 7,636 aMWh; committed plus completed projects will obtain 68% of the first-year program goal.

The largest completed project cost $145,750. The largest committed project will cost $610,000.

Sixty-three different contractors have projects in some stage of development (proposed through completed). These include 18 contractors with mechanical projects and 62 contractors with lighting projects (some contractors have both lighting and mechanical projects.)

The trade ally networks have 144 contractors and other trade allies, including 12 turnkey contractors. Most network contractors have received program training from the PMC.

PROGRAM DESIGN ACCOMPLISHMENTS

The "fast-tracked" program design process has been very successful with respect to the technical facets of the program, which are summarized here:

The first Building Efficiency projects were completed and incentive checks issued within the first month of program operations.

The Building Efficiency program launched two months after contract signing with the PMC. For lighting, all prescriptive measures, prescriptive and custom incentives, and program participation forms were designed and finalized by program launch. For mechanical, most measures, incentives and forms were designed and finalized by program launch, and the remainder were completed within three months of program launch.

Prescriptive incentives for unitary HVAC equipment and motors up to 200 hp extend the availability of prescriptive incentives to the mechanical sector. Analysis algorithms for variable speed drives (VSD), obtained from manufacturers, simplify custom incentives for VSDs.

The BETC application process has been streamlined. Participants are offered BETC applications with completed project data. These applications can be automatically generated by the project tracking software. Program-generated BETC applications have been accepted by the Oregon Office of Energy.

Building Efficiency program protocols, project and program tracking software, and quality control procedures have been designed and are in use. The tracking software is automated so that information used or reported in multiple contexts need only be entered once. PMC staff prepare project savings estimates and incentives from vendor-submitted information. Savings estimates for custom mechanical projects are prepared by technical analysis contractors and reviewed by engineers on the PMC staff. Software automatically calculates savings and incentives for prescriptive measures.

Electronic communication exists between the PMC and contractors for contractors preferring that mode. All electronically transmitted project applications, which customers commit to by signing, are delivered to contractors in read-only PDF form.

Technical analysis contractors and commissioning oversight contractors are under contract to the PMC. Contractors have received training in the program and, as appropriate, in the EZ Sim analysis tool.

Program brochures have been produced. A program promotional plan has been developed and is being implemented by the PMC.

MARKET RESPONSE TO BUILDING EFFICIENCY PROGRAM

Equipment Contractors

The lighting contractor network is operating well and generating Building Efficiency projects, according to program staff (Energy Trust and PMC) and contractors alike. Of the 85 trade allies that have joined the lighting network, 62 contractors have proposed or completed a total of 327 Building Efficiency program lighting projects, for an average of 5.3 projects each.[49]

About half of participating lighting contractors advertise the Building Efficiency program incentives, and all contractors mention the program to all customers with potentially qualifying projects.

Three-quarters of participating lighting contractors rate the satisfaction with the Building Efficiency program as greater than or equal to their satisfaction with utility programs in which they have participated. Over one-third described themselves a "much more satisfied". Virtually all contractors were satisfied with the participation forms and turn-around times. While 16% of contractors expressed some dissatisfaction with some aspect of the program, no one reported a high degree of dissatisfaction.

Mechanical contractors did not join the network at the rate anticipated, in spite of meetings and presentations to distributors, large contracting firms, and large customers. Many of the mechanical contractors only recently joined the network. Of the 63 trade allies belonging to the network, 18 contractors have completed or have customer commitments for a total of 43 mechanical projects, for an average of 2.4 projects each.

[49] Participating lighting contractors are those contractors with a project in any stage (proposed through installed) in the Building Efficiency tracking database as of September2003. At the time of the contractor survey (June), there were 53 participating contractors, 25 of whom were surveyed. Hereafter in this "Summary of Findings", the percentages of participating lighting contractors refer to the proportions of the 25 surveyed contractors providing the response.

Technical Analysis Contractors

Twenty-five technical analysis contractors are under contract to the program (six Level I contractors and 19 Level II contractors).

The studies program technical analysis contractors will produce are intended to lead directly to project implementation, which represents a difference in emphasis from other audit programs. A more significant difference between past audit programs and the Building Efficiency program, however, is the role of the technical analysis contractor. Currently, the program contractors lack a clear understanding of their role in the Building Efficiency program and in program marketing, and of program procedures and incentives. This confusion appears to be a result, in part, failure of the RFQ to call attention to unfamiliar aspects of the program design and to set appropriate expectations. This confusion was not eliminated for those contractors attending the training.

Most contractors expressed disappointment or dissatisfaction about the scarcity of assignments they had received, if any, and said that neither the PMC nor Energy Trust had communicated a rationale for the weak start. Most contractors had formulated their own explanations, such as the program was not being marketed sufficiently to generate projects or that they were expected to bring in their own projects.

Two-thirds of technical analysis contractors expect the PMC will assign them all or most of the program studies they will conduct; the remaining anticipate their own marketing efforts will generate one-half or more of the technical analysis studies they conduct for the program. The Level II contractors expecting to bring in projects had conducted an average of 19 studies in Oregon in 2002.[50] In prior years, most interviewed contractors were dependent on referrals from established audit programs, or referrals resulting from their reputation, for projects. Few actively marketed their technical analysis services.

Turnkey Contractors

Most turnkey contractors (also known as energy service companies or ESCOs) are unavailable to participate in the project until multi-year projects underway with

[50] Twelve of 19 Level II contractors were interviewed. In addition to the Level II contractors, two of three interviewed Level I contractors said they expected to generate one-half or more of the projects they conduct for Building Efficiency. However, in the previous year, one of these contractors had only worked in Washington and the other had conducted only four audits in Oregon.

schools conclude. As of July, only one turnkey contractor had expressed interest in participating in the Building Efficiency program this year. That contractor has yet to initiate a program project.

Turnkey contractors had been assumed at program outset by Energy Trust and PMC staff to play a significant role in program marketing, generating perhaps as much as one-quarter of all program savings.

Utilities

Utility referral of customers is generating between one and two calls a day on average. Utility referrals had been assumed at program outset by Energy Trust and PMC staff to play a significant role in project generation. Staff hopes of co-branding the Building Efficiency program as a joint Energy Trust-utility program, with promotional support from the utilities, did not come to pass.

PacifiCorp was credited by numerous program staff with having greatly facilitated the transition of efficiency program delivery from the utilities to Energy Trust. Both utilities have been responsive to PMC requests for customer billing data.

Participating Lighting Customers

All surveyed participating lighting customers were satisfied with their overall experience with the Building Efficiency program, and with their lighting equipment, the equipment installation, and the contractor.

More than half of the lighting participants said their contractor had brought the Building Efficiency program to their attention; another quarter of participants had asked their vendor whether an efficiency program was available. The remaining participants had learned of the program from their colleagues.

Prospective Program Customers

Prospective Building Efficiency program customers were identified from two sources. One set of prospective customers had contacted Energy Trust and were recorded in the Energy Trust's Goldmine database of market contacts. The other set of prospective customers had projects proposed but not undertaken; these customers were drawn from the PMC's project tracking database.

Nearly all prospective customers who had contacted Energy Trust reported they had not participated in the Building Efficiency program because of the difficulty

they had in obtaining program information. In contrast, 60% of the prospective program customers with proposed projects reported they had not participated because their organization lacked the funding to undertake the project.

MARKET RECOGNITION OF ENERGY TRUST

About half of surveyed participating customers were familiar with Energy Trust's name and identified Energy Trust as the Building Efficiency program sponsor.[51] About one-quarter of program participants had previously participated in a utility incentive program and about three-quarters were aware that utilities have offered efficiency programs.

Thirty percent of surveyed participating lighting contractors estimated that none of their customers are aware of Energy Trust.

Three-quarters of surveyed participating lighting contractors said "Energy Trust" should be the most prominent name on program materials, when asked to respond to a choice of "Energy Trust", "Aspen Systems" or some other name. The remaining contractors suggested it makes no difference which name is more prominent. The reasons cited most often for Energy Trust's name prominence, each given roughly one-third of the time, were Energy Trust is the sponsor of the program, greater recognition of the name Energy Trust, and the intrinsic merit of the name.

Surveyed technical analysis contractors who plan to promote the incentives available for the audits expect they will typically mention Energy Trust by name. None expect to mention the PMC by name. Sixteen percent of participating contractors had mentioned to their customers the name of the PMC or its lighting network management subcontractor.

PROGRAM MARKETING, COMMUNICATION, AND DECISION MAKING

Marketing and Communication with the Market

Program design assumptions that equipment contractors, turnkey contractors, technical analysis contractors, and utility referrals would generate significant levels of program participation have not been borne out. The exception to this is

[51] Among surveyed prospective participants, 60% of the Building Efficiency contact sample and 90% of the Energy Trust contact sample identified Energy Trust as the Building Efficiency sponsor. All of the prospective participants had heard of Energy Trust.

lighting equipment contractors, which are generating projects at a rate comparable to what was generated by PacifiCorp's lighting contractor network in 2002.

The resources dedicated to marketing in the PMC's proposal to Energy Trust were designed, and are being used, in a relationship-building approach to program promotion. The PMC's completion of a promotional plan to took longer than anticipated by Energy Trust staff and occurred in late May.

Energy Trust's finalization and publication of a program brochure took longer than anticipated by staff and occurred in late May, four months after program launch.

Communication and Relationships Internal to the Program

Relationships internal to the program—among program staff working for Energy Trust, the PMC, and the PMC's lighting network management subcontractor—are reported to be strong. All interviewed staff expressed respect for the professionalism and expertise of the other staff involved in delivering and marketing the program.

Communication between Energy Trust as a whole and PMC occurs along formal lines of authority, with several layers of Energy Trust staff needing to approve the PMC's work products. PMC staff voiced a desire for increased communication with Energy Trust as a whole (such as by participating at staff meetings) so that they might better understand how the Building Efficiency program fits in the range of Energy Trust activities and decisions. PMC staff had high praise for the quality of their communication with the Energy Trust Commercial & Industrial Program Manager responsible for Building Efficiency.

Decision Making

Energy Trust decision making for the program is much slower than program staff with both Energy Trust and the PMC anticipated or desire. Lengthy decision making is most problematic is the areas of policy, public communication, and approval of PMC products relating to policy and public communication, such as contracting. The time involved in reaching a number of specific decisions have delayed program implementation. These include:

- The delay in producing the program brochure adversely affected communication with the market and with utilities.

- The delay in contracting with the technical analysis contractors delayed the completion of mechanical projects, and contributed to confusion about the program reported by the technical contractors.

- The delay in determining which types of projects are to be addressed by which of Energy Trust's programs adversely affected at least one potential customer with a multifamily dwelling.

The "fast-tracking" of the program design has been unsuccessful with respect to policy and public communication decisions. These protracted policy and communication decision-making processes have adversely affected program roll-out, contractors, customers, and the acquisition of energy savings.

8. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The evaluation Request for Proposals and the Energy Trust and PMC staff interviewed for the evaluation raised a number of questions about the quality, direction, and progress of the Building Efficiency program.

1. Is the Building Efficiency program meeting the expectations of participating customers and contractors?

Participating customers and lighting contractors are fully satisfied with the program. More than half of participating contractors expressed greater satisfaction with the Building Efficiency program than they had experienced under prior lighting incentive programs. Customers and contractors said that program PMC staff conducted their activities in a timely manner.

Technical analysis contractors, who have only recently come under contract to the PMC, are confused and uncertain about the program.

2. Is the Building Efficiency program on-track to attain its savings goals?

Completed and committed projects as of September 15, 2003 suggest the program will end the year with completed projects attaining roughly three-quarters of its 2.15 aMW savings goal. Projects entering the program in August suggest the program will end the year generating approximately 2,000,000 kWh in new savings each month (or 2.7 aMW annually). To attain the cumulative 2003-2004 savings goal of 5.5 aMW, the program will need to generate approximately 3,000,000 kWh in new savings each month of 2004 (based on the assumption that the program finishes its first year attaining at least 75% of its 2003 goal). It is too early in the program to predict its success in 2004, as many conditions affecting the attainment of the goal remain uncertain. (Conclusion 9 provides an elaboration of these conditions.)

3. Does a PMC appear to be a successful approach for quickly fielding a program and for its continued implementation?

The use of the PMC to rapidly complete the program design from the outline provided by the Building Efficiency RFP and launch the program has been successful in the view of Energy Trust and PMC staff alike. The program was launched within one month of contract signing between Energy Trust and the PMC. Most of the Building Efficiency program's technical elements—including most of the measures to be incentivised, incentive levels, program forms, program procedures, and program and project tracking databases—were completed by the time of program launch. The Building Efficiency PMC appears to be implementing the program in a thorough, professional, and timely manner.

4. Was "fast tracking" the Building Efficiency program successful?

Most of the technical components of the program were rapidly formulated and implemented; however, many policy and public communication decisions did not keep pace with program implementation. The policy and related decision-making support for the Building Efficiency program did not appear to program staff of both Energy Trust and the PMC to have been conducted with the same sense of urgency that marked the technical program development. The "fast-tracked" program roll-out and the "business-as-usual" approach to policy and public communication were frequently at odds, with some customers and contractors experiencing adverse affects. For example, key policy and contract decision-making affecting technical analysis contractors were protracted, leaving some customers without the technical studies they requested and reducing the program's early acquisition of mechanical savings.

The technical program development, conducted on the fast track, was demonstrably successful in its objective to "put the customer first". Customers and contractors praise both the program and its implementation by the PMC. The policy development, in contrast, appeared to be more internally rather than customer focused.

5. Do equipment contractor networks appear to be a successful approach for delivering the program?

The lighting contractor network is successful in delivering the program; the mechanical network is still being established and it is too soon to draw inferences about its likely effectiveness. Energy Trust and PMC program staff have concluded: "If you can get there—have an educated, motivated, mature

network, like we have in lighting—it can work." It is too early to judge whether the mechanical network can "get there." Furthermore, it remains to be seen what volume of large mechanical projects—with large energy savings—the mechanical network will generate, as opposed to prescriptive projects with small savings. Large mechanical projects are expected to be brought into the program by turnkey and technical analysis contractors, yet it will be to the program's benefit if general mechanical contractors also bring in such projects.

6. Is the program on-track in proportion of savings attained from mechanical projects?

Assuming that most projects to which customers have committed will be installed, the program is approaching its goal of roughly two-thirds of energy savings coming from the mechanical sector. As of mid-September of the program's first year, projects that have been completed or committed to by customers total two-thirds of the first-year energy savings goal. Mechanical projects comprise 46% of these energy savings. The proportion of total savings comprised by mechanical projects has been increasing over time.

7. Is the marketing approach on-track for attaining program goals?

The marketing approach relies primarily on the activities of contractors and utilities and appears to need augmentation by a program-awareness or marketing campaign. Energy Trust has not yet effectively replaced the role that Oregon's investor-owned utilities have historically played in generating participation in efficiency programs. Energy Trust needs a tool to provide, at a minimum, the same level of outreach as the utilities provided. The equipment contractor networks are not, in themselves, sufficient to the task. Furthermore, participating lighting contractors would like to see Energy Trust more actively promote the Building Efficiency program. This recommendation was made by contractors who themselves promote the Building Efficiency program incentives in their own advertisements. Thus, their comments cannot be construed as looking for a "free ride."

8. What can be concluded about Energy Trust's policy regarding an agency relationship between Energy Trust and the PMC?

The policy—to define a relationship with the PMC that reduces the likelihood of a legal determination of "agency"—was formulated too recently to support any definitive conclusions. The policy requires that

documents and public communications clarify that Energy Trust is funding the program, but the PMC and its contractors conduct the program work.

The views of participating lighting contractors may be suggestive of future market response to the policy. Three-quarters of participating lighting contractors thought the Energy Trust's name should be most prominent on program materials because the name lends credibility to the program.

The experience of customer participants illustrates the challenge the Energy Trust faces as the successor to utility-implemented efficiency programs. Most customers with completed Building Efficiency projects reported awareness of utility efficiency programs. In contrast, Energy Trust was recognized as the sponsor of Building Efficiency by only half of these participating customers.

9. What current conditions are having a negative impact on the program's attainment of energy savings and which of these conditions might be influenced by Energy Trust and PMC actions?

The current conditions limiting program savings differ in the degree to which they can be influence by Energy Trust and PMC actions. A condition outside the influence of Energy Trust is the economic recession, which reduces the capital that businesses have to invest in reducing their energy costs.

Two conditions outside of the control of Energy Trust and the PMC, but potentially within their sphere of influence, are the participation of turnkey contractors in the program and the participation—through customer referrals—of utilities in the program. As of mid-September, no turnkey contractors had participated in Building Efficiency. Utility referrals of customers, while forthcoming, were much lower than envisioned at the program outset. The program receives, at most, one or two calls from customers a day (resulting from all sources of program communication). A third condition that Energy Trust and the PMC might have some influence on is the synergy between the activities of the Northwest Energy Efficiency Alliance and Building Efficiency.

Conditions currently limiting program savings but which Energy Trust and the PMC could significantly influence include the following. One, current marketing resources made available to Building Efficiency reflect anticipated market conditions that have not materialized, especially concerning the roles of turnkey contractors and utilities in generating program participants and prospective participants. Two, along with marketing resources, the marketing strategy, activities, and assignment of activities to Energy Trust and the PMC have not been reconsidered in spite of anticipated market conditions not materializing. Three,

technical analysis contractors do not appear to be ready (or, in some cases perhaps, suitable) to fulfill the role in project generation envisioned for them in the program design. Four, Energy Trust's policy regarding "agency" does not appear to be well matched to the market conditions facing the Building Efficiency program. Energy Trust may need to take a more prominent role in PMC promotion than is possible while the securing distance from the PMC in market relations required by current agency policy.

10. Did Energy Trust's Goldmine contact database serve to funnel customers into the Building Efficiency program?

Findings from a small interview sample suggest that little follow-up occurred with customers who initiated contact with Energy Trust prior to February 2003. Once Building Efficiency was up and running, calls placed to Energy Trust have been forwarded to PMC staff, who respond to them.

11. What progress toward program goals is apparent from the program indicators, and what indicators remain to be explored at the end of the program's first year?

Tables 8.1 and 8.2 present conclusions regarding the program indicators developed from the program theory and logic modeling described in chapter 2. Table 8.1 presents the resource acquisition indicators, and Table 8.2 presents the indicators for market transformation. Both tables provide conclusions on indicator status as of mid-year and identify indicators to be explored in subsequent research to occur at the end of the program's first year.

Table 8.1

RESOURCE ACQUISITION INDICATORS

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Recruits, Trains, and Maintains AIC, ATAC, and Turnkey Contractor Network/ Involvement	Staff report contractor paperwork correct	Generally true for lighting	To do for mechanical; update for lighting
	Review of TAS and proposed projects show contractors recommend cost-effective measures	–	To do*
	Customers report satisfaction with contractor answers to their questions	Generally true for lighting	To do for mechanical
	Numbers of contractors stable or grows	–	To do for all contractor types
	Committed & installed projects have TAS-recommended measures	--	To do
PMC Offers Walk Through Audits or TAS	Customers, contractors report understanding & accepting info provided by audits/ TAS	–	To do
	Customers report, and tracking data confirm, proposed, committed, and installed projects have TAS-recommended measures	–	To do
	Simplified, more standardized analyses replace some custom analyses	–	To do
PMC offers Financing Using Energy Trust Incentives, SELP and BETC Options	Customers and contractors report customers consider recommendations & financial options	Generally true for lighting	To do for mechanical
	Customers report, and tracking data confirm, installed projects use BETC or SELP		
	Simplified BETC application process promotes installations		

Continued

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Collects Information from Contractors on Customers	Customers and contractors report forms easy to use; staff report paperwork correct	Generally true for lighting, per staff report (database not audited)	To do for mechanical
	Data base includes reported information		
	Customers report enthusiasm about Program		
	Tracking system demonstrates program accomplishments		
Energy Trust Uses PMC to Implement Program	Tracking system shows installed projects in less than 4 months from project start	True	Done
	Tracking system shows number of audits/ TAS	–	To do
	Energy Trust staff lessened by existence of PMC staff	True	Done

* *"Review of TAS and proposed projects show contractors recommend cost-effective measures." This could be verified by assuming the adequacy of the TAS and comparing proposed projects with TAS. Alternatively, an independent assessment of the completeness of the TAS could be made in addition to comparing the proposed projects with the TAS.*

Table 8.2

MARKET TRANSFORMATION INDICATORS

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
PMC Recruits, Trains, and Maintains AIC, ATAC, and Turnkey Contractor Network/ Involvement	Numbers of contractors recruited, trained, and continuing to be involved are stable or growing	Satisfactory (exceptions: mechanical training; involvement of turnkeys)	Verify mechanical training and involvement of turnkeys
	Ongoing, periodic training	–	Verify second training for lighting & ATACs
	Contractors report having a business case for investing in efficiency solutions including NEBs and financial options	Generally true for lighting	To do for mechanical, ATACs, tunkeys
	Customers report satisfaction with contractor answers to their questions	Generally true for lighting	To do for mechanical
	Committed & installed projects have TAS-recommended measures	–	To do
PMC Offers Walk Through Audits or TAS	Customers, contractors report understanding & accepting info provided by audits/ TAS	–	To do
	Customers report awareness, knowledge of energy efficiency measures	–	To do
PMC Offers Financing Using Energy Trust Incentives, SELP and BETC Options	Customers and contractors report customers consider recommendations & financial options	Generally true for lighting	To do for mechanical
	Customers report, and tracking data confirm, installed projects use BETC or SELP		

Continued

ACTIVITY	FIRST-YEAR INDICATORS	MID-YEAR CONCLUSIONS	END-OF-YEAR INQUIRY
Energy Trust Works with Other Organizations to Enhance Program Offerings	Other organizations and program staff report coordinating advertising, communication, and ease of access to different organizations' services and offerings	–	To do
	Organizations report benefits from cooperation		
	Customers report programs they are aware of, sources of awareness, and credibility of sources		
Contractor Networks and Pools Use Advanced Efficient Technologies	Database and contractor report indicate advanced technologies are proposed; customers report awareness	–	To Do
Building Efficiency Delivers Solar Thermal Measures	Database and contractor report indicate solar thermal measures are proposed; customers report awareness	–	To Do

RECOMMENDATIONS

1. Develop a marketing and promotional plan to be funded by additional resources.

Recognize that the resources available to the PMC for marketing were agreed upon by both Energy Trust and the PMC under the presumption of market conditions that have not proved to be true. The presumed conditions include large projects generated by turnkey contractors, significant numbers of customer referrals from utilities, and an active, mature mechanical contractor network. These conditions are not currently present and—without changes in utility and turnkey contractor support—the agreed-upon marketing approach may be insufficient to attain 2004 program savings goals.

The marketing plan needs to support both lighting and mechanical efficiency projects. It needs to reduce the innate distrust of markets to innovative, complex,

and often hard-to-understand products and promote the financial and non-financial benefits of the investment. In particular, the plan needs to reflect the complexity of the mechanical market in terms of decision criteria, decision-makers and the decision-making processes. Commercial efficiency program experience has shown that the successful promotion of efficiency requires personal relationships with building owners and trades professionals, backed by technical information that is perceived to be trustworthy.

2. Direct the activities of, and change the "culture" of, Energy Trust administrative staff to provide fast, customer-focused response to Energy Trust staff responsible for programs.

Energy Trust administrative staff should have a goal of providing a rapid response to Energy Trust's Building Efficiency manager, who manages the contract with the PMC. Both Energy Trust and PMC program staff identified the response time of the Energy Trust administrative staff as hindering the rapid deployment of Building Efficiency. Now, mid-way through the program, many key decisions have been made. Nonetheless, findings from this evaluation indicate a significant difference in the urgency with which program staff from both organizations address their work and the speed with which Energy Trust administrative staff provide critical program support.

Administrative decisions would benefit from the same customer-focused approach as guides program staff decisions. For example, now that the challenges facing the program are better understood, risk analyses should reconsider the probability of adverse customer and contractor response, since adverse response would further challenge a program that needs an improvement in current conditions in order to attain its goals.

Further, policy decisions need to explicitly accommodate the characteristics of the energy efficiency market that differ from the market for established building equipment systems. Customers and their suppliers are often unfamiliar with energy efficiency measures and are unable to assess the accuracy of claims made on their behalf; investments are discretionary, with costs loaded up front and uncertain payoffs accruing over time. Opportunities quickly become "lost" as less efficient equipment with long service lives are installed. In the energy efficiency market, a timely, clear, sustained endorsement—backed by facts—from a credible organization is critical to success, as are simple participation procedures such as Building Efficiency offers.

3. Clarify technical analysis contractor confusion about the Building Efficiency program and their role in program delivery.

The training meetings with technical analysis contractors did not succeed in eliminating confusion regarding their role in program implementation and marketing. The PMC program staff should move quickly to clarify the program and expectations held for the contractors. Phone calls placed to individual contractors might be the best approach for opening the lines of communication. In addition, PMC staff should provide contractors with written materials that clearly describe the program structure, the role of the analysis contractor, procedures for contractors and customers seeking to initiate a study for the Building Efficiency program, procedures and incentives for efficiency projects, and contact information for customers and contractors to call for further information.

4. Follow-up with customers who contacted Energy Trust about efficiency programs prior to the launch of Building Efficiency.

PMC staff should ensure that all customers recorded in the Goldmine database as requesting services for existing commercial facilities have had an opportunity to participate in Building Efficiency. A small sample of customers drawn from Goldmine who had called Energy Trust prior to the program's launch included a large proportion who said that no one had followed up and provided them with information about Building Efficiency.

APPENDICES

Appendices

APPENDIX A

Staff Interview Guides

Appendix A

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION

INTERVIEW GUIDE FOR ENERGY TRUST EXECUTIVE DIRECTOR

5/27/03

1. My first question will give me context for your answers. As Executive Director responsible for the success of the Energy Trust, what are your main concerns regarding the individual programs? E.g., what are your main concerns when a new program is proposed, or when you are debriefed on an existing program?

2. [If relevant from response:] What do you see are the principal advantages of using PMCs to deliver the Building Efficiency program? What are the main disadvantages?

3. [Again, if relevant:] From what you've seen thus far, do you think this model is a good one for the Energy Trust to use with other programs?

4. Have you been involved in decision-making for the Building Efficiency program? What decisions have you been called on to make? (topic area, opposing viewpoints, decision reached, rationale)

5. [If necessary, Probe:] Can you explain the issue regarding insurance requirements for trade allies working with the program? [opposing viewpoints, decision reached, rationale]

6. [If necessary, Probe:] Can you explain the issue the Energy Trust has faced regarding how Aspen conveys the role of the Energy Trust in the Building Efficiency program? [opposing viewpoints, decision reached, rationale]

7. I need to better understand the implications of these decisions for program delivery. The insurance requirement is clear. But I am not clear on how the decision to shield the Energy Trust from Aspen's risk will look like in

practice. I'm not clear about what a mechanical contractor, for example, will say to its clients about where the money comes from. What's your understanding?

8. [Probe:] Will there be someone for commercial customers to contact if they want to be reassured of the legitimacy of any part of the program—the offer of free money, the estimated energy savings, their contractor contacts?

9. The Energy Trust's RFP for a PMC states that the Energy Trust will be responsible for communicating with strategic customers—large firms, nationwide firms, government facilities—to ensure they receive tailored service that cuts across the various Energy Trust programs. Has a decision been reached as to whether the Energy Trust will continue in this role?

10. I'm also wondering about a more typical, non-strategic customer who participates in more than one program (like Building Efficiency program plus solar or new construction). It seems to me they might form the impression that there are a several benefactors operating in Oregon's energy efficiency market. How do you see this working?

11. [If time permits:] If, in the future, the Energy Trust decides to extend the Building Efficiency program program under contract with a different PMC, would that PMC be expected to continue the customer relationships established by Aspen?

12. The Energy Trust has a goal of delivering services throughout the state and reaching market actors of all sizes. I understand that it's been mainly the large contractors in the Portland-metro area that have thus far met the insurance requirements for ATACs. Can you speak to this point?

13. How much breathing room does the Energy Trust's founding legislation give it, in terms of preserving its funding throughout the vagaries of the Oregon economy and the relative success or failure of various program approaches? (That is, is the relationship between the Energy Trust funding and the Energy Trust's energy savings tight or loose in any given year or span of years?)

14. As of the end of May, the Building Efficiency program is expected to provide 20% of the 18 aMW predicted for 2003. The Energy Trust's RFP asked for extensive savings from mechanical efficiencies and I understand the program manager was hoping 2/3s of the savings would come from mechanical. Mechanical projects must have feasibility studies, so the number of ATACs becomes a potentially limiting factor. What contingencies are being considered by the Energy Trust in the event that the Building Efficiency program (or any program) does not meet its expected energy savings?

15. Is the Energy Trust vulnerable to public opinion about its activities?

16. [Probe:] Do you think the public is looking at the bottom line only—energy savings—or is it looking for visible evidence of the efficiency programs previously offered by the utilities have continued and thrived?

17. The Building Efficiency program has a goal of creating a thriving energy efficiency market. This is beyond the goals of previous utility programs. Is the public looking for this as well, or has the Energy Trust stated this as an optimistic outcome?

18. Much of the work of the program evaluator is to look for outcomes or evidence concerning each of the program assumptions, decisions, and procedures—signs that they are successful in meeting program objectives or are in need fine tuning or revision. Can you suggest any outcomes or conditions for us to explore that you, as the principal decision-maker, would find useful for the decisions your involved in?

19. Any final comments?

Appendix A

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION
INTERVIEW GUIDE FOR
ASPEN/EVERGREEN PROGRAM ADMINISTRATIVE STAFF
4/28/03

0. Our discussion will remain confidential between you and Research Into Action. The information from our conversation that we include in the report will be presented in such a way as to preserve your anonymity.

1. What is your general sense about how the program is working so far? Let's start with what you think is working well?

2. What's not working so well?

3. Are the problems that you've identified short-term (getting the bugs out), or do you see any of them as being more long-term or on-going challenges?

4. Please briefly describe the steps you go through.

5. Are there any problems in the electronic data tracking system and forms?

6. How is the workload with the current level of projects? How many FTE will be needed to take care of the anticipated workload? How do you anticipate that this will change when the new tracking system is in place?

7. Have you had any difficulties coordinating with the Energy Trust? With Evergreen [or Aspen]?

8. Have you spoken with contractors? What are the main issues or topics that you have spoken with them about?

9. What is your sense of contractor satisfaction to date? Any problem areas?

10. Have you spoken with customers? What are the main issues or topics that you have spoken with them about?

11. What is your sense of customer satisfaction to date? Any problem areas?

12. For lighting projects, how accurately have AICs completed the forms? Are the mistakes concentrated on one or two forms? [if yes] which?

13. For mechanical projects, have any forms been submitted as yet? How accurately have AICs completed the forms? Are the mistakes concentrated on one or two forms? [if yes] which?

14. Can you describe the steps taken to ensure that the data captured in the database are accurate?

15. Have the utilities been timely in fulfilling request for energy use data? From what you've seen so far, what are the weakest links in the chain of activities?

16. Can you comment, from your perspective, on the strengths of the overall program design?

17. On the weaknesses?

18. Any other comments you would like to add?

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION
INTERVIEW GUIDE FOR
ENERGY TRUST AND ASPEN SYSTEMS PROGRAM MANAGERS
4/24/03

Introduction

1. Our discussion will remain confidential between you and Research Into Action. The information from our conversation that we include in the report will be presented in such a way as to preserve your anonymity.

2. What is your general sense about how the program is working so far? Is the program unfolding like you anticipated?

3. What do you think is working well?

4. Do you think the program approach provides a good model for the Energy Trust to follow in subsequent program development, or is it too soon to speak to this issue?

5. What's not working so well?

6. Are the problems that you've identified short-term (getting the bugs out), or do you see any of them as being more long-term or on-going challenges?

Contracting between Energy Trust and Aspen

7. Subsequent to the Energy Trust selecting Aspen for the Program Management Contractor, were there any issues that remained to be negotiated before a contract was signed between Aspen and the Energy Trust?

8. [If yes to Q6] What were the major issues discussed during the negotiations? I am looking for the general issues, not the confidential details. I am asking this because your answer may provide me issues we should be sensitive to in our investigation. Sometimes issues that were noticed early on resurface at a later date.

9. [If yes to Q6] In the give-and-take of negotiations, were you left with any concerns that the final terms don't deliver all that you had hoped for, or that you're crossing your fingers that something won't happen that will leave you exposed?

10. [For R.S.A.] Do you have any additional responsibilities imposed by the Energy Trust that you feel are not in the contract? [If yes:] How are you handling this? Is this creating any problems?

Program Implementation Design

11. How has the program design changed from the model presented in the RFP?

12. Who has been involved in the program design to deliver the program laid out in the RFP (measures, incentives, procedures, forms)?

13. From the Status Update of early April, I have a list of the products developed at that point. Was the Energy Trust involved in development discussions, or just product review?

14. Were any challenges encountered in developing these products? Are there any outstanding technical issues? How about for the incentives?

15. Have you received any early feedback from staff, contractors, or customers about any of these products? About the measures and incentives? [If yes:] Describe

Staffing

16. [Ask of R.St.A.] May I have a copy (or description) of your organizational structure?

17. Who do you advise that I talk with to improve my understanding of how the program is working?

Contracting with ATACs and ACOCs

18. Were there any delays in issuing the RFQs for the ATAC and ACOC positions? What issues have arisen for these contracts? (Again, general topics, not confidential details.)

19. What have been the stumbling blocks for resolving these issues quickly? Has anything else contributed to the time it has taken to complete these contracts? Have the contracts or problems changed during the process?

20. Did the Energy Trust contract staff give you an estimate at the outset of the turn-around time they would need to review the contracts? [If yes to Q12] Did they meet their estimated turn-around time?

21. Have these delays in contracting resulted in any implementation delays? [If yes] Have customers or contractors been affected by the resulting implementation delays? [If yes] Explain

22. [If yes to Q20, Ask of D.B.] How does the Energy Trust view it's language in the RFP that lists as an important objective (2nd in the list) "achieving significant commitments to projects through the spring of 2003"—in light of the contracting delays?

23. How are you marketing (or have your marketed) the ATAC and ACOC positions to contractors?

24. What is your goal for number of ATACs and ACOCs and have you met your goals?

25. Are contractors applying to be ATACs and ACOCs at the rate you anticipated? Have you encountered any difficulties bring ATACs and ACOCs on board? Have you received any feedback from contractors about any program terms or conditions that limit their interest in being ATACs? In being ACOCs? [If not mentioned:] What about insurance requirements?

26. How do you expect the ATACs to market their services? [Probe regarding whether marketing is expected to be primarily to their existing customers, or to target new customers?]

27. Perhaps it's too soon to say, but do you have any suggestions for improving how ATACs are used in the program? Consider the gamut of issues concerning ATACs, from contracting, to encouraging professionals to be ATACs, to the ATACs role with customers.

AICs

28. Do you foresee a single mechanical contractors network, or separate networks for the different types of mechanical systems?

29. What activities have occurred to bring mechanical installers into the mechanical network? What else is planned?

30. Are mechanical suppliers coming on board at anticipated rate? Have the key players been approached? Have they been receptive? Have there been any stumbling blocks?

31. Do you plan to hold kick-off meetings for the mechanical contractors as you did for the lighting contractors? [If not:] How are they learning about the program conditions and procedures? [If yes:] Who will conduct this meeting?

32. Subsequent to any kick-off meetings, are there any additional training and education efforts planned for the lighting or mechanical AICs once they are on-board?

33. How well do you think the AICs know efficient equipment and appropriate applications? (distinguish between lighting and mechanical AICs as necessary)

34. How well do you think the AICs know the non-energy benefits of efficient equipment? How well do you think they market these benefits to customers? Are projects coming in at the rate you anticipated? (distinguish between lighting and mechanical AICs as necessary)

35. What steps are you taking to increase the rate of project generation? Do you have a projected rate at which the incentive money will be committed?

36. Perhaps it's too soon to say, but do you have any suggestions for improving how AICs are used in the program? Consider the gamut of issues concerning AICs, from contracting, to encouraging professionals to be AICs, to the AICs role with customers.

Database and QA/QC

37. [Ask D.B.] When is the Interim Project Tracking System anticipated to be superceded by a final tracking system? Who has responsibility to integrate the interim with the final, Aspen or the Energy Trust? [If Aspen] Is the design of the final tracking system considering the interim tracking system? Do you anticipate any difficulties in integrating the two systems?

38. Can you briefly review for me steps taken to ensure the accuracy of the work conducted by the AICs?

39. Can you describe the steps taken to ensure that the data captured in the database are accurate?

40. What are the plans (are there any plans) to periodically "poll" the database for validity of estimates.

Conclusions

41. Can you comment, from your perspective, on the strengths of the overall program design? Anything we haven't already covered?

42. On the weaknesses? Again, anything we haven't covered?

43. Any other comments you would like to add?

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION
INTERVIEW GUIDE FOR LIGHTING NETWORK MANAGER
4/24/03

Introduction

1. Our discussion will remain confidential between you and Research Into Action. The information from our conversation that we include in the report will be presented in such a way as to preserve your anonymity.

2. What is your general sense about how the program is working so far? Is the program unfolding like you anticipated?

3. What do you think is working well?

4. Do you think the program approach provides a good model for the Energy Trust to follow in subsequent program development, or is it too soon to speak to this issue?

5. What's not working so well?

6. Are the problems that you've identified short-term (getting the bugs out), or do you see any of them as being more long-term or on-going challenges?

Roles and Communication

7. What is your role and what are your main activities on the program? Do you expect your workload to change as the program continues?

8. Who else works with you and what are their roles and responsibilities?

9. Have you encountered any difficulties in your (and your staff's) communication with Aspen?

10. Do you have any communication with the Energy Trust? Any problems?

11. How would you characterize the direction and management of your work provided by Aspen? Are they providing too much, too little, or just about the right amount of direction?

12. Are there any other issues in your working relationship with Aspen?

13. How would you characterize the direction and management of your work provided by the Energy Trust? Are they providing too much, too little, or just about the right amount of direction?

14. Are there any other issues in your working relationship with them?

15. What communication do you have with contractors, beyond the transmittal of forms?

16. Are contractors candid in their communication?

Extent of AIC Network

17. Are you still recruiting contractors? What additional recruitment activities are planned? How do new contractors join the network?

18. How many contractors have joined the network?

19. What proportion of the contractors working in the Energy Trust's region would you guess have joined the network? What proportion of the share of the work done in the region would you guess that network contractors account for?

20. Do you have the major players in the region signed up?

21. Have there been any contractors that have been particularly hard to reach? [If yes:] Who? What actions are planned to recruit them?

Training and Performance of AICs

22. Are there any additional training and education efforts planned for the lighting AIC network (beyond the kick-off meeting)? [If yes] What and when?

23. How well do you think the AICs know efficient equipment and appropriate applications?

24. How well do you think the AICs know the non-energy benefits of efficient equipment?

25. How well do you think they market these benefits to customers?

Projects

26. Are projects coming in at the rate you anticipated?

27. What steps are you taking to increase the rate of project generation?

28. Do you have a projected rate at which the incentive money will be committed?

Program Assessment

29. What feedback on the program have you heard from lighting contractors?

30. The evaluation of the lighting trade ally trainings reported some trade allies view some of the incentives as too low. [Findings are appended at end of survey for reference.] Do you agree? Why or why not?

31. The same evaluation reported some trade allies disagreed with some of the measures eligible (and ineligible) for incentives. Do you think any of their reported objections have merit?

32. The evaluation also reported some program recommendations offered by the trade allies. These included that the Energy Trust might raise public awareness of the incentive, that email forms would offered, and that the program might include some of the features that made the EWEB program attractive. Are there any plans to act on any of these recommendations? [If yes:] What? [If no:] Why not?

33. Perhaps it's too soon to say, but do you have any suggestions for improving how AICs are used in the program? Consider the gamut of issues concerning AICs, from contracting, to encouraging professionals to be AICs, to the AICs role with customers.

Conclusions

34. Can you comment, from your perspective, on the strengths of the overall program design? Anything we haven't already covered?

35. On the weaknesses? Again, anything we haven't covered?

36. Any other comments you would like to add?

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION

INTERVIEW GUIDE FOR TECHNICAL STAFF

4/28/03

Introduction

0. Our discussion will remain confidential between you and Research Into Action. The information from our conversation that we include in the report will be presented in such a way as to preserve your anonymity.

1. What is your general sense about how the program is working so far? What is your general sense about how the program is working so far? Is the program unfolding like you anticipated?

2. What do you think is working well?

3. Do you think the program approach provides a good model for the Energy Trust to follow in subsequent program development, or is it too soon to speak to this issue?

4. What's not working so well?

5. Are the problems that you've identified short-term (getting the bugs out), or do you see any of them as being more long-term or on-going challenges?

Responsibilities/Communication/Feedback

6. When did you join the staff?

7. Please briefly describe for me your key responsibilities with the Building Efficiency program. (I have the Status Update through the end of March that we can refer to.)

8. Can you give me a brief status of the activities you have been involved with to date?

9. [Ask of any staff involved to date in program product development] Were any challenges encountered in developing these products? Are there any outstanding technical issues? How about for the incentives?

10. Have you received any early feedback from staff, contractors, or customers about any of these products? About the measures and incentives? [If yes:] Describe

11. Have you discovered any snags in the process? What problems have you had to solve to date?

12. What are the topics and problems that are occupying most of your time right now?

13. What do you think will be the most challenging part of your responsibilities?

14. Is everyone clear on their own role and the roles of the others?

15. What methods do you use to keep each other informed? Are these methods working well?

16. What has been your experience of working with staff of the Energy Trust? [Probe for a description of the interactions/communication and for positive and negative experiences]

ATACs/ACOCs

17. What is your goal for number of ATACs and ACOCs and have you met your goals? [If no] How are you marketing the ATAC and ACOC positions to contractors?

18. Are contractors applying to be ATACs and ACOCs at the rate you anticipated? Have you encountered any difficulties bring ATACs and ACOCs on board?

19. Are there plans for the ATACs to receive training? [If yes:] What will the training cover? (Any training on EZ-Sim or other tools and methods?) When will it be? What locations are planned?

20. How do you expect the ATACs to market their services? [Probe regarding whether marketing is expected to be primarily to their existing customers, or to target new customers?]

21. Perhaps it's too soon to say, but do you have any suggestions for improving how ATACs are used in the program? Consider the gamut of issues concerning ATACs, from contracting, to encouraging professionals to be ATACs, to the ATACs role with customers.

TAS/Walk-Through Reports

22. Are you pleased with the quality of the TAS that have been completed? Have you needed any TAS corrected? [If yes] How readily did the ATAC address your concerns?

23. Is the screening tool meeting your expectations? Is it working out well for the program? Are any changes planned?

24. Is EZ-Sim meeting your expectations? Is it working out well for the program? Have the ATACs had any difficulty coming up to speed on it?

25. Are the walk-through audits meeting their objectives?

26. Have you encountered any problems conducting the walk-throughs or with their accuracy with respect to program needs? [If yes:] Describe.

27. What tools are used by the walk-through auditor?

28. [If tools:] What training has the auditor received in the tools?

29. Do you think the program structure of walk-through audits and TAS is working? [Probe: Consider the customer characteristics that trigger each approach; consider referrals to TAS from walk-throughs; effective allocation of program resources]

AICs

30. What activities have occurred to bring mechanical installers into the mechanical network? What else is planned?

31. Are mechanical suppliers coming on board at anticipated rate? Have the key players been approached? Have they been receptive? Have there been any stumbling blocks?

32. Are there any additional training and education efforts planned for the mechanical AIC network, once they are on-board (beyond the kick-off meeting)?

33. How well do you think the AICs know efficient equipment and appropriate applications?

34. How well do you think the AICs know the non-energy benefits of efficient equipment? How well do you think they market these benefits to customers?

35. What feedback have you heard from contractors?

36. Are projects coming in at the rate you anticipated? What steps are you taking to increase the rate of project generation? Do you have a projected rate at which the incentive money will be committed?

QA/QC

37. Can you briefly review for me steps taken to ensure the accuracy of the work conducted by the AICs?

38. Can you describe the steps taken to ensure that the data captured in the database are accurate?

39. What are the plans (are there any plans) to periodically "poll" the database for validity of estimates?

Conclusion

40. What feedback have you heard from customers?

41. From what you've seen so far, what are the weakest links in the chain of activities?

42. Can you comment, from your perspective, on the strengths of the overall program design?

43. Any other comments you would like to add?

APPENDIX B

Contractor and Customer Survey Instruments

Appendix B

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION

INTERVIEW GUIDE FOR TECHNICAL ANALYSTS

7/9/03

Hi, I am _____ with Research Into Action. I'm calling on behalf of the Energy Trust of Oregon. We are evaluating the Energy Trust's Building Efficiency Program. I understand you have been selected to conduct technical analysis studies, or audits, for the Building Efficiency program. I'd like to ask you some questions about your experiences to date with the program.

1. **Name:**_____ **Date:** _____

   Firm: _____ Phone: _____

Overview

My first questions concern your business and marketing activities prior to the Energy Trust's program. Your proposal to Aspen is held confidentially by them, so I want to ask some questions that will give me a context for our conversation.

2. To get an idea of your firm's size, how many employees are there in your firm? _____

3. Can you briefly describe what your firm does? [open]

4. Can you briefly describe what you do for your firm? [open]

5. About how many customers/ clients did you work with last year, in any capacity (not just audits)? _____

6. About what proportion of your customers/ clients sought you out, versus the proportion you approached first? _____

7. About what proportion of your customers is repeat-business? _____

8. Are any of these repeat customers under a long-term contract with you? [y n dk]

9. [If yes:] About what proportion of the customers you worked with last year are under a long-term contract? _____

10. Roughly what proportion of the customers you worked with during the last couple of years were aware that the utilities were offering energy efficiency incentive programs? {If necessary, read categories}

A. All (100%)

B. About Three-Quarters

C. About Half

D. About One-Quarter

E. None

F. Don't Know

11. Have you conducted audits similar to those you will be doing for the Building Efficiency Program (Building Efficiency program)? [y n dk]

IF NO GO TO #15

12. [If yes:] About how many audits did you perform last year in Oregon (2002)? _____

13. Have you ever conducted audits in conjunction with utility incentive programs? [y n dk]

14. Who typically installs equipment for projects on which you or someone from your firm performs an audit?

    G. You

    H. Your Firm

    I. Another Contracting Firm

    J. Either Your Firm Or Another Firm

    K. Other: Describe: _____

    L. Don't Know

Past Marketing

15. What types of marketing materials does your firm have or use?

    M. Advertisements [y n dk]

    N. Brochures or quals packages [y n dk]

    O. Website [y n dk]

    P. Direct mail [y n dk]

    Q. Other, Describe: _____

16. Do any of the marketing materials discuss your capabilities in technical studies (audits)? [y n dk]

17. Who do you try to reach with your marketing of audit services? [open; prompt if necessary]

    R. Past Customers [Y N Dk]

    S. Current Customers [Y N Dk]

    T. New/First-Time Customers [Y N Dk]

    U. Other. Describe: _____

[IF NEW/FIRST-TIME CUSTOMERS NOT MENTIONED:]

18. Do you make "cold calls" on customers? [y n dk]

19. [If no:] How do you reach new customers? [open]

_____

Future Marketing

20. Do you plan to promote the incentives available for audits? [y n dk]

21. [If yes:] Do you expect to promote the incentives generally to all customers, or will certain customers be targeted?

V. Mentions to most customers

W. Targets certain customers

22. [If targets:] Which customers are targeted? And why? *[open, probe for circumstances or customer characteristics]*

23. Do you expect you will typically mention the Energy Trust to customers? [y n dk]

24. Do you expect you will typically mention Aspen Systems to customers? [y n dk]

25. Will anyone else at your firm be conducting audits for the Building Efficiency program? [y n dk]

26. Will other members of your office *(staff that don't do audits)* be suggesting to prospective customers that they do an audit and have it paid for by the Building Efficiency program? [y n dk]

27. What methods do you expect to use to promote the audits? [open] _____

_____

28. How many audits per year do you expect to conduct for the Building Efficiency program? _____

29. What proportion of these audits do you anticipate will be assigned to you by the program manager (as opposed to clients you've brought to the program)?

_____

30. Which organization's name do you think should be most prominent on program materials, that of your own firm, the utilities, the Energy Trust, Aspen Systems, or perhaps something else?

A. Own Firm

B. Utilities

C. Energy Trust

D. Aspen Systems

E. Either Energy Trust Or Aspen

F. All

G. Other: Describe: _____

H. Don't Know/ No Opinion

31. [ask all:] Why do you say that? [open]

32. Is there something you would like the Energy Trust or Aspen Systems to do to help increase customer awareness of the Building Efficiency program? [open] _____

Program Involvement

33. Why did you apply to conduct audits for the Building Efficiency program? [open] _____

34. What has been your involvement with the program to date? [open] _____
_____

35. Has your involvement to date met your expectations? [y n dk]

36. In what way? [open] _____

37. Do you have any concerns about how your contract with Aspen Systems was developed, about the program itself, or about your participation in the program? [y n dk]

38. [If yes:] What are they? [open] _____

39. Anything else? [open] _____

40. Do you think these concerns will have any ongoing effect on your experience participating in the program? [y n dk]

41. [If yes:] What? [open] _____

42. Do you think these concerns will have any effect on your customers? [y n dk]

43. [If yes:] What? [open] _____

44. Did the time that it took to be contracted for the Building Efficiency program meet your expectations? [y n dk]

45. Did you have any clients who were waiting during this period *(contract negotiations)* for you to be able to conduct a study for them? [y n dk]

46. [If yes:] How many clients? _____

47. How many of these clients still want a study done? _____

48. Overall, how satisfied are you with your involvement in the program to date? Please use a 1 to 5 scale, where 1 is not at all satisfied and 5 is highly satisfied. 1 2 3 4 5

49. Why do you say that? [open] _____

50. Have you received any training or instruction from Aspen Systems on tools or methods to use in the audits, or to convey the findings? [y n dk]

51. [If yes:] How satisfied were you with the instruction? Please use a 1 to 5 scale, where 1 is not at all satisfied and 5 is highly satisfied.
1 2 3 4 5

52. Why do you say that? [open] _____

53. [If no:] Did you want such instruction? [y n dk]

54. In what ways do the audits you will be conducting for the program differ from past audits you have conducted? [open] _____

55. Has Aspen Systems assigned you any audits yet? [y n dk]

56. Do you have any concerns about the technical requirements for the program audits? [y n dk}

57. [If yes:] What? [open] _____

58. Regarding the forms required for the program, do you have any concerns or feedback about them that we have not already discussed? [y n dk]

[IF YES, ASK SERIES; OTHERWISE GO TO "FINAL QUESTIONS"]
So that I can readily capture your comments, tell me first which form you have comments on. Then give me your comments. You can comment on as many of the forms as you would like, and you can comment on all the forms in general, if you would like.

1st Form:

59. _____

60. _____

61. _____

2nd Form:

62. _____

63. _____

64. _____

Final Questions

Thinking about the other utility incentive programs you've participated in, how satisfied are you with the Building Efficiency program compared to those programs? Please use a 5-point scale in which 5 means "much more satisfied" and 1 means "much less satisfied."

1 much less satisfied 2 3 4 5 much more satisfied NA (no utility experience)

65. Why do you say that? [Probe for specific practices or lessons learned.] [open]

---

66. **In conclusion**, are there any other comments you would like to make on the program, or any feedback you would like for the Energy Trust to hear? [open]

---

67. May we call you another time in the course of this evaluation? [y n]

Appendix B

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION

INTERVIEW GUIDE FOR PARTICIPATING LIGHTING TRADE ALLIES

5/27/03

Hi, I am _____ with Research Into Action. I'm calling on behalf of the Energy Trust of Oregon. We are evaluating the Energy Trust's Building Efficiency Program. I'd like to ask you some questions about your experiences participating in the program.

1. **Name:**_____ **Date:** _____

Firm: _____ Phone: _____

Overview & Marketing

Most of my first questions concern you conversations with customers about the Energy Trust incentives and qualifying equipment.

2. Did you attend the program kick-off and training meeting that Roger Spring conducted in the first week in February? [y n dk]

3. Thinking specifically since February, have any customers asked you about high efficiency lighting equipment before you mentioned it to them? [y n dk]

4. [If yes:] About how many customers, or what proportion of your customers, have mentioned it before you did? [open]

5. Have any customers asked you about an incentive program before you mentioned it to them? [y n dk]

6. [If yes:] Did they mention the Energy Trust (i.e., the Energy Trust's incentives)? [y n dk]

7. Do your firm's marketing materials advertise the lighting incentives available? [y n dk]

8. Do you mention the incentive program to all customers or do you target certain customers?

   A. Mentions to all customers

   B. Targets certain customers

9. [If targets:] Why do you target certain customers? *[open, probe for circumstances or customer characteristics]*

10. What are do you tell customers as reasons to purchase the energy-efficient lighting equipment? *[Open. Do not read list. Probe "anything else?" until responses stop, up to seven responses.]*

    A. "Equipment/ first costs are reduced by the incentive"

    B. Give estimate of the amount ($, %) that equipment/ first costs are reduced by the incentive or an estimate of costs before/ after incentives

    C. "Energy use or utility bill will decrease"

    D. Give estimate of savings ($, %) of energy or utility bill

    E. "Maintenance costs will decrease"

    F. High quality of light output

    G. Variety of fixture designs

    H. Other: describe _____

11. What do you tell customers as reasons not to purchase energy-efficient equipment? *[Open. Do not read list. Probe "anything else?" until responses stop, up to seven responses.]*

    A. [None; don't give negative reasons]

    B. "higher first costs, even with incentive"

    C. Poor quality of light output

    D. Limited variety of fixture designs

    E. Other: describe _____

12. Roughly what proportion of the customers you worked with during the last couple of years were aware that the utilities were offering energy efficiency incentive programs? *[If necessary, probe by reading categories; otherwise, code response into categories]*

    A. All (100%)

    B. Most (75% or more)

    C. About half (25% to 75%)

    D. A few (25% or less)

    E. None

13. What would you guess is the proportion of customers you are working with this year who are *first hearing* about the Energy Trust *from you*? *[same instructions*]

    A. All (100%)

    B. Most (75% or more)

    C. About half (25% to 75%)

    D. A few (25% or less)

    E. None

14. Have any of your customers asked for an explanation of who the Energy Trust is or why it is that they are offering incentives? [y n dk]

15. [If yes:] Briefly, what do you tell them?

16. Have you had any reactions from customers about the Energy Trust of Oregon as the program sponsor? [y n dk]

17. [If yes:] What have your customers said about the Energy Trust?

18. Do you have an opinion as to whether it will be easier or harder to sell a program sponsored by the Energy Trust than it was to sell a program sponsored by the utility, or will it be about the same?

    A. Easier to sell Energy Trust program

    B. Harder to sell Energy Trust program

    C. About the same

    D. Don't know/ no opinion

19. [If not "the same":] Why do you say that? [open]

20. Do you mention to any of your customers that Aspen Systems or Evergreen Consulting help administer the program? [y n dk]

21. [If yes, otherwise go to 23] Briefly, what do you tell them? [open]

22. Have you had any reactions from customers about Aspen Systems as the program manager? [y n dk]

23. [If yes:] What have your customers said about Aspen?

24. Which organization's name do you think should be more prominent on program materials, that of the Energy Trust or of Aspen Systems, Evergreen Consulting, or perhaps something else?

A. 1. Energy Trust

B. 2. Aspen Systems

C. 3. Evergreen Consulting

D. 3. Either

E. 4. All

F. 5. Other: Describe: _____

G. 6. Don't know/ no opinion

25. [ask all:] Why do you say that? [open]

26. Is there something you would like the Energy Trust to do to help increase customer awareness of the lighting incentive program? [open]

Equipment Experience

Thinking back for a moment to all the jobs you've done in commercial buildings since January of 2000, but prior to the Energy Trust Program in 2003, please tell me the proportion of these jobs on which you installed:

27. Electronic ballasts? Never ¼ ½ ¾ all

28. About how often have you installed "efficient" electronic ballasts the Energy Trust defines them? [If necessary, remind respondent to think about all jobs since January of 2000.] Never ¼ ½ ¾ all

29. About how often have you installed T-8 lamps? Never ¼ ½ ¾ all

30. How about "premium" or "super" T-8 lamps as the Energy Trust defines them? Never ¼ ½ ¾ all

31. About how often have you installed compact fluorescent lighting (CFLs) in place of incandescent lamps? Never ¼ ½ ¾ all

32. About how often have you installed exit signs using LEDs, cold cathode, or electroluminescence? Never ¼ ½ ¾ all

33. How about high-intensity discharge (HID) lamps in place of mercury vapor or incandescent lamps? Never ¼ ½ ¾ all

34. About often have you installed occupancy sensors on a project? Never ¼ ½ ¾ all

35. About how often have you installed other lighting controls on a project? Never ¼ ½ ¾ all

36. [If have ever installed:] What types of lighting controls have you installed? *[Open. Do not read list. Probe "anything else" until no response or up to five mentions.]*

    A. 1. Occupancy sensors

    B. 2. Photocells (on/off)

    C. 3. Photo dimming controls

    D. 4. Dimming (manual)

    E. 5. Multilevel switching controls

    F. 6. Other: Describe _____

37. Since the program began in February, What is the total number of lighting projects *you personally* have done? [open]

38. How many of your projects since February have been Building Efficiency program projects? [Open; can be # or %]

39. [If some not Building Efficiency program:] Did you discuss the incentives for efficient equipment with any of these (non-Building Efficiency program-project) customers? [y n dk]

40. To get an idea of your firm's size, how many employees are there in your firm? [open]

Program Steps

Application and Pre-Installation Inspection

41. Now I'm going to ask about the steps involved in participating in the program. Think of the times the Energy Trust sent you the Project Proposal Form based on your Project Data sheet. Would you say that the Energy Trust typically...

    A. Took longer than you expected to get the form to you

    B. Met your expectations

    C. Took less time than you expected

42. How long would you say it took, on average? [Open]

43. Have pre-installation inspections been conducted for any of your Building Efficiency program projects? [y n dk]

44. [If yes:] About how many projects? [open]

45. Have the results of the pre-installation inspection generally been what you expected? [y n dk]

46. [If no:] Why not?

47. Have any of the Building Efficiency program projects you proposed been rejected or scaled down at this point? [y n dk]

48. [If yes:] How often did this happen and what specifically do you recall about what happened? [open]

Ordering and Installation

49. Thinking about all of the Building Efficiency program incentive projects you've begun, have you been able to fill the orders from the equipment you keep stocked or have you needed to order any equipment?

    A. On hand

    B. Order

50. [If order:] For about how many projects have you had to order equipment? [open]

51. Have you ordered directly from the manufacturer or from a distributor, or from both?

    A. Manufacturer

    B. Distributor

    C. Both

52. Have you been able to get everything you need from your usual suppliers, or have you had to order some equipment from new suppliers?

    A. Usual suppliers

    B. New suppliers

53. Have you experienced any delays in getting the equipment you ordered? [y n dk]

54. [If yes:] What types of equipment have had delays? [open]

55. Have you found any equipment to be unavailable? [y n dk]

56. [If yes:] What types of equipment? [open]

57. Have there been any Building Efficiency program projects for which efficiency measures were proposed but not installed? [y n]

58. [If yes:]How many? [open]

Please indicate which of the following situations describe why these projects did not go forward:

59. Some proposed measures were not installed yet different qualifying equipment was installed instead? [y n dk]

60. Some client(s) chose not to install qualifying equipment? [y n dk]

61. [If yes:] Why did some client(s) choose not install the qualifying equipment? [Open]

62. Some client(s) chose not to go forward with the project? [y n dk]

63. Are there any other reasons why some proposed efficiency measures were not installed? What? *[open; blank or "no" if none]*

64. Did you encounter any problems while you were installing the equipment? [y n dk]

65. [If yes:] What kinds of problems did you encounter? [open]

Project Completion Form and Inspection Process

66. Have you submitted the paperwork for any Building Efficiency program projects where the equipment installation is completed? [y n dk]

67. [If yes:] Has a representative of the Energy Trust inspected any of these projects? [y n dk]

68. [If yes:] Were you present during any of the Energy Trust's inspection? [y n dk]

69. Did any of your projects fail to "pass" the inspection? [y n dk]

70. [If yes:] How often has that happened? [Open]

71. What do you recall as the reasons for not passing? [Open]

72. Have you been able to rectify the problem so that the project(s) then passed? [y n dk]

73. How satisfied are you with the inspection process? Please use a 5-point scale in which 5 means "very satisfied" and 1 means "not at all satisfied."
1 not at all satisfied 2 3 4 5 very satisfied

74. Why did you rate it that way? [open]

75. Have your customers made any comments on the inspections? [y n dk]

76. [If yes:] What comments have you heard? [open]

Incentive Payment

77. How many Building Efficiency program projects have you submitted incentive paperwork for? [open, string]

78. [If 1 or more:] Have you received the incentive check for any projects? [y n dk]

79. [If yes:] What is the typical turnaround time for incentive payments? [open]

80. Did the timing of the incentive payment meet your expectations? [y n dk]

81. [If not:] Why not?

Forms

82. Have you received any feedback on the Project Datasheet from the Energy Trust? [y n dk]

83. [If yes:] What was the nature of the feedback? [open]

84. How have the suggestions worked for you? [open]

85. Have any forms been returned to you as incomplete? [y n dk]

86. [If yes:] Which forms were returned to you? [open]

87. What were you asked to do? [open]

88. Have you had any difficulty meeting the requirements for any of the forms? [y n dk]

89. [If yes:] What were the difficulties? [open]

90. Please think of the forms required for the program. Do you have any concerns or feedback about any of the forms that we have not already discussed? [y n dk]

[IF YES, ASK SERIES; OTHERWISE GO TO "FINAL QUESTIONS", P. 14]
So that I can readily capture your comments, tell me first which form you have comments on, then give me your comments. You can comment on as many of the forms as you would like, and you can comment on all the forms in general, if you would like.

[SPSS create 5 sets of 4 variables; first variable in set is form name or "all forms"; last 3 variables in set alowl for 3 comments per form. If more than 3 comments, go to next set of 4 variables and repeat form name]

91. 1st Form:

92.

93.

94. :

95. 2nd Form:

96.

97.

98.

99. 3rd Form:

100.

101.

102.

103. 4th Form:

104.

105.

106.

107. 5th Form:

108.

109.

110.

Final Questions

111. Thinking about the other utility incentive programs you've participated in, how satisfied are you with the Energy Trust program compared to these other programs? Please use a 5-point scale in which 5 means "much more satisfied" and 1 means "much less satisfied."
1 much less satisfied 2 3 4 5 much more satisfied

112. Why do you say that? [Probe for specific practices or lessons learned.] [Open]

113. **In conclusion**, are there any other comments you would like to make on the program, or any feedback you would like for the Energy Trust to hear?

114. May we call you another time in the course of this evaluation? [y n]

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION

INTERVIEW GUIDE FOR CUSTOMER LIGHTING PARTICIPANTS

5/27/03

1. **Name:**_____ **Date:** _____

   Firm: _____ Phone: _____

Screening

Hi, I am _____ with Research Into Action. I'm calling on behalf of the Building Efficiency Program that we understand you've recently participated in. I would like to ask you a few questions about your experience with this program. Is this a convenient time for you?

2. Am I correct? [y n dk]

Program Awareness

3. Can you tell me from whom you first learned about the Building Efficiency Program incentives for energy-efficient lighting equipment? [open ended; probe to answer the following:]

   C. Utility or power company

   D. Equipment contractor

   E. Energy Trust of Oregon

   F. Other: Describe _____

   4. How?

      G. Conversation

H. Advertisement

I. Website

J. Other: Describe _____

5. **[If conversation or other]** Who initiated conversation?

K. Respondent

L. Other party

6. **[If advertisement]** Whose advertisement?

M. Equipment contractor? [y n dk]

N. Energy Trust of Oregon? [y n dk]

O. Other: Describe _____

7. Where was ad seen? _____

8. After seeing the ad, who did you contact?

_____

9. **If website]** Which one? _____

10. After seeing website, who did you contact?

_____

11. After you became aware of the program, did you hear it from any other source? [y n dk]

12. **[If yes]** What source? (open) _____

13. Are you aware that in the past power companies offered incentives for energy-efficient equipment? [y n dk]

14. Do you recall the name of the organization that is managing the lighting-incentive program? [y n dk]

15. **[If yes]** What name? (open) _____

[If no or dk] Was it any of the following organizations? [multiple responses okay]

16. Your contractor's firm? [y n dk]

17. Your electric utility or power company? [y n dk]

18. The Northwest Energy Efficiency Alliance? [y n dk]

19. The Energy Trust of Oregon? [y n dk]

20. The State of Oregon? [y n dk]

21. Aspen Systems? [y n dk]

22. Some other group or are you still not sure? [y n dk]

23. [If another group mentioned, describe:] _____

24. Do you know what the source of funds is for the incentives? [y n dk]

25. **[If yes]** And what is that? [open]

26. Is the source of funds for the incentive important to you? [y n dk]

27. Before we started talking, had you heard of the Energy Trust of Oregon? [y n dk]

[If NO or DK, SKIP TO #36 BELOW]

28. **[If yes]** Can you briefly describe your understanding of the purpose of the Energy Trust of Oregon? [open] _____

29. Have you ever called the Energy Trust of Oregon or the program administrator? [y n dk]

30. **[If yes]** What did you contact them about? [open]
_____

31. Anything else? _____

32. How satisfied were you with the information you received from the Energy Trust or program administrator? Please use a 5-point scale, where 5 is highly satisfied and 1 is completely unsatisfied.
1 2 3 4 5

33. Why did you say that? [open] _____

34. How satisfied were you with the customer service you received from the Energy Trust or program administrator? By that I mean the ease of reaching the right person to talk with, ease of learning who the right person is to talk with, courtesy and professionalism of the respondent, timeliness, and so on? 1 2 3 4 5

35. Why did you say that? [open] _____

36. Are you aware that the State offers a tax credit for energy-efficient investments, called the Business Energy Tax Credit, or BETC? [y n dk]

Other Program Participation

37. Have you ever installed energy-efficient equipment before? [y n dk]

38. **[If yes]** Approximately when was that? _____

39. **[Also If yes]** What did you install? _____

40. **[Also If yes]** Was that part of an energy-efficiency incentive program? [y n dk]

41. **[If yes]** Thinking about the other utility incentive program(s) you've participated in, how satisfied are you with the current program compared to these other programs? Would you say that you are:

    A. A lot more satisfied with the current program,

    B. A little more satisfied with the current program

    C. Equally satisfied with the programs

    D. A little less satisfied with the current program or

    E. A lot less satisfied with the current program than with previous programs

42. Why do you say that? [Probe for specific practices or lessons learned.] [open] _____

43. **[If no]** Have you ever before considered installing such equipment? [y n dk]

QUESTIONS 44 THROUGH 49 INTENTIONALLY OMITTED

Equipment Awareness

The next set of questions concern some specific types of energy efficient equipment.

44. Have you ever heard of **electronic ballasts** for lighting? [y n dk]

45. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

46. **[If yes]** Do you recall who first mentioned them—your contractor or you?

F. Contractor

G. Respondent

H. Dk

47. [If contractor:] Were you learning about them for the first time? [y n dk]

48. Have you ever heard of **T-8 lamps**? [y n dk]

49. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

50. **[If yes]** Do you recall who first mentioned them—your contractor or you?

I. Contractor

J. Respondent

K. Dk

51. [If contractor:] Were you learning about them for the first time? [y n dk]

52. Have you ever heard of **compact fluorescent lighting** (also called CFLs) to replace incandescent lamps? [y n dk]

53. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

54. **[If yes]** Do you recall who first mentioned them—your contractor or you?

L. Contractor

M. Respondent

N. Dk

55. [If contractor:] Were you learning about them for the first time? [y n dk]

56. Have you ever heard of **exit signs** that use LEDs, cold cathode, or electroluminescence? [y n dk]

57. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

58. **[If yes]** Do you recall who first mentioned them—your contractor or you?

O. Contractor

P. Respondent

Q. Dk

59. [If contractor:] Were you learning about them for the first time? [y n dk]

60. Have you ever heard of **high-intensity-discharge (HID) lamps**, such as metal halide or high pressure sodium lamps? [y n dk]

61. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

62. **[If yes]** Do you recall who first mentioned them—your contractor or you?

R. Contractor

S. Respondent

T. Dk

63. [If contractor:] Were you learning about them for the first time? [y n dk]

64. Have you ever heard of **occupancy sensors** used to turn lights on and off? [y n dk]

65. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

66. **[If yes]** Do you recall who first mentioned them—your contractor or you?

U. Contractor

V. Respondent

W. Dk

67. [If contractor:] Were you learning about them for the first time? [y n dk]

68. Have you heard of **automatic dimming** of electric lights based on the amount of daylight coming in the windows? [y n dk]

69. **[If yes]** Did you discuss with your contractor whether they were suitable for your facility? [y n dk]

70. **[If yes]** Do you recall who first mentioned them—your contractor or you?

    X. Contractor

    Y. Respondent

    Z. Dk

71. [If contractor:] Were you learning about them for the first time? [y n dk]

Program Steps

Now I'm going to ask about the steps involved in participating in the Building Efficiency Program.

72. First, how far along you are with your project. [Probe:]

    A. Equipment installed and incentive received

    B. Equipment installed and inspected

    C. Equipment installed

    D. Signed agreement to proceed (customer committed)

    E. Project application presented to customer

    F. Initial conversation with contractor

    G. Other:

73. **[If other]** Describe: _____

74. Have you experienced any delays in any step of the project or has it taken longer for something to happen than you expected? [y n dk]

75. **[If yes]** Describe: _____

76. How long was the delay? [open] _____

77. What in your view would have been a reasonable turn-around time? [open] _____

78. What is your understanding of why there was a delay? [open]

_____

79. Were there any other delays? [y n dk]

80. [If yes, repeat above questions]

81. Using a 5-point scale, where 1 is very difficult and 5 is very easy, would you please rate the understandability of the program information you received and the forms you signed? 1 2 3 4 5

82. Why did you say that? [open] _____

83. Have you had any concerns with any of the agreements you've signed or any of the conditions placed on you as a program participant? [y n dk]

84. **[If yes]** Describe: _____

85. How significant is this issue for you?

A. High Significance

B. Moderate Significance

C. Low Significance

86. Anything else? _____

87. How significant is that issue to you? [H M L]

88. Can you tell me how you came to be working with the contractor you worked with? [open]

A. Had worked with contractor in the past

B. Selected contractor from yellow pages, colleagues, etc.

C. Contractor approached respondent

D. Got name from Energy Trust of Oregon

89. **[If got name from Energy Trust]** How satisfied were you with the contractor information you received? Please use a 5-point scale, where 5 is highly satisfied and 1 is completely unsatisfied.
1 2 3 4 5

90. Why did you say that? [open] _____

91. What reasons to purchase energy-efficient equipment did your contractor discuss with you? [open; do not read]

A. Equipment first costs are reduced by the incentive

B. Energy use or utility bill will decrease

C. Maintenance costs will decrease

D. High quality of light output/ better color

E. Tax credit

F. Environmental benefits

G. Other

92. **[If other]** Describe: _____

93. Did your contractor discuss any reasons not to purchase energy-efficient equipment? [y n dk]

94. **[If yes]** Describe: _____

95. Did you decide to install all of the energy-efficient items that your contractor proposed? [y n dk]

96. **[If no]** What did you decide not to install, and why? [open]
_____

97. Do you have any plans to install this equipment at a later date?

98. **[If yes]** What, when: _____

99. How satisfied were you with the lighting installation your contractor performed? 1 2 3 4 5

100. Why did you say that? [open] _____

101. How satisfied were you with your contractor's customer service, such as professionalism, courtesy, timeliness, and so on? 1 2 3 4 5

102. Why did you say that? [open] _____

103. How satisfied are you with the equipment you selected? 1 2 3 4 5

104. Why did you say that? [open] _____

105. How satisfied are you overall with your participation in the program? 1 2 3 4 5

106. Why did you say that? [open] _____

Firmographics

107. Has an energy audit of your facility ever been conducted? [y n dk]

108. [If yes] When was that? _____

109. Why did you choose to install energy-efficient equipment now, through this program? [open] _____

110. The Building Efficiency Program also offers incentives for energy-efficient equipment other than lights. Please rate your interest in learning more about energy-efficient heating and cooling systems for your facility.
[H M L None]

111. How interested would you be in learning more about energy-efficient controls for your heating and cooling system? [H M L None]

112. And what is your interest in learning more about energy-efficient motors or drives for your facility? [H M L None]

113. What is the primary activity that occurs at this facility?

H. Office

I. Retail

J. Warehouse/ wholesale

K. Food service

L. Hotel

M. Other: _____

114. About how many employees work at the facility? [open]

Conclusion

115. **In conclusion**, are there any other comments you would like to make on the incentive program, or any feedback you would like for program manager to hear? [open] _____

116. May we call you another time in the course of this evaluation? [y n]

BUILDING EFFICIENCY PROGRAM PROCESS EVALUATION
INTERVIEW GUIDE FOR CUSTOMER LIGHTING NONPARTICIPANTS
5/27/03

Hi, I am _____ with Research Into Action. I'm calling on behalf of the Building Efficiency Program. We want to get the opinions of firms like yours that have expressed an interest, but not yet participated in the program. Is this a convenient time to talk?

1. **Name:**_____ **Date:** _____

Firm: _____ Phone: _____

Program Awareness

2. Do you recall making inquires about incentives for energy efficiency since January? [y n dk]?

[If no or dk, GO TO EQUIPMENT AWARENESS #50]

3. Can you tell me from whom you first learned about the Building Efficiency Program incentives for energy-efficient lighting equipment? [open ended; probe to answer the following:]

   A. Utility or power company

   B. Equipment contractor

   C. Energy Trust of Oregon

   D. Other: Describe _____

4. How?

   A. Conversation

   B. Advertisement

   C. Website

   D. Other: Describe _____

5. **[If conversation or other]** Who initiated conversation?

   A. Respondent

   B. Other party

6. **[If advertisement]** Whose advertisement?

   A. Equipment contractor? [y n dk]

   B. Energy Trust of Oregon? [y n dk]

   C. Other: Describe _____

7. Where was ad seen? _____

8. After seeing the ad, who did you contact?

   _____

9. **If website]** Which one? _____

10. After seeing website, who did you contact?

    _____

11. After you became aware of the program, did you hear it from any other source? [y n dk]

12. **[If yes]** What source? (open) _____

13. Are you aware that in the past power companies offered incentives for energy-efficient equipment? [y n dk]

14. Do you recall the name of the company or organization that is managing the lighting-incentive program? [y n dk]

15. **[If yes]** What name? (open) _____

[If no or dk] Was it any of the following organizations? [multiple responses okay]

16. Your contractor's firm? [y n dk]

17. Your electric utility or power company? [y n dk]

18. The State of Oregon? [y n dk]

19. The Northwest Energy Efficiency Alliance? [y n dk]

20. The Energy Trust of Oregon? [y n dk]

21. Aspen Systems? [y n dk]

22. Some other group or are you still not sure? [y n dk]

23. [If another group mentioned, describe:] _____

24. Do you know what the source of funds is for the incentives? [y n dk]

25. **[If yes]** And what is that? [open]

26. Is the source of funds for the incentive important to you? [y n dk]

27. Before we started talking, had you heard of the Energy Trust of Oregon? [y n dk]

[If NO or DK, SKIP TO #36 BELOW]

28. **[If yes]** Can you briefly describe your understanding of the purpose of the Energy Trust of Oregon? [open] _____

29. Have you ever called the Energy Trust of Oregon or the program administrator? [y n dk]

30. **[If yes]** What did you contact them about? [open]
_____

31. Anything else? _____

32. How satisfied were you with the information you received from the Energy Trust or program administrator? Please use a 5-point scale, where 5 is highly satisfied and 1 is completely unsatisfied.
1 2 3 4 5

33. Why did you say that? [open] _____

34. How satisfied were you with the customer service you received from the Energy Trust or program administrator? By that I mean the ease of reaching the right person to talk with, ease of learning who the right person is to talk with, courtesy and professionalism of the respondent, timeliness, and so on? 1 2 3 4 5

35. Why did you say that? [open] _____

36. Are you aware that the State offers a tax credit for energy-efficient investments, called the Business Energy Tax Credit, or BETC? [y n dk]

Prospective Program Participation

37. When did you first consider making changes to your facility or the lighting system? _____

38. Did you make any of the changes? [Y N DK]

39. [If YES] Which changes? _____

40. Why did you make those changes? _____

41. [If NO] When do you think you might do this? _____

42. Why then? _____

43. Has what you learned about the incentive program influenced your plans? [Y N DK]

44. [If YES] In what way? _____

45. Do you think you might participate in the incentive program in the future? [y n dk]

46. [If yes:] Do you think it will be before the end of this year, or sometime after that?

A. Before

B. After

47. [If no or dk:] Why is that? _____

QUESTIONS 48 AND 49 INTENTIONALLY OMITTED

Equipment Awareness

The next set of questions concern some specific types of energy efficient equipment.

50. Have you ever heard of **electronic ballasts** for lighting? [y n dk]

51. **[If yes]** Did you discuss with a contractor whether they were suitable for your facility? [y n dk]

52. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

53. [If contractor:] Were you learning about them for the first time? [y n dk]

54. Have you ever heard of **T-8 lamps**? [y n dk]

55. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

56. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

57. [If contractor:] Were you learning about them for the first time? [y n dk]

58. Have you ever heard of **compact fluorescent lighting** (also called CFLs) to replace incandescent lamps? [y n dk]

59. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

60. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

61. [If contractor:] Were you learning about them for the first time? [y n dk]

62. Have you ever heard of **exit signs** that use LEDs, cold cathode, or electroluminescence? [y n dk]

63. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

64. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

65. [If contractor:] Were you learning about them for the first time? [y n dk]

66. Have you ever heard of **high-intensity-discharge (HID) lamps**, such as metal halide or high pressure sodium lamps? [y n dk]

67. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

68. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

69. [If contractor:] Were you learning about them for the first time? [y n dk]

70. Have you ever heard of **occupancy sensors** used to turn lights on and off? [y n dk]

71. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

72. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

73. [If contractor:] Were you learning about them for the first time? [y n dk]

74. Have you heard of **automatic dimming** of electric lights based on the amount of daylight coming in the windows? [y n dk]

75. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

76. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

77. [If contractor:] Were you learning about them for the first time? [y n dk]

78. Have you heard of **programmable thermostats**, also called set-back thermostats? [y n dk]

79. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

80. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

81. [If contractor:] Were you learning about them for the first time? [y n dk]

82. Have you heard of **energy management systems** for optimizing the operation of your heating, cooling, and other electrical systems? [y n dk]

83. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

84. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

85. [If contractor:] Were you learning about them for the first time? [y n dk]

86. Have you heard of **economizers** for cooling systems? [y n dk]

87. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

88. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

89. [If contractor:] Were you learning about them for the first time? [y n dk]

90. Have you heard of **variable speed drives** for motor and drive applications? [y n dk]

91. **[If yes]** Have you ever discussed with a contractor whether they were suitable for your facility? [y n dk]

92. **[If yes]** Do you recall who first mentioned them—your contractor or you?

A. Contractor

B. Respondent

C. Dk

93. [If contractor:] Were you learning about them for the first time? [y n dk]

QUESTIONS 94 THROUGH 112 INTENTIONALLY OMITTED

Firmographics

113. Has an energy audit of your facility ever been conducted? [y n dk]

114. [If yes] When was that? _____

115. Did you implement any of the recommendations offered? [y n dk]

116. The Building Efficiency Program also offers incentives for energy-efficient equipment other than lights. Please rate your interest in learning more about energy-efficient heating and cooling systems for your facility. [H M L None]

117. How interested would you be in learning more about energy-efficient controls for your heating and cooling system? [H M L None]

118. And what is your interest in learning more about energy-efficient motors or drives for your facility? [H M L None]

119. What is the primary activity that occurs at this facility?

A. Office

B. Retail

C. Warehouse/ wholesale

D. Food service

E. Hotel

F. Other: _____

120. About how many employees work at the facility? [open]

Conclusion

121. **In conclusion**, are there any other comments you would like to make on the incentive program, or any feedback you would like for program manager to hear? [open] _____

122. May we call you another time in the course of this evaluation? [y n]

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