research/into/action inc

Final Report

Process Evaluation – 2012 Existing Buildings Program

Funded By:

EnergyTrust of Oregon

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EXECUTIVE SUMMARY

This report presents the results of a process evaluation of Energy Trust of Oregon's Existing Buildings program. The Existing Buildings program encourages commercial buildings owners to make energy efficient upgrades through incentives for prescriptive and custom upgrades. To assist with custom upgrades, the program provides owners with energy assessments, or studies, to identify savings opportunities and estimate energy savings. Based on conversations with Energy Trust evaluation staff at the outset of this project, this evaluation focused on the custom pathway, specifically the part of the process relating to energy assessments. Energy Trust staff wanted to know what, if anything, could be done to minimize paying for studies that did not result in energy saving projects.

Lockheed Martin was the program implementer for the Existing Buildings program throughout our analysis period, 2010 to 2012. In this role. Lockheed marketed the program to building owners and managers, coordinated energy studies, reviewed the work of Allied Technical Assistance Contractors (ATAC), the engineers that conduct studies, and worked with customers to assist them in completing upgrade projects. Additionally, Evergreen Consulting Group (Evergreen) worked to recruit lighting trade allies and provide technical assistance and site consultation as needed for lighting projects.

This evaluation relied on a review of program databases and documents, in-depth interviews with Energy Trust and implementer staff, interviews with 16 ATACs, 38 trade allies, and 44 participants, and a survey of 150 nonparticipants and non-recent participants. We supplemented our primary research with analysis of secondary sources to estimate the size of the commercial buildings market and the program's reach into the market. Our research identified several key themes.

Energy Trust's continued role in producing energy savings. Energy Trust-supported energy assessments play a valuable role in customers' upgrade plans, helping them identify potential energy savings and prepare internal budgets and project planning schedules. Without Energy Trust support, most participants would have postponed, cancelled, or limited the efficiency of their projects and few would have hired their own contractor to do an energy assessment. Among nonparticipants, upfront costs of energy efficiency improvements continue to be the greatest reported barrier to installing efficiency measures, often making financial assistance a requirement for making an efficiency upgrade.

The need to expand program participation. The largest challenge faced by the program appears to be adapting to changing market conditions. Program staff reported that it is becoming harder to attain savings because Energy Trust has touched many larger properties already and it is now necessary for the program to attain savings from smaller properties and to do deeper savings projects with large customers. This may require different marketing approaches, training of trade allies, and other strategies going forward.

Opportunities and challenges in the market. Opportunities for program expansion continue to exist, as nonparticipating commercial building owners and managers reported that controlling energy costs is important. However, while most reported at least a general understanding of energy saving opportunities and half reported encouraging employees to save energy, few had any formal policies in place or had done any efficiency upgrades in the last two years. Fewer than half had any idea how much savings energy efficiency could produce and their estimates varied widely – those with entirely tenant-occupied buildings offered the lowest estimates.

Only about half of nonparticipant respondents were aware of Energy Trust's programs and fewer still had ever looked into Energy Trust incentives or had an energy assessment at their property. Many had never considered an assessment, mostly because they were not ready to carry out an upgrade, did not know how to go about it, or thought they could identify savings without one.

> **Recommendation:** In marketing efforts for energy assessments, emphasize the ability of assessments to identify cost-saving upgrades that building owners may not be aware of and provide detailed information on the savings potential of energy efficiency upgrades. Such efforts could include the development of lists of common energy-related issues in commercial buildings that assessments could identify as well as case studies of assessments that identified large savings opportunities.

Results also confirmed that while financial considerations are the pre-eminent reasons that participants cite for doing efficiency upgrades, non-energy benefits also play a role. Responses from trade allies, ATACs, and program participants suggest that customers often do upgrades to improve the quality of their buildings and reduce operations and maintenance (O&M) costs. In addition, results confirmed that it is important to get buy-in from maintenance and facilities staff as well as owners.

A continued important role for ATACs. ATACs often work through existing customers relationships to bring larger projects with more savings attached than those the PMC identifies. Such projects include non-traditional customers (such as zoos and ski resorts), thus expanding Energy Trust's customer base beyond the traditional focus areas of office, retail, grocery, restaurant, lodging, and hospitals. If this can be confirmed, then continuing and expanding the ATACs' role may help Energy Trust reach further into the commercial building market.

> **Recommendation:** Identify custom projects that ATACs bring to Energy Trust to assess whether they provide greater savings than other projects; if so, expand ATACs' role such as by encouraging trade allies to involve ATACs directly in their efforts to sell large custom upgrades to customers.

> **Recommendation:** Provide detailed feedback to ATACs about their site evaluations and technical studies, including information on resulting energy-saving projects, to encourage a good rapport and encourage them to "sell" Energy Trust to their customers.

MEMO

Date: March 27, 2013
To: Board of Directors
From: Dam Rubado, Evaluation Project Manager
Spencer Moersfelder, Sr. Program Manager, Existing Buildings Program
Subject: Staff Response to the 2012 Existing Buildings Program Process Evaluation

Overall, the evaluation showed that the Program is reaching and serving its customers well and appears to have a strong influence on their energy efficiency investment decisions. However, the Program Management Contractor (PMC) has changed since the evaluation work was completed. The new PMC will bring a different strategy and different operating procedures to the Program. Even though the evaluation findings do not reflect the performance of the new PMC, they do provide good insights to consider for adapting the Program for future success.

Tracking customers through each phase of participation and interviewing them based on their most recent Program milestones was very resource intensive and did not yield the insights into the Program process and customer experience that we had hoped it would. Customers did not appear to notice the steps in the Program process nor did they view them as decision points for their investments in energy efficiency. This is noteworthy in itself, since customers viewed participation as a single, relatively seamless process rather than one with multiple steps and delays. Conducting interviews at different phases was not particularly valuable and Evaluation is not planning to use this approach in the future.

The Program is adapting its strategy to address the relatively mature market in Oregon. Because it has already touched many large commercial properties, it is increasing its focus on small commercial, where market penetration is lower, to influence new participants. In addition, the majority of past participants still have many cost-effective efficiency opportunities to pursue in their buildings. Most past participants have only scratched the surface of their energy efficiency project potential, primarily addressing lighting and a few other relatively simple measures. This leaves a robust resource of efficiency projects that can be implemented to meet energy savings targets without having to pursue more comprehensive and expensive projects. Consequently, the Program will continue the focus on working with return customers as they constitute the majority of the potential future participants.

The Program now has extensive information about its customer base due to the fact that the Program has already penetrated the majority of the market. The Program plans to mine this data to identify customers that could benefit from additional measures and to design offerings that will allow the Program to target customer subgroups.

When appropriate, Program staff will initiate technical studies delivered by Allied Technical Assistance Contractors (ATACs). Communication with customers will highlight that Energy Trust can help identify energy saving opportunities that buildings owners might not know about. However, the program manager and current PMC staff have reservations about relying too heavily on ATACs to promote studies paid for by Energy Trust because of: 1) the potential to pay for studies of measures with little chance of implementation and 2) the fact that ATAC firms would often be doing studies anyhow to promote business. Instead, the Program will be evaluating whether some of the technical studies that the Program has historically paid for can be performed by the ATAC firms without an incentive, in the course of these firms pursuing opportunities through regular business development activities. While the Program recognizes the value of energy assessments in convincing customers to move forward with projects, it is not cost-effective to provide Program project development services to customers with smaller energy savings opportunities. A parallel strategy will include steering some customers into other less costly delivery channels first, including referral to trade allies, in order to reduce expenses.

Energy Trust will analyze project data to determine if we can confirm ATACs claims that they bring larger, more complex projects with more savings into the Program compared to those identified by the PMC. If so, the Program will weigh this information against their concerns with the ATAC pool (discussed above) to consider expanding and refining the role of ATACs in marketing the Program to customers.

In order to help resolve some of the communication and training issues identified by ATACs in the evaluation and to improve their rapport, the Program transferred the supervision of ATACs to technical staff at the PMC instead of having outreach staff assign work to the ATACs. The Program will also review how best to refine the ATAC reporting requirements to help clarify the process and standardize technical studies and reports. This may include creating report templates for ATAC studies. Technical staff will ensure that they provide sufficient feedback to ATACs on the quality of their work as a courtesy and identify potential improvements for future studies.

In an effort to identify which selling points are most effective in motivating commercial customers to implement efficiency projects, the Program will review the evaluation results and consult the recent commercial sector market research study commissioned by Energy Trust. The Program will use this information to refine its marketing messages to better align with customers' priorities. For example, if non-energy benefits appear to be a major driver, then the program will emphasize those aspects to customers and trade allies.

1 INTRODUCTION

In this report, Research Into Action, Inc. presents findings from its process evaluation of Energy Trust of Oregon's (Energy Trust's) Existing Buildings (EB) program. Energy Trust awarded Research Into Action the contract for this work in January 2012 to evaluate the program's current strategy and to provide feedback from projects that were in-progress to Energy Trust. Research Into Action conducted the evaluation from March to November 2012.

PROGRAM OVERVIEW

Energy Trust has offered the EB program since February 2003. The goal of the program is to achieve electric and natural gas energy savings and to transform energy use in commercial markets by providing financial and service incentives to qualifying participants. The program is open to all Oregon commercial-sector customers (other than multifamily housing properties) of Portland General Electric, Pacific Power, Northwest Natural Gas, and Cascade Natural Gas.[1] The program acquires cost-effective electric and gas savings through incentives for a broad range of prescriptive and custom energy-efficient equipment and measures in existing nonresidential buildings and facilities. Facilities eligible for incentives under this program include, but are not limited to, all types of office, educational, retail, food service, lodging, hospital, and governmental buildings.

The program is market-driven and builds on existing market relationships, working through networks of trade allies, along with implementation staff who identify and deliver energy-saving lighting, mechanical, building envelope, and other projects for end-use customers. Lockheed Martin Corporation served as the program management contractor (PMC) and implemented the program since inception.[2] Evergreen Consulting Group (Evergreen) recruits lighting trade allies and provides technical assistance and site consultation as needed.

Program services are provided to participants that implement energy efficiency measures in their facilities. Specific services include:

- **Energy Studies**: The program contracts with energy experts, known as allied technical assistance contractors (ATACs), to examine a participant facility's energy use, report their findings in initial Site Evaluations and follow-up Technical Analysis Studies. Site Evaluations identify site-specific opportunities to save energy. Technical Studies provide engineering estimates of costs and savings for the qualifying upgrades the customer is interested in pursuing. Evergreen Consulting Group (Evergreen) provides technical

[1] Multifamily residential properties are covered under a separate Multifamily program.

[2] As of January 2013 a new PMC, ICF Consulting, will serve as PMC.

assistance to ATACs when site evaluations identify lighting upgrade opportunities. Our evaluation activities focused on this aspect of the program. We provide more information about this aspect of the program in the evaluation overview section.

- **Financial Incentives:** The program offers both *standard incentives for prescriptive measures*, and incentives for *custom projects*. *Standard incentives* are available for a variety of lighting equipment, electric motors, premium air-conditioning units, gas-fired equipment, and food service equipment. These incentives do not require a Technical Analysis Study; qualifying energy savings and incentive amounts either are prescriptive or require simple calculations. *Custom incentives* are provided on a case-by-case basis and are determined from a formula that uses a percentage of the incremental cost of installing the measure (compared to the cost of installing standard-efficiency equipment). They are limited by the estimated annual energy savings, cost-effectiveness, and return on investment (or simple payback period) from the energy savings. Savings estimates are based on engineering calculations of the installed equipment and its operating parameters.
- **Contractor Connections**: Program staff maintains a network of trade allies – suppliers and installers of energy-efficient equipment – and can recommend appropriate contractors to participants for each project. In some cases, ATACs are also trade allies and can therefore do a study and installation work.
- **Project Oversight**: Program representatives from the PMC review the technical studies and evaluate contractors' proposals in order to verify that the energy savings estimates are reasonable, the project is cost-effective, and the installation costs are reasonable.
- **Post-Installation Inspections:** PMC staff conduct post-installation inspections of all projects with incentives over $5,000 and spot-checking a sample of projects with incentives less than $5,000.

EVALUATION OVERVIEW

This evaluation specifically examined the EB program's custom project process and how various program actors interact with the process. Table 1 depicts the steps for how a project goes from an idea to an implemented measure.

This evaluation included analysis of program documentation, secondary data, interviews with one Energy Trust and five PMC staff, 16 ATACs, 38 trade allies, and 44 program participants; and 105 nonparticipant and 45 non-recent participant interviews. The interviews with staff and implementers provided us with an overview of the program and helped identify distinct phases a custom project goes through. Data collected from ATACs, trade allies, participants, nonparticipants and non-recent participants provided feedback to help Energy Trust improve the program and increase participation. Interview guides and survey instruments are included as Appendices A through G.

Table 1: Description of Custom Project Process

STEPS	DESCRIPTION	RESPONSIBLE PARTY
	APPLICATION	
1	Customer submits an Energy Assessment Request via Form 100e.	Customer
2	PMC Operations staff calculates an Energy Use Index (EUI) based on the customer's past energy bills and square footage of facility.	Program
	SITE ASSESSMENT	
3a	Customer enters an initial assessment phase to identify upgrades; Site Evaluation (SE) service is provided to applicants with EUI score of >=100. Business Development or Technical Services staff assign an ATAC to conduct a limited study to identify upgrades and estimate costs and savings. (Customer may work through an established relationship with an ATAC.)	Program
3b	PMC staff technicians (or a subcontractor to the PMC, RHT Engineering) conduct walk-through assessments for applicants with an EUI score of <100. The assessments, considered a customer service more than a savings delivery mechanism, identify potential upgrades at low program cost.	Program
4	ATAC sends the SE report to PMC Operations staff. The PMC's Technical Services engineer reviews SE costs and savings estimates to ensure they are reasonable.	Program
5	Business Development staff reviews the SE report with the client (generally face-to-face) to identify which recommendations the client is serious about pursuing and assess the customer's ability to move forward with the project.	Program
6	If lighting measures are included in the SE recommendations, Business Development staff may decide to involve Evergreen and, if so, determine the scope of that work.	Program
	TECHNICAL ASSESSMENT STUDY	
7	A Technical Analysis Study (TAS) is ordered for customers determined to be viable program participants. An ATAC carries out the study.	Program
8	The customer receives an estimate of incentives based on the TAS (Form 110c) and decides whether they want to move forward with any upgrades.	Customer
9	Customers choosing to move forward (based on estimated incentive offer) engage contractor(s) to prepare a bid for the installation of selected recommended upgrades.	Customer
10	Customer submits the bid to Technical Services group via PMC-Operations staff; Engineering staff reviews the revised bid to ensure it is in line with TAS estimates.	Customer
11	If needed, the PMC engineer follows up with the contractor(s) to explain or revise the bid.	Customer
12	The PMC engineer re-runs the cost-effectiveness calculator to assess the final project cost-effectiveness and generate a formal incentive offer (Form 120c).	Customer
	OFFER AND IMPLEMENTATION	
13	The customer either accepts or rejects the formal incentive offer (Form 120c)	Customer
14	Customers who accept the formal incentive offer install or upgrade equipment	Customer

2 ENERGY TRUST STAFF AND PMC PERSPECTIVES

In this section, we report findings from our interviews with Energy Trust's Existing Buildings program staff and Lockheed Martin's program management staff including an Evergreen staff person. We present the information according to the six key program areas these staff identified: program management, trade ally, and ATAC recruitment/outreach/training, marketing, customer outreach/business development, energy assessments, and technical services (Table 2).

Table 2: Program Areas

PROGRAM AREAS	DESCRIPTION
Program management	An Energy Trust staff person manages the PMC who implements the program. The Energy Trust program manager communicates directly and regularly with PMC staff.
Trade ally and ATAC recruitment/outreach and training	Existing Buildings projects delivered through two trade ally networks. PMC staff recruit and train non-lighting trade allies. Evergreen Consulting Group recruits and trains lighting trade allies.
Marketing	Lockheed Martin's marketing staff works with Business Development and trade ally outreach staff to identify the best ways to market the program. Tasks include producing marketing collateral, presenting the program at trade shows and conferences, and coordinating and conducting webinars.
Customer outreach/business development	Six PMC FTE are assigned to different market sectors to reach out to potential customers and explain the program benefits. Outreach is done primarily through face-to-face meetings, phone calls, and emails. In addition, three PMC FTE manage and support the implementer's Business Development staff.
Energy assessments	Site evaluations and technical assistance studies are directed by Business Development staff and are provided by ATACs. Evergreen Consulting Group provides lighting design assistance as needed.
Technical services	Eight PMC FTE provide technical and engineering assistance to participants and trade allies. Pre-project initiation tasks include: reviewing technical studies, performing walk-through surveys, and coordinating with Business Development staff to explain technical information to participants. An Evergreen Consulting Group lighting specialist may accompany ATACs on site evaluations of custom projects with potential lighting upgrades or consult with PMC staff post-evaluation.

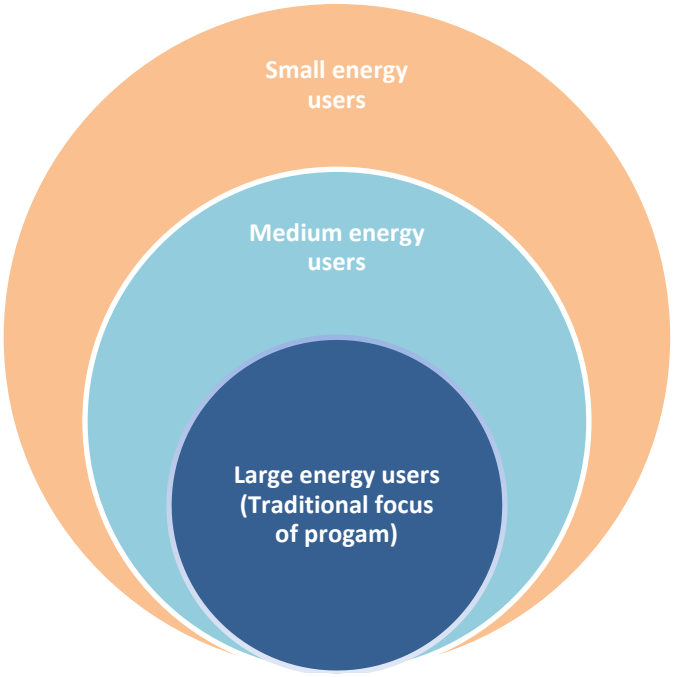
PROGRAM MANAGEMENT

According to Energy Trust and PMC Existing Buildings program managers, the program has consistently met its annual gas and electricity savings goals, even though those savings targets have increased continually, and despite the recent market downturn. They offered several explanations for this success.

The Energy Trust program manager noted that the program initially relied on attaining savings from a relatively small portion of the commercial building market, particularly large commercial facilities, such as large office buildings. He described the existing buildings market and related

program savings as three concentric circles, each representing a portion of the commercial building market (Figure 1). From smallest to largest, the circles represent: 1) the relatively small number of facilities that use large amounts of energy; 2) the larger number of facilities that use medium amounts of energy; and 3) the majority of facilities, each of which uses small amounts of energy.

Figure 1: Energy Use and Targeted Customers



He noted that the program has historically concentrated direct outreach on the smallest circle – facilities that use the most energy and therefore have the greatest potential energy savings. He said this approach has made sense because it was easier for PMC staff to recruit these customers through direct, one-on-one contact. In addition, service providers in the market are also most apt to target this smallest circle first, because the size of the projects yields greater revenue. He added that a focus on any one market or market segment results in a *maturing market*, which gradually reduces the number of measures with large energy savings potential and the number of potential new sites in that submarket for the program and service providers to target.

From the PMC manager's perspective, program success is also based on managing a balance between staff time and the savings attained per project. The PMC manager reported that about 25% percent of the Existing Buildings projects produce approximately 75% of the program's attained savings and the staff time required to secure a project and see it through to completion is (generally) proportional to the program savings attained. Large and complex projects (involving multiple buildings and requiring greater engineering support) produce greater energy savings with larger incentive payments and require more program staff attention per project. However, on average, the staff hours per unit energy savings should be lower for large projects.

Energy Trust program staff said that over the history of the program, they have gained important experience working in submarkets with large energy users, especially those in market segments that have similar organizational structures and codes and standards: office, retail, hospitals, schools, grocery, restaurants, and lodging. This focus has allowed them to deepen the program's penetration in these market segments.

The Energy Trust program manager added that the program's future success relies on program planners' ability to continue to build on the impacts of past program activities when determining future program strategies. In particular, the program must develop additional projects in the large facilities that already have completed energy efficiency projects with program assistance, while expanding the number and kinds of measures covered and services offered, for small- and medium-sized facilities. As the program expands into the smaller and medium markets, the Energy Trust program manager predicted that program costs will increase because smaller customers are more challenging to reach, and they need more education about energy issues and help in developing projects.

Program Flexibility

From the PMC manager's perspective, continued program success also relies on knowing what is going on in your target markets and having the flexibility to revise program offerings to address perceived market needs. For example, in fall 2011, the Existing Buildings program responded to the state's discontinuation of the Business Energy Tax Credit (BETC) program by rolling out a 10-week offer of bonus incentives as a "market trigger" to "kick start" prescriptive and custom lighting track projects and custom non-lighting projects. Qualifying projects submitted by December 1, 2011 received a 30% to 50% bonus on top of the qualifying measure incentives previously on offer. The offer generated a higher than expected number of new projects and accelerated existing projects to meet the deadline. Savings generated resulted in the PMC exceeding their stretch goal by 20-30%, but also caused them to exceed their budget for incentives. In this case, Energy Trust was able to approve additional incentive money to cover the cost of attaining these higher savings levels, but the experience points out the potential risk to the program when they adjust incentives to "excite and respond to market conditions" without an ability to better plan for, or limit, the market response to special market triggers.

The program also actively seeks to expand its list of approved measures to adapt to changing market conditions. New measures and service offerings play an important role in expanding the program's reach into existing markets and meeting program savings goals. Energy Trust requires that new measures be evaluated per the internal review process described in the Existing Buildings Program Implementation Manual. Depending on the availability of information on a proposed measure, it can take between one and six months for Energy Trust staff to approve proposed measures. PMC staff reported that this process usually takes less time when other utility programs also incent that measure, and when information on the measure's reliability, applicability, and savings characteristics are available for Energy Trust review.

PMC staff reported that interest in the addition of new measures or operations and maintenance (O&M) services come from market actors and from implementers' interactions with program trade allies or implementers of other efficient buildings programs. Staff also reported that customers and trade allies are most interested in adding prescriptive measures to the program, but also are interested in adding qualified custom measures.

Program Cycle

The PMC program manager reported that shifting the program cycle from December, to May eliminated conflicts with Energy Trust's peak project activities, such as processing incentive checks by the end of the calendar year. The change also has improved workflows and coordination issues with Energy Trust that usually arose in December, because attempts to finalize projects and project paperwork often conflicted with end-of-year financial reporting.

Triple Teams

Triple teams, instituted by the PMC staff in 2011, include one staff member each from the PMC's Business Development, Operations, and Technical Services departments. Members of the Business Development group have expertise working with specific commercial and industrial market segments; the assignment of staff to a custom project triple team is based on that expertise. For internal consistency, the Business Development team member assignment determines which two other staff – specifically, a support staff member from Operations and an engineer from Technical Services – will participate in the team.

Staff informants reported that this organization effectively facilitates open and real-time communications between internal implementation staff and the external ATAC and trade allies working on specific custom projects.

In 2011, the program also began integrating Evergreen into the triple team structure when needed – thereby making an expanded "quad team." This occurs when a customer is interested in a lighting project or the site evaluation identifies a potential lighting upgrade or de-lamping opportunity.

Pilot Programs

PMC staff also reported that the process for rolling out pilots outlined in the Energy Trust Implementation Manual is working well. Recent O&M pilots such as the Roof-Top Unit Premium Tune-Ups pilot (RTU) and Direct Digital Control building tune-up service pilot (DDC), exemplify how the PMC is expanding the vision and implementation of a program into O&M services. The PMC program manager said that these two O&M pilots have transitioned to full program status and are being offered to qualified commercial and industrial (C&I) market actors. This PMC contact also said that, due to the more streamlined pilot program development process, it took just one year (during 2009) for the PMC to develop the RTU pilot, from selecting

approved measures and units, to calculating deemed savings per unit and filing the final report with Energy Trust.

According to PMC staff, the implementation team routinely considers specific energy measures, and more recently, behavioral changes, to explore through pilot programs. One example is the Building Performance Tracking and Controls (BPTaC) O&M pilot, which the PMC developed to test whether third-party monitoring of behavioral changes to controls will deliver quantifiable and persistent savings. In addition, the PMC is actively considering lighting pilot program options to test the marketing of LED lighting measures, controls, and innovations (such as the regional Comprehensive Commercial Lighting pilot) as an approach to replace measure savings lost to programs that began in 2012 when the program stopped incenting conversion of T12 lighting because of changes in Federal lighting standards..

These O&M pilots have paid off. PMC staff reported that program activities that deliver savings from O&M services have increased in the past two years.

PMC program staff also pointed out challenges involved with the pilot process, especially coordinating and managing their workload involvement with pilots offered by other entities (external pilots), most notably the Northwest Energy Efficiency Alliance (NEEA) and Oregon Department of Energy (ODOE). In particular, PMC program staff said the other program implementers did not always fully inform them of these initiatives and the need to coordinate them with Energy Trust programs. However, these staff noted that improved communication over the past three years have enabled PMC staff tracking of customer's involvement in external pilot programs. As a result, PMC staff are now able to provide each customer with complete and cohesive information about all of the programs available to them.

Improving communication is an important change but workload issues continue. For instance, in one case, PMC technical staff reported that they had too few staff-hours to handle the time-sensitive work (review and validation of technical studies) they were doing in coordination with ODOE's external Cool Schools pilot. This required PMC staff to complete their work quickly in order to facilitate project installations during the summer of 2012, which was the funding deadline. PMC staff completed the reviews on time by enlisting additional Lockheed Martin technical staff outside of the Existing Buildings program.

PMC staff said they are exploring additional options to help customers better understand the business case for energy upgrades – beyond simple payback. Through an Energy Trust contract with the Energy Efficiency Funding Group (EEFG), PMC staff has been working with Mark Jewell (President, EEFG) on a revised sales model. For custom-track projects, the collaboration has created an executive summary cover for the Technical Analysis Studies to help upper-level decision-makers understand the benefits and full cost of energy efficiency upgrades. In an effort to meet smaller customers' needs, the program manager envisions creating a similar enhanced sales model that will describe financial benefits and other business reasons for making energy efficiency upgrades. One example he mentioned is making the business case for energy efficiency upgrades that have a simple payback that is longer than 18 months ("which we're

seeing with more projects") because such upgrades may have a greater return than other business investments.

Communication

Existing Buildings and PMC staff agreed that external and internal communication channels were working well to manage the flow of information between Energy Trust, PMC, and Evergreen staff. Information on program activities, including projects in the pipeline, active-project tracking, and savings goal updates are shared at the PMC's weekly meetings; bi-monthly PMC managers' meetings; and a monthly meeting attended by Energy Trust, PMC, and Evergreen staff. PMC department managers call additional meetings as needed. For example, the Technical Services group manager reported holding meetings as often as twice a week to provide project-assigned engineers the opportunity to discuss and track custom projects.

In addition to improvements resulting from "triple teaming," internal PMC program communications and cross-program communications related to custom Multifamily program projects were enhanced by the use of FMYI, a web-based workspace that networks the entire Existing Buildings implementation staff. FMYI addresses two communications barriers experienced by PMC staff using Energy Trust's *FastTrack* database: 1) access to *FastTrack* was limited to just a few PMC staff, and 2) out-of office access to *FastTrack* (e.g., by field staff working at non-secure sites) was blocked. PMC staff now uses FMYI from any site to input project case notes and deadlines. PMC technical staff particularly praised the PMC's Operations staff's role in facilitating communication, as well as their new ability to post real-time inputs into FMYI for providing "*supervisibility*" throughout each project phase, especially regarding tracking and report generation.

TRADE ALLY AND ATAC RECRUITMENT/OUTREACH AND TRAINING

The program requires that custom projects be completed by Energy Trust trade allies. Customers installing prescriptive projects may employ a non-affiliated contractor. Staff reported that they encourage all program participants to use registered Energy Trust trade allies, and that 98% of them do. A primary reason for this high rate of trade ally activity is that about 85% of contractors in Oregon that provide services related to the measures incented by the Existing Buildings program have registered as Existing Buildings program trade allies, although not all of them are active in the program.

Trade allies and the PMC Business Development staff are the Existing Buildings program's "sales force." At the time of our interviews with program staff in April and May 2012, the trade ally network had about 400 members, organized by market sector; approximately one-fourth of

the network consisted of mechanical trade allies trained on RTU measures.[3] Staff reported that 64 new non-lighting trade allies registered with Existing Buildings in 2011, and that 12 of them joined between January and April 2012 because they would lose program-related work if they did not register.[4] According to program staff, the majority of the non-lighting trade allies were HVAC contractors, insulators, general contractors, or equipment (e.g., kitchen) contractors. The network also includes contractors that install building controls.

Trade Ally Recruitment and Outreach

Energy Trust, PMC, and Evergreen staff recruit and train trade allies and/or ATACs. Through them, trade allies and ATACs have numerous "touch points" with program staff. These usually occur during an Energy Trust sponsored event open to all contractors, and during program implementation phases, such as assessment, review, and post-project inspection phases.

The PMC's outreach goal is to recruit trade allies able to successfully market and install measure that meet overall program savings goals. The PMC may work to expand the trade ally network to ensure that it includes the appropriate mix of trade allies positioned to sell program measures in sufficient quantities to meet program saving targets.

As the Existing Buildings program matures and expands its list of qualifying measures, program staff may need to recruit and train additional trade allies to provide related services. The PMC program manager reported working in 2011 to expand the trade ally network by assigning two staff members to increase the number of "touch points" the program has with trade allies. PMC staff also pointed out the need to manage the trade ally pool by sector and services provided with an eye toward meeting separate kWh and therm savings goals during the program cycle.

However, simply enlarging the trade ally pool as the program's saving goals rise can create problems. This occurred in 2006 when the program exceeded savings goals prior to the end of the program's yearly cycle and had to cancel selected trade ally projects that already were in the pipeline for that year. To prevent this, the program manages the incentive fund, which is linked to specific savings goals, by setting a ceiling on incentives for the sale and installation of individual measures for each year and notifying interested parties when that ceiling has been reached.

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[3] Almost all of the mechanical contractors also do HVAC installations, but HVAC trade allies do not always do mechanical engineering. Not all of the 100 mechanical trade allies trained in RTU were active in the RTU program in 2011-2012.

[4] Staff reported that within the RTU program, trade allies who actively sell program upgrades will try to "steal" inactive trade allies' customers and that this has worked to motivate inactive trade allies to get involved in the program. This happens when an active trade ally contacts an inactive trade ally's customer and generates customer interest in the RTU service. If the customer is loyal to their own (but inactive) HVAC contractor and asked them about the incented RTU tune up, the inactive trade ally is spurred to become an active program trade ally.

Trade Ally Training

Energy Trust, PMC, and Evergreen staff provide elements of the training for program trade allies and ATACs. PMC program staff provides introductory orientation and on-going training opportunities such as program updates and updates on new technologies. PMC staff answer most trade ally questions over the telephone; they also provide project information by cell phone, email, scanner, fax, and/or mail.

The PMC trade ally coordinator provides ongoing program education, orientation, and training, including training on specific measures such as RTU tune-ups. The trade ally orientation has changed since 2010 to address trade allies' complaints that they did not know whom to contact for specific program information. Because orientation and training are about relationship building, the PMC's trade ally coordinator said they conduct face-to-face orientations during one-on-one or small group meetings, instead of less personal orientation webinars. Orientations take about 20 minutes, after which mechanical contractors may opt to take the 90-minute training that is required for those who want to participate in the RTU program. This process is most effective when all of a company's staff attend the training together, since, as one trade ally contact said, "one of those people will be the 'Radar O'Reilly'[5] of the company, who is the one who will do the paperwork."

In addition to required orientations and training sessions, PMC staff routinely share program information with trade allies and ATACs. For instance, Business Development staff regularly contact ATACs during project assessment, and engineers in the Technical Services group relate information on program standards and processes to ATACs during reviews of TAS reports. Of note, the Technical Services group has little contact with non-mechanical trade allies unless they are also an ATAC.

Energy Trust staff support trade ally training and cross-program communications by holding quarterly roundtable forums throughout Oregon (in Bend, Medford, Corvallis, Pendleton, etc.). Attendees include Energy Trust staff, the Existing Buildings PMC, CSG[6], PECI[7], and trade allies. At these forums, trade allies are encouraged to provide program staff with feedback on their current program activities and experiences, and trade allies receive information on current technologies and incentives.

In the past two years, Evergreen's role has expanded, and accordingly, they have increased the number of technical support staff working in the field during the TAS process. According to PMC technical staff, Evergreen has brought in more lighting savings year after year by helping ATACs (and trade allies, where applicable) understand the technical potential of comprehensive

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5 A reference to a character in the television program M*A*S*H.

6 CSG is the implementer of Energy Trust's Residential Program.

7 PECI is the implementer of Energy Trust's New Construction Program.

lighting design. Evergreen also sponsors an annual meeting to recognize active trade allies and provide a venue for discussing new technologies and incentives in the lighting marketplace.

The PMC's trade ally coordinator found that in some cases, trade ally inactivity (especially in rural Oregon) could be a result of technological barriers, such as a lack of modern technologies (e.g. smartphones, high speed internet connections, scanners) or use of outdated electronic hardware and/or software. The trade ally coordinator helped RTU trade allies overcome these barriers during field training sessions on wiring RTU tune-up components by also demonstrating various ways the contractor could interface with appropriate PMC staff.

Marketing

The PMC produces the marketing collateral for the Existing Buildings program. The marketing, Business Development, and Technical Services staff integrate their marketing and outreach activities.

The PMC's marketing staff routinely review their activities in their targeted markets to determine where to focus outreach. For instance, since 2010, the PMC's marketing activities have increased in two segments – large office and grocery/big box retail. This corresponds to a recommendation in the 2009 Existing Buildings Program Evaluation[8], which identified opportunities to expand the program in these areas. During the same period, PMC Marketing staff developed collateral to support program activities in the relatively new O&M services area.

Other PMC staff support the marketing department. During their contacts with market actors, Business Development and other staff activities serve as 'eyes-on-the ground' for the marketing staff. Marketing staff use feedback from business development or technical staff on efficiency measures needed by customers in a specific market to develop effective case studies and other collateral to support outreach and increase market penetration.

To meet this expanding market need, the PMC has increased its marketing and Business Development staff. In 2010, they hired one FTE to focus on the large office sector. The PMC also hired one FTE to focus on understanding local and national grocery stores, including big box chains. Since 2011, the PMC has hired two additional employees – a data analyst and an internal support person – to provide outreach support.

PMC program contacts described some insights they have gained about marketing to grocers, including big box stores by working directly with national chains managers at the corporate strategic planning level. Marketing staff that specialize in the grocery segment learned that, "Retailers look at what programs are out there to reduce their costs and they plan with a strategic look across the country. They look at all of their stores and where there are incentive programs available" to support a return on investment of three years or less on energy efficiency upgrades.

[8] *Process Evaluation – 2009 Existing Buildings Program.* Energy Trust of Oregon. Prepared by Research Into Action. December 1, 2010.

As a result, the PMC seeks to map the efficiency products big box retailers want to install in their facilities nationwide and facilitate those installations through the Existing Buildings program.

At the regional level, PMC staff work as consultants to smaller, local grocery chains. Local store managers consult with the PMC staff about the latest technologies and upgrade options to stay competitive in part by knowing what efficiency upgrades other stores in the grocery sector are considering or adopting.

Customer Outreach/Business Development

Customers enter the Existing Buildings program through self-referral; recruitment by Energy Trust, ATACs, or trade allies; and outreach by PMC staff. Evergreen is not directly involved with customer outreach but they support the outreach done by trade allies. Outreach activities by each of these include the following.

- **PMC:** Employs six Business Development staff to recruit Existing Buildings projects. Working with approximately 30 projects at one time, each staff member conducts customer-facing outreach with commercial firms within their assigned target market segments to inform potential participants about program benefits, recruit new client projects, and encourage past program participants to continue to engage in the program.
- **ATACs (and less often, trade allies):** Deliver custom projects to their customers that fit Existing Buildings program criteria because of their knowledge of Existing Buildings incentives and their direct delivery of architectural, engineering or design services to commercial clients.
- **Energy Trust:** Provides Existing Buildings program information on their website and supports the PMC's work.

In addition to customer-facing outreach to potential Existing Buildings customers by Business Development staff and ATACs, the program has long provided technical studies to potential participants. These studies identify savings opportunities within a facility. Program outreach staff use these studies to provide a preliminary service that both informs customers about the Existing Buildings program and demonstrates the value they might receive from participating in it.

Circumstances that led to the provision of O&M services as part of the Existing Buildings program provide an example of how customer outreach collaborating with marketing activities can inform Existing Buildings strategic planning for meeting escalating program goals. Current O&M services grew from PMC's Business Development staff hearing from customers about the slowing economy, their concerns about the cost of energy, and their decision to delay costly efficiency upgrades. Sharing of this information with PMC management and marketing staff prompted strategic planning meetings on how to generate program savings through low-cost/no-cost measures or services. PMC staff knew that O&M services offered potential energy savings, but that those savings could be very labor-intensive to achieve. By observation and feedback

from outreach teams and through interviews with ATACs and participants, the PMC identified an unmet need (how to deliver O&M services), starting with the RTU program, to the market.

Energy Assessment Phases

Prior to 2011, the energy assessment phase consisted of walk-through assessments, and Level 1 and Level 2 technical studies. At that time, ATACs conducted technical studies that outlined *all* potential facility efficiency upgrades, and estimated costs and associated savings *before* knowing which upgrades the customer was interested in, or was committed to undertake. These studies could take two to four weeks to complete, excluding review time. The PMC program manager reported that, according to an analysis conducted by Energy Trust in 2011, the conversion rate (measured from the completion of the study phase to installation) was about 40%.

During 2011, the program made major changes in the energy assessment phase by eliminating Level 1 and Level 2 technical studies and limiting the new TAS studies to measures that customers are interested in pursuing.

Toward the end of 2011, program managers with Energy Trust and PMC evaluated the program's expenditures on the technical studies it was conducting and explored ways to reduce funding for studies that did not result in projects. Because of that evaluation, PMC staff revised their assessment processes. Currently, Business Development staff initiates discussions with customers by offering preliminary, and less costly, assessments. These include *walk-through assessments* for small customers, which take a day or less to complete; and *site evaluations* for larger customers with higher savings potential, which take one to three days to complete.[9] The site evaluations provide a roadmap of all possible upgrades, similar to assessments conducted prior to 2011, but they are less expensive to conduct because they allow assessors to estimate, rather than compute, per-project costs and savings.

The customer and their Business Development contact (sometimes accompanied by the ATAC and/or program engineer) review the site evaluation report together, which allows them to discuss any appropriate upgrade measures that meet the customers' immediate needs and budget. Ideally, this discussion produces a list of measures to implement during the current and subsequent years, and identifies measures the client likely will not pursue. Once the customer specifies the measures they are interested in installing, these are targeted for a full Technical Analysis Study (TAS). During interviews in April 2012, the PMC program manager reported that the new process was controlling the program's up-front investment in studies by focusing on selected upgrades to study during the TAS phase, and Energy Trust's Existing Buildings program manager confirmed that the new assessment process already had saved Energy Trust around one million dollars.

[9] Program staff also refer to site evaluations as "scoping studies."

Technical Services

The PMC's Technical Services staff are key players in the "triple team."

Four years ago, a single staff engineer conducted all reviews. Since then, the Technical Services department has grown to seven staff. Their core responsibilities now include:

- Quality control review of site evaluation studies
- Full engineering review of Technical Assistance Studies
- Walk-through assessments of sites that do not qualify for site evaluations
- Post-installation inspections of all large and some small projects
- Innovation in program design and technical review of new measures
- Trade ally coordination and training
- Serving on triple teams

Technical Services staff also assists other PMC staff with contract deliverable activities and any other technical matters as needed.

In addition, since 2010, several Technical Services staff acquired trade ally coordination and training tasks because they have the knowledge and skills to train trade allies on technical measures, such as RTUs.

As a member of a triple team, a Technical Services staff person occasionally meets with customers to help the Business Development staff present the estimates of incentives for specific measures.

Technical Services staff periodically interacts with ATACs and Evergreen staff during their review of Site Evaluations and TAS reports. For example, for most site evaluations that identify an opportunity to upgrade/install lighting measures, the Technical Services engineer will refer the project to Evergreen when the project would benefit from advice from a lighting specialist.

TAS reports include ATAC *estimations* of costs and savings for the measures the customer is interested in. When appropriate, lighting specialists calculate lighting project costs, savings, and incentive levels by using a tool that determines lighting savings and payback. This lighting tool takes into account the interactions between lighting and HVAC loads. Reducing lighting loads may reduce the savings estimated from recommended HVAC upgrades.

Once the TAS is finalized, the technical engineer who reviewed the report enters the ATAC's estimates of costs and savings for specific measures into the PMC's cost-effectiveness calculator. For measures that meet the cost-effectiveness test, an incentive amount is determined and provided to the customer for review (Form 110C). At this point, the customer may accept the

incentive offer and move the project forward by getting a bid for installing the measures or decide to delay or abandon the project.

Customers who move forward with the process must hire a trade ally contractor to bid the project. The final Existing Buildings incentive package is based on the contractor's bid, which the customer must submit to the PMC. Technical services staff review the bid and re-enter actual costs into the PMC's cost-effectiveness calculator. This recalculation generates a final incentive package, which is then sent to the customer (Forms 120C).

Once the customer knows the actual incentives on offer, they can accept the offer by signing and returning Form 120C to the PMC or they may opt to delay the project. When large custom projects are delayed at this point, Business Development staff continue to work with the client to assist in revitalizing or revising the project.

3 ATAC FEEDBACK

Allied technical assistance contractors (ATACs) are key players in the study phase of large custom projects, making them an important source of information for this evaluation. We identified 30 ATACs and categorized them into high activity (did 20 or more studies in 2011), medium activity (5 to 19 studies), and low activity (fewer than five studies). We excluded one low-activity ATAC who had recently provided feedback for another project. Of the remaining 29 ATACs, we interviewed 16 (3 high-, 6 medium-, and 7 low-activity) between June 28th and July 16th 2012. Of the remaining 13 ATACs, we had incorrect contact information for six and were unable to reach seven after multiple attempts. The interviews averaged about 50 minutes each.

The 16 respondents represented two-thirds (199 of 295) of the site evaluations and technical studies from May 2011 to May 2012. Often times, ATACs only do studies and assessments but in at least three cases ATACs are design-build firms so they can also work as contractors for the program. Therefore, an ATAC can assess a building and install measures in that same building.

Consistent with the evaluation's focus on how customers move through the custom track process, we solicited details about site evaluations and technical studies, including how the scope is determined, who is involved in the process and how it works, the role of feedback from the PMC, and barriers to moving forward from site evaluation to study and from study to project. We also used this opportunity to learn what ATACs know about their customers' interest in energy management, operations and maintenance (O&M), and additional savings opportunities offered by Energy Trust's various pilot programs. Finally, we asked ATACs to describe their general experience with the program, including their reasons for becoming an ATAC, how studies are assigned and performed, administrative processes and incentives, and suggestions for process improvements.

SITE EVALUATION AND TECHNICAL STUDY PROCESSES

All 16 respondents conducted technical studies and 14 of them also carried out site evaluations. We asked respondents several questions about who is involved, and how they are involved, in planning, scoping, and conducting site evaluations and technical studies and as well as what barriers keep customers from moving forward from site evaluation to studies or projects.

Scoping the Site Evaluation and TAS

Most respondents (9 of 14) indicated that the scoping of a site evaluation is a collaborative process between themselves and the customer, while two indicated that they carried out the scoping with little or no input from others and three suggested that the process is largely prescriptive or checklist-driven. Of the nine that described a collaborative process, four also suggested that the PMC has some involvement, but that involvement is mainly in providing the

forms or conveying the customer's interest. Only one respondent specifically said that a contractor sometimes is involved in scoping the study.

The 16 respondents who did technical studies similarly described a collaborative process between the ATAC, customer, and PMC – a continuation of the site evaluation process. However, respondents tended to describe a greater role by the PMC, providing feedback based on the site evaluation report.

On-Site Activities

ATACs typically work with a facility manager during the site evaluation, but also reported working with a variety of other actors (Table 3). One respondent indicated that the individuals they meet with depend to some degree on the type of property: at schools, they will meet with the superintendent; at car dealerships, they will meet with the maintenance supervisor. ATACs reported working with the same person during the technical study that they worked with during the site evaluation phase.

Table 3: Customer Representative(s) Present During Site Evaluations (*n* = 14)

CUSTOMER REPRESENTATIVE TYPE	COUNT
Facility manager	13
Owners, property managers, other managers	8
Tenants	3
Contractors	2
Financial staff	1

Respondents described substantial interactions with customer representative(s) during site evaluations and technical studies. During the site evaluation, ATACs work with the customer representative(s) to identify areas of interest for energy savings and review any architectural or mechanical drawings of the building. The ATAC tours the facility and inventories the HVAC and mechanical equipment. The technical study process is generally an elaboration of the site evaluation. Typically, the ATAC works with the customer representative(s) to schedule times to review equipment, carry out additional review of building drawings if needed, and obtain information on things affecting energy use, such as hours of operation.

We asked what types of questions customers asked during site evaluations and technical studies. The most frequent types of questions asked were about project costs and incentives followed by questions about timing and the overall process (Table 4). Relatively few respondents reported questions about energy savings or other technical issues.

Table 4: Questions or Concerns Raised by Customers during Technical Study Phase (*n* = 16)

TYPE OF QUESTION OR CONCERN	COUNT
Cost and incentive amount	10
Timing and process of completing project	7
Energy savings	3
Technical issues (study methods, equipment details, equipment reliability)	3
No questions	2

Three of the 14 ATACs opted to bring a lighting consultant from the PMC's lighting subcontractor to a site evaluation. Of the three, one objected to the lighting subcontractor's role, while the other two did not express opinions. The one respondent indicated that the lighting subcontractor provided minimal assistance and reported frustration at identifying lighting work and then having to "turn it over" to the subcontractor.

Site Evaluation and TAS Reports

Following a site evaluation or technical study, the ATAC prepares a report and submits it to the PMC for review. We asked respondents what kind of feedback they received from the PMC on their reports and whether the PMC review ever resulted in revisions to their reports. Thirteen of the 16 respondents reported various types of feedback, most frequently in response to the technical study (Table 5). One respondent reported receiving little or no feedback on reports despite multiple requests.

Table 5: Types of Feedback Provided on Site Evaluation and Technical Study Reports

	NUMBER OF ATACS REPORTING FEEDBACK		
TYPE OF FEEDBACK	Site Evaluation (*n* = 14)	Technical Study (*n* = 16)	Either (*n* = 16)
Request for clarification of assumptions	2	7	7
Calculation error	1	5	6
Identifying additional cost savings opportunities	2	0	2
Other	0	2	2
None	9	3	3

None of the respondents reported making changes to their site evaluation report based on the PMC's review, and respondents reported changes or edits to the technical study report arising from the above types of feedback were not common.

After an ATAC submits the site evaluation report to the PMC, a member of the PMC Business Development staff meets with the customer to determine the project's next steps. When we asked the ATACs whether they ever attend those meetings, six of the 14 respondents reported they at least sometimes attend those meetings to explain technical information or because they have an established relationship with a customer.

FEEDBACK ON EMS AND O&M

A goal of this evaluation was to investigate the degree to which customers are aware of and think about energy management systems (EMS) and O&M. To this end, we questioned ATACs about the degree to which they discussed these issues with their customers and what feedback they received.

All 16 ATACs reported discussing EMS with their customers; six described it as a primary topic of conversation with their customers. Half of the ATACs indicated their customers were generally interested in EMS. Of the 16 ATACs, two reported customers frequently find EMSs too expensive to install and one found that customers need more training on how to use existing and new systems to maximize efficiency.

All respondents reported they discuss O&M issues during site evaluations and technical studies. Of those, seven reported they discuss obvious issues that appear during walk-throughs. Examples included dirty filters and incorrectly calibrated control systems.

ATAC FOLLOW-UP WITH CUSTOMERS

Previous evaluations have shown that many ATACs have established relationships with customers – and the ATACs we interviewed for this report brought in about half of Energy Trust projects they worked on. To learn more about the relationship and what opportunities it might provide for continued and deeper savings, we queried the ATACs about their continued interactions with customers after preparing a technical study report, including what they did, if anything, to encourage customers to move forward with projects.

Fourteen of the 16 respondents reported that they follow up with customers to learn what they do with the results of their study. Of those, four reported following-up with customers for the following reasons:

- To answer questions about the study (about one month after the study)
- To tell customers about program changes or opportunities such as a kick-start bonus
- To encourage customers to do the work when the incentives are particularly attractive
- To seek any design work that may result from a study

Eight ATACs reported they did not do anything specific to convert studies to projects because their customers planned to proceed with the project regardless of the study results. Two

respondents did not provide answers. Two low-activity respondents explicitly stated they rely on the PMC to follow up with customers.

ATAC INVOLVEMENT IN ENERGY TRUST PILOT PROGRAMS

To generate feedback on Energy Trust pilot programs, we asked ATACs about their involvement in those programs. Seven of the 16 ATACs reported they participated in one of Energy Trust's pilot programs – five in the Roof-Top Unit Tune Up (RTU) program and two in the Cool Schools program. Among those seven respondents, their level of involvement in pilot activities and the amount of work that they initiated varied widely.

We asked those respondents about how their involvement in the programs went, as well as whether and how studies for the pilot programs differed from those for Existing Buildings. Responses indicated a generally positive experience, particularly for the RTU program, which was described as a "win-win" that should be expanded (Table 6). Neither of the Cool Schools respondents indicated there was any fundamental problem with the program, but both reported overly complicated requirements for the studies.

Table 6: Summary of ATACs Comments about Pilot Programs (*n* = 7)

Program	Overall Experience		Comparison to Existing Buildings Studies
	Valence	Summary	
RTU	Positive	Went well. One project did not go through because it did not meet age requirement.	No differences noted
RTU	Positive	Should expand program	About the same
RTU	Positive	Very successful – a win-win. No customers have complained. Customers have been happy.	Pilot has narrower scope of work
RTU	N/A	No comments	Don't know
RTU	Neutral	No comments	M&V is part of pilots.
Cool Schools	Positive	Went smoothly other than ODOE's "onerous" process	ODOE requirements made pilot program more expensive than necessary.
Cool Schools	Neutral	Did 36 projects. Lack of awareness that schools can use both SB 1149 and Energy Trust funds.	Too many unnecessary measurements required

Worth noting also is that one of those respondents said that many school officials are not aware that they can use SB 1149 funds to upgrade one building and Energy Trust funds in other buildings. This suggests that the program possibly should emphasize this point in its education and outreach to the schools segment.

Barriers to Proceeding from Site Evaluation to Technical Study

We asked ATACs what impedes a customer from proceeding with a project at the conclusion of a site evaluation. Ten respondents offered ideas. Seven reported that the availability of funding for a project was an issue. For instance, a school may not be able to pass a bond or a non-profit may be on a "shoestring" budget that requires them to prioritize other more pressing projects. Four respondents indicated that the timing of a project could delay or halt a project. For example, a customer may not want to do a cooling project in the middle of the summer or the people on site may be too busy with other projects to fit another project into their work schedule. Also, the time required by Lockheed to approve a project may not fit the customers schedule or needs. One ATAC reported that he currently has one customer that has been waiting for over six weeks to receive his site evaluation report and the customer needs to proceed with the project soon.

FEEDBACK ON ENERGY TRUST AND THE PMC

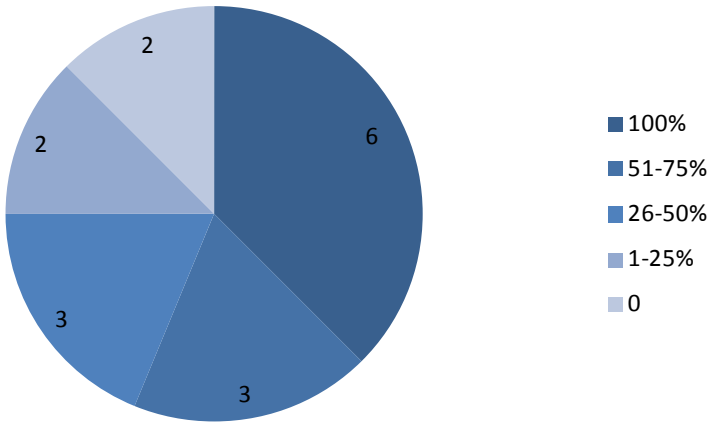
Reasons for Becoming an ATAC

When asked about reasons for becoming an ATAC, most respondents (11 of 16) cited business advantages – nearly half (7 of 16) specifically said it helps increase their profits or business, and four mentioned improvement of skills, the associated engineering challenges, or the greater familiarity with Energy Trust. About one-third of the comments (6 of 16) related to advantages to customers – four citing additional service for customers and two specifically referring to energy savings.

Assignment of Projects

In order to understand how ATACs get involved in studies, we asked respondents what percentage of their Energy Trust work they initiated. Specifically, we wanted to know how customers are brought into the program and if that affects their experience with the program. Responses varied from 0% to 100% (Figure 2). Based on their responses, it appears that ATACs initiated just over half (54%) of the 199 studies done during our analysis period. Of the two ATACs who reported receiving 100% of their technical study jobs directly from Energy Trust, one worked only in eastern Oregon and the other was semi-retired. The respondent that worked in eastern Oregon was based in Idaho and only did work in Oregon because it was more cost effective for Energy Trust to have an engineering firm from Idaho travel to the region than a firm from the western part of Oregon. The respondent that was semi-retired only did work when it came to him from Energy Trust and he was not interested in developing new business on his own.

Figure 2: Percentage of Work that ATACs Initiated (*n* = 16)



Eight respondents had done both self-initiated and PMC-assigned work. We asked them about any differences between self-initiated and PMC-assigned projects. Three said they brought in larger, more complex, and novel projects, such as community centers, schools, ski-resorts, and zoos; while the PMC-assigned projects were more likely to be common building types, such as office buildings or car dealerships. Another respondent reported that the projects he brings to the program are more likely to reach completion and are completed faster than projects initiated by the PMC.

We asked the 16 respondents if they had any concerns with how the PMC assigned studies to companies in the ATAC pool. Most (11) had no concerns at all and one had no concerns other than lack of clarity on the process for assigning projects. Four expressed concerns regarding unfairness or favoritism. Of those, two explicitly said that projects were not necessarily assigned to the firm with the best technical experience or skill; one specifically used the term “favoritism” and referred to lack of transparency, and one called the process “a political circus.” Those four respondents varied in level of activity (two low, one medium, and one high); three of the four self-initiated at least 75% of their work, while the other brought in 40% of their Energy Trust work.

Relationship with the PMC

We asked the 16 respondents to describe their relationship with the PMC’s Technical Services team and Business Development group. Fourteen reported a professional and good working relationship with the Technical Services team. Two low-activity respondents reported frustration with the team: one cited insufficient feedback on study quality and customer decisions; the other cited personality conflicts with technical reviewers.

Fewer respondents – nine of the 16 – had generally favorable comments about their relationship with the Business Development group. Five described relationships that ranged from sometimes

frustrating to dysfunctional. The most common comments related to poor communication (slow responses, not communicating well with clients, or failure to copy the respondent on communication with clients). Respondents also commented that the Business Development group lacks technical expertise and does not respect them, does not communicate rules and expectations clearly, and sometimes makes decisions based on site evaluations when a technical study is called for.

Reporting Requirements

ATACs typically found the program reporting requirements reasonable. Thirteen described the requirements as reasonable, two were not sure of the requirements, and one stated the requirements change too often. This respondent reported it was inconsistent for Lockheed to ask ATACs to "stick their necks out" by making cost-benefit recommendations based on limited information when preparing a site evaluation report but not to ask them to take the same risk with the technical studies when they have more information on which to base their recommendations. However, Lockheed does not want ATACs to take any risk associated with calculating custom incentives for customers.

All ATAC respondents reported receiving appropriate and timely payment for their technical study work.

Program Support

Thirteen of the 16 respondents found program support sufficient to do their job effectively and three ATACs reported they needed additional support. Two of the three reported they needed more training on how to interact and work with the program while the third respondent reported needing technical training such as how to use EZSim software[10].

Despite reporting that the program provided sufficient support, three respondents said the program could increase the quality and quantity of technical training offering. One of these respondents said that improved technical training would help some consultants supply better reports. Another of these respondents indicated Energy Trust should build more technical training into the regular ATAC meetings. Also, this respondent said that Energy Trust could offer an annual energy expo where vendors and others could provide training on specific technical topics. The third respondent said that Energy Trust could better define what the technical report should look like. It was not clear whether this informant was aware that the program does provide an example TAS report format in its ATAC Guide, developed in March 2012.

[10] EZSim is simulation software that uses "utility bills to reveal patterns of use in commercial buildings." For more information on the software, see http://www.ezsim.com/

ATACs reported varying degrees of awareness of the ATAC Guide, which the PMC supplies to ATACs. We asked ATACs whether the ATAC Guide accurately reflects how they do studies. Eleven respondents reported that the guide mostly reflects the way they work on studies. Five did not know because they were unfamiliar with the manual.

Ten ATACs found the program information sheets on the Energy Trust website sufficient to determine incentives and potential energy savings during a site evaluation. Five were not aware of the information on the website or reported not using the website. One found the sheets on the website insufficient. This respondent thought there should be report examples on the website to make it more clear what they expect in the reports. This respondent also thought there should be more peer review of reports. For example, some utilities require other firms in their ATAC (or similar) pool to conduct quality control of reports. This allows each firm to see what other reports look like and it provides firms with good feedback about what might be improved.

Adequacy of Fees

Six respondents declared that the fees paid for site evaluations were too low. Four of these respondents complained that the amount of work necessary to complete an adequate evaluation is more than the fees paid for the work. One respondent indicated that the site evaluation fee is adequate but Energy Trust does not adequately compensate travel time in all cases. Another respondent reported that he has been able to collect an adequate fee for site evaluation work but he had to spend time negotiating the price with Lockheed. However, he said he has spent less time haggling fees recently.

SUGGESTIONS FOR PROGRAM IMPROVEMENT

When asked to identify what program processes could work better for ATACs. Fourteen of the 16 respondents provided multiple suggestions. The most common grouping of suggestions pertained to making changes in communication and coordination, including improving communication between Energy Trust/PMC and the ATAC. Other suggestions included making program changes, technical changes, and financial changes to the program.

Table 7: Suggestions for Improvement

SUGGESTIONS	NUMBER OF RESPONDENTS MAKING SUGGESTION
Improve Communication Coordination	10
Improve communication between Energy Trust and ATAC such as providing more feedback about study reports	5
Spend more time with customer up-front on project to encourage more projects to be implemented	2

(Continued)

SUGGESTIONS	NUMBER OF RESPONDENTS MAKING SUGGESTION
Reduce paperwork	2
ATAC should attend post-study meetings	2
Site evaluation too specific for time and money allotted to site evaluations	1
Pre-qualify projects better	1
Program and Energy Trust Changes	5
Fund commissioning as part of program	2
Focus on M&V	1
Improve training for building operators	1
Reach out to smaller buildings to get them to participate more	1
Focus outreach on non-energy benefits of program	1
Technical Changes	3
Include lighting in analysis better	1
Provide models for energy savings specific to equipment	1
Compare new equipment to existing equipment not code	1
Show payback for prescriptive measures	1
Financial Changes	3
More money for incentives	2
Focus incentives on buildings with the highest energy use intensity to capture greater savings	1

4 TRADE ALLIES

Previous evaluations have confirmed that trade allies play a large role in the Existing Buildings program. We explored their roles by interviewing 20 lighting trade allies and 18 non-lighting trade allies on incentive levels, program communications, program collateral, barriers to participation, potential program opportunities, training, software tools, and other topics.

METHODS

From project data files, we identified 130 Energy Trust trade ally firms that had worked on 2011 Existing Buildings projects and that we had not already interviewed as ATACs. Of these, 66 had done lighting projects and 67 had done non-lighting projects (three had done both types).

Our goal was to prioritize the trade allies that have been most active in the Existing Buildings program but to include some less-active ones as well. We identified 49 high-activity trade allies (22 lighting and 27 non-lighting), based on the number of 2011 projects completed.[11]

We created separate call lists for the lighting and non-lighting trade allies and sorted each list to prioritize the high-activity trade allies. We completed 38 interviews between July 17, and August 14, 2012. These interviews took approximately 35 minutes to complete. Table 8 summarizes the call dispositions.

Table 8: Trade Ally Disposition Summary

DISPOSITION	LIGHTING	NON-LIGHTING	TOTAL
Complete	20	18	38
High-activity	12	14	26
Low-activity	8	4	12
Refusal	1	1	2
Ineligible [a]	4	13	17
Attempted, unable to contact	20	20	40
Subtotal attempted	45	52	97
Not attempted (quota met)	18	23	341
Total	**63**	**75**	**138**

a Did not pass screening or was recently contacted for another project.

[11] Since lighting trade allies typically do more projects than non-lighting ones, we used a cut-off of 25 projects to distinguish between high- and low-activity lighting trade allies and a cut-off of 10 projects for non-lighting trade allies.

Interviews with both lighting and non-lighting trade allies covered a variety of topics: co-op marketing; interactions with program staff; the share of work that comes from Energy Trust projects; the program webinars and roundtables; and the cancellation of the Business Energy Tax Credit (BETC).

In addition to the above topics, we explored additional topics specific to lighting and non-lighting trade allies. We asked lighting trade allies about differences they perceived among various market segments, their preferences for working in one segment over others, and any differences in how they market to the various segments. We also asked about their experience using the program-supported lighting calculators.

To support the evaluation's focus on decision-making in the early phases of program participation, we asked non-lighting trade allies about, how and when they get involved in a project, their influence on customers' decisions, perceived drivers of program participation, and their efforts, if any, to convince customers to do Energy Trust projects.

RESPONDENT CHARACTERISTICS

Respondents were roughly equally split between the firms' owners or a manager with sales, business, or financial responsibilities. One lighting respondent was a designer. Respondents also were well distributed by firm size, from fewer than five employees to more than 50 (Table 9).

Table 9: Respondent Characteristics

CHARACTERISTIC	LIGHTING	NON-LIGHTING	TOTAL
TITLE/ROLE			
Owner	11	5	16
Sales/Business/Financial Manager[a]	8	13	21
Designer	1	0	1
FIRM SIZE (NUMBER OF EMPLOYEES)			
Five or fewer	9	1	10
6 to 20	1	5	6
21 to 50	3	9	12
More than 50	4	3	7
Don't know/Refused	3	0	3

a Includes CFO or comptroller.

The trade allies collectively had experience with a range of commercial segments. While 12 of the 20 lighting allies reported they do not specialize in any specific segment, the other lighting allies and all of the non-lighting ones reported specializing in one to seven market segments, most frequently office, retail, restaurant, grocery, school, lodging, and hospital (Table 10).

Table 10: Commercial Segment (multiple responses allowed)

SPECIALIZATION	LIGHTING	NON-LIGHTING	TOTAL
Does not specialize	12	0	12
Specializes	8	18	26
Office	5	14	19
Retail	5	14	19
Restaurants	2	11	13
Grocery	2	9	11
Schools	1	8	9
Lodging	1	7	8
Hospitals	0	7	7
Manufacturing	3	1	4
Municipal	0	1	1
Warehouse	1	0	1

The respondents were diverse in other respects. While most of the lighting trade allies were lighting or electrical contractors, five of them were distributors or suppliers. All the non-lighting trade allies were contractors; while most of them specialized in HVAC, five specialized in other areas (Table 11).

Table 11: Trade Ally Subtypes

TRADE ALLY SUB-TYPE	TOTAL (*n* = 38)
LIGHTING	
Lighting or Electrical Contractor	15
Distributor/Supplier	5
NON-LIGHTING	
HVAC	13
Building Shell	3
Restaurant Equipment	1
Electric	1

Some of the lighting trade allies did other types of work. On average, lighting jobs represented 80% of their work, but the percentage ranged from less than 5% (one respondent) to 100% (12 respondents). These respondents reported that, on average, about two-thirds of their commercial lighting work qualified for Energy Trust incentives. This varied from 10% (two respondents) to 100% (five respondents).

Since this evaluation focuses on large custom projects, we asked non-lighting trade allies how many such projects they had done in the past year that qualified for Energy Trust incentives. Of the 18 respondents, five reported they had done fewer than five such projects, four said they had done five to 10 of them, and nine reported they had done more than 20.

PROJECT IDENTIFICATION

We asked both lighting and non-lighting trade allies about how they find prospective work.

To determine how trade allies identify customers, we asked lighting trade allies to estimate the percentage of their work that comes from various sources. As Table 12 shows, the chief source of work is proactively encouraging customers to carry out a lighting upgrade: this was the most common source for 13 of the 20 lighting trade allies, and it accounted for an average of just over half of their work, with some allies indicating that it produced all their work.

Table 12: Sources of Work for Lighting Trade Allies

SOURCE	MEAN	MAX	# MOST COMMON SOURCE
Trade ally contacted customer to encourage lighting upgrade	53%	100%	13
Customer requested energy efficient upgrade	19%	70%	4
Ally sold upgrade when customer requested lighting replacement	15%	75%	2
Referrals from utilities, customers, other contractors	7%	100%	1
Trade ally was subcontractor	6%	30%	0
Energy Trust or the PMC referred a project	0%	1%	0

We approached this issue differently with non-lighting trade allies. Again, focusing on their role in large custom projects, we asked how such work typically comes to them. More than half (11 of 18) of the respondents indicated that at least some work comes from customers requesting a bid. However, only five of those 11 respondents indicated that the request came from customers that had received a site evaluation or technical study, and those five tended to indicate that was an infrequent occurrence.

Just under half (8 of 18) of the respondents reported that large custom projects resulted from their own efforts, by working through established relationships (e.g., during service calls) as well as by generating new business through cold calling.

Less frequent avenues for landing large custom projects were by subcontracting (3 respondents), referrals from the PMC (2 respondents), or referrals from other sources.

These responses suggest that trade allies are involved in the early phases of projects. Energy Trust or an ATAC does not bring them into the process. Rather, trade allies appear to be part of the program process early on.

CUSTOMER DECISION-MAKING

To provide information to the program on potential avenues for promoting energy efficiency, we sought respondents' feedback on what considerations enter their customers' upgrade decisions, the allies' roles in decision-making, and how they encourage customers to invest in energy efficiency.

Customer Considerations

Respondents reported that, when doing an Energy Trust project, customers' primary considerations other than project cost are improving the building's overall quality and reducing O&M costs (Table 13).

Table 13: Customer's Primary Consideration When Doing Project Other Than Cost

	LIGHTING (*n* = 20)	NON-LIGHTING (*n* = 18)	TOTAL (*n* = 38)	
CUSTOMER CONSIDERATIONS	Count	Count	Count	Percent
Upgrading building quality	13	4	17	45%
Reducing O&M costs	7	2	9	24%
Reducing energy costs	0	7	7	18%
Not disrupting business	4	0	4	11%
Being green	2	0	2	5%
Ease of program participation	0	1	1	3%

Trade Ally Role in Decision-Making

We addressed the trade allies' role slightly differently for lighting and non-lighting allies. We asked lighting allies about their general level of influence on projects; with non-lighting allies we delved more into the role they play in shaping large custom projects.

All lighting trade ally respondents told us that they have at least a "medium" amount of influence on projects and most described "a significant level" or "a lot" of influence. Respondents generally indicated that most customers were not knowledgeable about lighting, looking to them for recommendations and deferring to their judgment. When we asked whether their influence depended on the type of customer, about half the respondents indicated that they had more influence with some customers than others. Seven of the 20 respondents indicated specific circumstances where they may have more or less influence – generally reporting less influence

with knowledgeable customers (e.g. high-tech or large firms), when projects were engineered by another contractor, or when a customer put out a request for competing bids and greater influence when they have an established relationship with a customer.

Of the 18 non-lighting allies, 10 reported they play a role in project design. The nature of that role varied, from working on a specific piece of a large project (insulation, HVAC) to helping with equipment sizing to doing overall project pre-design and design, including running feasibility studies. Two allies that reported a role in project design also reported a role in coordinating project schedules and keeping customers moving forward with a project. All other respondents reported only equipment installation.

Table 14: Role of Non-Lighting Trade Ally in Final Project

TRADE ALLY ROLE	COUNT (*n* = 18)
Project design	10
Major role	6
Lesser role (specific piece, "helping" role)	4
Encourage customer to proceed with project	1
Coordinate project schedules	1
Equipment sales and installation	9

Three of the 18 respondents – all HVAC contractors – said the amount of influence they have on projects varies across customers, based on the amount of available funds and whether the respondent has an established rapport with the customer.

Trade Ally Efforts to Encourage Efficiency Upgrades

We asked both lighting and non-lighting trade allies how they encourage customers to do an efficiency project. Overall, trade allies were most likely to report focusing on non-energy benefits (NEBs) and return on investment (Table 15). Note that almost all the allies that reported a focus on NEBs were lighting allies. Specifically, 10 lighting allies said they discussed lighting quality and four emphasized the value of being "green" (two did both); by contrast, one non-lighting ally mentioning improved comfort and one mentioned reducing tenant turnover. The difference in frequency of mentioning NEBs by lighting and non-lighting allies was statistically significant ($p < 0.001$).

Table 15: How Trade Allies Encourage Efficiency Project

Approach	Lighting (*n* = 20)	Non-Lighting (*n* = 18)	Total (*n* = 38)	
	Count	Count	Count	Percent
Non-energy benefits [a]	12	2	14	37%
Return on investment	7	5	12	32%
Energy savings/lower utility bills	5	6	11	29%
Improving operations and maintenance	3	3	6	16%
Focusing on customers' stated interests	5	0	5	13%
Replacing obsolete equipment	4	0	4	11%
Energy Trust's experience	0	1	1	3%
Reaching out to all decision-makers	0	1	1	3%
Don't know	0	4	4	11%

a Non-energy benefits includes improving lighting quality (10), being "green" (4), improving comfort (1), and reducing tenant turnover (1).

The fact that lighting trade-allies put more emphasis on NEBs suggests they are more likely to perceive a value for NEBs. Lighting may play a more obvious role in the look of a building than comfort, particularly for retail businesses interested in showcasing their product. However, research quantifying the value of NEBs suggests that the value to the end-user of HVAC-related NEBs (as a percentage of the value of the energy benefits) may be at least as great as that of lighting NEBs.[12,13] This may point to an opportunity for training non-lighting trade allies in how to up-sell energy efficiency.

PROGRAM EXPERIENCE

To provide feedback on how well the program is serving trade allies, we queried respondents on topics related to their program experience. Conversations with non-lighting trade allies explored their general interactions with program staff and experience with large custom projects. In talking with lighting allies, we focused on their interactions with the PMC lighting subcontractor (Evergreen) and their experience using the lighting calculator.

12 Skumatz, L., Dickerson, C., and Coates, B. "Non-energy Benefits in the Residential and Non-residential Sectors – Innovative Measurements and Results for Participant Benefit." Presented at the American Council for an Energy Efficient Economy (ACEEE) Conference, Asilomar, CA, August 2000.

13 Bement, D. and Skumatz, L. "New Non-energy Benefits (NEBs) Results in the Commercial/Industrial Sectors: Findings from Incentive, Retrofit, and Technical Assistance/New Construction Programs." Presented at the European Council for an Energy Efficient Economy (ECEEE) Conference, La Colle sur Loup, France, June 2007.

Non-Lighting Trade Allies

We queried non-lighting trade allies about topics specific to their program experience. To provide additional insight into their role in the development of large custom projects, we questioned them about their overall relationship with the Existing Buildings program staff, particularly with respect to large custom projects. We asked these allies what challenges they had faced in helping move projects through the site evaluation or technical study process and what factors on the customer's side had caused project delays.

Relationship with Program Staff

Of the 18 respondents, 15 reported a good to excellent working relationship with the Existing Buildings program, while three indicated the relationship was mixed. All but two respondents said they knew who to contact at the PMC if they had a question (Table 16).

Table 16: Non-Lighting Trade Allies' Experience with the Program

Aspect of Trade Ally Experience	Count	Percent
Relationship with PMC		
Good to excellent relationship	15	83%
Mixed relationship	3	17%
Know who to contact with questions	16	89%
Challenges Working with PMC		
Any challenges working with PMC	9	50%
Slow application process	6	33%
Communication issues	3	17%
Causes of Project Delays		
Funding/budget issues	7	39%
Design issues	5	28%
Loss of customer focus	3	17%
Slow approval from senior management	1	6%

Despite having generally good relationships, half of the respondents identified some challenges to working with the program (Table 16, above). The most common challenge was slow processing of applications – respondents indicated that it takes anywhere from four weeks to three months to get a rebate.

The three allies who indicated a mixed relationship cited communication issues, noting lack of a single point of contact with the program and inconsistency in how well PMC staff communicate. Specific problems arising from lack of communication included: one respondent learned a month after applying that the application should have gone to the New Buildings program; another

noted that communication challenges with the PMC means that he "never knows what stage of the approval process they [projects] are in."

Other miscellaneous issues that allies identified were that a certain equipment brand does not qualify for the program because of how it is sold and that Energy Trust staff need more technical knowledge.

Project Delays

Nearly two-thirds (11 of 18) of the non-lighting allies reported factors that had delayed the progress of projects through the site evaluation and technical assistance process. As seen in Table 16, above, most of the cited causes of delay were primarily on the customer side. The most common was loss of funding or change in budget, followed by design changes arising from the site evaluation or technical study. One respondent also mentioned that getting approval from senior decision-makers sometimes caused delays, particularly in large chains. Others comments were related to some of the aforementioned challenges working with the program – specifically that the slow Energy Trust approval process sometimes resulted in loss of customer focus on the project.

Most references to funding issues were not specific, but one respondent indicated the issue was related to incentive levels for water source heat pumps. Three of the five respondents who cited design issues noted that in at least some cases, part of the motive for design changes is to address funding issues.

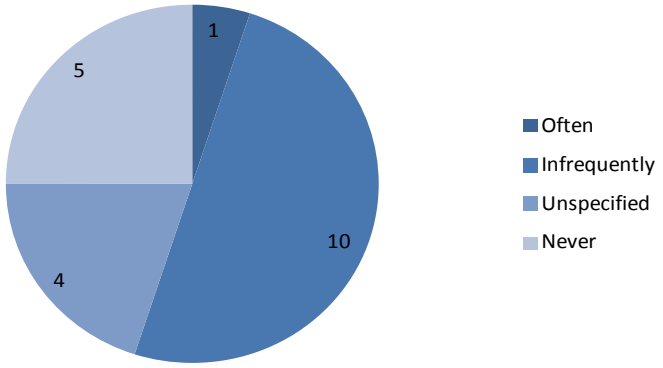
Lighting Trade Allies

We explored lighting trade allies' interactions with the PMC lighting subcontractors and their experience using the lighting calculator.

Interactions with the PMC Lighting Subcontractor

We asked lighting trade allies how often they ask a lighting specialist from the PMC lighting subcontractor to accompany them to a customer site and how helpful the lighting specialist was. Most respondents reported that they infrequently or never asked a lighting specialist to accompany them (Figure 3). Of the 15 allies that reported they have at times asked a lighting specialist to accompany them, five indicated that they typically did so during the pre-inspection and/or post-inspection phase, one said that they involve a lighting specialist only during pre-design, and the rest did not indicate the circumstances.

Figure 3: Frequency that Lighting Specialist Accompanies Trade Ally to Site



Of the trade allies that have asked a lighting specialist to accompany them to a site, 10 reported positive experiences, saying that the lighting specialist added credibility with the customer, provided assistance on lighting equipment, or was helpful in some other way.

Three respondents cited negatives. One suggested that Energy Trust and PMC staff, including the lighting subcontractor, are not "sales people" and have provided customers with incorrect information. Consistent with that comment, another respondent said the lighting specialists do not provide accurate pricing information, or recommend products from vendors that this ally does not have access to. The third respondent reported involving lighting specialists only during the pre-design phase to prevent them from "jeopardizing" his design work.

Benefits and Burdens of Being a Trade Ally

At the conclusion of the lighting survey, we asked allies to tell us how being an ally has helped and hindered their business. Respondents reported the following benefits:

- Thirteen of 20 lighting trade allies reported that being an ally resulted in increased business (receiving larger projects, hiring employees, and an increase in sales).
- Ten reported that their affiliation with Energy Trust provided "legitimacy" to their work in the eyes of the customer. As one respondent stated, "the Energy Trust stamp gives our company credibility."

When asked what burdens lighting allies' experience, 15 of the 20 respondents said there was no burden. The others either provided feedback that we have captured elsewhere in this section (paperwork burdens, slowness in delivering incentive checks, and frequent changes to the lighting calculator) or provided an unclear response.

Experience with the Lighting Calculator

We asked lighting trade allies to describe their experience using the lighting calculator. Eighteen of the 20 reported positive experiences. The primary complaint with the calculator – mentioned

by the two dissatisfied allies and one that was generally satisfied – was that frequent program changes require frequent changes to the calculator, which in turn requires manually updating information on ongoing projects. In addition, six of the 18 satisfied allies suggested several small improvements to the calculator:

- Present the sum of kWh savings next to the baseline kWh number to make it easier to present savings to customers.
- Present some inputs (e.g., customer type) as check boxes instead of as drop-downs menus.
- Require entry of a date for a given event only once, and automatically propagate that date to other fields in the workbook where it is required.
- Include more lighting fixtures, particularly LED lights.
- Adapt the lighting calculator to work better with the Comprehensive Lighting Pilot[14] program.

Participation in Energy Trust Pilot Programs

Six lighting trade allies and 11 non-lighting allies (all HVAC firms) participated in at least one Energy Trust pilot program (Table 17).[15]

Table 17: Participation in Pilot Programs

PILOT PROGRAM	LIGHTING RESPONDENTS	NON-LIGHTING RESPONDENTS	ALL RESPONDENTS
Cool Schools	1	2	3
Rooftop Tune-ups (RTUs)	0	9	9
Building Tune-ups	0	5	5
Strategic Energy Management (SEM)	4	0	4
Comprehensive Lighting[a]	3	0	3
Any	6	11	17

a One respondent referred to the "Lighting Design" program; we assumed this was a reference to the Comprehensive Lighting pilot.

[14] The Comprehensive Lighting Pilot program, released in 2012, is a collaboration between Energy Trust and Northwest Energy Efficiency Alliance that promotes integrating daylighitng and occupancy/light level controls into lighting designs.

[15] Two others identified programs that were not Energy Trust pilot programs: Clean Energy Works and "direct install."

We asked those 17 respondents how, if at all, pilot programs help to bring customers to the Existing Buildings program. Seven indicated that the pilot programs had done little to encourage program participation and five had no opinion. Five respondents described benefits of the pilot programs, but those comments more directly addressed the success of the pilot programs themselves rather than how they channeled customers to Existing Buildings.

Those who suggested the pilots were successful emphasized the reduction of costs to the customers (Cool Schools and RTU), the encouragement of larger projects (Comprehensive Lighting), and making the customer feel like they are in partnership with Energy Trust (RTU and Building Tune-Ups). The respondent who said the Comprehensive Lighting pilot encouraged customers to do larger projects then said that the bonus incentives put in place after BETC was discontinued negated the effects of that pilot.

Three respondents gave specific reasons for why the pilots were not effective: the Comprehensive Lighting pilot targeted large customers with "deeper pockets"; there were inconsistencies about what measures qualified; and the RTU pilot did not provide contractors sufficient reward.

ASSISTANCE RECEIVED AND DESIRED

An important part of maintaining a good relationship with trade allies is providing needed information and assistance. To provide the program with information on how well it is meeting trade allies' needs, we asked about their use of cooperative marketing funds, their participation in training, webinars, and roundtables, and what program assistance they desired.

Use of Cooperative Marketing Funds

Just over half (20 of 38) of the respondents reported they did not use co-op funds, most of whom (17 of 20) said it was because they did not know of the funds' existence. Only three respondents said that getting the funds was not worth the effort to apply. Of the 14 respondents that reported their firms used co-op funds, half were not able to say what they had been used for; the other seven respondents said the funds had been used to support their website (3 respondents), for printed materials (2 respondents), and for advertisements in the *Yellow Pages* or radio (1 respondent each). Four respondents did not know whether or not their firm used the funds.

Training, Webinars, and Roundtables

Of the 38 respondents, 33 (87%) reported they had attended Energy Trust training, webinars, or roundtables. We did not make a distinction about which trainings may have been required and those that trade allies voluntarily attended. Just over half had attended training as well as one or more webinars or roundtables (Table 18).

Table 18: Trade Ally Attendance of Training, Webinars, and Roundtables

	LIGHTING (*n* = 20)	NON-LIGHTING (*n* = 18)	TOTAL (*n* = 38)	
	Count	Count	Count	Percent
Training	19	10	29	76%
Webinar or roundtable	14	11	25	66%
Training, webinar, or roundtable	20	13	33	87%
Training plus webinar or roundtable	13	8	21	55%
Training only (not webinar or roundtable)	6	2	8	21%
Webinar or roundtable only (not training)	1	3	4	11%

Three-quarters of the respondents reported they had attended some Energy Trust training. The lighting respondents were much more likely to have done so (19 of 20) than were the non-lighting allies (10 of 18; $p < 0.01$). While all 19 lighting allies who attended training were able to describe what they found helpful in it, only four of the 10 non-lighting trainees identified helpful aspects of training. As Table 19 shows, the most helpful aspects of training appear to be receiving information about program changes and understanding new technologies, including controls and LEDs.

Table 19: Helpful Aspects of Training (Multiple Responses Possible)

HELPFUL ASPECTS OF TRAINING	LIGHTING (*n* = 19)	NON-LIGHTING (*n* = 10)	TOTAL (*n* = 29)	
	Count	Count	Count	Percent
Program updates useful	8	1	9	31%
Networking	4	1	5	17%
Learning about new technologies	9	1	10	34%
Controls	3	1	4	14%
LEDs	3	0	3	10%
Other new technology	3	0	3	10%
Better understanding of lighting calculator	2	0	2	7%
Access to vendors	2	0	2	7%
Receiving insights into improving sales	0	1	1	3%
Nothing specified	0	6	6	21%

Twelve of the 29 respondents who reported receiving training (10 lighting and 2 non-lighting allies) identified shortcomings of the training. Nine trainees commented that the technical aspects of training were not sufficiently detailed or incorrect or that training targeted new trade

allies rather than existing experienced trade allies. Beyond those issues, two respondents commented that early morning training sessions were difficult to attend and one did not see the benefit of networking (*"Why talk to my competitors?"*).

The 25 respondents who reported attending webinars or roundtables were roughly equally split between those who attended webinars only, those who attended roundtables only, and those who attended both. The distribution was similar for lighting and non-lighting allies. Of 18 respondents who gave feedback on the webinars and/or roundtables, 12 indicated satisfaction. Most positive feedback was nonspecific, but two respondents each (all lighting allies) mentioned the value of meeting vendors and of networking in general at roundtables.

Eight respondents offered criticisms of webinars or roundtables. Half of those (mostly lighting allies) said that webinars provide little new information, are not as informative as those offered by equipment manufacturers, or are geared toward less experienced trade allies. Other comments were nonspecific or addressed topics other than the informational content, such as difficulty finding time to attend or finding no value in networking.

Desired Assistance from Energy Trust

We asked respondents to identify what assistance from Energy Trust would help them sell measures that are more efficient. Twenty-five respondents, two-thirds of the total, provided diverse suggestions. One-third of the respondents (13) made suggestions relating to incentives, most commonly to increase incentives generally (8 respondents) or change the incentive structure in some way (4 respondents). No other specific suggestion was given by more than two respondents.

We asked trade allies whether they would be interested in training designed to help them upsell energy efficient equipment. As Table 20 shows, respondents generally expressed interest in such training. Non-lighting allies were more likely than lighting allies to say they were "very" interested ($p < 0.05$).

Table 20: Interest in Training on "Up-Selling" Efficiency

Level of Interest / Factors Affecting Attendance	Lighting (*n* = 20)	Non-Lighting (*n* = 18)	Total (*n* = 38)	
	Count	Count	Count	Percent
Level of Interest				
Not at all	2	5	7	18%
Somewhat	13	1	14	37%
Very	5	10	15	39%
Don't know	0	2	2	5%

Continued

Level of Interest / Factors Affecting Attendance	Lighting (*n* = 20)	Non-Lighting (*n* = 18)	Total (*n* = 38)	
	Count	Count	Count	Percent
Factors Affecting Likelihood of Attending				
Mentioned any factor	12	18	30	79%
Convenient time	4	6	10	26%
Convenient location	2	7	9	24%
Delivery channel	8	1	9	24%
Topic	1	6	7	18%
Duration (half-day)	0	2	2	5%
Price	0	1	1	3%
Experience of instructor(s)	0	1	1	3%
Don't know	3	0	3	8%

We followed up by asking what factors would affect their likelihood of attending training. Most respondents identified some factor, the most common of which were scheduling (convenient time), location (minimal travel), and delivery channel. Of the nine respondents saying the delivery channel mattered, eight preferred a webinar and one preferred in-person training.

Compared to non-lighting allies, lighting allies were less concerned about location but they were more likely to prefer webinars, which would make location irrelevant. Non-lighting respondents were more likely to indicate a specific technical topic of interest (payback analysis, motors, or generally more advanced technical topics). This likely reflects the fact that that group is more diverse with respect to the type of equipment they specialize in, compared to lighting allies.

Assistance from Other Sources

Fifteen of the 18 non-lighting allies reported they receive training or other assistance from sources other than Energy Trust, most (11) of whom reported they receive training from distributors and manufacturers. Other sources of assistance included union apprenticeship programs (3), trade groups (3), and consultants (1).

LOSS OF BETC

We asked respondents how much impact the loss of BETC had on them. About two-fifths of respondents indicated it had an adverse impact, either by reducing the volume of work or making it more difficult to sell jobs (Table 21). Lighting allies were more likely than non-lighting allies to report adverse impacts ($p < 0.01$).

Table 21: Effect of Loss of BETC

Response	Lighting	Non-Lighting	Total	
	Count	Count	Count	Percent
Adverse impact:	13	3	16	42%
Reduced volume	10	3	13	34%
Harder to sell jobs	5	0	5	13%
No adverse impact	5	12	17	45%
Not sure	2	3	5	13%
Total	**20**	**18**	**38**	**100%**

Of the 17 respondents who reported no adverse impact of losing BETC, 10 mentioned some explanation of why it was not a problem: seven said that BETC was complicated and/or cumbersome, two referred to the mitigating effect of the Energy Trust bonus incentives, and one noted that BETC had been geared to larger customers than he normally dealt with.

HARD-TO-SERVE MARKETS

To help the program target its marketing and outreach activities, we asked allies whether they have more difficulty selling energy efficiency to certain customer types than to others. We found no consensus among respondents. Respondents identified 15 different business segments and characteristics that were difficult to serve, with none identified by more than three respondents. In fact, two of the most common responses contradicted each other: three respondents reported that small businesses were hard to serve and three other respondents reported that large businesses and chains were hard to reach.

THE ENERGY EFFICIENCY HORIZON

When asked what new energy efficient technology allies see coming in the next five years, lighting allies were very consistent in their responses, while non-lighting respondents offered a greater range of technologies (Table 22). The consensus in lighting was that LEDs would be the next big change, but several lighting respondents also cited plasma lighting.

Two-thirds of the non-lighting trade allies commented on technological changes that would take place in the marketplace. Specific renewable technologies expected to become more popular were solar water heaters, geothermal powered equipment, and solar applications for the HVAC market.

Table 22: Future Products in Energy Efficiency (*n* = 38)

CHANGE	COUNT
LIGHTING	
LEDs	20
Plasma	6
Controls	1
NON-LIGHTING	
Renewables	3
Controls	3
Variable Speed Drives	2
Improved Water Heater Technology	2
Inverter technology	1
Commercial Propane Refrigerant	1
Economizers	1
Don't know	6

5 EXISTING BUILDINGS PARTICIPANTS

As part of this evaluation's focus on the program's technical assistance for custom projects, we interviewed 44 program participants that had received such assistance within the previous year. The interview focused on the early phases of program participation – from application through initial project implementation – and addressed awareness of energy saving opportunities, reasons for program participation, key decision-makers and decision points, interactions with Energy Trust and its representatives, factors delaying or changing projects, and resources needed to move projects forward. So that we could investigate whether prior experience influenced decision-making, we asked about any prior Energy Trust participation.

METHODS

Definition of Sample Frame

Using contact information from Energy Trust's *Goldmine* database and study information from *FastTrack*, we identified 306 Existing Buildings program participants that had submitted incentive applications for custom projects between August 2011 and August 2012. Working with Energy Trust staff, we attempted to identify where each participant was in the several phases of program participation:[16]

- **Application:** Requested an energy assessment through Energy Trust but had not yet had an assessment.
- **Site Evaluation:** Had a site evaluation through Energy Trust, but had not had a technical study and had not yet received a formal incentive offer.
- **Technical Study:** Had a technical study but had not yet received a formal incentive offer from Energy Trust.
- **Walk-through Custom:** Requested an energy assessment through Energy Trust; after an initial walk-through, the PMC provided an incentive estimate based on a "desk review" and without doing a formal site evaluation or technical study.
- **Offer:** Received the formal incentive offer from Energy Trust or began work on the project.
- **Complete:** Completed the project.

[16] See Section 2 for a detailed discussion of these project phases.

Table 23 shows the distribution of the 306 participants in the sample frame by the study stage they were in according to the program database.

Table 23: Distribution of Sample Frame by Stage of Participation

STUDY STAGE	COUNT	PERCENT
Apply	36	12%
Study (by type)	181	59%
Walk-through	63	21%
Site Evaluation	24	8%
Technical Study	93	30%
Study-unspecified	1	0%
Offer	30	10%
Complete	59	19%
Total	**306**	**100%**

Research Questions

Working with Energy Trust staff, we identified the following key research questions:

- What did respondents know about efficiency opportunities in their building?
- How satisfied were participants with Energy Trust at various phases of their project?
- What Energy Trust assistance was helpful and what additional assistance, if any, would have prompted participants to do an upgrade or do an upgrade quicker?
- What about Energy Trust's involvement in their project, if anything, influenced their decision to implement a project?
- At each phase, what intentions did participants have to move to the next point in the process?
- What concerns did participants have about moving forward with their project?

We developed a mix of close- and open-ended questions to address the above research questions.

The interviews lasted approximately 15 to 20 minutes. We used SPSS to analyze close-ended responses; we content-coded open-ended responses in Microsoft Excel spreadsheets.

Pilot Test and Final Implementation

In early September 2012, we pilot-tested the interviews with a random sample of participants. The nine pilot interviews we completed revealed several things: 1) the person identified as the participant's contact person was not necessarily closely involved with or even aware of the on-site energy assessment activities; 2) those that were aware of the activities did not necessarily think of the various stages as distinct decision points; 3) participants that had entered the process closer to one year earlier had the most difficulty responding to questions about their experiences.

Based on the results of the pilot interviews and in consultation with Energy Trust evaluation staff, we prioritized contacting the 66 participants whose Energy Trust assessment services were valued at $4,000 or more and who had entered the process within the previous six months. We reasoned that participants with greater study incentives might be more engaged in the assessment process and that targeting more recent participants would allow us to get more detailed feedback. Compared to the initial sample frame of 306, relatively more participants in the final frame were in the study and offer stages (76% and 18%, respectively) and fewer were in the application and complete stages (6% and 0%, respectively).

Contact Dispositions

After making the changes, we completed interviews with an additional 35 participants, for a total of 44 completed interviews between September 1 and October 22, 2012 (Table 24).

Table 24: Disposition Summary

DISPOSITION	COUNT	PERCENT
Complete	44	58%
Refusal	3	4%
No contact after five attempts	21	28%
Bad or wrong number	1	1%
Duplicate Contact	7	9%
Total	**76**	**100%**

DESCRIPTION OF SAMPLE

Stage of Participation

Although we had each respondent's most recently recorded stage of participation in the program database, it is possible that some participants had moved to a new stage by the time we reached them. Therefore, we asked respondents to identify which stage they currently were in. Of the 44 participants we interviewed, one reported still being in the application stage, seven had gone as

far as having a site evaluation and seven had completed a technical study, two were "walk-through custom" participants, and 27 had received an incentive offer.

Table 25 shows that the sample closely represented the frame in terms of the study stage identified in the project database. However, respondent self-reports of their current stage differed from what was in the database – specifically, fewer respondents said they were in the study stage and more said they had received an incentive offer. This suggests that respondents had indeed progressed since the program database was last updated.

Table 25: Distribution of Final Frame and Sample by Stage of Participation

Study Stage	Frame		Sample (Database)		Sample (Self-Report)	
	Count	Percent	Count	Percent	Count	Percent
Apply	4	6%	1	2%	1	2%
Study (by type)	50	76%	34	77%	16	36%
Walk-Through	0	0%	0	0%	2	5%
Site Evaluation	0	0%	0	0%	7	16%
Technical Study	50	76%	34	77%	7	16%
Study-Unspecified	0	0%	0	0%	0	0%
Offer	12	18%	9	20%	27	61%
Complete	0	0%	0	0%	0	0%
Total	**66**	**100%**	**44**	**100%**	**44**	**100%**

Respondent Characteristics

Most (34 of 44) interviewees occupied a facilities or business management role; of the others, nine were building owners and one did not specify his role. The 34 facilities or business management respondents represented larger portfolios of buildings (N = 23) than did the nine building owners (N = 3). Respondents represented a range of market segments, organization types, tenancy, company sizes, and experience with Energy Trust (Table 26). The most common market segments were Office and Schools. Respondents were about equally split between for-profit institutions and non-profit or governmental. Respondents generally owned the building where the assessment occurred and tended to own multiple buildings. They were overwhelmingly prior Existing Buildings participants – many with multiple prior projects, suggesting they were likely familiar with Energy Trust processes.

Table 26: Respondent Characteristics (*n* = 44)

CATEGORY	COUNT	PERCENT
SEGMENT		
Office	16	36%
Education	10	23%
Medical	7	16%
Retail	3	7%
Museum/zoo	3	7%
Grocery	2	5%
Club	2	5%
Municipal	1	2%
ORGANIZATION TYPE		
For-profit	21	48%
Nonprofit	17	39%
Public/government	6	14%
TENANCY		
Own	38	86%
Lease	6	14%
NUMBER OF PROPERTIES OWNED		
One	10	23%
Two to five	8	18%
Six to 15	12	27%
16 to 35	9	21%
More than 35	5	11%
NUMBER OF ENERGY TRUST PROJECTS PRIOR TO CURRENT PROJECTS		
Zero	7	16%
One	7	16%
Two to Four	12	27%
Five to 10	11	25%
More than 10	7	16%

AWARENESS OF ENERGY SAVING OPPORTUNITIES

Respondents generally reported being cognizant of energy savings opportunities available in their building before entering the custom project process. When asked what they know about such opportunities, 42 of the 44 stated they had at least a general understanding of energy saving

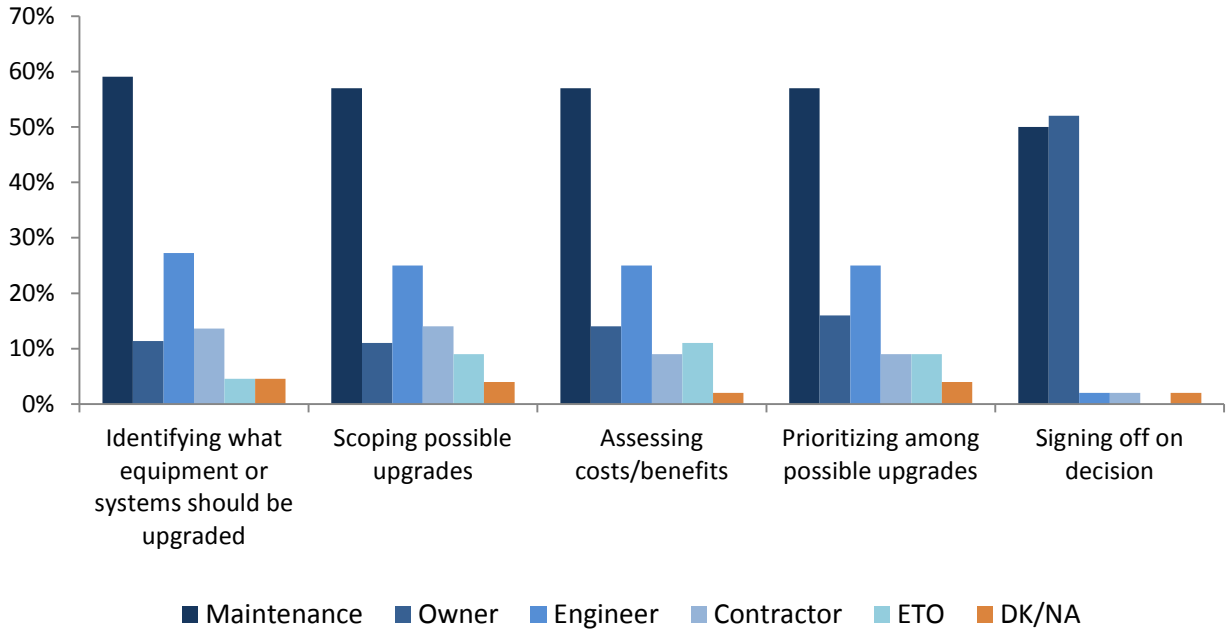
opportunities and 10 said they had a very detailed understanding of the opportunities; only two said they had no understanding.

Consistent with the above, respondents' upgrade plans were somewhat defined prior to engaging Energy Trust. Thirty-eight of the 44 respondents reported that they had at least some upgrade plan in mind prior to having an Energy Trust sponsored analysis of their building, while the others reported no developed plans prior to working with Energy Trust (5) or did not respond (1).

ROLE OF DECISION MAKERS

To best understand how Energy Trust can influence projects, we sought to learn who the key decision-makers were on the participant side and at what point they are involved. We found that maintenance/facilities managers were involved in all decision tasks for at least half of the respondents and that owners often are not involved until it is time to approve a decision (Figure 4). This suggests that Energy Trust has an opportunity to influence the efficiency of projects during the initial stages of a project by working with the facilities staff but it is also critical to get buy-in from the building owner so they can approve an energy saving decision.[17]

Figure 4: Percent of Respondents Reporting Decision Makers by Project Task (*n* = 44) (Multiple Responses Allowed)



[17] It is likely that the key decision makers may differ in various market segments. Unfortunately, we did not have a large enough sample to examine this.

The involvement of maintenance staff in most aspects of the decision process was related to the number of buildings owned or managed. Of the 26 respondents for companies that owned or managed six or more buildings, 20 (77%) said that maintenance staff were involved in identifying equipment, scoping upgrades, assessing costs and benefits, and prioritizing upgrades. By contrast, of the 18 other respondents, only five (28%) said maintenance staff were involved in those aspects. This difference was statistically significant ($p < 0.01$). On the other hand, number of buildings owned or managed was not related to whether or not maintenance staff were involved in the sign-off decision.

ROLE OF ENERGY TRUST ASSESSMENT

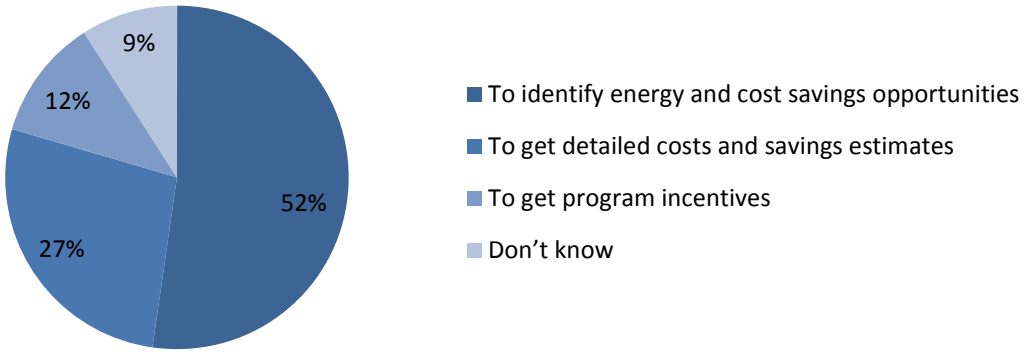
We explored several issues relating to the role played by the Energy Trust-sponsored assessment, including participants' motives for undergoing a study and Energy Trust's influence on their decisions. The results suggest that, despite their prior awareness of opportunities and intentions to save energy, the Energy Trust-sponsored assessments helped increase the likelihood they would undertake efficiency upgrades and improve the efficiency of those upgrades.

Motives for Having an Assessment

A site evaluation or technical study may help participants by identifying opportunities to save energy and costs or providing detailed estimates of savings and costs for opportunities they have identified). However, as the study process is a prerequisite for receiving custom project incentives, it is possible that some respondents may see this process as simply a step to check off rather than an opportunity to maximize savings. To provide information on the perceived value of the process, we asked respondents which of the above – or what other factor – was their primary reason for undergoing the study.

Although most respondents indicated they were aware of energy saving opportunities and had made some plans before contacting Energy Trust, nearly 80% said they used the Energy Trust assessment to identify energy and costs savings opportunities or to get detailed cost and savings estimates (Figure 5).

Figure 5: Primary Reason for Requesting an Energy Trust Assessment (*n* = 44)



What Would Happen Without an Assessment?

We found further evidence that Energy Trust played a role in these respondents' decisions. We asked the 35 post-pilot respondents what they would have done if they had not gotten involved with Energy Trust. More than 80% (29 of 35) said that if they had not gotten involved with Energy Trust, they would have postponed, cancelled, or limited the efficiency of their project. The other respondents would have done the same project or did not know what they would have done (3 respondents each).

We further asked those 35 respondents whether, absent Energy Trust involvement, they would have hired a contractor to do an assessment. Only seven (20%) said they would have hired a contractor to do a study, suggesting a lost opportunity to save energy among the large majority of respondents. These results suggest that without Energy Trust involvement, energy savings from these projects would be limited.

Program and Contractor Influence on Decisions

We asked respondents at the site evaluation, technical study, and walk-through custom stages to rate how much influence Energy Trust representatives had on various stage-specific decisions:

- We asked the seven site evaluation respondents how much influence Energy Trust had on their decision to do upgrades within the next year.
- We asked the seven technical evaluation respondents – as well as two site evaluation respondents that had decided to go forward with a technical study – about Energy Trust influence on their decision to pursue a technical study and their selection of measures for the study.
- We asked walk-through custom respondents about Energy Trust influence on how their project was planned.

Table 27 summarizes responses to these questions. As there were only two walk-through custom respondents, we combined their responses about influence on project planning with responses from site evaluation and technical study respondents on measure selection. While the small sample sizes require cautious interpretation, responses generally showed that Energy Trust representatives have influence on participants' decision to pursue a technical study and on the selection of measures. They appear to have less influence on whether or not participants will carry out upgrades within the next year.

Table 27: Energy Trust Influence of Energy Trust on Project Decisions

Energy Trust Representatives Influenced…	Relevant Stages	Rating from 1 (Low) to 5 (High)			Don't Know	Total
		1 or 2	3	4 or 5		
Decision to do a technical study	Site evaluation and technical study	1	1	6	1	9
Selection of measures / project planning	Site evaluation, technical study, walk-through custom	2	2	4	3	11
Decision to do upgrades within the next year	Site evaluation	3	0	1	3	7

Table 28 shows ratings of contractor influence on the selection of measures and decision to do upgrades within the next year. Again, caution should be exercised in drawing conclusions, but it appears that the respondents' contractors may have greater influence on the selection of measures than do the program representatives. However, among the seven site evaluation respondents who we interviewed, contractors do not appear to have any greater influence than program representatives on whether the respondents plan to carry out upgrades within the next year.

Table 28: Contractor Influence of Energy Trust on Project Decisions

Contractor Influenced…	Relevant Stages	Rating from 1 (Low) to 5 (High)			Don't Know	Total
		1 or 2	3	4 or 5		
Selection of measures / project planning	Site evaluation, technical study, walk-through custom	1	1	8	1	11
Decision to do upgrades within the next year	Site evaluation	3	1	1	2	7

How Participants Use Assessments

We asked the 43 respondents that had advanced past the application stage how they had used Energy Trust study-related assistance in their internal planning processes. Respondents consistently reported that Energy Trust's assistance helped them by identifying savings opportunities they were not previously aware of and played a role in their internal budgeting process (Table 29). One respondent in particular, representing a school, specified that the site evaluation played a role in their ability to request a bond initiative for capital improvements.

Table 29: Participants' Uses of Assessments

USE OF ASSESSMENT	OFFER STAGE (*n* = 27)	STUDY STAGES (*n* = 16)	TOTAL (*n* = 43)
Budgeting and planning	19	1	20
Identifying measures or savings	0	10	10
Moving projects forward	1	3	4
Any value identified	20	10	30
None, not yet, don't know, not specific	7	6	13

SATISFACTION

To gauge satisfaction with the program, we asked participants about the quality of program staff communication, including how well staff had responded to their questions or concerns, their satisfaction with the timing of the process, what Energy Trust could do to better serve Existing Buildings customers.

Quality of Communication with Staff

We asked respondents at all stages to rate how well program staff communicated with them. We varied the questions somewhat to reflect important elements of communication at the various stages: at the application, site evaluation, and walk-through custom stages, we asked generally about the quality of communication; at the technical study stage, we asked them to rate how clearly the program explained the results of the technical study; and at the offer stage, we asked how clearly the offer was communicated. In all cases, we asked respondents to rate communication on a 1-to-5 scale, from *1* ("very poor" or "not at all clearly") to *5* ("excellent" or "completely clearly").

Of the 44 respondents, 37 (84%) rated the quality of communications as a *4* or *5*, and only one provided a rating of *1* or *2*.

Table 30: Quality of Communication with Energy Trust Staff

STAGE	RATING FROM 1 (LOW) TO 5 (HIGH)			DON'T KNOW	TOTAL
	1 or 2	3	4 or 5		
Application	0	0	1	0	1
Site Evaluation	0	2	5	0	7
Technical	0	1	4	2	7
Walk-through Custom	0	0	2	0	2
Offer	1	1	25	0	27
Total	**1**	**4**	**37**	**2**	**44**

Two site evaluation respondents offered further comments about their dissatisfaction with communication. One said that explanations of the Energy Trust processes were insufficient, and the other reported not receiving answers to questions he directed at the consultant that conducted the site evaluation.

Respondents' Questions or Concerns

We asked the offer-stage respondents whether they had directed any questions or concerns about their offer letter to Energy Trust. Five reported questions. Three inquired whether a certain measure would be included in the project or why some measures were not covered in the letter. Three asked about the incentive – the timing, amount, or who received it. Four reported a satisfactory answer, while the respondent who asked about the incentive amount continued to think the incentive amount was not correct.

Satisfaction with Process Timing

To go from one stage of an upgrade project to the next, generally customers need notification, information, or approval from Energy Trust to proceed to the next phase. For each stage of participation, we identified a key response from Energy Trust that was required before they could move to the next stage of participation. [18] We asked all 44 respondents to rate their satisfaction with the amount of time it took for the required Energy Trust response.

On a 1-to-5 scale, from "not at all satisfied" to "completely satisfied," 30 of the 44 (68%) respondents gave a rating of *4* or *5*, suggesting satisfaction (Table 31). Only two respondents rated their satisfaction *1* or *2*.

Table 31: Respondents' Satisfaction with Energy Trust Response Time (*n* = 44)

Stage	1 = not at all satisfied to 5 = completely satisfied					Don't Know	Total
	1	2	3	4	5		
Application	0	0	0	0	0	1	1
Site Evaluation	0	0	0	2	0	5	7
Technical Study	0	1	1	2	3	0	7
Walk-through Custom	0	0	1	0	0	1	2
Offer	1	0	3	5	18	0	27
Total	**1**	**1**	**5**	**9**	**21**	**7**	**44**

[18] For those at the application stage, the required response was notification that an energy assessment had been approved; for the site evaluation stage, it was a site evaluation report; for the technical study stage, it was a project detail and incentive estimate; for the walk-through custom stage, it was an energy assessment report; and for the offer stage, it was receipt of the incentive offer letter.

According to the dissatisfied offer-stage respondent, the ATAC did not complete their assessment so the technical proposal data did not match what was in the offer letter. The dissatisfied technical study respondent did not provide a reason for dissatisfaction.

To provide additional information, we asked the 17 respondents at the stages from application apply through technical study whether it had taken longer than expected for that response to occur. Six of the 17 (35%) respondents (four at the site evaluation stage and two at the technical study stage) reported it took longer than expected to receive a response from Energy Trust to proceed with the next project phase.

Suggestions for Working Better with Participants

When we asked respondents how Energy Trust could work better with participants, two-thirds (30 of 44) had no suggestions. Of the 14 respondents who provided suggestions, the most common (6 respondents) was to improve communications around the approval and payment processes. Specific suggestions included:

- Providing a letter that outlines steps in custom project process at very beginning of project.
- Take special attention to explain process to first-time custom project participants.
- Provide estimate of when participants will receive incentive checks.
- Provide regular communications to participants throughout project.

The other eight respondents provided a variety of miscellaneous suggestions: increasing incentives, allocating funds for studies to implementation support, improving quality control, implementing the program with Energy Trust staff rather than a PMC, improving the website, improving coordination between Energy Trust and contractors, keeping rules consistent throughout the course of a project, and helping purchase energy credits.

Only two respondents identified aspects of Energy Trust involvement they found unhelpful. One said Energy Trust was unable to find an appropriate expert to conduct a site evaluation and that affected the timeline of his project. The other, from a federal government agency, indicated that some aspect of the Energy Trust process is inconsistent with federal processes.

NEXT STEPS

We queried participants about their intentions to move forward to the next stage of customer project implementation as well as any barriers to doing so and any concerns they have moving forward.

Site Evaluation, Technical Study, and Walk-through Custom

The seven site evaluation and two walk-through custom respondents were not generally committed to completing an upgrade project in the near term. Of these nine respondents, three reported plans to do an Energy Trust project, two had decided not to move forward at this time, and four were uncertain about the next step.

Two of the respondents that planned to move forward – both site evaluation respondents – were waiting on approval of a technical study. Both intended to install their upgrades within the next year.

Most participants that have reached the technical study stage appeared to be fairly committed to completing an upgrade. All but one of the seven respondents indicated their organization was making plans to complete an Energy Trust upgrade. Of those six respondents, four had received contractor bids for their recommended upgrades and two were waiting for information on the scope of a larger remodeling project being planned or waiting for internal budget approval.

For the three respondents who said they would not move forward to the next stage at this time – two site evaluation and one technical study respondent – the primary barrier was lack of funds. Nevertheless, both site evaluation respondents said they would implement their Energy Trust upgrade project in the next two to three years.

We asked participants about any specific concerns they had about moving forward with a custom upgrade project. Only seven respondents – three site evaluation and four technical study – reported any concerns. There was no consensus among the seven respondents, although three were concerned about getting the necessary internal approvals. The others were concerned about the time it would take Energy Trust to approve their project, the overall complexity of the process, inadequacy of incentives, or overestimated energy savings (1 mention each).

Offer Stage

By the time participants receive an offer letter, they are generally committed to do doing a project. Twenty of the 27 already had started to implement their project, of whom seven had completed their project and eight were at least halfway through. Only one participant reported a problem with implementation – failure of equipment that was covered under warranty.

Of the seven respondents that had not started implementing their project, five had received their offer letter less than ninety days before our interview and the other two were waiting to resolve internal budget issues and, in one case, an equipment issue.

Twenty-three of 27 respondents (85%) anticipated they would complete their Energy Trust upgrade project on time. Of the four who did not anticipate on-time completion, two cited lack of internal funds and two were still evaluating the offer.

ENCOURAGE PROGRAM PARTICIPATION

At the conclusion of the interview, we asked all respondents for suggestions to encourage organizations to participate in Energy Trust programs. Twenty-six of the 44 respondents offered some suggestion, of whom 16 offered general suggestions such as to conduct more outreach. Ten respondents provided some more specific suggestions, primarily to focus their outreach efforts on specific markets: government agencies, education customers, property managers, healthcare customers, nonprofit customers, and the grocery segment. Other suggestions were to advertise in the Portland Business Journal and to provide cases studies for participants to see how others saved energy. Eighteen of the 44 did not offer a suggestion.

6 MARKET ASSESSMENT

This section describes analyses we carried out to estimate market size and program reach and the results of a survey of program nonparticipants and non-recent participants to provide information on market needs.

ESTIMATE OF MARKET SIZE AND PROGRAM REACH

To supplement the data collected in primary research with market actors, we carried out an analysis of the size of the commercial building market in Oregon and the program's reach into the overall market and the various Existing Buildings key market segments. We analyzed program reach as the percentage of total floor space within each segment that has been "touched" by program participation – that is, for each segment, the total floor space in buildings that have participated divided by the total floor space for the segment as a whole.

Estimating Area "Touched" by Program

Using the Energy Trust *FastTrack* participant database, we identified 9,246 unique buildings that had participated in the program since 2003. Building size (floor space) is not recorded for about 5% of the project sites in the Energy Trust *FastTrack* database. We found that building size correlated with energy savings data for the building. Therefore, we used linear regression to estimate missing building size from energy savings data within each segment. With a building size value (actual or estimated) for each participating site, we were able to estimate the total building area affected by the program for each segment. The market segment (or building use) was not recorded for 17% of the participating sites; we allocated the square footage for those sites (13% of the total) across the various segments in proportion to each segment's relative size.

Estimating Market Size

We used two sources to estimate the total floor space of commercial buildings within Energy Trust's service territory. The first source was the Northwest Energy Efficiency Alliance's (NEEA's) 2009 *Northwest Commercial Building Stock Assessment* (CBSA).[19] The second source was a commercial building dataset that NEEA constructed combining data from the 2011 CoStar database and the *Commercial Building Inventory*.[20,21]

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19 *Northwest Commercial Building Stock Assessment: Final Report*. Prepared for Northwest Energy Efficiency Alliance by The Cadmus Group, December 21, 2009.

20 The CoStar Group. 2011. *Property Professional Web* [Database]. Washington, D.C.: The CoStar Group. Accessed November 2011 from http://www.costar.com.

We estimated the size of each segment in Oregon from the CBSA, the NEEA combined database, and census data. CBSA data are available only at the regional level; we estimated the size of each segment within Energy Trust territory by multiplying the CBSA data by proportion of the population that lives in Oregon and by the proportion of Oregon nonresidential utility customers that are in Energy Trust territory. This is admittedly a rough estimate, as the distribution of buildings of various sizes across various segments may not exactly follow either of the above proportions.

Note that while the two data sources agree in terms of the size-order of the various segments, the commercial building space total in the NEEA database exceeds that of the CBSA by about 45% (Table 32). Further, the two sources did not closely agree on the relative size of several segments. Specifically, from our analysis of the NEEA database, the Office segment represents 30% of the entire commercial building space, compared to 20% when the CBSA data are used. The above differences suggest that the two sources may differ in how they defined commercial building space. It is important to recognize that estimates of the program's market reach are subject to the variability in or inaccuracy of estimates of the total commercial building space. Also, the CoStar data were published slightly more recently (2011) than those from the CBSA (2009) and so may be a more up to date reflection of the market.

Estimating Market Reach

Within each segment, we divided the estimated total building area by the two estimates of square footage in Oregon to determine approximate market reach (Table 32). This provides a range of market reach estimates overall and for each segment.

Based on this analysis, the Existing Buildings program has had the greatest reach into the hospitals and grocery segments, followed by offices, lodging, and schools. It had the least reach into the restaurants and retail segments.

Note that overall the figures show a high cumulative reach overall (31% to 55%) and in particular across several segments. In fact, based on this analysis, the program appears to have reached all hospitals and nearly the entire grocery segment at some time since 2003.

[21] SMR Research Corporation. 2011. *Commercial Building Inventory* [Database]. Hackettstown, NJ: SMR Research Corporation.

Table 32: Estimated Size of Oregon Commercial Buildings Market and Energy Trust Market Reach

Market Segment	Estimated Building Area (Sq. Ft.) in Energy Trust Territory				Area by Segment: 2003-11 Energy Trust Participants	Estimated 2003-2011 Market Reach	
	Area by Segment – CBSA[a]	Percent of Total	Area by Segment - NEEA Combined Dataset	Percent of Total		Based on CBSA Data	Based on NEEA Dataset
Hospitals	12,588,610	2%	13,239,156	2%	14,316,707	114%	108%
Grocery	20,363,220	4%	15,214,644	2%	15,079,236	74%	99%
Offices	109,855,480	20%	233,600,098	30%	61,802,861	56%	26%
Lodging	28,306,320	5%	25,560,357	3%	16,260,223	57%	64%
Schools K-12	63,280,030	12%	60,693,752	8%	36,417,871	58%	60%
Restaurants	10,181,610	2%	10,311,357	1%	5,245,151	52%	51%
Retail	93,295,320	17%	89,079,342	11%	29,967,716	32%	34%
Subtotal: High Priority Segments	337,870,590	62%	447,698,705	57%	179,089,764	53%	40%
All Others	205,894,780	38%	342,722,394	43%	117,596,491	57%	23%
Total	**543,765,370**	**100%**	**790,421,099**	**100%**	**297,155,067**	**55%**	**31%**

a As a rough estimate, we multiplied the CBSA total for the Pacific Northwest by Oregon's percentage of the population (29%) and the percentage of Oregon utility customers in Energy Trust territory (83%).

NONPARTICIPANT SURVEY

We surveyed 150 commercial building and business owners throughout Oregon: 105 building owners that had never participated in the Existing Buildings program and 45 building and business owners that had not participated in the program within the past five years.

Methods

The sample development method differed for these two groups, so we describe the method separately for the two groups. Appendix H provides additional details of the method for the nonparticipant sample.

Nonparticipant Sample

From a database of commercial properties in Oregon, supplied by Energy Trust, we identified 18,274 properties with Oregon-based owners that likely had not previously participated in the Existing Buildings program.[22] The database may have underrepresented some building segments, so a random or proportionally stratified sample would not necessarily represent the commercial population. Therefore we aimed to develop a sample that provided a mix of respondents across four variables: 1) location; 2) building size; 3) occupancy (100% leased or owner-occupied); and 4) building use. Table 33 shows the distribution of our sample of completed surveys.

Table 33: Distribution of Sample by Location, Size, Occupancy, and Building Use

VARIABLE OF INTEREST	FINAL SAMPLE
LOCATION	
Portland metro area	59%
Outside Portland metro area	41%
SIZE	
Small (<= 5000 SF)	32%
Medium (5,001 to 20,000 SF)	46%
Large (> 20,000 SF)	22%
OCCUPANCY	
100% Leased	58%
Owner-Occupied or mixed	42%

Continued

[22] The CoStar Group (http://www.costar.com) developed the dataset from property tax records.

VARIABLE OF INTEREST	FINAL SAMPLE
BUILDING USE	
Retail	18%
Office	25%
Other	57%

In our data analyses, we examined any evidence that responses varied by the stratification variables. We found few statistically significant differences; therefore, the combined sample can be considered a reasonable representation of the general nonparticipant population. We identify those few cases where we observed statistically significant differences.

Non-Recent Participant Sample

From the Existing Buildings program database, we identified 1,739 unique program participants. Of those, 737 were not associated with any projects done within the past five years. We randomly ordered the list of 737 non-recent participants and drew a sample of 198 records, which we sent to our call center subcontractor. The subcontractor exhausted that list of records without achieving the target of 45 completions. We sent another randomized sample of 206 records, of which the call center used 77 numbers to complete the survey for a total of 45 respondents.

Call Dispositions

Table 34 shows the disposition of calls to the nonparticipants and non-recent participants. The 11% completion rate is about as expected for complete nonparticipants.

Table 34: Disposition of Calls to Nonparticipants and Non-Recent Participants

	NONPARTICIPANTS		NON-RECENT PARTICIPANTS		TOTAL	
DISPOSITION	Count	Percent	Count	Percent	Count	Percent
Completed	105	11%	45	16%	150	12%
Screened out	64	7%	7	3%	71	6%
Not screened	520	54%	153	56%	673	54%
Total contacts	689	72%	205	75%	894	72%
No contact	84	9%	21	8%	105	9%
Total good numbers	773	81%	226	82%	999	81%
Bad numbers	187	19%	49	18%	236	19%
Total numbers dialed	**960**	**100%**	**275**	**100%**	**1235**	**100%**

Respondent Characteristics

Most (52%) of those surveyed identified themselves as owners or executives of their organization. Managers (17%) and facilities or maintenance managers (14%) were also common roles of respondents. The majority (90%) of the respondents' organizations owned the sampled property and most (60%) owned more than one building. Offices (38%), retail (21%), and apartment buildings (11%) constituted the bulk of the sample, with nonparticipants significantly more likely ($p < 0.001$) to represent office buildings than non-recent participants (49% of nonparticipants represent office buildings vs. 13% of non-recent participants).

Respondents also identified the occupancy structure of the sampled property. In about three-fifths of the cases, the respondent's company occupies the entire building or shares it with tenants (Table 35).

Table 35: Building Occupancy Structure (*n* = 137)

BUILDING OCCUPANCY STRUCTURE	COUNT	PERCENT
Company occupies all of the building	57	42%
Tenants occupy all of the building	47	34%
Company shares the building with tenants	23	17%
Building is unoccupied	6	4%
Company does not own the building	3	2%
Other [a]	1	1%

a Respondent gave unclear response.

Respondents from tenant-occupied and shared-occupancy buildings reported the number of tenants in their building: almost half (46%) have two to five tenants, about a fifth each have either one tenant (22%) or more than ten (22%), about one-tenth (8%) has six to ten tenants, and one respondent indicated they did not know.

Awareness of and Interest in the Existing Buildings Program

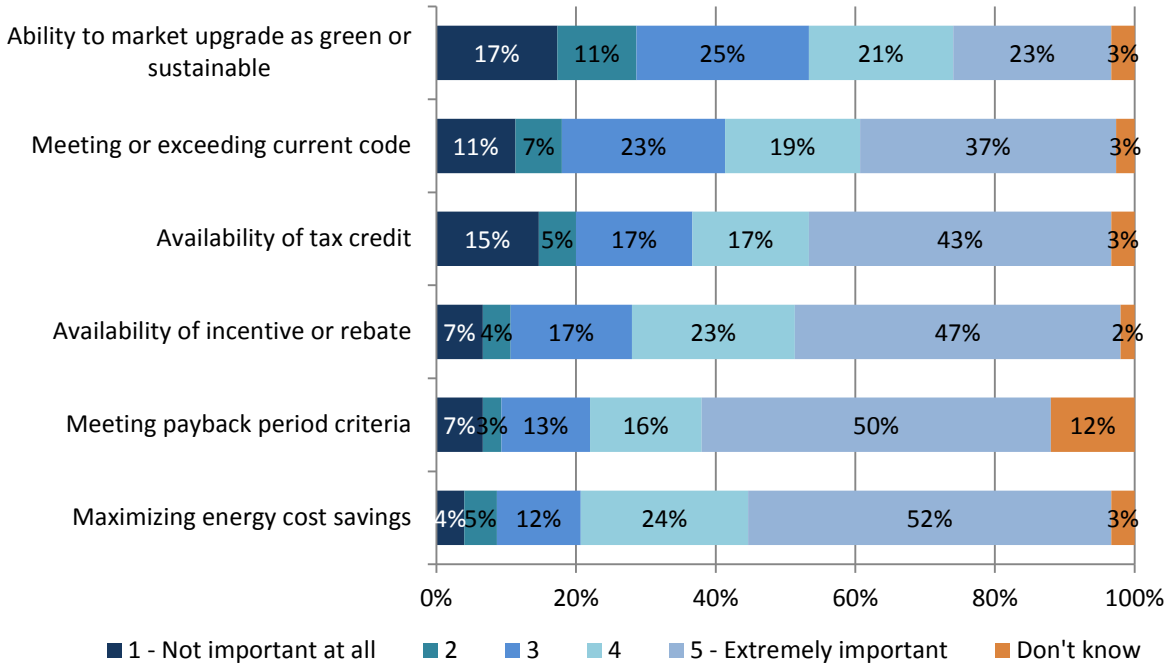
While over half (56%) of respondents had heard of Energy Trust's business and commercial property programs, only about a third (37%) had ever looked into Energy Trust's cash incentives for energy efficiency building upgrades.

Considerations in Upgrade Planning

Most respondents indicated that controlling energy costs was important to their organization, with 73% reporting a high level of importance ('4' or '5' on 5-point scale). We also asked respondents to rate the importance of several things they might consider when thinking about equipment or facility upgrades. As seen in Figure 6, a similarly high percentage of respondents

(76%) reported that maximizing energy cost savings was highly important. The findings demonstrate that nonparticipants tend to be most concerned with financial considerations when considering facility upgrades. By contrast, only 44% of respondents gave similar ratings to being able to market the project as green.

Figure 6: Considerations When Thinking about Equipment or Facility Upgrades (*n* = 150)



Assessment and Upgrade History

We asked respondents whether the sampled property has had an assessment to identify energy savings opportunities. About one-third (35%) of respondents reported having had an assessment performed at one or more of their properties. Respondents who had a prior assessment generally did so to identify energy cost savings they may not be aware of (47%) and to qualify for a specific incentive (25%). Of the 97 respondents that had never had an assessment, only one-quarter indicated they had ever considered pursuing one.

Of those that had had an assessment, about half said their assessment had been conducted by Energy Trust (22%) or a utility company or local government (26%), and about one-quarter (24%) had an assessment conducted by either an architectural/engineering firm, property management firm, energy management firm, contractor, nonprofit organization, or facility staff. About one quarter (28%) said they did not know who did the assessment.

We asked respondents with no prior assessment experience whom they would contact if they ever pursued an assessment. The results reflect the distribution of responses by those who

actually had an assessment: 26% indicated Energy Trust; 26% indicated a utility representative, 12% indicated either an architectural/engineering firm, energy management firm, contractor, or facility staff,; and 36% said they did not know.

We also asked those with no prior assessment to give their reasons for having never pursued one (Table 36). Generally speaking, monetary issues were not the reasons people did not get an assessment. Instead, most respondents indicated they were not ready for upgrades or did not know how to go about pursuing an assessment.

Table 36: Reasons for Not Having an Assessment (Multiple Responses Allowed) (*n* = 97)

REASON	COUNT	PERCENT
Not yet ready to carry out any building upgrades	31	32%
Did not know how to go about it	24	25%
Was able to identify savings opportunities without it	16	16%
Thought it would be too expensive	10	10%
New building	7	7%
Doesn't own or is selling building	6	6%
Didn't have time	3	3%
Other	12	12%
Don't know	8	8%
No response	4	4%

Spillover

Only 16 respondents (11% of the sample) reported making any efficiency upgrades to the sampled property without incentives since 2011. Of those who did, HVAC and building envelope improvements were the most commonly reported upgrades installed (Table 37).

Table 37: Respondents that Completed Efficient Upgrades Since 2011 without Incentives (Multiple Responses Allowed) (*n* = 16)

MEASURE TYPE	INSTALLED	ENERGY TRUST INFLUENCE	ASSESSMENT INFLUENCE
HVAC	6	0	0
Building envelope improvements	6	2	2
Lighting (including lighting controls)	5	1	0
Cooking equipment	1	0	0
Office equipment	1	1	1
Other	3	1	0

a Respondent reported influence of '3' to '5' on 5-point scale, from 1 = *No Influence* to 5 = *Critical Influence*.

We asked the 16 respondents who had installed non-incented efficient upgrades to rate Energy Trust's and their assessment's influence on their decision to purchase these measures. The findings suggest that assessments and Energy Trust's energy efficiency promotion activities have little to no obvious influence on efficient upgrade decisions of nonparticipants. Energy Trust may have had an effect but it may also be invisible to nonparticipants. While the majority (12 of 16) of these respondents had heard of Energy Trust's energy efficiency promotion activities, most (8 of 12) of those indicated that those efforts had "no influence" on their upgrade decisions, with only four indicating moderate to critical levels of influence. Only six of the 16 respondents who installed non-incented measures had had an assessment; of those, three indicated that the assessment had "no influence" on their upgrade decision, one reported little influence, and two reported moderate-to-critical levels of influence.

Planned Upgrades

We also asked respondents about plans for efficient upgrades they expect to pursue in the next two years (Table 38). Only a minority of respondents indicated they had any plans for upgrades. Of those with upgrade plans, lighting and HVAC were the most commonly mentioned measures.

Table 38: Expected Efficient Upgrades in Next Two Years (Multiple Responses Allowed) (*n* = 150)

REASON	COUNT	PERCENT
Any upgrades planned	26	17%
Lighting (including lighting controls)	10	7%
HVAC	9	6%
Building envelope improvements	8	5%
Windows	5	3%
Insulation	3	2%
Other building envelope improvements	5	3%
Controls	1	1%
Refrigerator/freezer	1	1%
Other	5	3%
Don't know	4	3%

A somewhat higher percentage (21%) of owner-occupants reported future efficient upgrade plans compared to respondents that do not occupy the property in question (11%); this difference was marginally significant ($p = 0.07$). We surmise that owner occupants have more of a vested interest in making future upgrades than non-owner-occupants.

Perceived Value of Energy Assessments and Incentives

To gain a sense of the value of energy assessments to building and business owners, we asked the 26 respondents with future upgrade plans if they planned to seek assistance in identifying upgrades and estimating savings, and what likely would happen if they could not get such assistance. Similarly, we asked whether they would seek incentives or rebates to help pay for the upgrades and what they likely would do if they could not get incentives.

Majorities of these respondents indicated that they planned to seek assistance to help in their upgrade planning (19) and would seek incentives or rebates to help pay for upgrades (22).

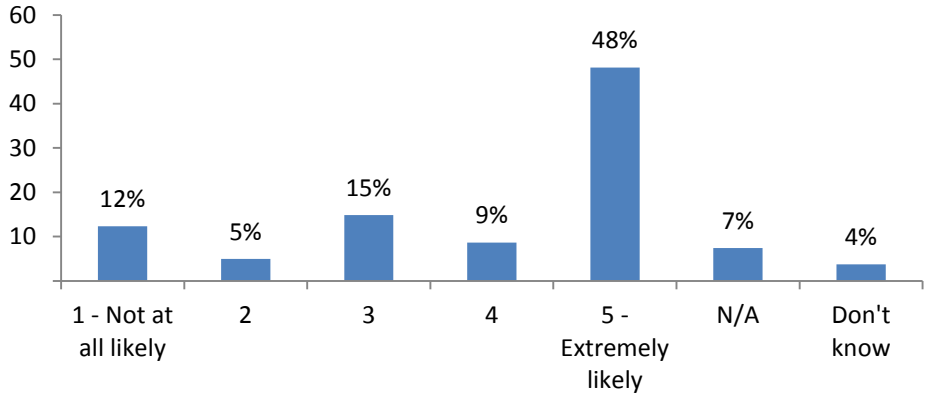
Of the 19 respondents who would seek planning assistance, only four said they would do all the planned upgrades even if they could not get any such assistance; most others said they would reduce the number of upgrades (seven), do only necessary upgrades using standard efficiency equipment (six), or do no upgrades at all (one); one they did not know what they would do.

Similarly, of the 22 who would seek incentives or rebates, most indicated they would then only do some of the upgrades if they could not get that assistance: eight (of 22) said "would do only necessary upgrades, using standard efficiency equipment," and eight said "would do some efficiency upgrades but fewer than otherwise." Conversely, four said they would not do any upgrades without assistance and two said they would do all upgrades regardless.

Perceived Value of RTU Tune-Up

To provide information on the value of rooftop unit (RTU) tune-ups, we asked those respondents whose buildings had rooftop units (RTUs) how likely they would be to have the RTU tuned up if it would reduce the sampled property's energy costs by 10% to 15% per year (Figure 7). Just over half (81 of 150) of the respondents indicated their buildings had RTUs, and nearly half (48%) of those 81 respondents said they would be "extremely likely" to tune up their rooftop unit to achieve such energy savings.

Figure 7: Likelihood of RTU Tune-Up (*n* = 81)



Energy Reduction Behaviors

In addition to physical upgrades, we asked respondents about behavioral actions their organization had taken to reduce energy costs. About one-third (30%) of respondents reported they had taken any behavior-oriented actions to reduce energy costs. Once again, lighting was the most commonly mentioned equipment type mentioned.

Table 39: Behavioral Actions to Reduce Energy Costs (Multiple Responses Allowed) (*n* = 150)

ACTION	COUNT	PERCENT
No behavioral actions taken [a]	44	29%
Used lighting less	21	14%
Regulated temperature	15	10%
Turned off equipment more, put equipment in standby mode	5	3%
Changed maintenance schedule or activities	4	3%
Educated tenants, employees, customers, etc.	4	3%
Had an assessment	3	2%
Switched fuels	1	1%
Other	10	7%
Don't know	45	30%
Refused	16	11%

a Includes respondents who identified non-behavioral steps (i.e.: purchased upgrades). See Table 37 for purchased upgrades installed.

Corporate Energy Management

To further assess the role of energy reduction in the commercial market, we asked respondents about their corporate energy management policies and actions. Only about one respondent in eight said their company has formal written policies or procedures that address energy and energy efficiency (Table 40). Of those with formal written policies and procedures, behavior changes (such as turning off lights and turning down the heat) and assigning responsibility for energy and energy efficiency were the most commonly reported items.

Table 40: Company Policies and Procedures (Multiple Responses Allowed) (*n* = 150)

POLICIES AND PROCEDURES	COUNT	PERCENT
Company has formal written policies or procedures on energy efficiency	19	13%
Behavior changes such as turning off the lights and turning down the heat	15	10%
Assigning responsibility for energy and energy efficiency	11	7%
Incorporating energy efficiency in operations and procurement	8	5%
An energy management plan	8	5%
Use of specific energy monitoring systems	7	5%
Numerical energy savings goals	5	3%
Maintenance of system to keep it working well	1	1%

Even if a business does not have formal policies, it may informally encourage energy-saving behaviors. We therefore asked respondents what methods their company uses to encourage employees to adopt energy saving behaviors (Table 41).[23] Slightly more than half of respondents indicated their company makes some effort to encourage energy conservation behaviors among employees. The most frequently mentioned method, by about one-third, was in-person meetings.

Table 41: Methods to Encourage Employees to Save Energy (Multiple Responses Allowed) (*n* = 150)

METHOD	COUNT	PERCENT
Reported at least one method	78	52%
In-person meetings	54	36%
Posters	19	13%
Information in the employee manual	18	12%
Notices or articles in a company newsletter	16	11%
Other	9	6%
Don't know	7	5%
Refused	3	2%

This was one of the few items on which we found differences among subgroups within our sample. Respondents that occupied at least part of their building were more likely than other respondents to report efforts to encourage energy reducing behavior among employees (66% vs. 23%; $p < 0.001$)

[23] We asked respondents about methods used to encourage *employees* to save energy, not occupants of the sampled property. Thus, significant differences should be approached with caution, as respondents that do not occupy any part of the sampled property may be referring to their employees or their tenants.

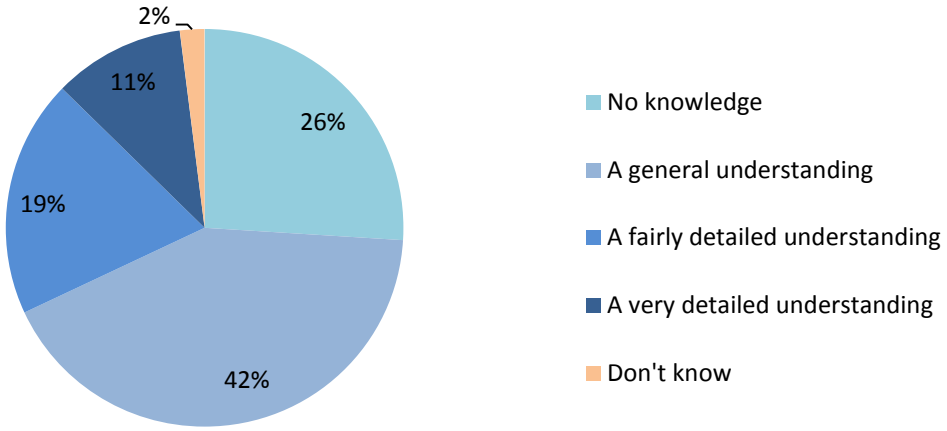
Tenant Requests for Upgrades

To assess tenant demand for efficient upgrades, we asked respondents representing tenant-occupied and shared-occupancy buildings whether their tenants had requested upgrades to reduce energy costs over the last two years. Only one-tenth (10%) of respondents indicated that their tenants had requested such improvements. Lighting was the most common request (4 mentions), with windows, rooftop unit, and the heating system all receiving one mention each.

Awareness of Energy Reduction Opportunities

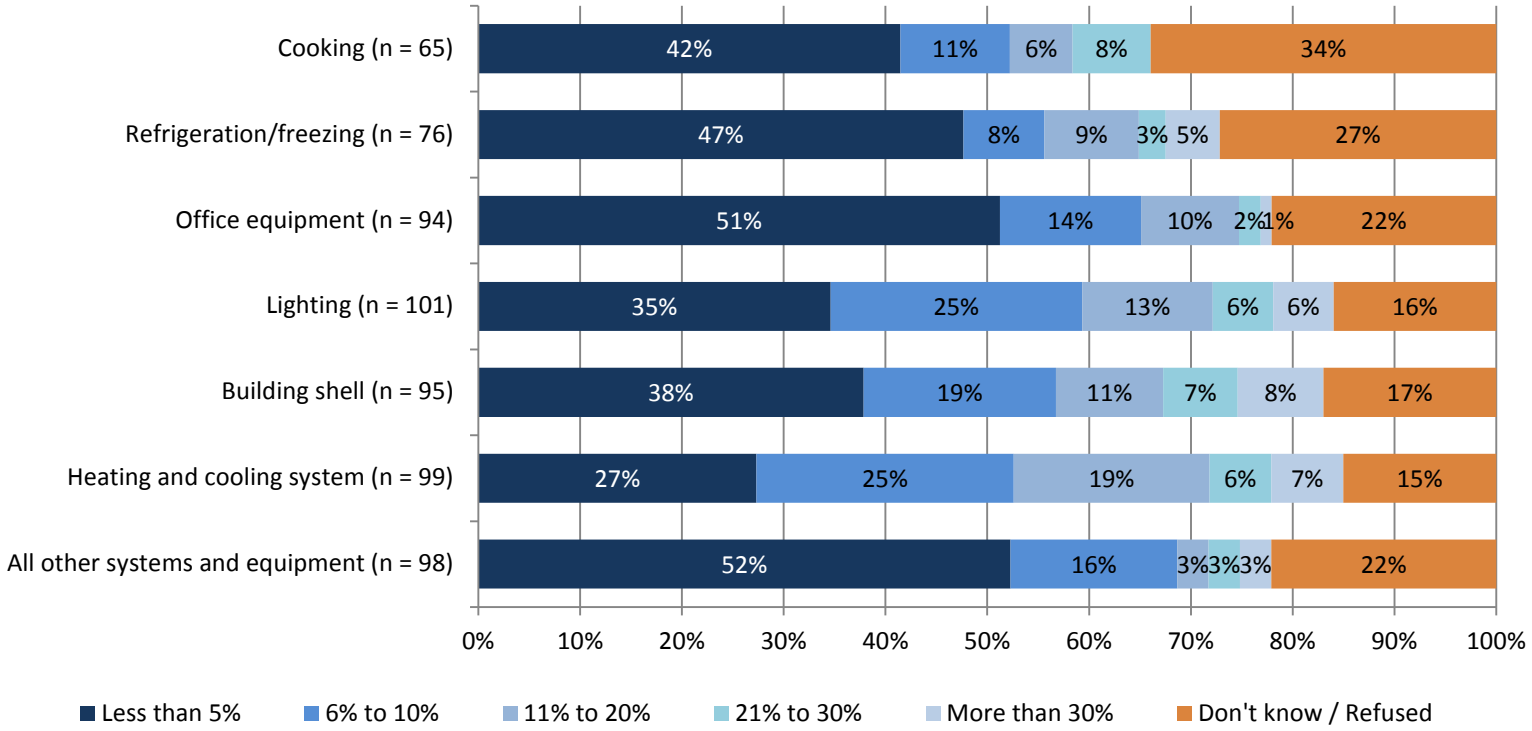
To assess respondents' perceptions of energy reduction opportunities in the sampled property, we asked them to indicate their understanding of these opportunities and to rate the impact of various potential upgrades on the sampled property's total energy costs. Nearly three-quarters of respondents said they had at least a general understanding of upgrade opportunities, and about one-third said they had at least a fairly detailed understanding (Figure 8).

Figure 8: Knowledge of Facility's Energy Saving Opportunities (*n* = 150)



We asked those who reported at least a general understanding of energy saving opportunities how much they thought energy costs could be reduced if they undertook various types of upgrades at their properties. Respondents credited most measures with minimal opportunities to reduce energy costs: a reduction of less than 5% was the most commonly reported estimate for all measures offered (Figure 9). The findings also point to a general lack of knowledge of savings opportunities, as 14% to 32% of respondents indicated "don't know" for each measure in Figure 9.

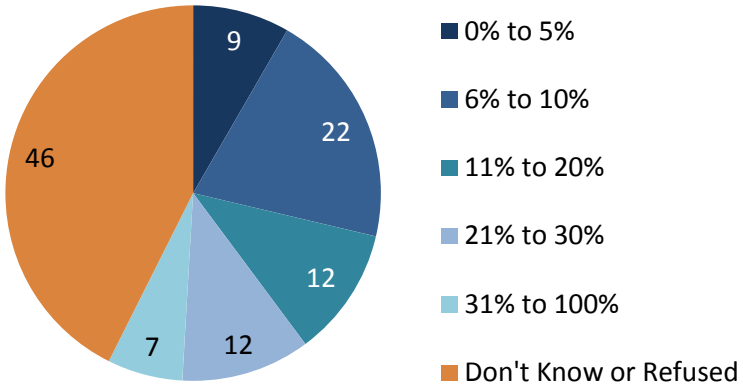
Figure 9: Perceived Maximum Percentage of Energy Cost Reductions via Upgrades [a]



a The sample counts exclude respondents whose buildings did not use the specified type of equipment.

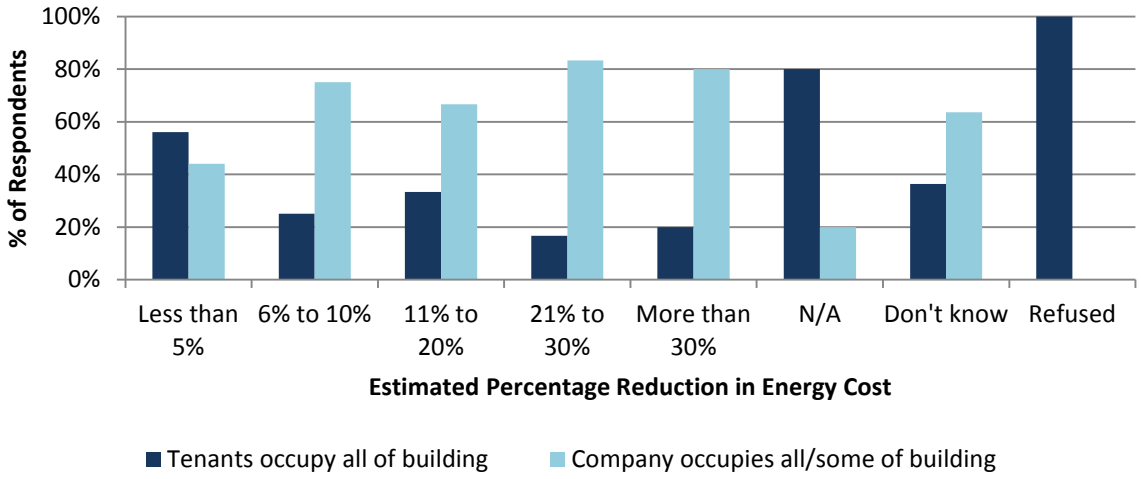
We also asked these respondents to estimate the maximum percentage energy savings that could be achieved through an upgrade affecting multiple energy-using systems. The plurality of respondents said they did not know how much could be achieved (**Error! Not a valid bookmark self-reference.**); thus, three-fifths of all respondents either reported no knowledge of savings opportunities (and were excluded from this question) or could not estimate how much energy could be saved. The remaining respondents provided a range of estimates, from less than 5% up to 100%, with a mean of 18%.

Figure 10: Maximum Potential Savings via Upgrades to Multiple Systems (*n* = 108)



Compared to respondents that occupy their buildings, those who do not occupy any of the buildings estimated smaller reductions to energy costs from heating and cooling upgrades (p = 0.03; Figure 11) and lower maximum savings from a multi-system upgrade (mean of 12% vs. 22%; p = 0.06).

Figure 11: Maximum Potential Savings for Heating and Cooling Upgrades by Building Tenancy (*n* = 91)



Barriers to Energy Reduction

We asked respondents about the primary challenges they see to making upgrades to the sampled property. Nearly 40% of the sample could not or would not respond to this question (Table 42). Of those who did respond, the most prominent challenges to improving energy management practices were financial issues (such as upfront cost and length of payback) and awareness issues.

Table 42: Challenges to Improving Energy Management Practices (Multiple Responses Allowed) (*n* = 150)

ACTION	COUNT	PERCENT
Awareness issues	60	40%
Upfront cost, length of payback, return on investment	33	22%
Staff awareness/understanding of energy efficiency/getting staff to change behavior	16	11%
Management awareness of energy efficiency options	2	1%
Tenants/do not own building	12	8%
Technical challenges	6	4%
Difficulty in implementing energy efficiency measures (size/complexity of system)	3	2%
Difficulty of monitoring energy use	1	1%
Lack of appropriate energy efficiency technology	2	1%
Management issues	4	3%
Lack of time to implement energy efficiency	3	2%

ACTION	COUNT	PERCENT
Management policies/priorities	1	1%
No need- building is new	3	2%
Building is for sale/lease	2	1%
Other	14	9%
None	7	5%
Refused	16	11%

Desired Assistance from Energy Trust

More than two-thirds (108 of 150) of the respondents reported no plans to make efficient upgrades in the next two years and no formal energy policies. As these are the respondents most likely to need assistance in implementing energy efficiency upgrades, we asked them what types of support or assistance their organization would need. Consistent with responses to other questions, the most common response, given by nearly two-thirds of the respondents, was increased financial assistance (Table 43). Specifically, more than half mentioned increased cash incentives and one-quarter mentioned financing. The findings suggest that awareness of energy efficiency opportunities also serve as a significant barrier, as about half of respondents indicated they needed some form of technical assistance in pursuing and understanding their upgrade opportunities, including help with identifying potential upgrades, help assessing energy or cost savings, general education about energy efficiency, and support to hire an energy manager.

Table 43: Assistance Needed for Efficient Upgrades (Multiple Responses Allowed) (*n* = 108)

ASSISTANCE NEEDED	COUNT	PERCENT
Financial assistance	64	59%
Increased cash incentives	58	54%
Financing	27	25%
Technical assistance	60	56%
Help identifying potential upgrades	41	38%
Help assessing energy or cost savings	41	38%
General education about energy efficiency	34	31%
Support to hire an energy manager	9	8%
None	4	4%
Don't know	11	10%
Refused	6	6%

7 CONCLUSIONS AND RECOMMENDATIONS

Energy Trust has reached close to half of the commercial building market with its Existing Buildings program and has reached nearly all hospitals and grocery stores in the state. We learned that the Energy Trust-supported energy assessments play a valuable role in customers' upgrade plans, helping them identify potential energy savings and prepare internal budgets and project planning schedules. The largest challenge faced by the program appears to be adapting to changing market conditions. Program staff reported that it is becoming harder to attain savings because Energy Trust has touched many larger properties already and it is now necessary for the program to attain savings from smaller properties and to do deeper savings projects with large customers. This may require different marketing approaches, training of trade allies, and other strategies going forward.

With the assistance of Energy Trust staff we identified the following key findings.

- Going forward, the program will need to get deeper harder to reach savings in large buildings and expand the program to capture savings in smaller and medium commercial buildings.
- PMC staff need to continue to provide each customer with complete and cohesive information about all of the programs available to them.
- ATACs are trusted by participants and a key player in taking projects from early phases to completion.
- Having technical staff (engineers) play more of a role in overseeing ATACs and their reports was a good development in the program.
- The various steps of the program such as going from a site evaluation to a technical study are transparent to most participants. Participants do not see each step as a decision point. Rather, the entire program participation process is one large series of steps, often taking place concurrently with other projects. Therefore, participants have a hard time recalling specifics of their project.
- Maintenance staff play more of a key decision-making role in larger organizations than maintenance staff for smaller organizations. Therefore, who the program needs to reach may depend on the size of the organization.
- Despite their prior awareness of opportunities and intentions to save energy, the Energy Trust-sponsored assessments helped increase the likelihood participants would undertake efficiency upgrades and improve the efficiency of those upgrades.

- Nonparticipants think efficiency measures won't save very much or they have no idea how much they would save. Continued outreach and a good business case for efficiency should continue to bring nonparticipants into the program.

Our research also identified the following conclusions and recommendations.

Conclusion: Opportunities for program expansion continue to exist, as nonparticipating commercial building owners and managers reported that controlling energy costs is important.. However, awareness of how much energy efficiency can reduce costs varies, and many building owners and managers are not fully aware of the benefits of energy assessments.

> **Recommendation:** In marketing efforts for energy assessments, emphasize the ability to identify cost-saving upgrades that building owners may not be aware of and provide detailed information on the savings potential of energy efficiency upgrades.

Conclusion: While financial considerations are the pre-eminent reasons that participants cite for doing efficiency upgrades, customers often do upgrades to improve the quality of their buildings and reduce O&M costs.

> **Recommendation:** Emphasize non-energy benefits in outreach efforts, including in trade ally outreach and training.

Conclusion: ATACs believe they can sell large and complex projects that bring non-traditional customers into the program, expanding Energy Trust's customer base. If this can be confirmed, then continuing and expanding the ATACs' role may help Energy Trust reach further into the commercial building market. For example, school officials may not be aware how to use SB 1149 and Energy Trust funds for energy saving projects in their buildings. ATACs can play a valuable role in educating these officials on how to best use available funds to save energy.

> **Recommendation:** Identify custom projects that ATACs bring to Energy Trust to assess whether they provide greater savings than other projects; if so, expand ATACs' role such as by encouraging trade allies to involve ATACs directly in their efforts to sell large custom upgrades to customers.

> **Recommendation:** Provide detailed feedback to ATACs about their site evaluations and technical studies to encourage a good rapport and encourage them to "sell" Energy Trust to their customers.

APPENDICES

A ENERGY TRUST PROGRAM MANAGER INTERVIEW GUIDE

Scheduling Script

Hi, this is _____ from Research Into Action. As you probably know, we are working with Energy Trust to evaluate the Existing Buildings Program. We would like to get your perspective on how the program is going to help guide us in our subsequent information collection efforts. Our conversation should take about an hour to an hour and a half. What would be a good time to schedule it?

Interview Script

[REPEAT ANY OF THE ABOVE AS NECESSARY]

As you know, for this evaluation, we plan to focus on participants' experiences at various stages or phases of participation in large projects, and we'll want to get some input from you on what to look for in that area. But before we discuss that, we'd like to clarify current staff roles and get an update on general program operations. Later, we'll be speaking with Lockheed Martin staff to get more detailed information about program operations.

Roles and Responsibilities

Let's start with some information about your role in the Existing Buildings program.

1. Has anything changed since the last Existing Buildings process evaluation two years ago in your role and responsibilities as the Program Manager?
2. In the past two years have there been any changes in program goal?
3. What challenges do you foresee of Existing Building to continue meeting its goals?
4. *PROBE ABOUT:*
    a. The impact of phasing our T12 lamps?
    b. What measures replace the loss of saving from T12's (controls?)
    c. What activities are underway to prepare for this change – BPTAC, Roof Top Tune-up (RTU), and SEM pilot?
5. We plan to speak with Murali, the Lockheed PM. Are there any other key staff at Lockheed you recommend we interview to gain their perspective of program operations? If so, who?

6. Since the last process evaluation, have any changes been made in the role that Evergreen Consulting plays in the Existing Buildings program?

   PROBE ABOUT:

   Changes, their effects, and further changes desired.

   a. We'll be talking with Roger Spring. Do you recommend that we contact other staff there as well?

7. Since the previous evaluation, what changes, if any, have there been in the role of ATACs or in how you, the PMC, or Evergreen interact with the ATACs?

   PROBE ABOUT:

   a. How the program has been reviewed ATACs studies to focus on ATACs doing studies that have a high probability of getting projects done and cost less.

   b. Does the ATAC pool have sufficiently diverse expertise (HVAC, Controls, Mechanical) to respond in a timely way to requests for studies?

8. Lockheed took over doing the smaller scoping study. Has this switch been cost effective – resulting in some larger projects? [Scoping studies are those that cost <$1K and provide ballpark estimates so facilities to encourage them to about what larger if any projects they want to do].

9. Also we would like to speak with a few trade allies who are distributors. Can you recommend a short list of good candidates for us to contact?

Communication

Let's move on to communication. You've described your communication with the PMC in the previous process evaluation – we mainly want to get an update on that and see if anything has changed.

10. How is your communication with the PMC Program Manager, other Lockheed program staff, and Evergreen?

    PROBE/FOLLOW UP ABOUT:

    a. Access to the PMC Program Manager (Can he reach him when he needs to?)

    b. Changes in communication, their effects on the program, and what they have done and could do about them.

11. [*IF NOT ADDRESSED ABOVE*] At the time of the previous evaluation, program staff were planning to initiate presentations at monthly all-staff meetings with Lockheed staff

to help them stay current with Energy Trust planning and initiatives. Has that occurred, and if so, what have been the results?

Implementation

Now let's talk a bit about how the program is currently being implemented, including any changes to marketing and outreach.

12. Since the last process evaluation, what changes have there been, if any, to the targeted-segment approach to marketing and outreach?

    PROBE ABOUT:

    a. Any changes in how the segments are defined or changes to the high-priority segments. [Previously: office, retail, hospitals, schools, grocery, restaurants, lodging]

    b. Any areas under or over served (possibly oversubscribed in the Pacific Power territory)

    c. Program outreach to trade and industry associations of the target segments. [Ads or articles in association newsletters, joining and supporting association events]

13. From your perspective, which target segments might be under-penetrated by the program?

    a. Why do you think that might be?

    b. What has been done about that?

    c. What might be done about that?

14. Since the last process evaluation, what new steps, if any, have been taken to stimulate interest in efficiency or awareness of the program in the overall commercial market?[24]

    PROBE ABOUT:

    a. Any actions taken to reduce first cost as a barrier to energy efficiency improvements (e.g., incorporating cost benefit analyses into messages)

    b. What about O&M services

    c. Any direct installs

[24] "Although the program participants indicate a high level of interest in energy efficiency, there continues to be either limited interest in energy efficiency or limited awareness of the program in a large portion of the commercial market – and continued opportunity for deeper penetration."

15. Is the program experiencing any challenges with meeting gas or electricity savings goals?

PROBE ABOUT:

a. Any major changes in measures by fuel type made in the past two years

b. Any additional measure changes planned

16. Several pilot programs and initiatives were mentioned during the kick-off meeting: Cool Schools, Memory Care, Energy Management Systems, the various NEEA initiatives, and so forth. I'd like to get some more details about these activities and how they might affect Existing Buildings. Let's start with Cool Schools:

[FOR INITIATIVE, BRIEFLY SUMMARIZE WHAT WE KNOW. THEN ASK FOR ADDITIONAL DETAILS. PROBE ABOUT THE INITIATIVE'S STATUS, WHO IS PRIMARY IMPLEMENTATION AGENCY, AND HOW IT MIGHT AFFECT EB.]

INITIATIVE	WHAT WE KNOW	INPUT FROM PM
Cool Schools	Legislation to authorize funding for loans June 23, 2011.	
Strategic Energy Management (SEM)	NEEA, stakeholder workshop March 29, 2011 – discussed utility use of SEM to reach goals / increase customer satisfaction.	SEM is in early phases and probably is more of a strategy to fill future pipeline
Memory Care	Targeting memory care facilities.	Still recruiting
Energy Management System (EMS)	Targets buildings less than 100,000 square feet such as retail, small offices, and restaurants.	BPTAC moving forward 3 installs in pilot phase will hopefully fill the next portion of the pipeline
Building Performance Tracking and Control (BPTAC)	Incents systems promoting behavioral changes, low-cost control systems, optimization software requiring no human interface, energy consultant.	Same as above
Comprehensive Commercial Lighting Pilot	NEEA pilot launched in partnership with Energy Trust during the second quarter of 2011.	how are things working with NEEA
Ultra-Deep Retrofit	NEEA initiative.	How are you working with NEEA
Empower	No Info, applies only to multifamily.	Only multifamily and still trying to tap into Federal monies.

Now I have a few questions about the ATAC's and trade allies…

17. How are things going in general with the pool of ATACs?

18. What are you views on the multilevel study approach being used now?.

19. Since the last process evaluation, is the program doing anything new to help trade allies market energy efficiency to their customers? If so, what?

PROBE ABOUT:

a. Marketing materials provided to trade allies

b. Co-branding

20. How does TA's use of co-branding fit with your expectations?

IF LOWER THAN EXPECTED:

a. Why do you think that is?

b. What has been done about that?

c. What else could be done?

21. What other changes should be made to marketing and outreach?

22. Since the previous process evaluation, have there been any changes to program rules or incentives, including what is covered?

PROBE ABOUT:

a. Providing incentives for small-scale custom projects, per recommendation from previous report.

Data Management and Quality Control

We're almost finished. I'd just like to ask a couple of questions about Energy Trust's data management and quality control, and then move on to my closing questions.

23. We understand that Energy Trust is planning an upgrade in the entire IT system – that's all in the future. But more recently a commercial system analyst position was added (Kathleen Belkhayat). What goals did you have for this position and how is it working so far?

24. Is Existing Buildings moving toward digitizing forms (scanable)?

a. *IF YES*: What progress has been made so far?

b. *IF YES*: What challenges have had to be overcome or still looming?

25. Do you have or know of any issues or concerns about management of program data, in terms of Energy Trust's data management systems or how the PMC manages data on its end?

IF YES:

a. What are they?

b. What is being done about them?

c. What else might be done?

26. Since the last process evaluation, what changes have there been, if any, to the quality control procedures?

27. Are they any issues or concerns about the program's quality control procedures?

IF YES:

a. What are they?

b. What is being done about them?

c. What else might be done?

Closing

28. Do you have any particular concerns about the customer experience during any of these phases? [Work through the phases again and ask about points where customers seem to be most likely to drop out across phases]

PROBE ABOUT:

a. Timing

b. Process flow

c. Ease of completing forms

d. Quality of communication between customer and Energy Trust/PMC staff

29. Finally, what else would you like to learn from this evaluation?

Those are all of my questions. Thank you for your time.

Follow-Up Questions for Second Interview

30. Please describe each of the following "phases" seen in the FastTrack database.

a. Walk-through CFL

b. Walk-through study

c. Scoping Study

d. Site Evaluation

e. Study

f. Level 1 TAS

g. Level 2 TAS

31. What defines each of the above – what activity is undertaken during that event?

    a. Are all of the above distinctions real – e.g., is a walk-through study really different from a scoping study and a site evaluation?

    b. Are the definitions clear enough that two people doing the same thing would always code the event the same way – e.g., one person wouldn't call it a scoping study and the other wouldn't call it a site evaluation.

32. What determines which or any of the above is done?

33. What is the cost of each of the above – to the customer, to Energy Trust?

34. What determines whether someone will have two or more types of event?

Earlier, I mentioned that this evaluation would focus on the customer experience during major decision points, from initial identification of savings opportunities through implementation. We are focusing on five stages but not clear on all of the details:

Please tell me about each of the following entry points.

35. Walk-throughs – Can they happen before an application is submitted? Who does these?

36. What about a formal technical evaluation – are those done before a 100E is received? Do ATACs do these?

37. Apply - pre-study phase, after receipt of 100E

38. Studies:

    a. Are informal site evaluations (walk-throughs/scoping studies) ever done after a 100E is received?

    b. What is the process for deciding to recommend a formal technical study?

39. Can a customer enter the program in the middle of a project? How does that work?

40. Offer (Form 120 signed by Energy Trust and sent to customer)

41. Offer Accepted (Form 120 signed by customer)

42. Implementation

B PROGRAM MANAGER IMPLEMENTER INTERVIEW GUIDE

Scheduling Script

Hi, this is _____ from Research Into Action. Energy Trust has asked us to evaluate the Existing Buildings Program. We would like to get your perspective on how the program is going to help guide us in our subsequent information collection efforts. Our conversation should take about 1 hour to 1-1/2 hours. When would be a good time to schedule it?

Interview Script

For this evaluation, we plan to focus on participants' at various stages or phases of participation in large projects, and we'll want to get some input from you on what to look for in that area. But before we discuss that, we'd like to clarify current staff roles and get an update on general program operations, communication with Energy Trust, marketing activities, and touch on your role with several new initiatives and pilot projects.

Role and Organizational Structure

[REPEAT ANY OF THE ABOVE AS NECESSARY]

Let's start with some information about your role in the Existing Buildings program:

1. Has anything changed since the last Existing Buildings process evaluation 2 years ago in your role and responsibilities as the Program Manager?

2. Since the last process evaluation, have there been any changes…

    a. In key implementation staff?

    b. In program goals?

[IF PILOTS ARE MENTIONED – SAY I HAVE SOME QUESTIONS ABOUT PILOTS A BIT LATER ON, FIRST…]

3. How is the program doing regarding its goals?

    IF FALLING SHORT:

    a. Where and in what ways is the program falling short of goals?

    [PROBE ABOUT SECTORS]

    b. What is being done about that?

c. What else might be done?

Evergreen Consulting Group

4. Would you please tell me about how you work with Evergreen Consulting Group in delivering the program?

   PROBE ABOUT:

   a. Communication and coordination

   b. Working with trade allies

   c. Working with program participants

   d. Evergreen's role in bringing in a project, from initial contact to application (when do they drop out?)

   e. Advantages and disadvantages

Trade Ally Network

5. How are things going with trade allies?

   PROBE ABOUT:

   Types and frequency of interaction

   What triggers contacts (assistance with applications, administrative issues such as processing applications, tracking project status, verification of installs, training)

   Any changes since last evaluation – in communications or in recruitment or training

   IF ANY ISSUES OR TA NEEDS ARE MENTIONED:

   a. What is Energy Trust or Lockheed doing or planning, if anything, to address these issues/needs?

6. How well are trade allies working to promote the program across the various targeted market sectors the program has identified?

   a. In which sectors, if any, do trade allies have the most difficulty promoting the program?

   b. Why do you suppose that is?

   c. Has anything been done about that or is anything being planned?

   d. What might be done about that?

7. We'd like to talk with several trade allies that are distributors. Can you recommend a short list of the larger distributors that we could call (provide names, contact names and phone numbers)?

ATACs

8. Please recap the role of ATACs:

   a. How does Lockheed Martin interact with the ATACs? How is the ATAC pool working out ?

      PROBE ABOUT:

      Having sufficient numbers of firms to do the work? Do firms in the pool have sufficient expertise to provide detailed studies for most ranges of technology?

   b. Are you satisfied with the ATAC reports?

   c. Are you satisfied with the number of studies that lead to completed projects?

   d. What, if any, areas for improvement do you see?

9. What training is given to the ATACs?

   PROBE ABOUT:

   a. Topics covered

10. In 2011, walk-throughs or scoping studies were brought in house. How is this going? [INTRV note: Prior to 2011 ATAC's did walk-throughs. In 2011, this customer service was conducted by RHT and Lockheed as a cost savings measure]

    a. What outcomes are generated from the walk-throughs?

       PROBE ABOUT:

       Mostly a customer service call, or are they resulting in further studies or actual projects?

    b. Are you planning to continue delivering this customer service or thinking of changes?

Program Communication

Now let's talk a bit more about communication:

In the past two years, what changes have there been, if any, in communication within your program implementation team? [INTRV note: the contract for the EB program implementation is

going to be put out to bid soon and this may add a layer of tension color to some of the responses]

PROBE ABOUT:

how, how often, with whom, etc.

IF CHANGES:

a. Why did those changes occur?

b. How have they affected program implementation?

c. Are you considering making any other changes?

IF YES:

d. What changes?

e. When?

f. Why?

11. How about your communication with Existing Buildings staff at Energy Trust – any changes in the last two years?

SAME PROBES AND FOLLOW-UPS AS ABOVE

12. Aside from anything you've mentioned above, what challenges have you encountered in your interactions with other program stakeholders?

IF ANY ISSUES ARE MENTIONED:

a. What is Energy Trust or Lockheed doing or planning, if anything, to address these issues?

Marketing and Outreach

13. What, if anything, do you need from Energy Trust that would help you to market or implement the program more effectively?

14. What changes, if any, have there been in marketing and outreach strategies since the previous evaluation?

PROBE ABOUT:

Changes or developments related to the targeted-market approach (e.g., high-priority segments added, changed, deleted)

Use of contractors vs. directly reaching out to businesses

a. Is the targeted marketing approach still working for you?

b. Is the response from any of the target markets not meeting your goals or expectations?

i. *IF YES:* What do you plan to do to address this?

15. The previous process evaluation identified the Retail and Office sectors as ones with high potentials for obtaining additional energy savings. What, if anything, has the program done to increase penetration into those sectors in particular?

16. As part of the current process evaluation, we will be looking at multi-property decision makers – that is, chains, franchises, and other multi-property owners. Do you have any suggestions for specific owners to talk to or specific market sectors to examine?

PROBE:

a. What about local grocery chains?

17. And how are roof top unit (RTU) tune-ups going?

a. In what ways do you think RTU has benefited or hindered the EB program?

PROBE:

Confirm that this was a pilot that turned into a standard offering.

Pilot Projects and Initiatives

Now let's turn to the new initiatives and pilot programs…

We've see reference to several new Energy Trust pilots and NEEA initiatives that may be relevant to Existing Buildings. These are ODOE's Cool Schools, Energy Trust Memory Care, Energy Management Systems/Building Performance Tracking and Control (BPTAC) pilots, the Strategic Energy Management or SEM and Comprehensive Commercial Lighting Pilot initiatives, and NEEA Ultra-Deep Retrofit

[INTRV note: SEM is being done by SEG (Strategic energy Group) which had been doing the SEM for industrial program. These are only in their early phases. Empower was from multifamily and might be dead in the water. NEEA's Ultra-Deep Retrofit is in early stages : might get a building or two to work on this and Energy Trust would help with incentives. In the longer run if it is successful then we might be doing more deep retrofits but only if it is successful.] Right now we will be leveraging some of the NEEA funds to get these projects off the ground.]

18. Can you tell me about anything else that is going on in the market, such as other initiatives by NEEA, Energy Trust, BPA, or others, that may affect the Existing Building program?

    PROBE ABOUT:

    Source of activity (e.g., NEEA, Energy Trust, BPA, other)

    Type of activity

    Expected effects on Existing Building Program

    a. Any future activities you expect to affect the program?

    b. What instructions, if anything, has Energy Trust given you regarding this?

    c. How might Lockheed deal with the effects of such activities?

19. What, if any, types of challenges arise working through Energy Trust's pilot process?

20. Does the Exiting Building program have any specific issues working with three current pilots, including ….

    a. EB: Comprehensive Commercial Lighting (NEEA)

    b. EB: Building Performance Tracking and Control Systems (EMS/ BPTAC)

    c. EB: Enhanced Sales Model

    d. MF: Memory Care (multifamily)

    e. MF: MPOWER

    f. MF: Benchmarking

    g. MF: Ductless Heat Pumps

    h. MF Appliances

    i. NEEA Ultra-Deep Retrofit

    FOR EACH, MAKE SURE TO COVER:

    How they have been asked them to work with them, how and with whom they have worked or might in the future work with them.

21. In what ways have these pilot programs benefited or hindered Existing Buildings?

    IF NOTHING YET: In what ways do you think they might benefit or hinder EB in the future?

a. Cool Schools (not started yet)

b. Memory Care (not started yet and is now part of MF and really a lighting template pilot)

c. EMS/BPTAC

d. Empower Multi family

e. SEM (early in the process, first cohort of participants began at the beginning of 2012)

f. Comprehensive Commercial Lighting (NEEA)

g. Ultra-Deep Retrofit (NEEA)

FOR EACH, PROBE ABOUT:

What are the challenges in the developing pilots?

Increasing/decreasing workload

Helping/hindering attracting new or bigger projects

Effect in the market (causing confusion?)

Differences among target market segments, etc.

22. To what degree are plans being made to integrate these pilots into the Existing Buildings program?

a. How have pilot programs been folded into the Existing Buildings Program in the past?

23. First, what are all of the ways that you might first learn about a potential new large project coming into your pipeline?

PROBE ABOUT: TA, outreach staff, potential participants

a. Does this process tend to differ by business type of sector?

24. Through what avenues do potential participants get a walk-through, site evaluation, or scoping review?

PROBE ABOUT: Who initiates - TA, outreach staff, or potential participants. If initiated outside Lockheed, how results are communicated to Lockheed.

a. In what ways, if any, does this process tend to differ by business type or sector?

b. How do potential customers use the information from these initial walk-throughs?

PROBE ABOUT: Customer decision processes, narrowing down range of measures, use of information to complete Form 100, etc.

c. What type of things block a customer at this stage from moving forward?

d. What follow-up actions are taken, if any, with these potential participants and who takes them?

e. In your view, what are the best predictors that a walk-through will result in a project proposal?

PROBE ABOUT: Customer characteristics, project characteristics, season, business type or sector.

25. Through what avenues do potential participant get a "Technical Study?"

PROBE ABOUT: Who initiates - TA, outreach staff, or potential participants. If initiated outside Lockheed, how results are communicated to Lockheed.

a. Can someone have a technical study without first having a walk-through, site evaluation, or scoping study?

b. Does this process tend to differ by business type of sector?

c. How do potential customers use the information from these studies?

PROBE ABOUT: Customer decision processes, narrowing down range of measures, use of information to complete Form 100, etc.

d. What type of things block a customer at this stage from moving forward?

e. What follow-up actions are taken, if any, with these potential participants and who takes them?

f. In your view, what are the best predictors that a technical study will result in a project proposal?

26. Our understanding is that someone who decides to go forward with a project submits a project proposal (Form 100b). Do all potential participants fill out the same 100b form?

a. If not, what forms are submitted at this stage and which type of participant would submit which form?

PROBE ABOUT:

Customers who have not had any kind of study

Customers who have had a walk-through but not a technical study

Custom versus prescriptive projects

Project size

27. I'd like to understand what happens at this stage – where a proposal is submitted up to when an offer is sent. Can you tell me about that process?

FOLLOW-UPS:

a. What kinds of changes typically are made to proposals?

PROBE ABOUT: Measures dropped, savings estimates changed.

b. How does Lockheed use the results of a walk-through or technical study to decide what to do with a proposal?

c. What type of things block a customer at this stage from moving forward – withdrawing their proposal?

d. What follow-up actions are taken, if any, with these potential participants and who takes them?

e. In your view, what are the best predictors that a project proposal will result in a signed offer (Form 1020)?

28. What are your interactions with customers at the offer-sent stage?

a. What timeline do you give customers, if any, regarding signing and returning offer letters?

b. What are the next steps after potential participants have returned their signed offer?

c. What action is taken with potential participants who haven't returned their offer?

f. What type of things block a customer at this stage from moving forward (not signing and returning the offer)?

g. What follow-up actions are taken, if any, with these potential participants and who takes them?

29. What are your interactions with participants during project implementation?

a. What tools or resources do you employ to influence a participant to complete the project?

b. What type of things block a customer at this stage from completing a project?

c. What follow-up actions are taken, if any, with these participants and who takes them?

Database Management and Quality Control

30. I'd like to get a brief update on application review. Since the previous process evaluation, what changes have been made, if any, in how applications are reviewed?

PROBE ABOUT:

a. Who reviews applications

31. Since the last evaluation, what changes, if any, have you observed in the number or types of errors in applications?

PROBE ABOUT:

a. Applications that need to be returned to the customer or contractor

b. Common errors that contractors and customers make and possible reasons for those errors

c. How Lockheed responds to errors

32. We understand that there have been some changes to the way program data are managed. [*SUMMARIZE CHANGES REPORTED IN THE ENERGY TRUST PM INTERVIEW.*]

[INTRV note: Phil D reports that the EB program has made impressive strides in keeping savings calculations, request, and other building simulation inputs and outputs that are the basis of the savings estimate. Most (possible all) of the lighting measures are input into the lighting tool.]

How have those changes affected program implementation or management?

PROBE ABOUT:

New enterprise resource planning system, use of barcodes, access to data, digital files, ease of use.

33. What additional improvements could be made?

PROBE ABOUT:

Any move toward digitizing data management – scanning forms?

34. What changes, if any, have been made to quality control related to project documentation?

Closing

35. Is there an organizational chart for the program that you could give me? A process flow diagram?

36. Besides you, are there any other key staff at Lockheed you recommend we interview to gain their perspective of program operations? If so, who?

Follow-Up Interview Questions about Processes and Project Phases

We mentioned earlier that we'll be focusing our discussion with participants who are at various phases in the program. Before we interview participants, we would like your help in clarifying all of the phases that they go through in completing a larger project.

We'd like to understand all potential entry points into the program and get a handle on all of the interactions your staff have with customers as they progress through program stages. Our focus here is on larger projects, not the simple prescriptive rebates.

37. Please clarify what each of the following means. These labels are what we see as "Phase" in the FastTrack database.

    a. Walk-through CFL (this is a new one that was in the latest file we received – I'm guessing it's their DI lighting thing)

    b. Walk-through study

    c. Scoping Study

    d. Site Evaluation

    e. Study

    f. Level 1 TAS

    g. Level 2 TAS

38. What defines each of the above – what activity is undertaken during that event?

    a. Are all of the above distinctions real – e.g., is a walk-through study really different from a scoping study and a site evaluation?

    b. Are the definitions clear enough that two people doing the same thing would always code the event the same way – e.g., one person wouldn't call it a scoping study and the other wouldn't call it a site evaluation.

39. What determines which or any of the above is done?

40. What is the cost of each of the above – to the customer, to Energy Trust?

41. What determines whether someone will have two or more types of event?

C ATAC INTERVIEW GUIDE

Sampling Plan

A total of 30 ATACs did any site evaluations or studies in 2011: five did 23 or more, another eight did 6 to 15, and the rest (17) did five or fewer (nine did only one or two). Plan: call through the list and interview whoever we get, with a quota of five ATACs who have done three or fewer site evaluations or studies. If needed, make extra repeat calls to the most active ones.

Purpose

To obtain information from ATACs on process issues related to technical studies (Site Evaluations and Technical Assistance Studies) for custom track projects, including how the studies are identified, assigned, performed, and used by the customer, as well as get their feedback on administrative processes, paperwork, and incentives.

Scheduling Script

Hi, this is _____ from Research Into Action. We are working with Energy Trust to evaluate the Existing Buildings Program. We've already talked with Energy Trust and Lockheed Martin staff and we'd like to talk with you about your experience as an Allied Technical Assistance Contractor for the program. Our [telephone] conversation will probably take about 1/2 hour. When would be a good time to schedule it?

Interview Script

[REPEAT ANY OF THE ABOVE AS NECESSARY]

Our records show that your company performed ___ Site Evaluations and ___ Technical Studies during 2011 for the Energy Trust Existing Buildings program, and that you have been performing studies for __ years. Is that correct? (Prefill number of studies).

IF NO, record correct numbers.

Program Processes

We've learned from Lockheed Martin about their "Triple Teams" and other changes in program operations over the past two years. I'd like to get an understanding of your experience with the program during that time.

Let's start with some basics….

1. What are the benefits of being an ATAC for the Existing Buildings program? Click here to enter text.

   a. What, if anything, could work better? Click here to enter text.

2. Do the processes for becoming and remaining an ATAC seem reasonable to you?

   IF NO, please explain.

   a. What changes would you suggest?

3. In addition to being assigned to do a study by a Business Development staff person, have you brought any study proposals to Energy Trust from a customer?

   IF YES,

   a. In 2011, what percentage of the technical studies for EB upgrades that you performed were initiated by you?

   b. Please describe any differences in terms of project size or scope when you bring a study to Energy Trust.

4. Do you have any concerns or questions how jobs are currently being assigned to companies in the ATAC pool?

   IF YES, Please describe.

5. How would you describe your working relationship with the LM Business Development group?

   PROBE ABOUT:

   Level of communication, transparent rules and expectations, etc.

   a. What could work better?

6. How about the Technical group at LM, which reviews Site Evaluations and Technical Assistance Studies?

   a. What could work better?

Site Evaluation (SE) Studies

Let's move on to the site evaluations and how you work with the customer:

7. How is the scope of work for the site evaluation determined? (Probe: Who is involved in that process?)

   a. What about the not to exceed price?

8. Please describe your typical interactions with the customer during a site evaluation.
   a. Who do you typically interact with [A facility manager, owner, or who]?
   b. How does this vary depending on facility size or commercial sector?
   c. What kinds of questions do they ask you?
   d. Do you make verbal recommendations about which measures to implement?
9. Has a lighting consultant from Evergreen's staff participate ever accompanied you during a site evaluation?
   a. Who else comes along on the site evaluation?
   b. What role do they play (Evergreen staff or other) in the site evaluation?
10. What kinds of questions or concerns do customers have about a site evaluation?
    a. What about the projects that might result?
11. The engineering group at LM reviews site evaluation reports. What kinds of changes are you typically required to make to the report?
12. Do you attend the site evaluation review meeting between the Business Development staff and the customer?

    IF YES,

    a. What is your role during this meeting?
    b. What kind of input do you provide and how is it used?
13. In your experience, what types of things can get in the way of customers' moving forward on a project at this stage?

Technical Assistance Studies (TAS)

14. Who determines the scope of a Technical Assistance Study (TAS), for example, which measures and savings are modeled?
    a. What kind of input do ATACs have in determining this?
15. Please describe your typical interactions with the customer during a TAS.
16. Do you discuss the study results with the customer to identify any issues/mistakes before submitting the report to LM?
17. What kinds of questions or concerns do customers have about a TAS?

a. What about the projects that might result?

18. What changes, if any, does LM ask you to make after reviewing a TAS?

PROBE ABOUT:

Revisions, additional research, revised cost estimates.

a. What is working well

b. What could be improved?

Selling/Repeat Business

19. Have you followed up with customers on what they do with the results of a study?

IF YES,

a. What if anything have you done to convert studies to projects?

b. What help, if any, have you gotten from Lockheed Martin to convert studies to projects?

c. What additional support would you like to receive?

20. Are you aware of the Triple Team's efforts to follow up with customers that have undergone a study to see if they are planning a project?

IF YES,

a. What results have you seen, if any, from these efforts?

Reporting and Fees

21. Are the reporting requirements for completed jobs reasonable?

IF NO, please explain.

a. What challenges have you experienced, if any, in meeting them?

22. Is the level of pay appropriate for the different types of study, e.g., a Site Evaluation or a Technical Assistance Study?

IF NO, please explain.

a. Do you get paid in a timely manner?

IF NO, please explain.

Program Support

23. Does Energy Trust (Lockheed Martin) provide the types of training, guidance, or information that you need to do your job effectively?

    a. *IF NOT,* in what ways is it insufficient or inadequate?

    b. What additional training, guidance, or information would you like LM to provide?

24. Does the ATAC Guide (Manual) accurately reflect the way you work?

    IF NO, please explain.

    a. Are the study (SE and TAS) templates useful and easy to use?

    b. Is the information timely and up to date

       IF NO, Please explain.

       PROBE ABOUT:

       i. Changes in incentive levels, procedures, etc.

25. Do the Program Information Sheets on the Energy Trust website provide all the information you need to determine the incentives and potential energy savings during a Site Evaluation?

    IF NO, please explain.

EMS, O&M, and Pilot Programs

26. When doing a site evaluation or a TAS, have you discussed energy management systems with the customer?

    IF YES,

    a. What have you told them? What kind of response have you gotten?

27. Have you discussed O&M during site evaluations and TASs?

    IF YES,

    a. What have you told them? What kind of response have you gotten?

28. Have you done any studies for projects that were or would be covered under any of Energy Trust's pilot programs, e.g., Cool Schools, Rooftop Tune ups (RTUs), building tune-ups?

    IF YES,

a. Which ones? How did they go?

b. How, if at all, do the studies for pilot programs differ from the studies you do for Existing Buildings?

Overall Experience

29. What changes, if any, would you like to see made to the program?

30. Finally, we would like to ask you about what you see on the horizon as far as new energy efficiency opportunities or technologies….

    a. What is the next EE innovation that will be coming along?

    b. What new whiz-bang products should we keep an eye out for?

Those are all my questions. Do you have any questions for me?

Thank you.

D LIGHTING TRADE ALLY INTERVIEW GUIDE

Purpose

Conduct short answer interviews with 20 lighting TAs. Research questions include:

- What is their interaction with program staff like?
- How do lighting trade allies develop Energy Trust projects
- What percent of projects is Energy Trust related?
- How do TAs market the program/upsell?
- How can the program support them better (e.g., training in upselling)?
- TAs' experiences with Lighting PDC, and other PDCs
- Use of lighting calculators

This interview will be conducted in house by Research Into Action staff. We included four questions specific to lighting trade allies that have done more than seven projects in multifamily buildings. We anticipate conducting only a small number of surveys (<3) with this group because there are only four trade allies that conducted multiple lighting projects in multifamily properties.

Introductory Script

Hi, this is _____ from Research Into Action. We are working with Energy Trust to evaluate the Existing Buildings and Production Efficiency Program, which provides incentives for commercial and industrial lighting projects. We'd like to talk with you about your experience as a Trade Ally for the program. Our [telephone] conversation will probably take about 15 to 20 minutes. Your feedback is very important and will help Energy Trust improve the services and support it provides to Trade Allies and your customers.

S1. Do you have time right now to answer some questions about your experience with and thoughts about the program?

If NO,

Ask, "When would be a good time to schedule it?" [RESCHEDULE AND CLOSE SURVEY FORM.

Great. I'd like to get some general background information on your company, then move on to your interactions with your customers, and how the program can improve the support it provides to you.

General Program Participation

Let's start with some information about your company's participation in the Existing Buildings and Production Efficiency program and how a project gets involved with Energy Trust.:

1. About what percent of all your work is lighting?

Projects

I'd like to get some understanding of your experience with lighting projects that qualify for Energy Trust incentives.

2. In the past year, about how many nonresidential lighting jobs has your company done that received Energy Trust incentives?

    a. Up to 10.
    b. 11 to 50.
    c. 51 to 100.
    d. More than 100.
    e. Don't Know / Refused

3. About what percent of all your commercial lighting work qualifies for Energy Trust incentives?

4. How much influence do you think you normally have on your customers' decisions about what kinds of lighting to install?

    Does the amount of influence you have on equipment decisions vary much from customer to customer?

    If so, what determines how much influence you have on a customer's equipment decisions?

5. Other than cost and return on investment, what are customers' primary considerations when deciding whether or not to implement a lighting upgrade?

6. Thinking about all the lighting projects you do that qualify for Energy Trust incentives, about what proportion typically result from each of the following:

    a. Customers contact you because they already decided they wanted to upgrade the energy efficiency of their lighting

    b. Customers contact you because they want new lighting and you suggest lighting that qualified for Energy Trust incentives

    c. You take the initiative in contacting customers to encourage them to upgrade their lighting

d. You do installations as a subcontractor for larger projects

e. Evergreen, a Program Delivery Contractor, or Energy Trust gives you a lead.

f. Something else:

7. When talking with a customer about a potential lighting project, how do you encourage them to do a project that qualifies for Energy Trust incentives?

PROBES:

a. What elements of the project do you emphasize? Utility bills savings, staying up to date on codes, "being green," cash incentives?

b. And how effective are you normally at getting them to do so?

8. I would like to know about your experiences using the program supported lighting calculators.

a. How well do you feel these calculators are functioning?

b. Are there any challenges with using the calculators? [Probe:]

i. Any challenges on large projects?

ii. Any challenges in facilities where there are complex cooling systems?]

c. Do you share estimates from these calculators with customers? If yes, How do customers react to these estimates? [Probe: does the calculator increase their trust in the estimates?]

9. How often do you go to a customer site with a lighting specialist from Evergreen Consulting?

[If needed: A lighting specialist is a staff person from Evergreen Consulting that works on behalf of Energy Trust. A lighting specialist can provide technical assistance, administrative support (help with paperwork), and third party verification of the potential savings associated with a project.]

a. *[If they have used a lighting specialist]* How, if at all, was the lighting specialist helpful to you?

PROBE:

Specifically, how helpful were they in selling an energy efficiency upgrade?

b. How, if at all, could the lighting specialist have been more helpful?

Energy Trust Assistance

Now just a few questions about the services that Energy Trust offers trade allies.

10. First, has your company used the co-op marketing funds that Energy Trust offers?

    a. Yes—What types of initiatives were funded with co-op dollars? Which sectors were targeted (commercial, industrial,…)
    b. No – why not?
    c. Don't Know

11. What types of training have you received from Energy Trust (or Lockheed Martin or Evergreen Consulting)?

    a. General
    b. Lighting Technology
    c. No training received
    d. Other, please specify:

12. [If training received] What, if anything, did you like or find helpful about the training?

13. [If training received] What, if anything, did you dislike or find un-helpful about the training?

14. Have you participated in any webinars or vendor roundtables sponsored by Energy Trust?

    a. Yes – Which ones? What did you think of them?
    b. No – why not?
    c. Don't Know

15. What other Energy Trust assistance would help you sell more energy efficient lighting/equipment?

16. How interested would you be in training that helps you upsell energy efficient equipment? Would you say… [read list and check one]

    a. Not at all
    b. Somewhat
    c. Very
    d. Don't Know/Refused

17. What would influence whether or not you attended such training if Energy Trust offered it?

    [PROBE ABOUT time when offered, duration, number of sessions, distance to travel]

Other Resources

18. Which of the following pilot programs, if any, have you done any work with? (Read list, check all that apply):

    a. Cool Schools
    b. Rooftop Tune-ups (RTUs)
    c. Building tune-ups
    d. Commercial SEM pilot
    e. Other _____
    f. None (check if and only if no other box is checked)

19. [If Q18 not = None] In your opinion, how, if at all, do the above pilot programs help bring customers to the Existing Buildings program?

20. Has the cancelation of the Oregon Business Energy Tax Credit impacted your volume of lighting work? How so?

21. What types of businesses or market segments, if any, are particularly difficult to sell energy efficient equipment to?

22. About what proportion of your work is with businesses in rural areas?

23. In the last evaluation, some contractors indicated that rural businesses were difficult to reach. What do you think would help increase program participation in rural areas?

Multifamily Questions (If MF Projects >7)

24. You've done several projects for multifamily residences. What would you say are the main differences between those clients and your other clients in terms of…

    a. The clients' priorities?

    b. How you interact with the client?

    c. Challenges in selling energy efficient upgrades?

25. Are you familiar with Energy Trust's service providing free direct install energy efficient equipment, such as CFLs, faucet aerators, and low-flow showerheads, to multifamily properties?

    IF YES, ASK Q26

    ELSE, SKIP TO Q28

26. How, if at all, has Energy Trust's free direct install service affected your dealings with multifamily properties?

27. What challenges, if any, did installing efficient lighting in tenant living areas compared to common areas present to you?

28. What assistance from Energy Trust would be helpful to you in dealing with multifamily properties?

Industrial and Agricultural Work

29. Have you had any Energy Trust supported lighting work in industrial or agricultural facilities? [Industrial facilities include production facilities, lumber/paper mills, food processing, food processing and cold storage, …]

30. Have you worked on any projects where the customer was also working with an Energy Trust Program Delivery Contractor, or "PDC"? [If Q29 & Q30 = "No" go to Q35]

31. Typically what marketing, outreach, or relationships generate most of your leads for industrial and agricultural projects: [Do not read. Recode answer, mark all that apply]

    a. Customers contact you

    b. You contact customers

    c. PDC gives you lead

    d. You receive a lead from Evergreen

    e. Energy Trust gives you a lead

    f. Other: _____

32. When you sell program supported lighting to industrial and agricultural customers, does your sales approach differ from your approach with commercial customers? [If yes] How so?

33. Have you noticed any challenges unique to your program supported lighting work at industrial and agricultural facilities?

34. [If Q30 = "No" skip to Firmographics] On your lighting work where the customer is working with an Energy Trust Program Delivery Contractor, how do you interact with the PDCs? [Probe:]

    a. What activities does the PDC perform?

    b. Does the PDC offer support for working with the customer?

Firmographics

35. Which of the following commercial sectors does your company specialize in, if any? (Read List)

    a. Office
    b. Retail
    c. Hospitals
    d. Schools
    e. Grocery
    f. Restaurants
    g. Lodging
    h. Does not specialize
    i. Other

36. Which of the following best describes your role at your company?

    a. Owner
    b. Business Manager
    c. Engineer
    d. Contractor
    e. Sales Manager/Business Development
    f. Other (please specify):

37. How many people are employed by your firm? Click here to enter text.

Closing

38. Finally, we would like to ask you about what you see on the horizon as far as new energy efficiency opportunities or technologies….

    a. What are the next EE lighting innovation products that will be coming along?

39. How, if at all, has being an Energy Trust trade ally helped your business?

40. How, if at all, has being an Energy Trust trade ally been a burden to your business?

Those are all the questions I have for you.

Thank you.

E NON-LIGHTING TRADE ALLY INTERVIEW GUIDE

Purpose

Conduct short answer interviews with 20 TAs, only large TAs with active projects. (There are approx. 400 TAs in the TA network, 100 in the RTU pool.). Also, we want to complete ~5 interviews with trade allies that completed >7 projects in multifamily buildings. Research questions include:

- What is their interaction with program staff like? Has the Triple Team improved things? What are the process issues, e.g., paperwork, wait time. Are they phase related?
- What is TA involvement with customers at various stages? Where do projects get hung up?
- How do TAs market the program/upsell? How do they leverage their relationship with customers? How can the program support them better (e.g., training in upselling)?

Introductory Script

Hi, this is _____ from Research Into Action. We are working with Energy Trust to evaluate the Existing Buildings Program, which provides incentives for commercial lighting projects. We'd like to talk with you about your experience as a Trade Ally for the program. Our [telephone] conversation will probably take about 20 minutes. Your feedback is very important and will help Energy Trust improve the services and support it provides to Trade Allies and your customers.

S1. Do you have time right now to answer some questions about your experience with and thoughts about the program?

[If No, Ask:]

When would be a good time to schedule it?

[Reschedule and Close Survey Form]

Great. I'd like to get some general background information on your company, then move on to your interactions with your customers, and how the program can improve the support it provides to you.

Interview Script

[Repeat any of the above as necessary]

General Program Participation

Let's start with some information about your company's participation in the Existing Buildings program:

1. How would you describe your relationship with Existing Buildings program staff?

2. How about with the new "triple teams"?

3. What challenges, if any, have you encountered in working with the Existing Buildings program?

   [Probe about: TA enrollment, requirements to remain active, paperwork, turnaround time, post-inspection]

Phases/Customer Barriers

4. I'd like to get some understanding of your experience with large custom upgrade projects that qualify for Energy Trust incentives. By "large custom upgrade projects" I mean the types of projects that usually result from a Site Evaluation or Technical Study done by an Energy Trust Allied Technical Assessment Contractor, or ATAC.

5. In the past year, about how many such jobs has your company handled?

   a. Fewer than five.
   b. Five to 10.
   c. 11 to 20.
   d. More than 20.
   e. Don't Know / Refused

The next questions are about how those types of jobs usually come to you.

6. How often would you say a large custom upgrade project comes to you because an Existing Buildings Business Development person recommends you to a customer? Would you say never, infrequently, somewhat frequently, or very frequently?
   [Read each item, record one response for each]

	Never	In-frequently	Some-what frequently	Very frequently	Don't Know/ Refused
a. An Existing Buildings Business Development person refers you to a customer.	()	()	()	()	()

	Never	In-frequently	Some-what frequently	Very frequently	Don't Know/ Refused
b. A customer who has received a Site Evaluation and/or Technical Assistance study asks you for bids.	()	()	()	()	()
c. A customer asks you for bids without having received a Site Evaluation and/or Technical Assistance study.	()	()	()	()	()
d. Another contractor brought you in as a subcontractor.	()	()	()	()	()
e. Other - specify: ____	()	()	()	()	()

[If Q6c = "somewhat frequently" or "very frequently" or Q6e = "somewhat frequently" or "very frequently" and indicates involvement before the pipeline, ask Q7]

7. So it sounds like large projects often come to you before they've entered the pipeline for an Energy Trust site evaluation or technical study. Can you briefly describe what, if any, assistance you've provided in such cases in getting Energy Trust site evaluations and technical studies done at the customers' facilities?

[If Q6a = "somewhat frequently" or "very frequently" or Q6b = "somewhat frequently" or "very frequently," ask Q8, else skip to Q9]

8. It sounds like large projects often come to you after they've already entered the pipeline for an Energy Trust site evaluation or technical study. Can you briefly describe what roles you have played, if any, during Energy Trust site evaluations and technical studies at your customers' facilities?

9. What kind of roles have you played in helping your customers shape the final project?

10. Does the amount of influence you have on equipment decisions vary much from customer to customer?

    If so, what determines how much influence you have on a customer's equipment decisions?

11. Other than cost and return on investment, what are customers' primary considerations when deciding whether or not to implement a large custom upgrade?

12. When talking with a customer about potential energy efficiency projects, how do you encourage them to do a project that qualifies for Energy Trust incentives?

    [If not addressed above, probe with:]

    a. How do you make the case to customers to invest in energy efficient equipment?

    b. What elements of the project do you emphasize? Utility bills savings, staying up to date on codes, "being green"….?

    c. What advice do you give about the benefits of high efficiency measures/equipment (pay back, life cycle costs, O&M issues)?

    d. What Energy Trust marketing materials do you use? Which are helpful?

13. What kinds of challenges have you experienced in helping customers get projects through the site evaluation or technical study process?

    [Probe about: Program-related issues, like paperwork, wait time, etc.]

14. ***[If not answered in Q11]*** And what kinds of things have caused upgrade projects to get delayed on the customer's side after they have entered the pipeline for a site evaluation or technical study?

    a. When big projects get delayed, what is useful in getting them moving forward again?

    b. For those projects that do not move forward, what keeps them from moving forward?

Energy Trust Assistance

Now just a few questions about the services that Energy Trust offers trade allies.

15. First, has your company used the co-op marketing funds that Energy Trust offers?

    a. Yes
    b. No – why not? _____
    c. Don't Know

16. What types of training have you received from Energy Trust (or Lockheed Martin)?

    a. General
    b. Weatherization
    c. Heating and Cooling
    d. Design and New Construction
    e. Performance Testing
    f. Renewable Energy

g. Green / Sustainability
h. Energy Code

17. What, if anything, did you like or find helpful about the training?

18. What, if anything, did you dislike or find un-helpful about the training?

19. Have you participated in any webinars or vendor roundtables sponsored by Energy Trust?

a. Yes – Which ones? What did you think of them? _____
b. No – why not? _____
c. Don't Know

20. What other Energy Trust assistance would help you sell more energy efficient equipment?

21. How interested would you be in training that helps you upsell energy efficient equipment? Would you say… [read list and check one]

a. Not at all
b. Somewhat
c. Very
d. Don't Know/Refused

[If Q21 = Not at all, skip to Q23]

22. What would influence whether or not you attended such training if Energy Trust offered it?

[Probe about: time when offered, duration, number of sessions, distance to travel]

Other Resources

23. Which of the following pilot programs, if any, have you done any work with? ***[Read list, check all that apply]:***

a. Cool Schools
b. Rooftop Tune-ups (RTUs)
c. Building tune-ups
d. Other? _____
e. None ***[check <u>if and only if</u> no other box is checked]***

24. ***[If Q23 not = None]*** In your opinion, how, if at all, do the pilots help bring customers to the Existing Buildings program?

25. What impact has the disappearance of the Oregon Business Energy Tax Credit Tax had on your business?

26. What types of businesses or market segments, if any, are particularly difficult to sell energy efficient equipment to?

27. About what proportion of your work is with businesses in rural areas?

28. In the last evaluation, some contractors indicated that rural businesses were difficult to reach. What do you think would help increase program participation in rural areas?

Multifamily Questions (If MF Projects >7)

29. You've done several projects for multifamily residences. What would you say are the main differences between those clients and your other clients in terms of…

    a. The clients' priorities?

    b. How you interact with the client?

    c. Challenges in selling energy efficient upgrades?

30. Are you familiar with Energy Trust's service providing free direct install energy efficient equipment, such as CFLs, faucet aerators, and low-flow showerheads, to multifamily properties?

    [If Yes, Ask Q31]

    [Else, Skip To Q32]

31. How, if at all, has Energy Trust's free direct install services affected your dealings with multifamily properties?

32. What assistance from Energy Trust would be helpful to you in dealing with multifamily properties?

Firmographics

33. Which of the following commercial sectors does your company specialize in, if any? ***[Read List]***

    a. Office
    b. Retail
    c. Hospitals
    d. Schools
    e. Grocery
    f. Restaurants
    g. Lodging
    h. Does not specialize
    i. Other ____

34. Which of the following best describes your role at your company?

    a. Owner
    b. Business Manager
    c. Engineer
    d. Contractor
    e. Sales Manager/Business Development
    f. Other (please specify): _____

35. How many people are employed by your firm?

36. Do you have plans to expand in the coming year?

    [Probe about: New facilities or hires; Number of projects in the pipeline]

37. Besides from Energy Trust, where do you get training or other business development assistance? (e.g., marketing and other non-technical training?)

Closing

38. Finally, we would like to ask you about what you see on the horizon as far as new energy efficiency opportunities or technologies….

    a. What is the next EE innovation that will be coming along?

    b. What new whiz-bang products should we keep an eye out for?

Those are all the questions I have for you.

Thank you.

F PARTICIPANT GUIDE

Purpose

To understand the in-the-moment experience of active participants with custom projects and their decision-making processes. We will survey respondents whose *FastTrack* records indicate the following phases: Apply, Study, Offer, Accepted, and Implement.

Pipe In

- PHASE_REV*
- RECDATE: Date record most recently revised
- LOCATION: Location of project

*PHASE_REV will be a constructed field that determines whether a "study" is a technical study (TAS) or site evaluation (SITE_EVAL), depending on the combination of the *FastTrack* PHASE and MEASUREDESC fields.

Scheduling Script

Hi, my name is _____. I am calling from [name of survey house] on behalf of Energy Trust of Oregon. According to their records you are doing a large upgrade project through the Existing Building Program at [*LOCATION*]. We'd like to talk with the person who is managing the project at this site. Are you that person?

IF YES, proceed.

IF NO, can you tell me who that person is?

[Obtain contact information and attempt to contact that person.]

[Once appropriate person is identified and on the phone, proceed…]

Energy Trust wants to learn how well it's serving businesses during the early phases of large upgrade projects, from scoping through early implementation. Energy Trust will use your feedback to improve its program processes. We'd like to talk to you about where you're at with your project – the application, energy assessment, bidding, or incentive offer phases – and see how your project is going.

This interview should take no more than 10 to 15 minutes. Is now a good time to talk or may I schedule a time to talk at your convenience?

[If now is ok, continue. Otherwise, attempt to schedule a callback.]

Screening

First, I'd like to make sure that the records that Energy Trust provided us are up to date. All the following questions will be about the facility at [*LOCATION*].

S1. Energy Trust records show that, as of [*RECDATE*], your business had a [PHASE_REV]…

[*IF PHASE_REV = APPLY*] …requested an energy assessment through Energy Trust but had not yet had the assessment.

[*IF PHASE_REV = W/T* …requested an energy assessment through Energy Trust, and Energy Trust provided you with an incentive estimate without doing a formal site evaluation.

[*IF PHASE_REV = SITE_EVAL*] …had a site evaluation through Energy Trust, but it had not had a technical study and it had not yet received a formal incentive offer.

[*IF PHASE_REV = TAS*] …had a technical study but had not yet received a formal incentive offer from Energy Trust.

[*IF PHASE_REV = OFFER or ACCEPTED*] …received the formal incentive offer from Energy Trust but had not yet begun work on the project.

[*IF PHASE_REV = IMPLEMENT*] …had begun installing or upgrading equipment

Is that information accurate and up to date?

() Yes
() No
() Don't Know – (ask for name of alternate contact):
() Refused

IF S1= YES, SKIP TO 'General Questions for all respondents' SECTION, READ INTRO, AND CONTINUE WITH Q1.

[IF NEEDED: The request for energy assessment is Form 100e. The formal incentive offer is Form 120c. Energy Trust funds two types of energy assessments: initial Site Evaluations for identifying upgrades that qualify for program incentives, and more detailed Technical Analysis Studies, or "TAS" that estimate the cost and saving for specific upgrades identified through the Site Evaluations.]

IF S1 = NO, ASK S2,

ELSE SKIP TO 'GENERAL QUESTIONS' SECTION, READ INTRO, AND CONTINUE W Q1.

S2. Can you explain what is not accurate or describe for me the current status of your project?

Record verbatim and check all appropriate items from following list – probe to code:

[] A. Requested energy assessment (Form 100e)
[] B. Underwent assessment, not specified
[] C. Underwent Walk-through, then Energy Trust calculated savings
[] D. Underwent Site Evaluation or Scoping Study
[] E. Underwent Technical Study, TAS, Level 1, Level 2, or just "Study"
[] F. Received estimate of incentives (Form 110c)
[] G. Received formal incentive offer (Form 120c)
[] H. Accepted formal incentive offer (Form 120c)
[] I. Began installing or upgrading equipment
[] J. Other – specify: _____

[To clarify that the phase is correct: IF PHASE_REV is "W/T" or "SITE_EVAL" ask S3].

S3. So your business has had a walk-through or site evaluation. Has it also undergone a more detailed technical assessment study?

() Yes
() No
() Don't Know – (ask for name of alternate contact):
() Refused

[IF NEEDED: Site Evaluations identify upgrades that qualify for program incentives but do not result in formal cost and savings estimates. The Technical Analysis Studies are done after the site evaluations and estimate the cost and saving for specific upgrades identified through the site evaluations.]

[AN ALGORITHM WILL USE RESPONSES TO S2 TO REVISE PHASE_REV:

IF (S2.A AND NOT S2.B-I), THEN PHASE_REV = APPLY

ELSE IF (((S2.B OR S2.C OR S2.F) AND NOT S2.D AND NOT S2.E AND NOT S2.G-I) OR (S3 NOT = YES)), THEN PHASE_REV = W/T

ELSE IF (((S2.B OR S2.D) AND NOT S2.E AND NOT S2.G-I) OR (S3 NOT = YES)), THEN PHASE_REV = SITE_EVAL

ELSE IF ((S2.E AND NOT S2.G-I) OR (S3 = YES)), THEN PHASE_REV = TAS

ELSE IF (S2.G AND NOT S2.H-I), THEN PHASE_REV = OFFER

ELSE IF (S2.H AND NOT S2.I), THEN PHASE_REV = ACCEPTED

ELSE PHASE_REV = OTHER]

General Questions for all Respondents

Before we talk about your project, I'm going to start with a few brief questions about your role with your organization and how your organization plans and makes decisions about large equipment upgrades.

1. What is your title?

   () Maintenance/Facilities manager
   () Owner/President
   () Other (please specify): _____
   () Don't Know
   () Refused

2. Who is involved with each of the following phases of a project in your organization? So who is involved with…

   Identifying what equipment or systems should be upgraded:

   [PROBE: How does it fit into long-term capital planning?]

   Scoping possible upgrades:

   Assessing costs/benefits:

   Prioritizing among possible upgrades:

   Signing off on decision: Other:

3. Which of the following three sentences best describes your business's primary reason for requesting an Energy Trust energy assessment? [If none describe your primary reason, please tell me what it was. *[Record '1' next to reason. If other reason names, record in line d.]]*

   [] To identify energy and cost savings opportunities
   [] To get detailed costs and savings estimates for an upgrade you already identified
   [] To do what we have to do to get program incentives
   [] Other – specify: ___
   [] Other – specify: ___
   [] Other – specify: ___
   [] Don't Know
   [] Refused

   Then ask, "Which one best describes the next-most important reason?," and record '2' next to reason. Continue until there are numbers for a-c.

4. How would you characterize what your business knew about energy saving opportunities when you applied for an Energy Trust assessment? Would you say you had…

() No knowledge of the opportunities
() A general understanding of the opportunities
() A fairly detailed understanding of the opportunities
() A very detailed understanding of the opportunities
() Don't Know
() Refused

5. How well defined were your business's upgrade plans when you applied for an energy assessment through Energy Trust? Would you say your business…

() Had no plans at all
() Knew it wanted to do some upgrades, but didn't know what
() Had already identified possible upgrades but needed more information to decide what to do
() Knew what upgrades it wanted to make but wanted additional information to finalize the plan
() Had essentially finalized the plan
() Don't Know
() Refused

6. How would your project changed if you did not get involved with Energy Trust for this project? Would you have…

() Postponed your project
() Limited the efficiency of your project (if needed: installed less efficient equipment)
() Cancelled the project
() Done something else, If so, please describe: _____

7. How would your project have changed if you had not received the technical study provided by Energy Trust? Would you have…

() Had a contractor do a study on your behalf
() Proceeded with project without doing study

Phase-Specific Questions

IF PHASE_REV=APPLY, SKIP TO Q8

ELSE IF PHASE_REV=SITE_EVAL, SKIP TO Q20

ELSE IF PHASE_REV=TAS, SKIP TO Q57

ELSE IF PHASE_REV=OFFER, ACCEPTED, OR IMPLEMENT, SKIP TO Q75

ELSE IF PHASE_REV=W/T, SKIP TO Q91

Apply Phase

8. So your business has requested an energy assessment through Energy Trust. Did you need any help completing the application?

() Yes
() No
() Don't Know
() Refused

9. On a scale of 1 to 5, how would you rate the helpfulness of program staff in handling your application for an energy assessment? 1 means 'not at all helpful' and 5 means 'extremely helpful'

() 1 – not at all helpful
() 2
() 3
() 4
() 5 – extremely helpful
() Don't Know
() Refused

IF Q9 = 1, 2, OR 3, ASK Q10;

ELSE SKIP TO Q11

10. In what ways were program staff not helpful?

11. On a scale of 1 to 5, how would you rate the quality of communication with program staff? 1 means 'very poor' and 5 means 'excellent'

() 1 – very poor
() 2
() 3
() 4
() 5 – excellent
() Don't Know
() Refused

IF Q11 = 1, 2, OR 3, ASK Q12;

ELSE SKIP TO Q13

12. In what ways was communication not good?

13. Have you been notified yet that an assessment has been approved?

() Yes
() No
() Don't Know
() Refused

IF Q13 =NO, ASK Q13, THEN SKIP TO Q18;

ELSE IF Q13 =YES, SKIP TO Q14

ELSE SKIP TO Q18

14. Has it taken longer than expected for Energy Trust to notify you that an energy assessment has been approved?

() Yes
() Maybe
() No
() Don't Know
() Refused

15. How long ago were you notified that an assessment was approved? ___ days

16. On a scale of 1 to 5, how satisfied are you with the length of time it took Energy Trust to notify you that an assessment had been approved? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3
() 4
() 5 – completely satisfied
() Don't Know
() Refused

IF Q15 >= [120?] DAYS, ASK Q17,

ELSE SKIP TO Q18

17. What are the reasons a site evaluation has not yet been conducted?

18. What needs to happen to go forward with a site evaluation?

19. Energy Trust would like to learn what role or roles you might want it to play in planning any upgrade project that comes out of the energy assessment you've requested.

[If respondent agreed to the stages described in S1, above, proceed. If needed, repeat: What role do you hope that Energy Trust will play in this stage? Probe: What assistance do you hope Energy Trust will provide?]

Let's start with…

Identifying what equipment or systems should be upgraded:

Scoping possible upgrades:

Assessing costs/benefits:

Prioritizing among possible upgrades:

Signing off on decision:

[If respondent did not agree to our stages, above, record responses in 'other']

Other:

SKIP TO Q113

***** END OF APPLY SECTION *****

Site Evaluation Phase

Let's get some more detailed information about your experience with the site evaluation, starting with how Energy Trust helped get the site evaluation done.

20. On a scale of 1 to 5, how would you rate the helpfulness of program staff in getting your site evaluation done? 1 means 'not at all helpful' and 5 means 'extremely helpful'

() 1 – not at all helpful
() 2
() 3
() 4
() 5 – extremely helpful
() Don't Know
() Refused

IF Q20 = 1, 2, OR 3, ASK Q21;

ELSE SKIP TO Q22

21. In what ways were program staff not helpful?

22 On a scale of 1 to 5, how would you rate the quality of communication with program staff?
1 means 'very poor' and 5 means 'excellent'

() 1 – very poor
() 2
() 3
() 4
() 5 – excellent
() Don't Know
() Refused

IF Q22 = 1, 2, OR 3, ASK Q23;

ELSE SKIP TO Q24

23. In what ways was communication not good?

24. Do you and/or the facilities managers have any concerns with how the site evaluation was conducted? [PROBE: Was the site evaluation detailed enough? Did it gather enough information?]

25. Have you seen the site evaluation report yet?

() Yes
() No
() Don't Know
() Refused

IF Q25 = YES, ASK Q26, THEN SKIP TO Q28;

ELSE IF Q25 = NO, SKIP TO Q27;

ELSE SKIP TO Q28

26. How long ago did you receive the site evaluation report? ____ days

27. Has it taken longer than expected to receive the site evaluation report?

() Yes
() Maybe
() No
() Don't Know
() Refused

28. Have you participated in a site evaluation review meeting yet? [If needed: A site evaluation review meeting is when you met with representatives from Energy Trust and

possibly the engineer or contractor that conducted the site evaluation to discuss the report findings.]

() Yes
() No
() Don't Know
() Refused

IF Q28 NOT = YES, ASK Q29;

ELSE SKIP TO Q30

29. Other than through a site evaluation report or a site evaluation review meeting, have you gotten any feedback yet from Energy Trust or its contractors on the results of the site evaluation?

() Yes
() No
() Don't Know
() Refused

IF Q29 = YES, ASK Q30;

ELSE SKIP TO Q37

30. In what way(s), if any, has Energy Trust assistance helped you in identifying equipment needs and scoping out possible upgrades?

31. Using a scale from 1 to 5, where 1 means "not at all helpful" and 5 means "extremely helpful," how helpful were the program staff in showing you opportunities to improve energy efficiency?

() 1 – not at all helpful
() 2
() 3
() 4
() 5 – extremely helpful
() Don't Know
() Refused
() NA – have not received any feedback from site evaluation

32. Using the same scale, how helpful were the program staff in suggesting upgrade options to address those opportunities?

() 1 – not at all helpful
() 2
() 3

() 4
() 5 – extremely helpful
() Don't Know
() Refused
() NA – have not received any feedback from site evaluation

33. How did your business use the results of the site evaluation in its internal planning processes?

34. What Energy Trust assistance has been most helpful?

35. What aspects of the site evaluation process have not been very useful, if any?

36. What additional assistance would you like from Energy Trust?

37. Has Energy Trust notified your business yet that a technical study has been approved? *[IF NEEDED: That is Form 105t]*

() Yes
() No
() Don't Know
() Refused

IF Q37 = NO, ASK Q38;

ELSE IF Q37 = YES, SKIP TO Q39;

ELSE SKIP TO Q47

38. Has it taken longer than expected for Energy Trust to notify you that a technical study has been approved?

() Yes
() Maybe
() No
() Don't Know
() Refused

SKIP TO Q47;

39. On a scale of 1 to 5, how satisfied are you with the turnaround time from completion of your site evaluation to when Energy Trust notified you that a technical study had been approved? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3
() 4

() 5 – completely satisfied
() Don't Know
() Refused

40. Has your business decided to go ahead with a technical study? *[IF NEEDED: Has it signed and returned Form 105t?]*

() Yes
() No
() Don't Know
() Refused

IF Q40 =YES ASK Q41-Q45;

ELSE SKIP TO Q48

41. Why have you decided to pursue a technical study and do a custom project rather than pursue prescriptive incentives? ___

42. On a scale of 1 to 5, how much influence did an Energy Trust representative have on your decision to pursue a technical study? 1 means 'no influence' and a 5 means 'enormous influence.'

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

43. How did you select the specific upgrades to be included in the technical study? ___

44. On a scale of 1 to 5, how much influence did an Energy Trust representative have on your selection of the measures to include in the technical study? 1 means 'no influence' and a 5 means 'enormous influence.'

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

45. On the same scale, how much influence did your own contractor have on your selection of the measures to include in the technical study?

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

IF Q26 >= [120?] DAYS, ASK Q46-Q47

ELSE SKIP TO Q55;

46. What are the reasons a technical study has not yet been done?

47. What needs to happen for your business to go forward with a technical study?

IF Q37 = NO, SKIP TO Q56;

ELSE IF Q40 = NO, ASK Q48

ELSE SKIP TO Q49;

48. Why has your business decided not to go ahead with a technical study?

49. Which of the following best describes your plans regarding the recommended upgrades? Do you plan to…

() Do all of the recommended upgrades within the next year
() Do most of the recommended upgrades within the next year
() Do some of the recommended upgrades within the next year
() Do none of the recommended upgrades within the next year
() Don't Know
() Refused

IF Q49 = 'ALL,' 'MOST,' OR 'SOME,' ASK Q50-Q52,

ELSE SKIP TO Q53,

50. What role did the Energy Trust site evaluation have in your decision to do those upgrades within the next year? ___

51. On a scale of 1 to 5, how much influence did the Energy Trust site evaluation have in your decision to do those upgrades within the next year? 1 means 'no influence' and a 5 means 'enormous influence.'

() 1 – no influence
() 2
() 3

() 4
() 5 – enormous influence
() Don't Know
() Refused

52. On the same scale, how much influence did your own contractor have on your decision to do those upgrades within the next year?

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

IF Q49 NOT = 'ALL,' ASK Q53-Q54,

ELSE SKIP TO Q55.

53. Which of the following things stand in the way of implementing all the recommended upgrades within the next year? *(Read list, check all that apply)*

[] Initial cost of equipment
[] Pay back
[] Maintenance and operations costs
[] Budget constraints
[] Other – specify: ____

54. When do you plan to implement the other recommendations? Would you say…

() Next year
() Within 2 to 3 years
() No definite date planned
() Don't Know
() Refused

55. What needs to happen for your business to go forward with a recommended upgrade?

56. Based on your experience with the site evaluation, what questions or concerns do you have, if any, about further participation in the study and incentive process? Are you concerned about… [Read list]

[] the time involved or possible delays
[] Incentives not being enough
[] the process being complex
[] getting internal approvals or getting everyone on board

[] the project not being worth the effort
[] Other – specify: _____
[] Don't Know
[] Refused
[] None (Select only if nothing else selected)

SKIP TO Q113

*** END OF SITE EVALUATION SECTION ***

TAS Phase (Max 18 Items)

Let's get some more detailed information about your experience with the technical study, starting with notification that a technical study had been approved.

57. On a scale of 1 to 5, how satisfied are you with the turnaround time from completion of your site evaluation to when Energy Trust notified you that a technical study had been approved? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3
() 4
() 5 – completely satisfied
() Don't Know
() Refused

58. Why have you decided to pursue a technical study and do a custom project rather than pursue prescriptive incentives?

59. On a scale of 1 to 5, how much influence did an Energy Trust representative have on your decision to pursue a technical study? 1 means 'no influence' and a 5 means 'enormous influence.'

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

60. How did you select the specific upgrades to be included in the technical study?

61. On a scale of 1 to 5, how much influence did an Energy Trust representative have on your selection of the measures to include in the technical study? 1 means 'no influence' and a 5 means 'enormous influence.'

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

62. On the same scale, how much influence did your own contractor have on your selection of the measures to include in the technical study?

() 1 – no influence
() 2
() 3
() 4
() 5 – enormous influence
() Don't Know
() Refused

63. Has Energy Trust sent your business the Project Detail and Incentive Estimate, which shows the estimated incentive levels and explains how to get a bid for your proposed project? *[IF NEEDED: Form 110c]*

() Yes
() No
() Don't Know
() Refused

IF Q63 = YES, ASK Q64-Q67;

ELSE IF Q63 = NO, SKIP TO Q68;

ELSE SKIP TO Q69

64. How long ago did you receive the Project Detail and Incentive Estimate? ___ days

65. On a scale of 1 to 5, how satisfied are you with the turnaround time from completion of your technical study to when Energy Trust sent the Project Detail and Incentive Estimate? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3

() 4
() 5 – completely satisfied
() Don't Know
() Refused

66. On a scale of 1 to 5, how clearly did the Project Detail and Incentive Estimate explain the results of the technical study? 1 means 'not at all clearly' and a 5 means 'completely clearly.'

() 1 – not at all clearly
() 2
() 3
() 4
() 5 – completely clearly
() Don't Know
() Refused

67. When you received the Project Detail and Incentive Estimate, how clear was it that it provided only incentive estimates that could be revised? 1 means 'not at all clear' and a 5 means 'completely clear.'

() 1 – not at all clear
() 2
() 3
() 4
() 5 – completely clear
() Don't Know
() Refused

IF Q63 = YES, SKIP TO Q69;

68. Has it taken longer than expected to receive the Project Detail and Incentive Estimate?

() Yes
() Maybe
() No
() Don't Know
() Refused

69. How has your business used feedback from the technical study in its internal planning processes? Based on your experience with the site evaluation, what questions or concerns do you have, if any, about further participation in the study and incentive process? Are you concerned about… [Read list]

[] the time involved or possible delays
[] Incentives not being enough

[] the process being complex
[] getting internal approvals or getting everyone on board
[] the project not being worth the effort
[] Other – specify: _____
[] Don't Know
[] Refused
[] None (Select only if nothing else selected)

70. Will you have outside contractors install the recommended measures or does your business plan to install the recommended measures itself?

() Outside contractors
() Install measures itself
() Don't Know
() Refused

IF Q70 = INSTALL MEASURES ITSELF, SKIP TO Q113

ELSE ASK Q71

71. Have you gotten bids for the recommended upgrades you're planning to do at the facility?

() Yes
() No
() Don't Know
() Refused

IF Q71 = YES, ASK Q72;

ELSE IF Q71 = NO AND Q64 >= [120?] DAYS, ASK Q73-Q74;

ELSE SKIP TO Q113;

72. Can you briefly describe how you identified the contractors that you got bids from?

SKIP TO Q113;

73. What are the reasons your business has not yet gotten bids?

74. What needs to happen for your business to go forward with getting bids?

SKIP TO Q113

***** END OF TAS SECTION *****

Offer / Accepted / Implement Phase

Let's get some more detailed information about your experience with the incentive offer and what you've done since you received it.

75. First, how long ago did you receive the incentive offer letter? ____ days

76. On a scale of 1 to 5, how satisfied are you with the turnaround time from when you submitted bids to Energy Trust to when you received the incentive offer letter? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3
() 4
() 5 – completely satisfied
() Don't Know
() Refused

77. On a scale of 1 to 5, how much do you agree with each of the following statements? 1 means 'do not agree at all' and 5 means 'completely agree.' *[Insert 1-5 scale with Don't Know and Refused]*

The incentive offer was communicated clearly
Energy Trust's final energy savings estimate was reasonable
The incentive was fair
The incentive offer contained no surprises

78. What questions, if any, did you have about the offer?

79. Did you get your questions answered satisfactorily?

() Yes
() No – what was unsatisfactory?
() Don't Know
() Refused

80. Did you have to make any changes to your planned upgrades based on the incentive offer?

() Yes
() No
() Don't Know
() Refused

IF Q80 NOT = YES, SKIP TO Q82

ELSE ANSWER Q81

81. What changes did you have to make?

82. How has your business used the incentive offer in its internal planning processes?

83. Have you started installing any of the recommended upgrade equipment at [*LOCATION*] yet?

() Yes – specify:
() No
() Don't Know
() Refused

IF Q83 = YES, SKIP TO Q86

IF Q83 = NO AND Q75 >= [120?] DAYS, ASK Q84-Q85 THEN SKIP TO Q113;

ELSE SKIP TO Q113;

84. What are the reasons you have not yet started installing any of the recommended upgrade equipment?

85. What needs to happen for your business to go forward with equipment installations?

86. Have you experienced any problems or complaints with the products that were installed?

() Yes – specify: ___
() No
() Don't Know
() Refused

87. Have those problems or complaints been resolved?

88. Have you had any problems or complaints about the contractor that did the work?

() Yes – specify: ___
() No
() Don't Know
() Refused

89. As far as you can see right now, do you expect to complete the project on time?

() Yes
() No
() Don't Know
() Refused

IF Q89 = YES, SKIP TO Q113

ELSE ASK Q90

90. What might keep you from completing the project on time?

***** END OF INCENTIVE/OFFER/IMPLEMENT SECTION *****

W/T Custom Phase

Let's get some more detailed information about your experience with the energy assessment process, starting with your interactions with the program staff.

91. On a scale of 1 to 5, how would you rate the helpfulness of program staff in handling your energy assessment? 1 means 'not at all helpful' and 5 means 'extremely helpful'

() 1 – not at all helpful
() 2
() 3
() 4
() 5 – extremely helpful
() Don't Know
() Refused

IF Q91 = 1, 2, OR 3, ASK Q92;

ELSE SKIP TO Q93

92. In what ways were program staff not helpful?

93. On a scale of 1 to 5, how would you rate the quality of communication with program staff?
1 means 'very poor' and 5 means 'excellent'

() 1 – very poor
() 2
() 3
() 4
() 5 – excellent
() Don't Know
() Refused

IF Q93 = 1, 2, OR 3, ASK Q94;

ELSE SKIP TO Q95

94. In what ways was communication not good?

95. Do you agree with Energy Trust's decision to do the energy assessment by conducting a simple review rather than carrying out a formal study at your facility?

() Yes
() No
() Don't Know
() Refused

IF NO, ASK Q96

ELSE SKIP TO Q97

96. Why do you disagree with that decision?

97. Has Energy Trust provided you with the results of its energy assessment yet?

() Yes
() No
() Don't Know
() Refused

IF Q97 = YES, ASK Q98-Q100;

ELSE IF Q97 = NO, SKIP TO Q102;

ELSE SKIP TO Q102;

98. How long ago did you receive the results of the energy assessment? 30 days

99. On a scale of 1 to 5, how satisfied are you with the amount of time it took for Energy Trust to complete the energy assessment? 1 means 'not at all satisfied' and a 5 means 'completely satisfied.'

() 1 – not at all satisfied
() 2
() 3
() 4
() 5 – completely satisfied
() Don't Know
() Refused

100. Do you agree with the results of the energy assessment?

() Yes
() No
() Don't Know
() Refused

IF NO, ASK Q101

ELSE SKIP TO Q102;

101. What exactly do you disagree with?

SKIP TO Q102

102. Has it taken longer than expected to receive the results of the energy assessment?

() Yes
() Maybe
() No
() Don't Know
() Refused

103. In what way(s), if any, has any feedback you received from Energy Trust helped you identify equipment needs and scoping out possible upgrades?

104. How did your business use the results of the energy assessment in its internal planning processes?

105. What additional assistance would you like from Energy Trust?

106. Which of the following best describes your plans regarding the potential upgrades covered in the energy assessment? Will you….

() Do all of the upgrades within the next year
() Do most of the upgrades within the next year
() Do some of the upgrades within the next year
() Do none of the upgrades within the next year
() Don't Know
() Refused

IF Q106 = 'ALL,' 'MOST,' OR 'SOME,' ASK Q107-Q109,

ELSE SKIP TO Q110,

107. When do you plan to implement the other recommendations?

() Next year
() Within 2 to 3 years
() No definite date planned
() Don't Know
() Refused

108. On a scale of 1 to 5, how much influence did an Energy Trust representative have on how you planned your project? 1 means 'no influence' and a 5 means 'extremely great influence.'

() 1 – no influence
() 2
() 3
() 4
() 5 – extremely great influence
() Don't Know
() Refused

109. On the same scale, how much influence did your own contractor have on how you planned your project?

() 1 – no influence
() 2
() 3
() 4
() 5 – extremely great influence
() Don't Know
() Refused

IF Q106 NOT = 'ALL,' ASK Q110-Q111,

ELSE SKIP TO Q112.

110. Which of the following things stand in the way of implementing all the upgrades within the next year? *(Read list, check all that apply)*

[] Initial cost of equipment
[] Pay back
[] Maintenance and operations costs
[] Budget constraints
[] Other – specify: ____

111. What needs to happen for your business to go forward with the project?

112. Based on your experience with the application process, what questions or concerns do you have, if any, about further participation in the process? [Read choices]

[] Time involved / possible delays
[] Incentives not enough
[] Complex or burdensome process
[] Hard time getting internal approvals or getting everyone on board
[] Not sure it would be worth it

[] Other – specify: _____
[] Don't Know
[] Refused
[] None (Select only if nothing else selected)

***** END OF W/T CUSTOM SECTION *****

Firmographics

113. And just a few questions about your organization. First, is your organization a for-profit company, a non-profit, a government agency, or something else?

() For-profit company
() Nonprofit
() Public / Government
() Other: _____
() Don't Know
() Refused

114. Including the [*LOCATION*] property, how many different buildings/locations does your organization own or lease space in Oregon?

115. Does the organization you work for own or lease the property we have talked about?

() Owns building
() Leases space
() Other – specify: _____

Closing

Finally, just a few questions about your experience with Energy Trust.

116. Had you ever applied for an Energy Trust energy assessment previously?

() Yes
() No
() Don't Know
() Refused

IF Q116 = YES, ASK Q117-Q119

ELSE SKIP TO Q120

117. How many times?

118. When was the most recent time?

119. How has your current experience compared with the previous one?

120. Do you have any suggestions for how Energy Trust of Oregon could work with you better?

121. Do you have any suggestions for how to encourage businesses/organizations similar to yours to participate in Energy Trust of Oregon programs? Thank you for your time.

G NONPARTICIPANT GUIDE

Sample Quotas

Total target of 150 completions:

Nonparticipants = 105

Non-recent participants = 45

Interviewer instructions

For Q19 and Q26):

- "Controls" refers to any system that centralizes control of building operations other than lighting – e.g., heating and cooling. These may range from simple things like programmable thermostats to complex energy management systems.
- "O&M" refers to "operations & maintenance" – this may be anything related to how the work is performed as well as anything related to how equipment is maintained and managed.
- "Retro-commissioning" is an engineering process to maximize the efficiency of some equipment system or systems, taking into consideration how that system or those systems work together or work with other equipment or systems.

Sample-Read-Ins

- Group: Nonparticipant ('NP') or Non-recent participant ('NRP')
- ID
- Name of Contact
- Phone Number
- Title (if available)
- Name of Organization (if available)
- Location (include Street Address and City)
- Nonparticipants Only:
    - Type of Nonparticipant Contact: Owner/Rep, Property Management.
    - Area (greater Portland, other) – may not use for quotas

- Segment (retail, office, other) – may not use for quotas
- Size (small, medium, large) – important for quotas
- Occupancy (completely leased, owner-occupied/mixed) – important for quotas
- Number of buildings owned (#BLDGS)

➡ Non-Recent Participants Only:

- Year

SRBI-CATI: CREATE VARIABLE TO INDICATE WHETHER CONTACT NAMED IN THE DATA FILE IS THE PERSON WHO IS INTERVIEWED – E.G., INTERVIEWEE = CONTACT, OTHER. (NON-RECENT PARTICIPANTS ONLY)

Scheduling Script and Screening Questions

Scheduling Script for Nonparticipants (Group = 'NP')

Hi, my name is _____. I am calling from SRBI Research on behalf of Energy Trust of Oregon, which provides energy efficiency and renewable energy services to ratepayers of several Oregon utilities.

[IF NO NAME ON SAMPLE] May I speak with the person who knows the most about how your company deals with facility upgrades that have an impact on energy costs and other energy issues?

[IF NAME ON SAMPLE] May I speak with [READ IN NAME], or someone who knows the most about how your company deals with facility upgrades that have an impact on energy costs and other energy issues?

IF THEY SAY THEY DON'T PAY ENERGY COSTS (I.E., DON'T PAY UTILITY BILLS)

Then we would have fewer questions, but there are still some things that it's important to get your perspective on.

IF THE COMPANY OWNS THE BUILDING, BUT ENERGY-RELATED DECISIONS ARE MADE ELSEWHERE (E.G., CORPORATE OFFICE), GET A NAME AND PHONE NUMBER AND CALL IT

IF THIS IS THE PERSON:

Your responses to a short survey will enable Energy Trust to better serve Oregon's utility ratepayers.

WHEN THE PERSON IS REACHED:

Hello, my name is _____. I'm calling on behalf of Energy Trust of Oregon, which provides energy efficiency and renewable energy services to ratepayers of several Oregon utilities. Your responses to a short survey will enable Energy Trust to better serve Oregon's utility ratepayers.

IF NO: ATTEMPT TO SCHEDULE A TIME AND RECORD TIME ON CALL LIST.

IF YES:

My questions are about your organization's energy-related awareness, attitudes, and practices.

This interview should take no more than 10 to 15 minutes.

IF NOW IS OK, CONTINUE. OTHERWISE, ATTEMPT TO SCHEDULE A CALLBACK.

Screening Questions for Nonparticipants [Ask if Group = 'NP']

We're talking with building owners who purchase natural gas or electricity from any of the investor owned utilities in Oregon. Please tell me if the building located at *[READ-IN LOCATION]*

S1. ….receives electricity service from either Portland General Electric or Pacific Power.

INTERVIEWER NOTE: IF NOT FAMILIAR WITH "PACIFIC POWER," EXPLAIN THAT IT IS ALSO KNOWN AS PACIFICORP, PACIFIC POWER AND LIGHT, AND PP&L

1. Yes
2. No
8. Don't Know
9. Refused

S2. And does that building receive natural gas service from Northwest Natural or Cascade Natural Gas?

1. Yes
2. No
3. Do not use natural gas
8. Don't Know
9. Refused

IF QS1 > 1 AND QS2 > 1, THEN THANK AND TERMINATE USING THE FOLLOWING SCRIPT: thank you for offering to answer my questions, but our goal is to speak with building owners who are in the Energy Trust service territory. Thanks for your time – have a nice day.

OTHERWISE, CONTINUE WITH S3.

S3. To your knowledge, has your company received any incentives for energy efficiency upgrades at that building from any of the utilities mentioned or from Energy Trust of Oregon since 2007?

1. Yes THANK AND TERMINATE WITH TEXT BELOW
2. No
8. Don't Know
9. Refused

Thank you for offering to answer my questions, but our goal is to speak with building owners who haven't received incentives for energy upgrades. Thanks for your time – have a nice day.

OTHERWISE, CONTINUE WITH 'GENERAL QUESTIONS FOR ALL RESPONDENTS'

Scheduling Script for Non-Recent Participants [Ask if Group = 'NRP']

Hi, my name is _____. I am calling from SRBI RESEARCH on behalf of Energy Trust of Oregon. I am trying to reach [NAME].

IF REACHED INTENDED CONTACT, PROCEED WITH SCRIPT A AND SET VARIABLE 'INTERVIEWEE' TO 'CONTACT'

ELSE, ASK IF THAT PERSON IS STILL THERE. IF SO, GET CONTACT INFO AND BEST TIME TO CALL AND ARRANGE CALLBACK. IF NOT, GO TO SCRIPT B AND SET VARIABLE 'INTERVIEWEE' TO 'OTHER'

SCRIPT A:

Energy Trust is evaluating its program that provides cash incentives for energy efficiency upgrades in commercial buildings. Since you're listed as the contact person for building upgrade projects that received Energy Trust cash incentives several years ago, your feedback on your organization's energy-related practices would be very valuable to Energy Trust in shaping its future services.

SCRIPT B:

May I speak with the person who knows the most about how your company deals with facility upgrades that have an impact on energy costs and other energy issues?

IF RESPONDENT ASKS WHAT ENERGY TRUST IS OR WHAT THIS IS ABOUT:

Energy Trust provides energy efficiency and renewable energy services to ratepayers of several Oregon utilities. Since your organization received Energy Trust cash incentives for building upgrades several years ago, feedback on its energy-related practices would be very valuable to Energy Trust in shaping its future services.

MOVE TO TACK UP RESPONDENT SAYS THEY DON'T PAY ENERGY COSTS (I.E., DON'T PAY UTILITY BILLS):

Then we would have fewer questions, but there are still some things that it's important to get your perspective on.

IF TRANSFERRED TO REQUESTED CONTACT, GO TO SCRIPT A

IF TRANSFERRED TO NEW CONTACT:

Hello, my name is _____. I'm calling on behalf of Energy Trust of Oregon. Are you familiar with Energy Trust?

IF NO:

Energy Trust provides energy efficiency and renewable energy services to ratepayers of several Oregon utilities.

IF YES, PROCEED

I was told that you're the person who knows the most about how your company deals with facility upgrades that have an impact on energy costs and other energy issues.

Since your organization received Energy Trust cash incentives for building upgrades several years ago, feedback on its energy-related practices would be very valuable to Energy Trust in shaping its future services.

Screening Questions for Non-Recent Participants (Group = 'NRP')

F1. Our records indicate that your organization last received Energy Trust incentives for a building upgrade project located at [READ IN LOCATION] in [READ IN YEAR]. Does that seem about right to you?

1. Yes GO TO F3
2. No
8. Don't Know
9. Refused

F2. To the best of your knowledge, when did your organization most recently receive Energy Trust incentives for a building upgrade project…

1. Within the past year THANK AND TERMINATE
2. One to three years ago THANK AND TERMINATE
3. Three to five years ago, or
4. More than five years ago
8. Don't Know
9. Refused

F3. And does your organization still occupy the space at [READ IN LOCATION]?

1. Yes GO TO TEXT BEFORE Q1
2. No
8. Don't Know
9. Refused

F4. Does your organization currently occupy any facility that receives electricity service from either Portland General Electric or Pacific Power?

INTERVIEWER NOTE TO BE PROGRAMMED: IF NOT FAMILIAR WITH "PACIFIC POWER," EXPLAIN THAT IT IS ALSO KNOWN AS PACIFICORP, PACIFIC POWER AND LIGHT, AND PP&L

1. Yes
2. No
8. Don't Know
9. Refused

F5. And does your organization receive natural gas service from Northwest Natural or Cascade Natural Gas?

1. Yes
2. No
3. Do not use natural gas
8. Don't Know
9. Refused

IF QF1 > 1 AND QF2 > 1, THEN THANK AND TERMINATE WITH TEXT BELOW

Thank you for offering to answer my questions, but our goal is to speak with businesses that are in the Energy Trust service territory. Thanks for your time -- have a nice day.

[Ask All] General Questions for all respondents

Most of my questions will be about the facility at *[READ IN LOCATION]*, a few will be more general.

Before we talk about the facility, I'm going to start with a few brief questions about your role with your organization and how your organization plans and makes decisions about large equipment upgrades.

1. Please indicate which of the following best describes your role in your organization.

1. Facilities/Maintenance manager
2. Owner/President
3. CEO, COO

4. CFO, other financial executive
5. Plant or corporate engineer
6. Plant manager
7. Other – please specify: _____
8. Don't Know
9. Refused

2. [IF GROUP = NRP] Does your organization own the facility at *[READ IN LOCATION]* or lease a space in it?

1. Own
2. Lease a space
3. Other – please specify: _____
8. Don't Know
9. Refused

3. [IF Q2=2] How are your organization's utility costs handled for that space? [Read all]

1. You pay the utility bills
2. The building owner pays the utility bills without a pass-through
3. The building owner passes costs through to you without true-up
4. The building owner passes costs through to you with true-up
5. Other – please specify: _____
8. Don't Know
9. Refused

4. [IF GROUP = NP or INTERVIEWEE <> CONTACT], Have you heard of any of Energy Trust of Oregon's programs aimed at business and commercial properties?

1. Yes *SKIP EXPLANATION AND GO DIRECTLY TO Q5.*
2. No *READ EXPLANATION THEN GO TO Q5*
8. Don't Know *READ EXPLANATION THEN GO TO Q5*
9. Refused *READ EXPLANATION THEN GO TO Q5*

EXPLANATION: Through the Existing Building program, Energy Trust offers energy assessments, cash incentives for recommended energy efficiency installations, and post-installation inspections to business and commercial properties owners.

5. Have you ever looked into what kinds of cash incentives are available from Energy Trust for energy efficiency building upgrades?

1. Yes
2. No
8. Don't Know
9. Refused

6. In general, how important is controlling energy costs to your organization? Please answer on a scale of 1 to 5, where 1 = not important at all and 5 = extremely important

1. Not important at all
2.
3.
4.
5. Extremely important
8. Don't Know
9. Refused

Assessment and Upgrade History

[ASK ALL] Now let's talk about planning equipment and facility upgrades.

7. [ASK ALL] I'm going to read a list of several things you might consider when thinking about equipment or facility upgrades. Please tell me how important each one is in deciding about upgrades. Please use a 1 to 5 scale where 1 is "not important at all " and 5 is "extremely important." Let's start with … [ROTATE]

a. …maximizing energy cost savings

b. …meeting your payback period criteria

c. …whether you could get an incentive or rebate from Energy Trust or a utility program

d. ...whether you could get a tax credit

e. …meeting or exceeding current code standards

f. …being able to market the upgrade project as 'green' or 'sustainable'

SCALE (for each of a-f):

1. Not important at all
2.
3.
4.
5. Extremely important
6. Not applicable
8. Don't Know
9. Refused

8. [IF GROUP = NP] Has the facility at this location ever had an energy assessment to identify energy saving opportunities?

[If needed: An energy assessment or energy audit is a study conducted by an engineer or technical contractor that reviews the energy use of your building and makes recommendations about ways to decrease energy consumption.]

1. Yes *SKIP TO Q11*
2. No *IF #BLDGS FROM SAMPLE > 1, ASK Q9; ELSE SKIP TO Q14*
8. Don't Know *IF #BLDGS FROM SAMPLE > 1, ASK Q9; ELSE SKIP TO Q14*
9. Refused *IF #BLDGS FROM SAMPLE > 1, ASK Q9; ELSE SKIP TO Q14*

9. [(If Q8 = 2, 8, or 9) and Number of buildings from sample > 1)] Has any other facility that your organization owns ever had an energy assessment to identify energy saving opportunities?

1. Yes *SKIP TO Q11*
2. No *SKIP TO Q14*
3. Does not own any other facilities *SKIP TO Q14*
8. Don't Know *SKIP TO Q14*
9. Refused *SKIP TO Q14*

10. [IF GROUP = NRP] Has the facility at this location had an energy assessment to identify energy saving opportunities in the past five years?

[If needed: An energy assessment or energy audit is a study conducted by an engineer or technical contractor that reviews the energy use of your building and makes recommendations about ways to decrease energy consumption.]

1. Yes *ASK Q11*
2. No *SKIP TO Q14*
8. Don't Know *SKIP TO Q14*
9. Refused *SKIP TO Q14*

Had an Energy Assessment

11. [IF Q8 = 1 or Q9 = 1 or Q10 = 1]Who conducted the assessment? [DO NOT READ, PROBE TO CODE] (Multiple Record).INTERVIEWER NOTE: If respondent gives the name of an individual or organization, ask: Who is that in order to get to the correct category? If needed, read list. If respondent says 'utility,' ask for name of utility.

1. Energy Trust
2. Utility company representative 11a. Which utility?: _____
3. Contractor
4. Architect / engineering firm
5. Own facility staff
6. Property management firm
7. Energy management firm

8. Energy services company (ESCO)
9. ARRA / federal stimulus fund program
10. Other – specify: _____
98. Don't Know
99. Refused

12. [IF Q11 NE 1] What were your reasons for not having the energy assessment done through Energy Trust? ___

13. Which of the following three statements best describes your business's primary reason for getting the energy assessment? If none describe your primary reason, please tell me what it was. [*READ FIRST THREE ITEMS INCLUDING ITEM NUMBER . SINGLE RECORD]*.

1. One, to identify energy and cost savings opportunities you may not be aware of at your facility. *SKIP TO Q18*
2. Two, to get detailed costs and savings estimates for an upgrade you already identified at the facility; or *SKIP TO Q18*
3. Three, to qualify for a specific incentive, rebate, or tax credit. *SKIP TO Q18*
4. Other – specify: ___ *SKIP TO Q18*
8. Don't Know *SKIP TO Q18*
9. Refused *SKIP TO Q18*

No Energy Assessment

14. [IF Q11 NOT ASKED] Have you ever considered getting an assessment at this facility to identify opportunities to save energy?

1. Yes
2. No
8. Don't Know
9. Refused

15. [IF Q11 NOT ASKED] If you were to have an energy assessment done, who would you contact to get it done? (Multiple record) *[IF RESPONDENT GIVES THE NAME OF AN INDIVIDUAL OR ORGANIZATION, ASK: WHO IS THAT? IF NEEDED, READ LIST.]*

1. Energy Trust
2. Utility company representative 15a. Which utility? ____
3. Contractor
4. Architect / engineering firm
5. Own facility staff
6. Property management firm
7. Energy management firm
8. Energy services company (ESCO)

9. ARRA / federal stimulus fund program
10. Other – specify: _____
98. Don't Know
99. Refused

16. [IF Q11 NOT ASKED] What are the reasons that your organization has not yet had an energy assessment done?

1. Did not know how to go about it *SKIP TO Q18*
2. Thought it would be too expensive *SKIP TO Q18*
3. Was able to identify savings opportunities without it *SKIP TO Q18*
4. Not yet ready to carry out any building upgrades *SKIP TO Q18*
5. Was advised against it ASK *Q17*
6. Other – specify: _____ *SKIP TO Q18*
7. New building
8. Don't Know *SKIP TO Q18*
9. Refused *SKIP TO Q18*
10. Doesn't own/selling building
11. Takes too much time

17. [IF Q16 = 5] Who advised against doing an energy assessment and what were the reasons? ___

[Ask All] Spillover - All Respondents

18. Have you made any efficiency upgrades to this facility or its systems since the start of 2011 that didn't receive any rebates or incentives?

1. Yes *ASK Q19*
2. No SKIP TO Q22
8. Don't Know SKIP TO Q22
9. Refused SKIP TO Q22

19. [IF Q18 = 1] What kinds of energy efficient equipment or building upgrades did you install that didn't receive rebates or incentives? [*DO NOT READ RESPONSES.(MULTIPLE RECORD)]*

1. Lighting (including occupancy sensor or other lighting controls)
2. Windows
3. Insulation
4. Other building envelope improvements
5. Heating system
6. Cooling system
7. Controls
8. Retro-commissioning

9. O&M improvements
10. Water heating
11. Refrigerator/freezer
12. Cooking equipment (oven, fryer)
13. Dishwasher
14. Motors
15. VFDs
16. Office equipment (e.g., computers)
17. Other – please specify:
98. Don't Know
99. Refused

20. [If Q4 = 1 or Group = NRP] On a scale of 1 to 5, where '1' means 'no influence' and '5' means 'critical influence', how much was the decision to purchase this energy efficient equipment influenced by any of Energy Trust's energy efficiency promotion activities? [*IF RESPONDENT SAYS ENERGY TRUST HAD DIFFERENT LEVELS OF INFLUENCE FOR DIFFERENT EQUIPMENT, ASK FOR AN OVERALL OR AVERAGE LEVEL OF INFLUENCE]*.

1. No influence
2.
3.
4.
5. Critical influence
8. Don't Know
9. Refused

21. [IF Q8 = 1 or Q9 = 1 or Q10 = 1] On a scale of 1 to 5, where '1' means 'no influence' and '5' means 'critical influence', how much was the decision to purchase this energy efficient equipment influenced by the energy assessment conducted at this facility? *IF [RESPONDENT SAYS ASSESSMENT HAD DIFFERENT LEVELS OF INFLUENCE FOR DIFFERENT EQUIPMENT, ASK FOR AN OVERALL OR AVERAGE LEVEL OF INFLUENCE.]*

1. No influence
2.
3.
4.
5. Critical influence
8. Don't Know
9. Refused

22. [ASK ALL] Excluding purchased equipment or upgrades, what, if any, actions has your organization taken in the past two years to reduce energy costs? [*DO NOT READ RESPONSES. (MULTIPLE RECORD). PROBE TO THE NEGATIVE.]*

1. Used lighting less
2. Increased refrigerator temperature
3. Reduced hot water temperature
4. Used heating less (did not heat on weekends, reduced heating times)
5. Used cooling less
6. Reduced heating temperature
7. Increased cooling temperature
8. Turned off equipment more
9. Put equipment in standby mode
10. Negotiated lower utility rates
11. Switched fuels
12. Changed maintenance schedule or activities
13. Other – specify: ___
98. Don't Know
99. Refused

23. How much would you say your organization knows about current energy saving opportunities at this facility? Would you say…

1. No knowledge of the opportunities *SKIP TO Q25*
2. A general understanding of the opportunities *ASK Q24*
3. A fairly detailed understanding of the opportunities *ASK Q24*
4. A very detailed understanding of the opportunities *ASK Q24*
8. Don't Know *SKIP TO Q25*
9. Refused *SKIP TO Q25*

24. [IF Q23 = 2, 3, or 4]This next question is about how much opportunity there is to reduce energy usage at this facility through various types of upgrades. What do you think is the maximum percentage that the facility's total energy costs could be reduced through upgrades to: ROTATE A-G, always ask H last.

INTERVIEWER NOTE: Probe if needed to code. Note: 'Overall energy usage' includes electricity and, if relevant, natural gas. Each response should reflect the potential reduction in energy use for upgrades made only to that system or equipment type – that is, responses should ignore interactive effects from making changes to multiple equipment types.

g. The heating and cooling system

h. The building shell [If needed: by adding insulation and upgrading windows]

i. Lighting

j. Office equipment, including plug loads

k. Refrigeration/freezing

l. Cooking

m. All other systems and equipment

n. What is the maximum that could be saved through upgrades to multiple systems? RANGE 0-100, Don't Know= 101, Refused=102

SCALE (for each item, a-g):

1. Less than 5%
2. 6% to 10%
3. 11% to 20%
4. 21% to 30%
5. More than 30%
6. (VOL) Not applicable/equipment not used at this facility
8. Don't Know
9. Refused

25. [ASK ALL] Do you expect to make any efficiency upgrades to this facility or its systems in the next two years? INTERVIEWER NOTE: By 'efficiency upgrades,' I mean any equipment replacement or other building upgrades that would increase energy efficiency or otherwise reduce your energy use.

1. Yes ASK Q26
2. No SKIP TO Q31
8. Don't Know SKIP TO Q31
9. Refused SKIP TO Q31

26. [IF Q25 = 1] What kinds of energy efficient equipment or building upgrades do you expect to make? [*DO NOT READ RESPONSES. MULTIPLE RECORD.]*

1. Lighting (including occupancy sensor or other lighting controls)
2. Windows
3. Insulation
4. Other envelope improvements
5. Heating system
6. Cooling system
7. Controls
8. Retro-commissioning
9. O&M improvements
10. Water heating
11. Refrigerator/freezer
12. Cooking equipment (oven, fryer)
13. Dishwasher
14. Motors
15. VFDs

16. Office equipment
17. Other – please specify:
18. HVAC
19. Don't Know
99. Refused

27. [If Q25 = 1] Do you plan to seek any assistance in identifying upgrades and estimating savings to help in your planning?

1. Yes *ASK Q28*
2. No SKIP TO Q29
8. Don't Know SKIP TO Q29
9. Refused SKIP TO Q29

28. [IF Q27 = 1] Which of the following is most likely what would happen if you could not get any assistance in identifying building upgrades and estimating savings for those upgrades?

1. Would not do any upgrades
2. Would do only necessary upgrades, using standard efficiency equipment
3. Would do some efficiency upgrades but fewer than otherwise
4. Would do all the upgrades you mentioned before
8. (VOL) Don't Know
9. (VOL) Refused

29. [IF Q25 = 1] Do you plan to seek any financial incentives or rebates to help you pay for those upgrades?

1. Yes *ASK Q30*
2. No *SKIP TO Q31*
8. Don't Know *SKIP TO Q31*
9. Refused *SKIP TO Q31*

30. [IF Q29 = 1] Which of the following is most likely what would happen if you could not get any financial incentives or rebates to help pay for building upgrades?

1. Would not do any upgrades
2. Would do only necessary upgrades, using standard efficiency equipment
3. Would do some efficiency upgrades but fewer than otherwise
4. Would do all the upgrades you mentioned before
8. Don't Know
9. Refused

31. [ASK ALL] Does the facility at [Read in *LOCATION*] have a roof-top unit for heating or cooling?

1. Yes *ASK Q32*
2. No *SKIP TO Q33*
8. Don't Know *SKIP TO Q33*
9. Refused *SKIP TO Q33*

32. [If Q29 = 1] On a scale of 1 to 5, how likely would you be to have the roof-top unit tuned up if it would reduce the building's energy costs by 10% to 15% per year? 1 means 'not at all likely' and 5 means 'extremely likely'

1. Not at all likely
2.
3.
4.
5. Extremely likely
6. (VOL) Not applicable – is not responsible for condition of roof-top unit
8. Don't Know
9. Refused

Corporate Energy Management

33. [Ask ALL] Does your company have any formal written policies or procedures that address energy and energy efficiency?

1. Yes *ASK Q34*
2. No *SKIP TO Q35*
8. Don't Know *SKIP TO Q35*
9. Refused *SKIP TO Q35*

34. [IF Q33 = 1] Which of the following are addressed in those policies? [*READ LIST, MULTIPLE RECORD]*

1. Behavior changes such as turning off the lights and turning down the heat
2. Assigning responsibility for energy and energy efficiency
3. Incorporating energy efficiency in operations and procurement
4. An energy management plan
5. Use of specific energy monitoring systems
6. Numerical energy savings goals
7. Other – specify: ___
8. Don't Know
9. Refused

35. [ASK ALL] Which of the following methods does your company use, if any, to encourage employees to save energy through behavior changes, such as turning off the lights and turning down the heat? [*READ LIST, MULTIPLE RECORD]*

1. Notices or articles in a company newsletter
2. Information in the employee manual
3. Posters
4. In-person meetings
5. Other – specify: ___
6. (VOL) Do not use any method
8. (VOL) Don't Know
9. (VOL) Refused

36. [Ask All] In general, what do you see as the primary challenges to improving energy management practices in the facility we are talking about? [*DO NOT READ RESPONSES. MULTIPLE RECORD]*.

1. Upfront cost, length of payback, return on investment (ROI)
2. Staff awareness/understanding of energy efficiency/getting staff to change behavior
3. Management awareness of energy efficiency options
4. Management policies/priorities
5. Difficulty in implementing energy efficiency measures (size/complexity of system)
6. Lack of appropriate energy efficiency technology
7. Lack of time to implement energy efficiency
8. Difficulty of monitoring energy use
9. Tenants/do not own building
10. Other – specify: ___
11. None
12. No need- building is new
13. Building is for sale/lease
14. Don't Know
15. Refused

37. [[IF Q25 = 2, 8, or 9) and (Q33 = 2, 8, 9)] What types of support or assistance would your organization need to carry out energy efficiency upgrades?

1. Increased cash incentives
2. Help identifying potential upgrades
3. Help assessing energy or cost savings
4. General education about energy efficiency
5. Financing
6. Support to hire an energy manager
7. None
8. Don't Know
9. Refused

38. [IF GROUP=NP OR Q2=1] For the facility we've been talking about, does your company solely occupy the building, lease all of the occupied space to tenants, or share it with tenants?

1. Company occupies all of the building SKIP TO Q43
2. Tenants occupy all of the building *ASK Q39*
3. Company shares the building with tenants *ASK Q39*
4. Building is unoccupied SKIP TO Q43
5. Company does not own the building SKIP TO Q43
6. Other - explain: ____ SKIP TO Q43
8. Don't Know SKIP TO Q43
9. Refused SKIP TO Q43

39. [IF Q38 = 2 or 3] How many tenants are in your building? If needed to clarify: By 'tenants' I mean organizations, not individuals. If respondent not sure, ask them to give their best estimate.

1. One ASK Q40
2. Two to five SKIP TO Q41
3. Six to ten SKIP TO Q41
4. More than ten SKIP TO Q41
8. Don't Know SKIP TO Q41
9. Refused SKIP TO Q41

40. [IF Q39 = 1] In the past two years, has that tenant requested that your organization make any building or equipment upgrades to reduce their energy costs?

1. Yes ASK Q42
2. No SKIP TO Q43
8. Don't Know SKIP TO Q43
9. Refused SKIP TO Q43

41. [IF Q39 = 2, 3, or 4] In the past two years, how many of your tenants, if any, have requested that your organization make any building or equipment upgrades to reduce their energy costs? Would you say… *[READ CHOICES]*

1. None SKIP TO Q43
2. Fewer than half ASK Q42
3. About half ASK Q42
4. More than half ASK Q42
5. Most or all SKIP TO Q43
8. Don't Know SKIP TO Q43
9. Refused NRP' SKIP TO Q43

42. [(IF Q41 = 2, 3, or 4) or (Q40 = 1)] What building systems or equipment did they ask to be upgraded?

1. Lighting (including occupancy sensor or other lighting controls)
2. Windows
3. Insulation

4. Other envelope improvements
5. Heating system
6. Cooling system
7. Controls
8. Retro-commissioning
9. O&M improvements
10. Procurement
11. Water heating
12. Refrigerator/freezer
13. Cooking equipment (oven, fryer)
14. Dishwasher
15. Motors
16. VFDs
17. Office equipment
18. None in particular (Check this only if no other applies)
19. Other – please specify:
98. Don't Know
99. Refused

Firmographics

43. [ASK IF Group= NP] I have just four final questions. First, approximately how many buildings does your company own in Oregon?

1. One
2. Two to five
3. Six to ten
4. More than ten – specify: ___
8. Don't Know
9. Refused

44. /46[ASK IF Group = NP] And how would you describe the type of building that is located at [*LOCATION*]?

MULTIPLE RESPONSE

1. Office
2. Retail
3. Manufacturing
4. Warehouse
5. Grocery
6. Hospital
7. Other health
8. College/university

9. Institution/government
10. Lodging
11. Restaurant
12. School K-12
13. Apartment building (hi-rise resident)
14. Church
15. Assembly
16. Other – specify: ___
17. Industrial
18. Automotive
19. Aviation
20. Entertainment
21. Gym
22. Residential
98. Don't Know
99. Refused

SKIP TO Q47

45. [ASK IF Group = NRP] I have just four final questions. First, approximately how many locations does your organization have in Oregon?

1. One
2. Two to five
3. Six to ten
4. More than ten – specify: ___
8. Don't Know
9. Refused

46. [ASK IF Group = NRP] And how would you describe the type of work that your organization does in the building located at [Sample Read in *LOCATION*]? Multiple response

1. Office
2. Retail
3. Manufacturing
4. Warehouse
5. Grocery
6. Hospital
7. Other health
8. College/university
9. Institution/government
10. Lodging
11. Restaurant
12. School K-12

13. Apartment building (hi-rise resident)
14. Church
15. Assembly
16. Other – specify: ___
19. Aviation
20. Entertainment
98. Don't Know
99. Refused

Conclusion

47. [Ask All] To wrap up, it helps us to understand people's concerns about the market conditions that affect their business's success. What are some of the concerns that are on your mind currently? _____

48. [ASK All] Finally, what questions or concerns come to mind regarding potential participation in Energy Trust programs?
_____

That's all the questions I have for you. Thank you very much for your time. Good bye.

H NONPARTICIPANT SURVEY METHOD

Nonparticipant Sample

We developed the sample from a database of 33,841 commercial properties in Oregon, supplied by Energy Trust.[25] We excluded properties that Energy Trust had identified as likely past program participants (33% of the total), as well as all multifamily properties (19%), as they are not eligible for the Existing Buildings program. As previous experience has shown that it is very difficult to complete surveys with out-of-state building owners, we also excluded properties with out-of-state owners (13%) and those lacking the owner's address (23%). This left a population of 18,274 properties with Oregon-based owners that likely had not previously participated in the Existing Buildings program.[26]

Compared to the most recent Commercial Building Stock Assessment (CBSA), the retail market segment was overrepresented in the CoStar database and several other key segments were underrepresented. As a result, neither a pure random nor proportionally stratified sample likely would be representative of the population. Therefore we aimed to develop a sample that provided a mix of respondents across four variables: 1) location; 2) building size; 3) occupancy (100% leased or owner-occupied); and 4) building use.

Based on the patterns of covariation among the above four variables in the CoStar dataset, we determined that we could achieve a sample that was well distributed across location, size, occupancy, and use by drawing equal-sized random samples across six strata formed just from the occupancy and building use variables. Table 44 shows the expected distribution of such a sample.

Table 44: Expected Distribution of Sample if Equal-Sized Strata

VARIABLE OF INTEREST	PERCENT
LOCATION	
Portland metro area	43%
Outside Portland metro area	57%

Continued

[25] The CoStar Group developed the dataset from property tax records. For more information, see http://www.costar.com.

[26] The percentages excluded are not additive, as many records were excluded under multiple criteria.

VARIABLE OF INTEREST	PERCENT
SIZE	
Small (<= 5000 SF)	43%
Medium (5,001 to 20,000 SF)	37%
Large (> 20,000 SF)	20%
OCCUPANCY	
100% Leased	59%
Owner-Occupied or mixed	50%
BUILDING USE	
Retail	33%
Office	33%
Other	33%

About two-thirds of the CoStar records were missing either the contact name or phone number. To attempt to reduce any possible bias related to the presence or absence of contact information, we used a business list development firm to search for contact information. We drew a large sample of records (2,406 records, 401 randomly drawn from each stratum, of which 842 had contact information). However, this approach produced additional contact information for only 118 additional records, resulting in a total of 960 records with at least a telephone number. We provided the full sample of 960 records to our call center subcontractor.

In our data analyses, we examined any evidence that responses varied by the stratification variables. We found few statistically significant differences; therefore, the combined sample can be considered a reasonable representation of the general nonparticipant population. We identify those few cases where we observed statistically significant differences.