

ILLUME



PROCESS EVALUATION

Of Energy Trust of Oregon's Existing Homes Program

December 2016

PREPARED FOR:

Sarah Castor
Energy Trust of Oregon
info@energytrust.org

PREPARED BY:

Michelle Bruchs & Anne Dougherty
michelle@illumeadvising.com
anne@illumeadvising.com

ILLUME Advising is a forward-thinking consulting company at the rare intersection of insight and execution. Founded in 2013 by industry thought-leaders Anne Dougherty and Sara Conzemius, the company has quickly grown to include a deep bench of quantitative and qualitative research experts. ILLUME uses cutting edge research strategies to help build a resilient energy future to enrich lives, improve global health, and ensure a more secure and sustainable future.

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EXECUTIVE SUMMARY

Energy Trust of Oregon (Energy Trust) contracted with ILLUME Advising LLC (ILLUME) to provide a process evaluation of their Existing Homes program (Existing Homes, or “the program”). The Existing Homes program, Energy Trust’s largest residential program, delivers a broad set of energy-efficiency offerings to customers of its four funding utilities – Portland General Electric (PGE), Pacific Power, NW Natural, and Cascade Natural Gas. This evaluation reviews processes related to four components of the program: 1) incentives for Oregon homes who install energy-efficient electric or gas measures, 2) incentives for NW Natural customers in SW Washington who install gas measures, 3) the implementation of New Homes and Products programs in SW Washington, and 4) Energy Saver Kits (ESK) which includes LED lightbulbs¹, showerheads, and faucet aerators. Energy Trust collaborates with its funding utilities, the program management contractor (PMC) CLEAResult, and key residential market actors (trade ally contractors, distributors, retailers, and SW Washington new homes verifiers) to achieve program participation and energy savings.

The goal of this process evaluation was to obtain feedback from program staff, program participants, and market actors on program design and implementation. This feedback will be used by Energy Trust program staff to more effectively and efficiently deliver the Existing Homes Program and the New Homes and Products programs in SW Washington. As the Existing Homes program has evolved over time, this process evaluation focused on the program’s current structure, while documenting the effects of recent program changes.

This report presents the key findings and recommendations from this process evaluation, conducted between March and August of 2016. This evaluation focused on four core objectives:



DOCUMENT PROGRAM
DELIVERY &
COORDINATION
PROCESSES



EVALUATE THE EFFECTS
OF RECENT PROGRAM
CHANGES



ASSESS ENERGY SAVER
KIT EFFECTIVENESS



CONDUCT STRATEGIC
PORTFOLIO REVIEW

Our evaluation was informed by a thorough review of program documents, as well as in-depth interviews with program and implementer staff, utility representatives, three groups of market actors (trade allies, distributors, and new home verifiers), and one program manager from a leading state in energy efficiency (Massachusetts). In addition, we conducted a survey of 2015-2016 Energy Saver Kit recipients.

¹ Beginning in 2015, Energy Trust no longer provided CFLs in Energy Saver Kits, replacing them with LEDs.

In this Executive Summary, we provide our most salient findings, organized by core objective. Recommendations accompany key findings where relevant.

CORE OBJECTIVE 1 – DOCUMENT PROGRAM DELIVERY & COORDINATION PROCESSES

A variety of market actors engage in this program, including four funding electric and gas utilities, the PMC, and trade allies. All parties are key for program delivery and success. Below we provide key findings related to engagement with these groups.

Conclusion – Utilities, market actors, and the program management contractor (PMC) all regard Energy Trust positively overall, although some utility representatives and market actors expressed a desire for more frequent and effective communication. Most entities working with Energy Trust’s Existing Homes program expressed satisfaction with communication and collaboration. The electric utilities, in particular, appear to have a strong working relationship with Energy Trust and PMC staff. However, the gas utilities expressed frustration at a lack of available measure options for their customers, as well as a perceived need for more proactive communication from Energy Trust.

Recommendation – Consider refreshing Energy Trust’s communication approach with the gas utilities to ensure they feel heard and included in program processes. Although the gas companies are aware that natural gas measures are currently facing cost-effectiveness challenges that Energy Trust cannot control, more intentional communication and explanation to utilities around these issues may help to alleviate the gas utilities’ feelings of being left out of the process.

CORE OBJECTIVE 2 – EVALUATE THE EFFECTS OF RECENT PROGRAM CHANGES

Similar to many residential energy efficiency programs across the country, Energy Trust’s Existing Homes program has seen its portfolio of measures become increasingly constrained by economic, regulatory, and market conditions in recent years. Cost-effectiveness thresholds have become more difficult to meet due to fuel costs, new codes and standards, and market changes. To address these challenges and continue to provide relevant energy efficiency programs to the customers of its funding utilities, Energy Trust has steadily evolved its program approach to the residential existing homes market.

Recent program changes include:

Increased Midstream Engagement – A shift in implementation approach to focus more on midstream engagement, particularly with respect to heating systems, water heating, and thermostats, with the intent to influence stocking practices by distributors, increase the availability of affordable, qualified models in the supply chain, ensure these products are offered to consumers, and remove the administrative burden of completing forms, which has been a barrier to customer participation. Program efforts to increase midstream engagement include direct distributor support, detailed next.

Distributor Support – Created new mechanisms for engaging distributors, including:

SPIF – Began offering Sales Performance Incentive Fund (SPIF) to distributors for sales of qualifying equipment receiving an Energy Trust incentive;

Information sessions – Coordinated with distributors to offer information and training sessions on Energy Trust incentive offerings to contractors;

Online Home Energy Review – Discontinued the in-home Home Energy Review (HER) home audit program, while continuing to offer online HER;

Energy Saver Kits (ESK) – Replaced CFLs with LEDs in Energy Saver Kits;

Rental Measures – Began offering a gas furnace incentive, as well as increased insulation incentives for single-family rentals;

Savings Within Reach – Expanded income eligibility levels for moderate-income incentives

Trade Ally Support – Created new and/or updated processes and tools, including:

Account management model – A single point of contact who provides program guidance, mentorship and support for trade allies;

Instant incentives – A process by which contractors deduct the incentive amount directly from a customer’s bill, carrying the cost of the incentive until receiving reimbursement from Energy Trust;

Web forms – The option for trade allies and customers to submit incentive forms online;

Trade ally portal – A web-based repository of information where trade allies can log in and view project details for all of the active and completed projects they have submitted for an incentive, as well as access program forms;

Newsletter/blog – An information source called *Insider* that provides both general information to all trade allies, as well as specific information on program offerings, market-related topics, tips and education;

Introduction of EPS to New Homes program in Washington – Transitioned from a program based around ENERGY STAR and Earth Advantage certifications to the Energy Trust’s EPS™ (energy performance score), in alignment with the New Homes program in Oregon.

Desk Quality Assurance (QA) – A new approach to project QA that, among other things, includes a decrease in the number of on-site inspections by program staff, and the implementation of a desk review process for some projects. In addition, the New Homes program in SW Washington transitioned to a more direct, in-depth QA process, where previously Energy Trust had relied on the Northwest Energy Efficiency Alliance (NEEA) and their ENERGY STAR® Homes QA process.

Conclusion – **The program’s decision to shift focus toward midstream market actors and trade allies is still relatively nascent; our evaluation revealed evidence of early successes as well as continued opportunity for enhancement.** Although trade allies have responded positively to the more focused attention they have received through the account management model, there is still opportunity to further engage and train trade allies to effectively be the “face of the program.” For example, some of the less active or lower-rated trade allies we interviewed expressed an interest in becoming more active.

Recommendation - **Consider further tailoring communications to reflect trade allies’ unique businesses, level of program activity, star rating, geography, and/or target market.** For example, consider reaching out to trade allies with lower star ratings and/or level of program activity and determining a) their individual interest in more focused support, and 2) their unique needs, such

as basic program orientation, introduction to marketing opportunities, and mentorship on outreach strategies based on geographic location.

Conclusion – Although Energy Trust provides a variety of marketing tools to assist trade allies in selling efficient equipment through the program, trade allies are not consistently using or aware of the tools.

Recommendation – Continue efforts to reach out individually with trade allies to raise awareness of the availability of marketing tools and information resources. Explore opportunities for expanded trade ally training and mentorship on the availability of tools such as cooperative marketing funds, the booklet of measure incentive information, and website development funds. While many trade allies take full advantage of the suite of offerings, others remain unaware of the tools, or do not utilize them.

Conclusion – Most trade allies who qualified to offer instant incentives had used them to varying degrees, but the perceived benefit of them was mixed. The program introduced the instant incentive with the hope that it would act as a tool to help trade allies make the sale of an efficient model of equipment over a standard efficiency model. In addition, the instant incentive structure requires the trade ally to submit complete project forms to receive reimbursement. Energy Trust hoped that by putting the onus on the contractors to fill out the forms, rather than the customer, the program would receive more complete and accurate program data. Of the trade allies we interviewed, most trade allies who were qualified to offer instant incentives did. However, the preference to use this incentive method over the traditional customer application appeared to be dependent on trade ally personal preference, with no evidence of fundamental concerns or process issues.

Conclusion – Although the program’s attempts to engage distributors via the SPIF and sponsored contractor training events are still new and require further research to determine effectiveness, this evaluation found that these first efforts may be improved with modifications. Although the evaluation only spoke with two of the seven distributors currently working with Existing Homes, both expressed hesitation regarding the SPIF. While they felt it was a good concept, they perceived the administrative burden of meeting the SPIF requirements to be high. Only one distributor had offered contractor information sessions, and did not perceive them as effective.

Recommendation – Continue to explore different incentive structures that will motivate distributors to sell more efficient equipment to their contractors while reducing administrative processes. Distributors interviewed were more receptive to the idea of an instant incentive, payable directly to the distributor as opposed to the customer or to their contractors, but it is not clear that this mechanism would reduce administrative burden, as incentive requirements also require details such as customer address.

Conclusion – The shift in quality assurance procedures to include a desk review option appears to be achieving its intent of reducing the number of field inspections while maintaining project quality. In 2015, QA home visits decreased significantly over the course of the year, while pass rates for QA inspections remained stable. Most trade allies interviewed did not notice the change, and those who did notice did not think it impacted their projects.

CORE OBJECTIVE 3 – ASSESS ENERGY SAVER KIT EFFECTIVENESS

Energy Trust provides free Energy Saver Kits to customers that include LED light bulbs, efficient showerheads, and faucet aerators. Customers request the kit by telephone, or via a web order form. Customers who order a kit online answer questions about their home. Based on home characteristics,

customers are given different numbers of items. The web form defaults to the highest number of items allowable within each home (e.g., two faucet aerators for homes that have two or more bathroom faucets), but customers have the option of reducing the number of items prior to submitting the form. The Energy Saver Kit was last evaluated in 2014. Most measures remained consistent during this evaluation, with the exception of the inclusion of LEDs and removal of CFLs.

Conclusion – Installation rates for water saving devices decreased since the last evaluation in 2014 whereas lighting measures stayed consistent. It is unclear from the survey and population data why the installation rates decreased between these two evaluation periods. One possible reason is that respondents may have received more water saving devices than they wanted or needed (perhaps a function of the “opt-out” nature of the online tool). Additionally, one motivating factor for obtaining the kits is to obtain LEDs, newly added to the kit in place of CFLs. Recipients may have been more interested in receiving the light bulbs, yet obtained all kit contents.

Recommendation: Explore customers’ experiences and decisions around the number of items received, without actual or intended installation, including experience with the online order form. The study did not directly assess customers’ experiences and decision-making processes at the point of requesting the items, including their initial intent to install. Targeted exploration for why customers are requesting the water saving devices, then not installing those items, should be investigated more deeply to explain the installation rates (particularly for water saving devices) and provide further insight into potential options for maximizing the installation rate (including possible modifications to the Energy Saver Kit order form, described below).

Recommendation: Consider changing the Energy Saver Kit order form to engage customers more directly on the number of items requested. The form automatically includes the maximum number of items allowed, which customers may then reduce if they desire. It may be that customers are not thinking about that choice. The following types of changes to the form may engage customers in thinking through their options: 1) adding photographs of measures and creating a more intuitive “shopping cart” interface similar to those of popular online stores; 2) changing from an opt-out to an opt-in order form to encourage customers to be more intentional about which items they request; and 3) including information about how to install the items, so customers can see what is involved.

Conclusion – Several Energy Saver Kit recipients reported that the kit influenced them to explore additional energy saving actions in their homes. Customers reported a variety of actions, with the most prominent being the purchase of additional LED bulbs after receiving their kit (nearly a third (29%) of respondents reported this action).

CORE OBJECTIVE 4 – CONDUCT STRATEGIC PORTFOLIO REVIEW

Existing Homes program staff articulated a key challenge facing the program – the loss of many measures from the portfolio due to cost-effectiveness declines in recent years, and the need for the program to “adapt quickly” in order to continue delivering savings and providing value to customers. Given this input, ILLUME conducted a strategic review of the Existing Homes measure portfolio to identify strengths, weaknesses and opportunities.

Conclusion - Given current economic conditions and regulatory constraints, Existing Homes has seen a reduction in the number of cost-effective measures available to its portfolio, highlighting a need for new mechanisms to drive additional program participation. The evolving market, which has resulted in increased

installation costs for some measures, as well as a reduction in avoided costs due to reductions in fuel prices, has resulted in decreased savings and cost-effectiveness, which limits measure offerings, particularly given Oregon's cost-effectiveness requirements. Energy Trust continues to identify opportunities to optimize process efficiencies, reduce program costs and increase participation (thereby maintaining cost-effectiveness); however, program staff and utilities expressed it is becoming increasingly difficult to do so.

Recommendation – With the availability of cash incentives reduced, additional program and marketing approaches may need to be considered. Two specific tools we recommend exploring are 1) Low-interest financing, which becomes more attractive to customers as incentives become less available, and can be a valuable option for helping trade allies close sales of energy-efficient equipment; and 2) Employing sophisticated propensity modeling that goes beyond targeted marketing to more efficiently reach those customers most likely to take action.

MEMO



Date: January 26, 2017
To: Board of Directors
From: Marshall Johnson, Residential Sr. Program Manager
Sarah Castor, Evaluation Sr. Project Manager
Subject: Staff Response to the Existing Homes Process Evaluation

Since the last process evaluation was completed in early 2014, the Existing Homes program and Washington New Homes and Products programs have evolved their strategies and offerings in response to changes in the residential market. This evolution has taken the form of changes in incentive levels and measure offerings for residential customers, midstream market engagements, an increase in support for trade allies, and changes to program processes to increase efficiency and decrease delivery costs. The evaluation revealed that the challenges faced by Energy Trust in the residential sector with respect to cost-effectiveness and changes to the measure portfolio are also being faced and addressed, in various ways, by utilities and programs across the country. In 2017, the residential sector programs – Existing Homes, New Homes and Products – will prepare to adapt their structure to reduce costs, streamline delivery and create flexibility to align with future savings potential.

The evaluation findings indicate opportunity to improve our communications with NW Natural and Cascade Natural Gas, to provide more complete information about marketing efforts and their results, as well as what the program sees as opportunities for new gas-saving measures. The quality of relationships with our funding utilities is important, and Energy Trust has already begun to address these communication gaps, for both the residential and commercial sectors.

The results of the survey of Energy Saver Kit (ESK) recipients revealed that some customers may not recognize the opportunity in the current order form to select the specific products desired and decline lighting or water measures not needed. This may be reducing the installation rates, particularly for water measures. The program plans to change the webform in 2017 to improve customer ability to select items they want from a list of applicable measures, rather than being offered all applicable measures and then needing to opt out of ones they do not want. Energy Trust plans to do more research into customer practices around ESK ordering and measure installation after changes to the webform are complete, to determine if installation rates increase as a result.

The evaluation also documented an evolution in the approach to trade ally and distributor engagements. The corresponding recommendations indicated opportunity to further tailor outreach activities based upon individual trade ally needs, which maps well to the current account management approach. The program is working to expand upon tools which highlight trade ally performance, and continue to target trade allies for

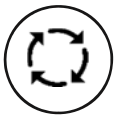
outreach based on a combination of contractor requests, quality inspection results, and activity trends. Distributor engagements may be able to simplify paperwork requirements and program influence for water heaters, but the program needs to be able to verify that installations meet all the qualifications for an incentive. The program will continue to explore strategies to improve savings achievement through a combination of trade ally and distributor activities.

INTRODUCTION

In February, 2016, Energy Trust of Oregon (Energy Trust) awarded ILLUME Advising, LLC (henceforth ILLUME, “we,” or “our team”) a contract to conduct a process evaluation of its Existing Homes program (“Existing Homes” or “the program”) in Oregon, and a high-level evaluation of the portion of its Existing Homes, New Homes, and Products programs implemented in Southwest Washington.

The goal of this process evaluation was to obtain feedback from program staff, program participants, and market actors on program design and implementation. This feedback will be used by Energy Trust program staff to more effectively and efficiently deliver the Existing Homes Program and the New Homes and Products programs in SW Washington. As the Existing Homes program has evolved over time, this process evaluation focused on the program’s current structure, while documenting the effects of recent program changes.

This report presents findings from ILLUME’s evaluation, which spanned March through August 2016. Through the evaluation kickoff process, which included in-depth interviews with program and implementer staff, we worked closely with Energy Trust to prioritize the evaluation’s key research objectives; which we grouped these into four overarching areas, and they are referred to in this report as core objectives. The details of our approach to addressing these four objectives are detailed in Section II, *Evaluation Approach*.



DOCUMENT PROGRAM
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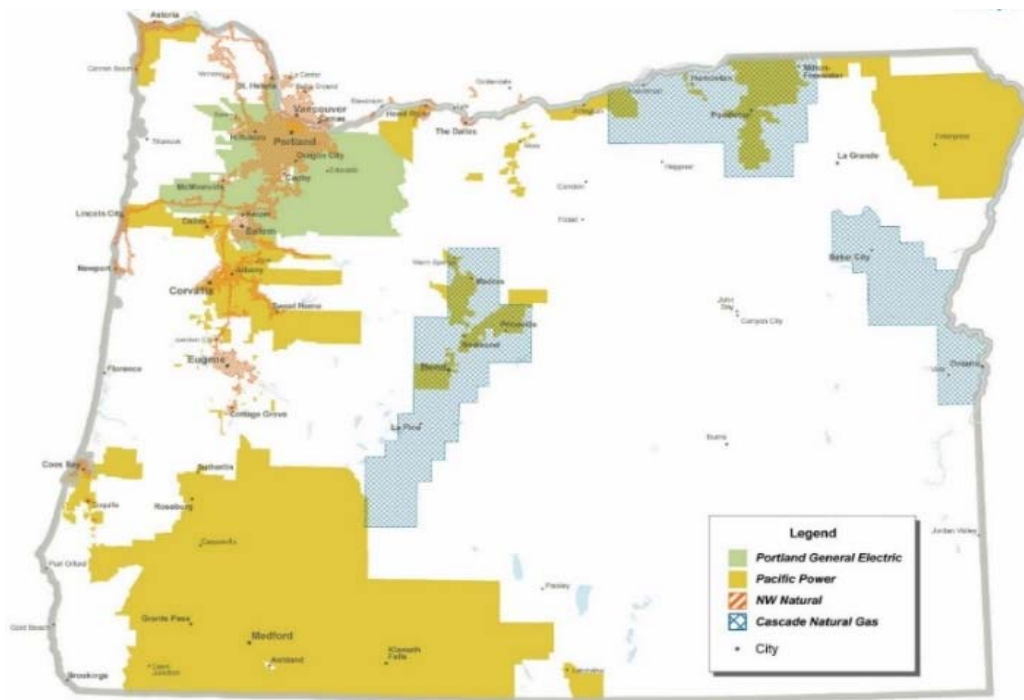
ASSESS ENERGY SAVER
KIT EFFECTIVENESS



CONDUCT STRATEGIC
PORTFOLIO REVIEW

I. ABOUT THE EXISTING HOMES PROGRAM

The Existing Homes program, Energy Trust’s largest residential program, delivers a broad set of energy-efficiency offerings to customers of its four funding utilities – Portland General Electric (PGE), Pacific Power, NW Natural, and Cascade Natural Gas. The program is implemented by a program management contractor (PMC); CLEAResult has been the PMC since 2013.

Figure 1: Energy Trust Of Oregon Service Territory Map

program provides cash incentives to owners of single-family homes and manufactured homes who install energy-efficient electric or gas measures in their homes, and provides specialized offerings for moderate-income customers (known as Savings Within Reach) as well as for owners of single-family rental properties. Existing Homes also provides free Energy Saver Kits (ESK) containing LED lightbulbs², showerheads, and faucet aerators to utility customers.³ Similar to ESKs, the program distributes Living Wise Kits to 6th grade students in Oregon schools served by PGE and Pacific Power. Finally, Existing Homes provides customer service, education, trade ally support, and midstream market interventions.

In addition to implementing Existing Homes in Oregon, CLEAResult is also responsible for delivering residential programs (including Existing Homes, New Homes, and Efficient Products) to customers of NW Natural in SW Washington. As part of its work in SW Washington, the PMC also collaborates with Clark Public Utilities (Clark) on joint electric-gas residential offerings, whereby electric savings are allocated to Clark, and gas savings are allocated to NW Natural.

Energy Trust collaborates with its funding utilities, the PMC, and key residential market actors (trade ally contractors, distributors, retailers, and SW Washington new homes verifiers) to achieve program participation and energy savings. Energy Trust maintains a trade ally network, and works closely with trade allies to educate and support them in providing energy-efficient options to their customers. However, contractors do not have to be trade allies to participate in the program and submit incentive applications on behalf of their customers.

² Beginning in 2015, Energy Trust no longer provided CFLs in Energy Saver Kits, replacing them with LEDs.

³ Homeowners and renters are eligible to receive one kit per address.

Energy Trust works closely with its funding utilities on marketing and outreach efforts to raise customer awareness of the program and provide education, training, and support to trade ally contractors.

Table 1, Table 2, and Table 3, below, display program accomplishments within Oregon and Washington for the years 2013 through 2015.

Table 1: Oregon Projects and Savings, 2013-2015

PROGRAM BY YEAR	PROJECTS†	KWH SAVINGS	THERM SAVINGS
2013			
Existing Single Family Homes*	13,740	11,222,801	340,451
Home Performance**	1,323	1,383,060	118,065
Existing Manufactured Homes**	1,636	1,882,303	2,950
2014			
Existing Single Family Homes*	12,786	11,177,605	268,366
Home Performance**	766	630,323	63,046
Existing Manufactured Homes**	1,257	1,424,714	2,680
2015			
Existing Single Family Homes*	14,676	13,395,576	379,832
Home Performance**	454	270,664	26,516
Existing Manufactured Homes**	852	774,613	1,036
Total	47,036	42,161,659	1,202,942

*Excludes Energy Saver Kits and Living Wise Kits.

† Project counts includes only projects with positive electric or gas savings; sites that receive services with no savings (Home Performance assessments, duct or air leakage testing only, for example) are excluded.

Table 2: Washington Projects and Savings, 2013-2015

PROGRAM BY YEAR	PROJECTS†	THERM SAVINGS
2013		
Existing Single Family Homes*	484	34,117
Efficient New Homes	241	23,910
Efficient Home Products**	-	24,388
2014		
Existing Single Family Homes*	552	35,193
Efficient New Homes	258	24,807
Efficient Home Products**	-	30,145
2015		
Existing Single Family Homes*	742	51,779
Efficient New Homes	396	44,844
Efficient Home Products**	-	24,698
Total	2,673	293,881

*Excludes Energy Saver Kits.

** Efficient Home Products are recorded in bulk by store; project count is not comparable to other programs.

† Project counts includes only projects with positive electric or gas savings; sites that receive services with no savings (Home Performance assessments, duct or air leakage testing only, for example) are excluded.

Table 3: Energy Saver Kits, 2013-2015

	KITS*	kWh SAVINGS	THERM SAVINGS
Oregon			
2013	13,883	9,371,979	154,251
2014	34,910	19,452,343	450,760
2015	34,408	22,928,233	401,300
Washington			
2013	168	--	6,226
2014	158	--	5,741
2015	57	--	2,339
Total	83,584	51,752,555	1,020,616

*Does not include Living Wise Kits, which are distributed through schools.

Energy Trust has modified many of its residential program offerings since 2013. Related to Existing Homes, Energy Trust increased the options and resources to the midstream market and modified the contents of its Energy Saver Kits to eliminate CFLs and include LED light bulbs. More details on the program modifications are provided in *Section III: Program Delivery And Coordination Processes*. These changes are the result of a variety of factors, including changing economic conditions, new and impending codes and standards, and evolving market conditions.

II. EVALUATION APPROACH

Given recent program changes, Energy Trust requested an evaluation of its Existing Homes program that is both retrospective and formative. As such, the goal of this report is to document the program’s evolution while providing program managers with actionable recommendations for optimizing the program going forward.

DATA COLLECTION SUMMARY

ILLUME conducted several primary and secondary data collection activities. This section provides an overview of each data collection activity, with additional details available in the appendix, where needed. We present the findings from this body of research in the following chapter, *Key Findings*.

SECONDARY DATA REVIEW

ILLUME reviewed program documents provided by Energy Trust, which provided context and direction for the evaluation. Table 4 summarizes documents reviewed. These documents informed our understanding of program objectives, decision-making, and achievements, and informed our approach to designing all data collection instruments, particularly the in-depth interview guides for program and PMC staff, utilities, and market actors.

Table 4: Secondary Data Review Summary

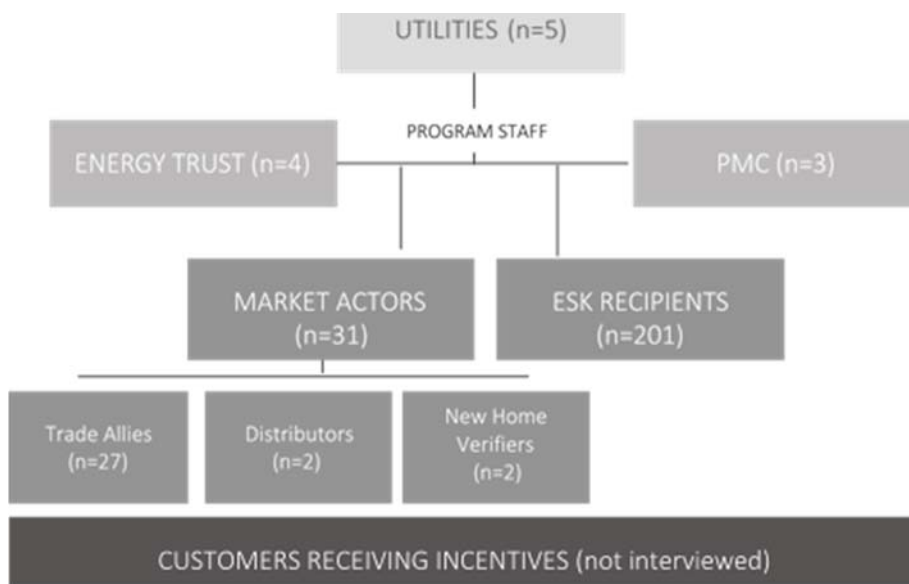
DOCUMENT REVIEWED	HOW REVIEW INFORMED EVALUATION
Existing Homes Program Implementation Manual	Provided overview of program structure and implementation; informed development of staff interview guides
Energy Trust website	Showed types of information available to customers and accessibility of information
Monthly and annual reports (by PMC)	Provided program goal and achievement information as well as context for interpreting staff interview results
Existing Homes 2016 Action Plan (by PMC)	Provided a summary of the Existing Homes strategic focus and planned activities for 2016
Gas Domestic Hot Water Research Project Report (by PMC)	Informed our understanding of the water heater market in Oregon and SW Washington
Energy Saver Kit web application form	Provided insight into the customer experience when ordering their ESK
Instant incentive documents	Provided context for trade allies’ experience and perception of providing instant incentives to their customers
<i>Expanding Diversity: A Business Case and Action Plan for Energy Trust of Oregon’s Diversity Initiative</i>	Provided context for Energy Trust’s larger organizational goals
Existing Homes 2015 Marketing Plan	Highlighted Energy Trust’s marketing and outreach focal areas and informed staff, utility, and trade ally interview questions

PRIMARY DATA COLLECTION

ILLUME conducted in-depth interviews with a variety of players in the Existing Homes program; specifically, we interviewed Energy Trust program staff, marketing and outreach managers from the funding utilities, PMC staff, and three groups of market actors (trade allies, distributors, and new home verifiers). We also surveyed 201 recipients of Energy Saver Kits. Figure 2 depicts the Existing Homes market structure, how the actors are related, and the number of individuals surveyed or interviewed. A detailed description of each effort follows.

STAFF AND PMC INTERVIEWS

Figure 2: Existing Homes Market and Data Collection Summary



We kicked off our evaluation activities by conducting in-person, in-depth interviews with four Energy Trust and three PMC program staff. Energy Trust staff members included the Existing Homes senior program manager, residential sector lead, SW Washington senior project manager, and the residential marketing manager. PMC staff included the senior program manager for Existing Homes contract delivery, a lead program manager and an associate program manager. During these interviews, we asked staff to provide program context, information on recent program changes, and their perspectives on a variety of issues, including:

- How the program engages participants
- The ongoing evolution of program focus on greater engagement of distributors and trade allies
- Energy Trust's Diversity Initiative
- How the program is working to optimize the design of its measure portfolio
- Coordination between Energy Trust and PMC staff

UTILITY INTERVIEWS

We conducted in-depth interviews with representatives of all four of Energy Trust’s funding utilities – Portland General Electric (PGE), Pacific Power, NW Natural, and Cascade Natural Gas. In addition, we also spoke with a representative of Clark Public Utilities (Clark) in SW Washington. Although Clark is not a funding utility, Energy Trust and Clark have collaborated on mutually beneficial efforts to engage and serve SW Washington residents.

Per Energy Trust’s request, we conducted two in-person group interviews with the electric utilities. The group interviews were attended as follows:

PGE

- PGE marketing group supervisor
- PGE marketing manager
- Energy Trust residential marketing manager
- Energy Trust Existing Homes program manager (via phone)
- Energy Trust senior Evaluation project manager
- ILLUME interviewer
- ILLUME analyst, present for note-taking (via phone)

Pacific Power

- Pacific Power marketing manager
- Energy Trust residential marketing manager
- Energy Trust senior Evaluation project manager
- ILLUME interviewer
- ILLUME analyst, present for note-taking (via phone)

We conducted telephone interviews with one marketing manager from each of the two gas utilities, NW Natural and Cascade Natural Gas.

MARKET ACTOR INTERVIEWS

Energy Trust works closely with a variety of market actors to drive program participation and savings, including trade ally contractors⁴, distributors, retailers, and new homes verifiers who work in SW Washington. The Existing Homes program’s trade ally network includes over 400 members across Oregon and Washington. Energy Trust employs a “star rating” system that reflects a trade ally’s experience and performance related to quality of installation work, customer service, and quality of incentive application submittals on behalf of their customers; the highest possible rating is 3 stars. The more experienced, higher-rated trade allies have higher star ratings. Table 5 presents the number of Existing Homes trade allies by state and star rating.

⁴ Note that while the program does not work closely with non-trade ally contractors, projects installed by non-trade allies are still eligible for program incentives in most cases, and program staff do have contact with non-trade allies through work quality verification processes.

Table 5: Existing Homes Trade Allies, By State and Rating⁵

	OREGON	WASHINGTON	TOTAL
3 star	162	16	180
2.5 star	86	9	97
2 star	87	6	96
1.5 star	17	2	19
1 star	0	0	0
Unrated	42	3	51
Total	394	36	443

Note: Trade allies can serve both Oregon and Washington. There are 13 trade allies that do not have a state designated. State designations are determined by the state in which the trade ally most commonly works.

In addition to the trade allies, Existing Homes also works with seven HVAC and/or hot water distributors and six SW Washington new home verifiers. For this evaluation, Energy Trust provided us with contact lists for trade allies (422 unique contacts), distributors (contacts for all 7 distributor partners), and SW Washington new homes verifiers (contacts for all 4 active⁶ verifier partners). Our team interviewed 27 trade allies, two distributors (one HVAC and one HVAC/lighting) and two SW Washington new home verifiers, one with four years' experience working with Energy Trust, and the other with more than ten years' experience. The interviews focused on market actor perceptions of program delivery and coordination processes, as well as the effects of recent program changes.

Over half of the trade allies interviewed (18) provide HVAC services, about a third (10) offer shell services including windows and insulation, one provides general contracting services, and one provides plumbing services. Although these interviews were qualitative in nature and not designed to be statistically representative, we worked with Energy Trust to design a sample that would allow us to hear perspectives from a variety of trade allies across Oregon and Southwest Washington. Figure 3 presents a map of Energy Trust's trade ally regions, and Table 5 shows the distribution of interviewed trade allies by geographic region, star rating, and project volume. Project volume is described as follows:

- High (>50 projects)
- Medium-high (11-50 projects)
- Medium-low (4-10 projects)
- Low (≤ 3 projects)

⁵ As of November, 2015.

⁶ The program previously worked with six new home verifiers, but two no longer work with the program.

Figure 3: Trade Ally Service Region Map

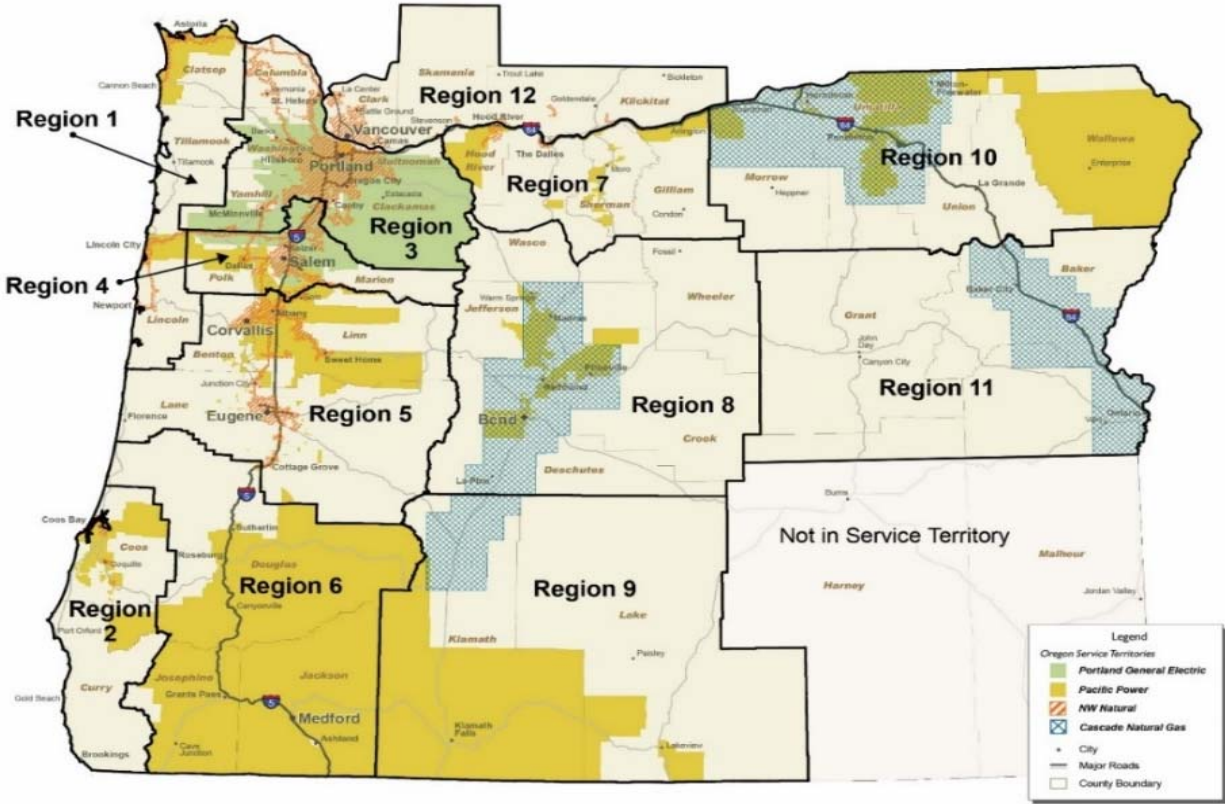


Table 6: Existing Homes Trade Ally Interview Sample By Service Region And Project Volume

REGION #	8	4	1	10	3	6	5	12		
VOLUME	Central	Mid-Willamette	North Coast	Northeast	Portland Metro	Southern	Southern Willamette	Oregon Total	Southwest Washington	Grand Total
HIGH	1	3		1	2			8	3	10
MEDIUM HIGH		3	1			2		6	1	7
MEDIUM LOW	1				2	1	1	5		5
LOW		1			2		1	4	1	5
TOTAL	2	7	1	1	6	3	2	22	5	27

As shown in Table 6, the majority of trade allies interviewed work within Oregon; 22 of the 27 trade allies said they conduct 75% or more of their work in Oregon. Three trade allies said that over 80% of their work was within Washington. Nearly all trade allies said most of their projects were for residential customers.

Table 7: Star Rating of Interviewed Existing Homes Trade Allies, By Volume

Volume ↓ / Star Rating →	3	2.5	2	1.5
HIGH	10			
MEDIUM HIGH	5	1		1
MEDIUM LOW	3	2		
LOW	2	1	1	1
TOTAL	20	4	1	2

Table 7 shows the star rating of interviewed trade allies. Most trade allies (74%) had a three-star rating while only 22% had less than a three-star rating. Interestingly, all high volume trade allies interviewed had three stars, while the star ratings of low volume trade allies interviewed were more evenly distributed across the four rating levels.

Given that ILLUME attempted to speak with trade allies with varying levels of activity in Energy Trust programs, it is not surprising that trade allies reported differing percentages of their projects that received Energy Trust incentives. Eleven of the 27 trade allies (41%) interviewed said that in the past year, 25% or fewer of their projects received Energy Trust incentives. An additional nine trade allies (33%) said between 26% and 75% of their projects received Energy Trust incentives, and two said the majority (95%) received incentives.

We present the results of these market actor interviews in the following chapter, *Key Findings*.

SURVEY OF ENERGY SAVER KIT RECIPIENTS

ILLUME surveyed 201 recipients of free Energy Saver Kits (ESK) across Energy Trust’s Oregon service territory to assess installation rates of kit items, satisfaction with the kit, and potential spillover effects.⁷

We constructed the ESK sample to represent the distribution of program participants among the four participating utilities, achieve 90/10 confidence and precision levels in the results, and ensure adequate representation of ESK measures.

Table 8 shows the population and sampling frame, summarizing Energy Trust’s database records of all unique ESK recipients (installation dates⁸ range from December 1, 2015 to March 31, 2016; survey conducted June 2016) by electric and natural gas utility.

⁷ Southwest Washington recipients of Energy Saver Kits were excluded because their kits contained only water measures; installation rates of kit components are assumed to be the same in Oregon and Washington.

⁸ Energy Trust sets ESK “installed” date to two weeks after the order date, to approximate the shipping date. Kits are expected to arrive within a few days of the shipping date.

Table 8: Energy Saver Kit Participants by Utility

GAS UTILITY ↓ / ELECTRIC UTILITY →	PACIFIC POWER	PGE	TOTAL ⁹
Cascade Natural Gas	166	0	166
No Gas or Other	1,312	1,441	2,753
NW Natural	442	1,712	2,154
TOTAL	1,920	3,153	5,073

To achieve 90/10 confidence and precision for each utility, ILLUME over-sampled participants who received gas service through Cascade Natural Gas. Although 166 of 5,073 total 2015 participants received gas service through Cascade Natural Gas (representing 3% of overall participants), we surveyed 48 respondents (representing 25% of customers surveyed). The remaining respondents were distributed proportionally among the other three participating utilities. When reporting results at the program level, we applied survey weights to correct for this over-representation. Respondents by utility are shown in Table 9.

Table 9: Respondents by Utility

GAS UTILITY ↓ / ELECTRIC UTILITY →	PACIFIC POWER	PGE	TOTAL
Cascade Natural Gas	48	0	48
No Gas or Other	43	45	88
NW Natural	8	57	65
TOTAL	99	102	201

⁹ Participants with gas service from NW Natural or Cascade Natural Gas and electric service from a utility other than PGE or Pacific Power (representing 2.5% of all participants) were not included in the sample frame.

III. PROGRAM DELIVERY AND COORDINATION PROCESSES

This section presents key findings related to program delivery and coordination. Specifically, we highlight communications between Energy Trust, the PMC, utilities, and market actors, followed by suggestions for program delivery improvements identified during interviews with these stakeholders.

Through this assessment, we found that across the various entities that interact with Energy Trust, interviewees generally reported positive experiences actively communicating with, or receiving communications from, Energy Trust. Several interviewees, including Energy Trust, PMC and utility staff members, mentioned that communication with Energy Trust has noticeably improved since the last program evaluation. Notable exceptions came from the gas utilities, both of whom relayed frustration with a perceived lack of program opportunities for their customers, as well as a feeling that Energy Trust's communication with them around that issue had been ineffective.

COMMUNICATIONS WITH ENERGY TRUST

The collaborative nature of Energy Trust's work requires regular interaction and communication with the PMC and its funding utilities for varying purposes. For example:

Program implementation: Energy Trust program staff meets with CLEAResult program staff monthly as well as on an ad hoc basis to discuss project planning and execution strategies, as well as define individual roles and expectations.

Marketing: Energy Trust and CLEAResult staff meet bi-weekly to discuss marketing strategies, typically focusing on specific measures and how to target marketing to those customers most likely to be interested in them. Energy Trust also works with its funding utilities to define marketing campaigns around various program offerings. For example, Energy Trust marketing staff works closely with PGE marketing staff, meeting quarterly, monthly, and as needed. Collaborations typically discuss upcoming marketing activities, such as how to segment and target customer lists and optimize the timing of marketing campaigns to maximize program uptake and savings.

Given these collaborations, we assessed the effectiveness of communication between these organizations. Below we present the perspectives of each of the four interviewed groups.

ENERGY TRUST STAFF PERSPECTIVE

Interviews with four Energy Trust staff members indicated that communications with CLEAResult are effective, and have "evolved" and improved since CLEAResult's Existing Homes implementation contract first began in 2013. Program staff cited regular and frequent contact with PMC staff, with one saying, *"I can ask questions*

whenever I have them,” and another saying communication between the two organizations was in *“a really healthy space.”*

Energy trust staff expressed similar sentiments regarding communication and coordination efforts with the utilities. In particular, collaborative efforts with the electric utilities appear to be running smoothly. Energy Trust staff specifically mentioned partnering to use targeted email lists for customer outreach, and timing marketing campaigns to maximize savings for Energy Saver Kits. Energy Trust staff also mentioned that collaboration on the heat pump water heater initiative was notably successful, saying that program uptake is steadily increasing, which is significant for a technology that typically sees low sales volumes overall.

On the Washington side, Energy Trust staff indicated that the working relationship with the two utilities in SW Washington – NW Natural Washington and Clark PUD – is strong, with regular in-person meetings and frequent email correspondences. This staff member said the relationships have *“points of collaboration and no points of contention.”*

PMC STAFF PERSPECTIVE

All three PMC staff members reported that communication works well, citing many regular meetings, both structured and ad hoc, which facilitate effective communication. Two of the three PMC interviewees noted that communication has improved significantly since 2013, with one noting, *“We’re in a good communication space,”* and another saying, *“Our communication is on point.”*

Although all PMC staff members were satisfied with their own communication with Energy Trust, one PMC staff member perceived Energy Trust’s internal communication as needing improvement, saying, *“It’s not often clear who’s owning project areas,”* and *“It seems like they aren’t talking to each other.”* This contact went on to say there are opportunities to improve internal coordination between Energy Trust programs and support teams. That said, all three PMC interviewees indicated that they felt comfortable reaching out to Energy Trust at any time, and said they do so often.

UTILITY PERSPECTIVE

As described above, the four funding utilities – PGE, Pacific Power, NW Natural, Cascade Natural Gas – collaborate with Energy Trust to jointly market Existing Homes program offerings. In-person meetings occur at least quarterly, and email and phone communications occur regularly between Energy Trust and each of the utilities. At a minimum, Energy Trust shares its marketing plan for the year with each utility, usually in January, and marketing materials are coordinated to avoid duplication of ads and ensure optimal timing of utilities’ newsletter and bill insert content. Coordination also often includes cross-referencing customer contact lists to target customers most likely to be interested in an offering, and to avoid contacting ineligible customers. Other collaborations include co-branding websites and emails, and on-bill financing offers. Additionally, Energy Trust coordinates with PGE on inspections of new heat pump installations as part of PGE’s high-efficiency heat pump program. We also spoke with Clark PUD in SW Washington, not a funding utility, but a collaborator on discrete program offerings of mutual benefit.

We heard a wide range of views from utilities on the effectiveness of Energy Trust’s communication. The electric utilities generally expressed satisfaction with the level of communication and program coordination between their respective organizations and Energy Trust, while the gas utilities voiced some level of frustration.

Both of the funding electric utilities, as well as Clark in SW Washington, said that communication works well. One of the funding electric utilities stated that communication *“has been steadily improving, and we’re in a good spot,”* and noted that, even if they don’t always agree, they have *“good discussions.”*

By contrast, both of the gas utilities expressed that communication from Energy Trust is limited with respect to Oregon programs. One noted a decline in program collaboration since 2012. While acknowledging that cost-effectiveness of measures is an issue, this contact expressed a desire for more direct support and discussion around program opportunities and marketing. Achieving cost-effective natural gas savings is becoming increasingly challenging, and utilities would find additional collaboration around these areas valuable. Contacts said:

"...[We're looking for] more proactive communication from [Energy Trust] to pitch ideas to us, rather than us being the ones to initiate most of the activity."

"We'd like to tailor [marketing messages] more to our territory, but we know [Energy Trust] is fuel neutral."

In addition, both gas utility contacts expressed a desire for more real-time communication from Energy Trust when new marketing campaigns begin, noting that although they are aware of the annual marketing plans, they are not notified when a campaign is live, and therefore aren't always aware of what their customers are seeing until after it goes out.

Lastly, one contact expressed a desire for Energy Trust to share a longer-term strategic plan for the residential sector, saying that right now plans are shared year-to-year, and that knowing the "5-year vision" would be helpful¹⁰.

MARKET ACTOR PERSPECTIVE

All market actors interviewed (trade allies, distributors, and new home verifiers) generally felt their communication with Energy Trust was good. The majority of feedback on improving communication centered around the need to find information more efficiently. For example, one trade ally said that it was difficult to find information¹¹ on the website, one said regional rebate information was inaccessible on the website, and another was interested in having customers look up their application status independently. Additionally, one new home verifier interviewed suggested streamlining the web-based database, called Axis, that verifiers use to upload project information to Energy Trust for incentive processing. This verifier said there is a lot of back and forth communication with the PMC around Axis. This contact offered additional details on improving the incentive application process through Axis, detailed below in *Section IV – Effects of Recent Program Changes*.

Distributors also spoke to communication, but seemed split on the effectiveness. Feedback received was that they needed additional communication and support on the Sales Performance Incentive Fund (SPIF) (discussed more fully in the next section), and one distributor said it took a long time to receive responses to questions.

PROGRAM DELIVERY PROCESSES FOR TRADE ALLIES

This section presents trade allies' perspectives related to the following areas: marketing tools and outreach, role of incentives on trade ally businesses, and suggestions for improvements.

¹⁰ Energy Trust publishes its 5-year strategic plan on its website: https://energytrust.org/library/plans/2015-2019_Strategic_Plan0.pdf

¹¹ The contact did not elaborate on what types of information were difficult to find.

MARKETING TOOLS AND OUTREACH

Energy Trust provides a variety of tools and support to trade allies to facilitate marketing efforts, including:

- Cooperative advertising
- A booklet containing information on available incentives
- Website development funds to include Energy Trust's logo and link to Energy Trust's website (one time, \$250)

Our assessment showed that half of the trade allies we spoke with (13 of 26 answering the question) had used some of the marketing materials. The tool trade allies used most was including the Energy Trust logo on company brochures and other printed materials (12), followed by cooperative marketing (11), which saw only 3-star allies¹² using it. The next most commonly used marketing tool was promoting affiliation with Energy Trust on their company's website (5); four of those five are 3-star trade allies and one is a 2.5-star ally. Finally, three 3-star trade allies reported using Energy Trust's incentive booklet during the sales process. Most of the trade allies that used Energy Trust marketing tools said they felt it was effective in helping them to reach more customers, and adds credibility to their efforts.

Half of the trade allies interviewed (13 out of 26) said they had limited or no engagement with the marketing materials, with most of these having less than a 3-star rating. A majority of these (8) said they do not use any of Energy Trust's marketing tools. An additional three trade allies weren't sure if they'd used them, and two were unaware of the tools. The two trade allies who were unaware of the tools had star ratings of 1.5 and 2.5. One highly active, 3-star trade ally who works in Washington said they did not currently use any of Energy Trust's marketing tools, but were meeting internally to discuss marketing opportunities broadly, including Energy Trust's tools.

A review of trade ally activity in the program with their use of marketing tools further highlights that less active trade allies are less likely to use these tools. Nearly all trade allies that participated at low or medium-low levels said they either did not leverage Energy Trust marketing tools or were unaware of options, with one saying "... [I] would like to know more. I do not use this currently but it would certainly help." There may be an opportunity to increase trade ally activity through the program by increasing their awareness of the marketing tools, and what it takes to be eligible to use them, particularly given the trade ally feedback that these marketing tools provide credibility and reach to customers.

Although the program has seen early success with its gas furnace rental offering for single-family rental properties, the trade allies with whom we spoke, who have experience selling gas furnaces to rental owners, expressed that this is a difficult market for them to reach. Trade allies said that rentals are difficult to reach because the first cost barrier is particularly prevalent for rental property owners, where the least cost option is always the preference. Our interviews indicated that trade allies do not necessarily change their sales practices with owners of rental units. However, trade allies indicated that rental owners are far less willing to adopt higher-efficiency equipment than owners who occupy their homes. One trade ally commented:

"Rental property owners are looking for the cheapest option available so it would be helpful to have larger rebates for high-efficiency equipment to make the cost more competitive with lower efficiency equipment."

¹² Cooperative marketing funding is available at different levels based on a trade ally's star rating. Two-stars allies (or less) are not eligible for reimbursement; 2.5-star allies are eligible for reimbursement of 30% of project costs up to \$1,000; 3-star allies are eligible to receive 50% of project costs up to \$2,500.

Although Energy Trust has designed a specific gas furnace incentive for rental properties, given that it is a relatively new effort (began in 2015), there may be an opportunity for the PMC's trade ally account managers to employ a more concerted focus on coaching trade allies on how to effectively sell efficient equipment to this particular market segment.

INCENTIVE INFLUENCE AND ROLE IN TRADE ALLY BUSINESSES

The incentives, fundamentally, are offered to increase the adoption of high-efficiency equipment over standard equipment, once a person has already decided to undertake a project. And while what Energy Trust offers is *"better than nothing"* (as noted by one trade ally), the question is whether it is sufficient to drive customers to select the high-efficiency equipment. Trade allies attempted to upsell higher efficiency equipment through informing potential customers that the project may qualify for Energy Trust incentives (19) as well as nearly always including Energy Trust incentives on bid documents (12).

Many of these trade allies said that it is standard practice to offer high-efficiency equipment. The majority of trade allies interviewed (26) said they generally suggest equipment or services that qualify for incentives even if customers do not specifically request it (16 always suggest and 6 suggest most of the time).

However, recommending equipment does not always result in a sale. Trade allies interviewed discussed the difficulty in getting customers to pay more for the high-efficiency option: *"...[I] present efficient options to customers, but many customers are unwilling to spend additional money for an efficient water heater to receive an incentive."*

TRADE ALLY SUGGESTIONS FOR IMPROVEMENT

Interviews with trade allies explored potential opportunities for improvement. There was no one area raised consistently by trade allies, indicating that processes are generally working well. Three suggestions of more notable mention relate to: incentive levels; the application process; the need to find incentive status quickly; opportunity for on-bill financing, and; continued public education on benefits of efficiency. Note that these are trade ally perspectives, mentioned by relatively few of those interviewed.

Incentive levels. As is heard from contractors in many programs, the most commonly noted suggestion for improvement was to increase incentive levels for equipment, although it was only mentioned by five trade allies. Several trade allies looked back to prior years and described the trends in decreasing incentive levels. Although it is not possible for Energy Trust to increase incentive levels due to cost-effectiveness requirements, contractors notice decreasing incentive levels over time, and feel their effects.

Application process. Another area for improvement noted by a few of the trade allies is to streamline the application process. These trade allies expressed that paperwork requirements can be time-intensive.

"Paperwork, signatures, more paperwork, it's everyone – Energy Trust, NW Natural, tax credits, etc. I almost need a full time person; everyone is pushing everything to the contractor."

"Streamline the process and make it easier to get incentives. Too much paperwork and it is hard to get stickers off windows.¹³ The amount of work necessary to complete the application and collect documentation for incentive isn't always cost-effective."

¹³ Documentation demonstrating that individual windows are efficient, showing the efficiency level and size, are required to verify eligibility for each window receiving an incentive.

One highly active trade ally mentioned that a more universal application that requires a single signature rather than several signature areas would be helpful.

Find incentive status quickly: A few trade allies (3) also mentioned the need to be able to quickly and easily find incentive information. Note that these trade allies said they accessed Energy Trust’s trade ally web portal, and two of them said they went to the portal to find information on incentives specifically. It is unclear whether this finding is indicative of a need for additional or clearer information on the web portal itself.

On-bill financing: Cost-effectiveness is clearly an issue when considering level of incentives, especially as baselines increase and savings decrease. One trade ally, when discussing incentive levels, mentioned that a more readily available on-bill financing option would make a difference¹⁴. He felt that this option would increase contractor engagement and the possibility to more successfully upsell the equipment to customers, even with decreasing incentive levels.

Public education: Continued public education on the benefits of high-efficiency equipment is another opportunity to increase adoption outside of incentive levels. Several trade allies suggested more targeted public education on the benefits of high-efficiency equipment, including heat pump water heaters. One trade ally believed that greater public education contributed to the increase in adoption of higher-end heat pumps: *“And the better-educated homeowners are the ones choosing the high-end heat pumps.”*

¹⁴ Energy Trust currently offers on-bill financing for some measures to three sets of customers: 1) income-qualified, Savings Within Reach customers; 2) PGE customers who purchase a high-efficiency heat pump; and 3) NW Natural customers who are residents of SW Washington and heat their homes with gas.

IV. EFFECTS OF RECENT PROGRAM CHANGES

RECENT CHALLENGES AND HOW THE PROGRAM HAS ADDRESSED THEM

One of the biggest challenges facing the program in recent years has been the need to reduce program implementation costs while delivering more savings. In 2015, program staff identified means for reducing program costs, including eliminating the in-home Home Energy Review (HER) and continuing to offer online HERs (not evaluated as part of this study). In addition, staff identified program changes for increasing program efficiencies and driving participation. If successful, these changes should result in increased overall program cost-effectiveness. As noted in, these changes included a concerted focus on program market actors, customer experiences, and program processes.

Recent program changes¹⁵ include:

Increased Midstream Engagement – A shift in implementation approach to focus more on midstream engagement, particularly with respect to heating systems, water heating, and thermostats, with the intent to influence stocking practices by distributors, increase the availability of affordable, qualified models in the supply chain, ensure these products are offered to consumers, and remove the administrative burden of completing forms, which has been a barrier to customer participation. Program efforts to increase midstream engagement include direct distributor support, detailed next;

Distributor Support – Created new mechanisms for engaging distributors, including:

SPIF – Began offering Sales Performance Incentive Funds (SPIFs) to distributors for sales of qualifying equipment receiving an Energy Trust incentive;

Information sessions – Coordinated with distributors to offer information and training sessions on Energy Trust incentive offerings to contractors;

Online Home Energy Review – Discontinued the in-home Home Energy Review (HER) home audit program, while continuing to offer online HER;

Energy Saver Kits (ESK) – Replaced CFLs with LEDs in Energy Saver Kits;

Rental Measures – Began offering a gas furnace incentive, as well as increased insulation incentives for single-family rentals;

¹⁵ For the purposes of this evaluation, our discussion of program changes refers to any changes that have occurred since the previous evaluation, completed by Research Into Action in 2014.
http://energytrust.org/library/reports/EH_Process_Eval_0414.pdf

Trade Ally Support – Created new and/or updated processes and tools, including:

Account management model – A single point of contact for trade allies who provide program guidance, mentorship and support;

Instant incentives – A process by which contractors deduct the incentive amount directly from a customer’s bill, carrying the cost of the incentive until receiving reimbursement from Energy Trust;

Web forms – The option for trade allies and customers to submit incentive forms online;

Trade ally portal – A web-based repository of information where trade allies can log in and view project details for all of the active and completed projects they have submitted for an incentive, as well as access program forms;

Newsletter/blog – An information source called *Insider* that provides both general information to all trade allies, as well as specific information on program offerings, market-related topics, tips and education;

Introduction of EPS to New Homes program in Washington – Transitioned from a program based around ENERGY STAR and Earth Advantage certifications to the Energy Trust’s EPS (energy performance score), in alignment with the New Homes program in Oregon.

Desk Quality Assurance (QA) – A new approach to project QA that, among other things, includes a decrease in the number of on-site inspections by program staff, and the implementation of a desk review process for some projects. In addition, the New Homes program in SW Washington transitioned to a more direct, in-depth QA process, where previously Energy Trust had relied on the Northwest Energy Efficiency Alliance (NEEA) and their ENERGY STAR® Homes QA process.

TRADE ALLY EXPERIENCE WITH RECENT PROGRAM CHANGES

Energy Trust, recognizing the importance of the market actors in driving programs, made a number of program implementation modifications to support the trade allies. Energy Trust undertook these changes with the intention to improve efficiency and support to trade allies, which, in effect, would increase trade ally engagement and drive participation. We asked trade allies to discuss their experience with the following six aspects of the program that are either new or have changed:

- Account management model
- Instant incentives
- Web forms
- Trade ally network and portal
- E-newsletter and blogs
- Desk review and quality assurance

ACCOUNT MANAGEMENT MODEL

One of the key program changes that Energy Trust has made is a shift toward an “account management” model, a process where the PMC provides trade allies with a dedicated account manager. CLEAResult employs 10 account managers who are assigned different geographical regions and serve as a single point of contact for

trade allies in those regions. Account managers provide individualized mentorship, training and support. Overall, the evaluation found that the account management model has been a positive addition to the program, although not all trade allies within Energy Trust's network have been reached through this one-on-one engagement yet.

One of the account manager's roles is to offer guidance to trade allies who are interested in participating in a specialized track through Energy Trust. Examples of specialized tracks include:

- Savings Within Reach, Energy Trust's moderate income program;
- Instant incentives, whereby qualifying trade allies are able to deduct an incentive amount directly from a customer's bill, saving the customer from having to submit an incentive application and allowing the customer to receive the rebate "instantly;"¹⁶
- Manufactured homes duct sealing; and
- Gas furnace rebate for owners of single-family rental properties.

About a third of trade allies interviewed (9) felt that the dedicated account manager made a positive difference in their experience with the program. Their ability to obtain information from a single source and having the focused attention was well-received: *"[It is] better to have one person to talk to."* Several trade allies also commented favorably, but said that they always have had good communication with Energy Trust staff. *"[We] have never found the communication piece to be a problem. We always get good service and always have."*

However, many trade allies (10) either have not had occasion to interact with their account manager or were not aware of the dedicated account manager model. Several of these trade allies noted that they have not had a need to contact an account manager, and are not concerned with not having that direct contact. One trade ally conjectured whether the program field inspector with whom he works might be his account manager, since that is the primary point of contact for that organization: *"I talk to Rick a lot about my questions, so he might be my account manager."*

Not surprisingly, trade allies more actively involved in the program were more likely to recall a dedicated account manager, or to say communication was good. Of the 10 trade allies that have not had communication with an account manager, five were categorized within the less active groups (low or medium-low), and the other five were more active (medium-high or high). Of these, most were not aware of the account management model, and two did not feel they had a reason to contact an account manager. Only one trade ally expressed dissatisfaction from not knowing about the account management model.

While the trade allies interviewed did not speak to the value of the account management model specifically in terms of their sales or offerings, one trade ally highlighted the importance of this role through losing his account manager. This respondent shared his favorable experiences with a dedicated contact, discussing the services that individual provided (such as workshops) and the value of that time. Unfortunately, the individual is no longer in that role, and the trade ally has not had contact with a new account manager. He attributed his not offering more services to his customers to the loss of communication with Energy Trust. This is the only individual who mentioned this experience, but it illustrates that the dedicated communication provided by the account manager provided value, not only for this single contact, but also for his business.

¹⁶ Instant incentives are described in detail in the section directly following.

INSTANT INCENTIVES

In 2014, Energy Trust rolled out instant incentives, or contractor-paid incentives, which is an option that qualifying, 3-star trade allies may offer their customers. Instant incentives are different from the standard end-user incentive, whereby a customer receives an incentive from Energy Trust 6-8 weeks after submitting an application. With instant incentives, trade allies deduct the incentive amount directly from a customer's bill, enabling the customer to receive the benefit immediately, rather than submitting a form and waiting for a check to arrive. Trade allies must carry the cost of the incentive until they submit an application form and receive reimbursement from Energy Trust.

Energy Trust began offering the instant incentive option with the hope that it would act as a tool to help trade allies make the sale of an efficient model of equipment over a standard efficiency model. Specifically, Energy Trust's goal with contractor-paid incentives is to "increase the number of prescriptive HVAC, weatherization and water heater measures submitted to the program by reducing up-front cost barriers to customers¹⁷." Additionally, instant incentives reduce the cases of customers submitting forms with missing information, as trade allies are more familiar with the form requirements

Outside of personal preference, there is no evidence from the interviews that there are fundamental concerns or process issues related to the instant incentive. And while we were not able to ascertain through these trade ally interviews whether the instant incentive is improving sales or customer reactions, many trade allies that used the instant incentive process said they prefer it to the standard process.

Of the 16 3-star trade allies we interviewed, 12 had used instant incentives, while 4 had not. While the perceived value of the instant incentive was mixed among these trade allies, most respondents who had used instant incentives were in favor of it, citing benefits such as being able to use it as a selling point. Other respondents were less interested in the instant incentive. One specifically said that for them, the instant incentive introduces a cash flow issue, whereby they try to avoid "*carrying that expense.*"

WEB FORMS

Energy Trust instituted another program change in 2015, aimed at increasing process efficiencies and lowering administrative costs: instituting a web-based incentive application form for use by both customers and trade allies. The respondents to our trade ally interviews had a relatively high adoption of the web forms, with 17 of the 27 trade allies using web forms consistently (between 75% and 100% of the time), two saying they used web forms 5% of the time, and one additional trade ally saying they print the form from the website and then email it. Nearly all the trade allies using web forms say they use it for *all* their incentive applications.

Reasons for not using web-based forms are generally based on preference. Several trade allies preferred to use paper copies, and one was concerned with security issues around submitting applications via the internet. Another trade ally blamed his age: "*I'm old and have always submitted paperwork.*" Only one respondent discussed the format of the form itself, saying it was too complicated. Two trade allies said they were unaware of the web forms.

TRADE ALLY NETWORK AND PORTAL

Energy Trust began its trade ally network in 2003 to increase contractor connection to the program, provide resources to trade allies, and ensure quality installation of energy-efficient equipment through the program.

¹⁷ Source: Instant Incentives Implementation Plan, CLEARResult. Submitted to Energy Trust on July 10, 2014.

To become part of Energy Trust’s trade ally network, contractors must be licensed and insured, serve customers within Energy Trust’s service territory, and submit an application to Energy Trust. Although contractors are not required to join the trade ally network for their projects to qualify to receive incentives, becoming a trade ally has benefits to the contractor, such as access to Energy Trust resources, like being listed on Energy Trust’s website as an approved contractor, receiving a dedicated account manager, and being able to utilize marketing tools and business development funds. Trade ally status can also provide enhanced market credibility with customers.

The interviews asked trade allies if they had any suggestions on how to make the trade ally network more valuable. Respondents, for the most part, could not provide any suggestions for improving the network itself (16). Several trade allies recommended program design changes, which are not necessarily part of the network itself, such as offering higher incentives (5).

In 2015, Energy Trust developed a web-based portal specifically for trade allies of the Existing Homes program. The portal enables trade allies to log in and view project details for all of the active and completed projects they have submitted for an incentive, as well as access program forms. Trade allies can also create a profile for themselves where they can enter and update company contact information. The portal was created as a central repository of information where trade allies and their account managers can access information about their projects and check project status.

In our interviews, nearly all (25 of 27) of the trade allies we spoke with were aware that Energy Trust offers a web portal to trade allies. When asked what type of information is available on the portal, most respondents mentioned information about incentives, forms, and the ability to check an application status.

Of the 25 trade allies that were aware of the portal, 22 said they had used the portal, although most did not claim to visit it frequently. Table 10 shows the frequency with which trade allies reported visiting the web portal.

Table 10: Frequency of Trade Ally Visits to Existing Homes’ Web Portal

FREQUENCY OF PORTAL VISITS	NUMBER OF TRADE ALLIES
Twice per month or more	5
Once per month	5
2-4 times per year	5
Only visited the portal once	5
“Infrequently”	2
Total	22

Specifically, five said they use it twice a month or more, five said they use it once every month or two, another five said they use it approximately two to four times a year, and five said they used it only once. Several additional trade allies said they use the trade ally portal often, but one of these respondents said it is just as easy to call Energy Trust.

The web portal is most often used to check the status of incentive applications, check for and fill in missing information. Of those that use the portal, about half find that the portal meets their expectations. Suggestions

for improvements include: make it easier to find missing application information (4); make it easier to navigate (3), and; include information about regional and national incentives or tax credits (2).

Those few that do not use the portal attribute the lack of use to their being “old school” (2) or preferring to work with paper. As one trade ally noted, *“I prefer paper, and am in a rhythm of how it was done in the past,”* and another said, *“It’s easier to work on paper than online.”*

E-NEWSLETTER AND BLOGS

Energy Trusts provides trade allies of all programs with an email newsletter and blog, called “Insider”. The e-newsletter contains headlines with links to full articles on the blog. These resources share both general information to all trade allies, as well as specific information on program offerings, market-related topics, tips and education.

Over half of trade allies interviewed (16) said that they read the e-newsletter and/or blog. Nearly all of these respondents said that these resources meet their needs. The e-newsletter is far more commonly read (15) than the blog (6).

Trade allies generally find the information provided useful and informative. They enjoy reading the newsletters in particular for new information on the program and technologies; as one respondent noted, *“... things change so quickly we want to make sure we have the right information and our customers get the right information.”*

Given that the majority of trade allies read the newsletter and found it useful, when asked for recommendations, only one trade ally was able to provide concrete suggestions for improvement to the newsletter and content, asking for more eligibility information and suggesting that Energy Trust *“...include scenarios such as rebate eligibility for a heat pump with a gas line or a home with a detached mother-in-law suite.”*

Two additional trade allies mentioned that they feel they receive too many emails, though they did not specify who the emails were from and to what they pertained. One of these trade allies said he would like to receive one easy to read newsletter per month. Lastly, two trade allies said the information did not pertain to their market segment, or there was simply too much information in the newsletters, although this contact recognized that the newsletters provide *“information for everyone.”*

These comments were all in the minority, however, and reflect of personal preferences. There was no evidence from this research that the content of the newsletter, or blog, should be modified at this point.

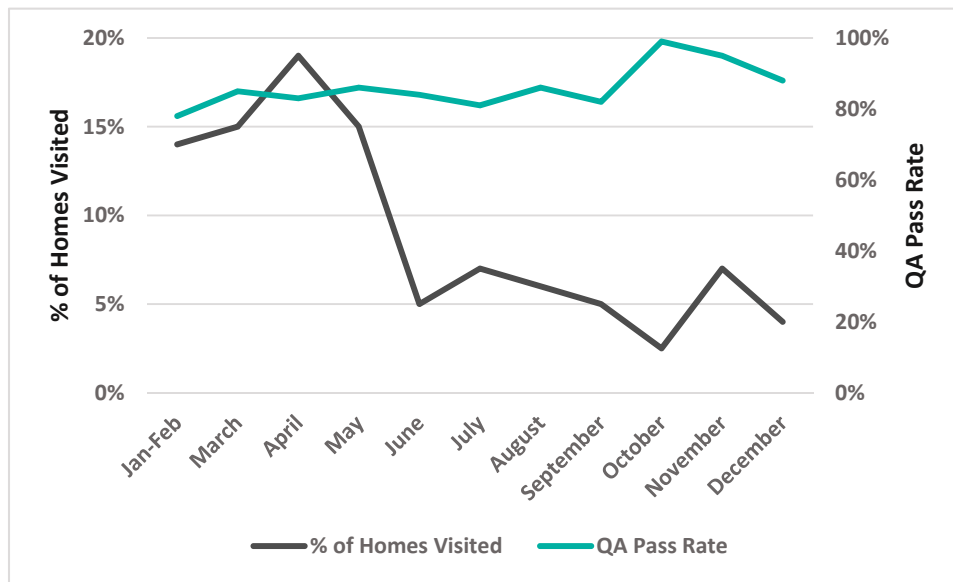
DESK REVIEW QUALITY ASSURANCE

In 2015, Existing Homes transitioned to multiple methods of quality assurance (QA), with the goal of confirming that projects meet specifications, upholding data integrity, and delivering high quality customer service while also reducing program delivery costs. In order to meet these objectives, Existing Homes implemented the following approach to quality management:

- Measure-by-measure approach based on historical data review, technology type, contractor performance and installation requirement
- Blend data analysis, application review, and enhanced customer engagement with field QA
- Reduction in delivery of field QA
- Leverage quality assurance delivery in other programs
- Improve customer experience by removing incentive payment delays due to QA

In this evaluation, we assessed the effects of the third bullet point – reduction in delivery of field QA. A review of CLEARResult’s monthly reports, which provide a summary of the program’s QA results, showed that home visits decreased significantly over the course of the year, while pass rates for QA inspections remained stable (see Figure 4: 2015 Trends in QA Home Visits and Pass Rates). Notes contained in the monthly reports indicated that a number of QA failures were due to missing carbon monoxide detectors, which is something the program was able to determine during a desk review. From our review of these documents, it therefore appears that the reductions in home visits did not have a negative impact on QA quality.

Figure 4: 2015 Trends in QA Home Visits and Pass Rates¹⁸



The PMC reduced on-site QA inspections by 65% in May, and inspections “continued to decrease as the program shifts to a minimum of 5 percent inspection rates while exploring alternative mechanisms for delivery of quality management systems based on historical measure performance.”¹⁹

We also assessed the impact of this change to QA processes from the trade ally perspective. During our interviews, we assessed whether trade allies were aware of the reduction in home visits, and any impact it may have had on their operations. We found that few trade allies – six out of the 27 interviewed –were aware of the QA process change. Not surprisingly, most of the aware trade allies (5 out of 6) were very active in the program. One trade ally said he noticed a decrease in inspections, but attributed the reduction to changes in his company’s installation practices (he thought that the company’s improved practices over time had resulted in fewer on site QA inspections).

Interestingly, one trade ally did not view the change to the desk review favorably. This respondent believed the program should be doing more independent third-party QA, stating that QA is a tool for ensuring proper practices are met and provides credibility to the program. As noted above, one trade ally believed that his company’s installation practices have changed to improve quality, although this contact did not necessarily attribute the improvement to the desk review QA process.

¹⁸ Source: CLEARResult, 2015 Energy Trust of Oregon Existing Homes Monthly Reports.

¹⁹ CLEARResult, May 2015 Monthly Report, page 8.

DISTRIBUTOR AND NEW HOME VERIFIER EXPERIENCES WITH RECENT PROGRAM CHANGES

DISTRIBUTORS

As part of its efforts to expand the program's reach while minimizing program delivery costs, Energy Trust has intentionally focused resources on engaging midstream market actors, who are able to impact sales of efficient equipment at higher volumes than downstream actors. Energy Trust views distributors as potential program "aggregators," whereby the program could receive incentive applications in bulk, resulting in process efficiencies and therefore reduced program costs. Specifically, Energy Trust has fostered relationships with seven HVAC and/or water heating distributors to encourage them to: 1) sell more qualifying equipment through the use of a \$25 Sales Performance Incentive Fund (SPIF), and 2) collaborate with distributors to offer training and information sessions for contractors, such as "lunch-and-learn" presentations.

The SPIF is designed to be a small adder to an existing incentive (payable to the customer) that the distributor can receive for selling qualifying equipment. The intention is not to have the \$25 influence a customer's decision about what product to purchase, since it is a small amount and not payable to the customer. Rather, the intent is that the SPIF will be valuable in aggregate to the distributor, and encourage them to align their stocking and sales practices with Energy Trust's goals, and to inform their contractors about the availability of efficient products.

To gain insights into distributors' experiences with these efforts, we conducted in-depth interviews with two distributors of HVAC equipment based in Oregon, one who has worked with Energy Trust for 5 years, and the other "since Energy Trust started." The distributors relayed their experiences with both the SPIF and with contractor education efforts, discussed in turn below.

SPIF

While the two distributors we spoke with indicated they thought the SPIF was a good concept, they both perceived the administrative burden of the program requirements to be high.

We asked each distributor to describe how the SPIF process works at their company. One explained that they collect the relevant project information through a website, including model, serial, homeowner information, dealer information, dealer number with Energy Trust, and whether the site is an existing home. They then export the information into Excel and submit it to Energy Trust. In tandem, the contractor fills out an incentive application form with the homeowner that is submitted by either the contractor or the customer. The other distributor said that they first identify if the contractor is installing in Energy Trust territory, and if so, the sales staff have to record the address for the installed equipment. Once the distributor compiles all the required information and submits it, usually on a quarterly basis, they are dependent on the customer or contractor to submit the incentive form in order to receive the SPIF; if the customer or contractor fails to submit for the incentive for any reason, the distributor does not receive the SPIF for that installation.

Both distributors said that it would impact their ability to promote qualifying equipment if Energy Trust provided incentives directly to distributors for each unit sold, instead of providing a SPIF to the company and an incentive to the customer or contractor. However, when asked if they would be able to collect the necessary information for incentive submittal, such as customer contact and site address, one said yes, while the other said, "No, distributors couldn't provide this – we have no idea where contractors are installing this stuff. It'd be

too hard unless it's a new construction job." Therefore, it is not clear that providing the incentive directly to the distributor would lessen the perception of burdensome submittal requirements.

Contractor Education About Qualifying Products

Although distributors work with Energy Trust to provide a variety of training opportunities for their contractors, we asked the two interviewees specifically about their experience offering lunch-and-learns, which are presentations intended to educate contractors on new and efficient technologies. One distributor had offered at least one lunch-and-learn on heat pump water heaters, while the other had not. The one who had offered a lunch-and-learn did not feel it was well-received by the attending contractors, saying that contractors respond better to manufacturer-hosted training. We did not talk to trade allies about their experiences with lunch-and-learns – we recommend Energy Trust further study their effectiveness with trade allies if this is an area of interest going forward.

NEW HOME VERIFIERS – FEEDBACK ON NEW HOMES' ENERGY PERFORMANCE SCORE (EPS) RATING SYSTEM

EPS Program Description

As described earlier in this report, in addition to the Existing Homes program, the PMC is responsible for implementation of the New Homes program in SW Washington. In this section, we describe recent program changes to the New Homes program as they pertain to SW Washington that are gas-heated and served by NW Natural, and how two new home verifiers working with Energy Trust have responded to the changes.

Prior to 2016²⁰, the program offered a \$500 incentive to builders achieving an ENERGY STAR® or Earth Advantage® certification, showing that a home was at least 15% more energy efficient than state code requirements. The program also previously offered stand-alone cash incentives for tankless gas hot water heaters²¹ (\$200) and efficient tank gas hot water heaters²² (\$150) installed in new homes.

Beginning in February 2016, the program transitioned to offering its EPS™ (Energy Performance Score) rating to new homes, and no longer provides an incentive for ENERGY STAR or Earth Advantage certifications. Similar to ENERGY STAR and Earth Advantage, EPS is a voluntary rating system that scores the energy efficiency of a home compared to other similarly-sized homes. Ratings can range from 0 to 200, with 0 being the most efficient score possible. Builders must request an EPS rating prior to beginning construction.

Currently, the program does not provide a single incentive amount for achieving a certification, but bases incentive amounts on a sliding scale of achieved efficiency, starting at \$300 for a 10% improvement above code

²⁰ The impetus for this change was a code change that substantially increased the energy efficiency requirements of new homes in Washington in 2015. Washington State Building Codes: <https://fortress.wa.gov/ga/apps/sbcc/Page.aspx?nid=14>. Accessed December 12, 2016.

²¹ Tankless hot water heaters that met or exceeded 0.82 EF qualified for the incentive.

²² Gas tank water heaters that met or exceeded 0.67 EF qualified for the incentive.

and ranging up to \$900²³ for a 45% improvement. Table 11 shows examples, created by Energy Trust²⁴, of paths builders can take to achieve the various efficiency levels. Energy Trust also provides a \$100 incentive to verifiers for submitting a qualifying home to the program.

Table 11: Example Paths to Washington EPS Incentive Payments

	10% Improvement	20% Improvement	30% Improvement	40% Improvement	45% Improvement
Potential Incentive	\$300	\$400	\$500	\$700	\$900
Floor	R-30	R-30	R-38	R-38	R-38
Wall	R-21	R-23	R-23	R-28	R-28
Window	U-0.30	U-0.30	U-0.28	U-0.25	U-0.22
Ceiling	R-49	R-49	R-49 plus R-21 heel	R-49 plus R-21	R-60 Advanced
Water Heater	0.82 EF Tankless	0.82 EF Tankless	0.82 EF Tankless	0.82 EF Tankless	0.82 EF Tankless
Furnace	92 AFUE	95 AFUE	95 AFUE	96 AFUE	96 AFUE
Ducts	Mastic Sealed and Tested	Mastic Sealed and Tested	Inside and tested*	Inside and tested*	Inside and tested*
Air Sealing ACH 50	5	4	3	2.5	2
Ventilation	High Efficiency Exhaust	High Efficiency Exhaust	High Efficiency Exhaust	Qualified HRV	Qualified HRV
High Efficiency Lighting	75%	75%	75%	100%	100%

*All HVAC equipment and ducting must be located inside a conditioned space to qualify for this path.

Builders wishing to achieve an EPS rating must submit building plans to a third-party verifier, who models the home to estimate energy savings and incentive amounts, and in some cases recommends additional efficient gas measures to include in the home to improve the score and qualify the builder for more incentives. Once the home is constructed, the verifier documents the home’s construction features, such as insulation levels and heating and cooling equipment, tests the home’s performance in areas such as air leakage and duct sealing, and issues a final EPS.

²³ Washington builders are only eligible for gas measure incentives. Electric energy savings may be factored into the score, but are not eligible for incentives. Oregon builders are eligible for electric and gas incentives, up to \$5,200 per EPS certified new home.

²⁴ Table retrieved from http://energytrust.org/library/forms/ENH_PG_NH_Incentive_Overview_WA.pdf.

In addition to the fundamental change in the New Homes program’s design, Energy Trust also transitioned the EPS application process to an online database called Axis that was already being used for Oregon EPS applications.

To assess verifiers’ reactions to these program changes, we interviewed two new home verifiers who work with builders in SW Washington. One verifier estimated that approximately 80% of their jobs occur in Washington, with 20% of jobs occurring in Oregon, while the other verifier estimated about 20% of their jobs occur in Washington and the remainder in Oregon. We asked them about their experience with EPS, the application submittal process, communications with Energy Trust (outlined in *Section III* above), and ways in which Energy Trust might improve its relationship with verifiers to increase cost-effective savings.

Verifier Experience with EPS Overall

When asked to describe their experience working with EPS through Energy Trust, one verifier said he has worked with several programs offered by others, *“and by far, Energy Trust is the easiest to work with.”* The other replied that the experience has been, *“overall, pretty good.”* Both verifiers communicate with CLEARResult staff on a regular basis (between weekly and monthly), and report positive experiences with communication.

Web-based EPS Application Submittal

Prior to 2016, verifiers submitted paper application forms to Energy Trust for processing. We asked both verifiers how online application/incentive processing through the Axis database was working for them. One said the database was working well and is easier to use than paper, while the other said there is *“room for improvement,”* and suggested streamlining the database protocols, and suggested reducing the number of data points required. He said, *“I’d like a copy and paste feature so we don’t have to submit houses singularly, and create a template house to submit new homes that are very similar except for...the address.”* This contact also suggested the use of a smartphone app to aid in uploading data to the Axis site.

Marketing and Promotion of EPS

We asked the two verifiers to describe how they promote EPS to Washington builders, and whether they used Energy Trust marketing materials. One says he is just getting started with showing marketing materials to Washington builders, and plans to promote the program by showing builders the Energy Trust information sheet and the signs. The other said he does not use all the marketing materials Energy Trust provides, but that one piece, called the *“Natural EPS Score”*, was especially valuable; he said it clearly illustrates a home’s performance potential to builders. This verifier also goes on home tours of EPS homes with builders, in some cases accompanied by Energy Trust staff.

When asked how Washington builders have responded to EPS so far, one verifier said that small homes typically look better with EPS than large homes, so the smaller home builders are typically more receptive. The other verifier had less experience with Washington builders, and didn’t have a strong sense of how the builders are reacting to EPS there.

Suggestions for Improvement

Finally, we asked the verifiers what more Energy Trust could do to support new home verifiers in expanding the reach of EPS in Washington. One verifier suggested that Energy Trust simply continue to provide support to the verifiers, and facilitate alliances and partnerships. The other suggested providing funding for, or hosting design charrettes between builders and trade contractors to help share information and expand the reach of EPS.

V. ENERGY SAVER KIT EFFECTIVENESS

In 2015, Energy Trust of Oregon delivered over 34,000 Energy Saver Kits (ESKs), and is on track to deliver a similar number of kits in 2016. With the exception of 2013, when the PMC and Energy Trust intentionally shifted focus away from ESKs as a major component of its savings portfolio²⁵, the number of delivered kits has been steady for the past few years (see Table 12).

In 2015, Energy Trust began including LED bulbs in place of CFLs in the ESKs. The kits continued to include the same water-saving measures – bathroom faucet aerators, swivel faucet aerators (referred to hereafter as kitchen aerators) and high performance showerheads. Figure 5 shows what customers may receive when they order a kit.

Figure 5: Energy Saver Kits (ESK)



Table 12: ENERGY SAVER KITS DELIVERED ANNUALLY

2012 ²⁶	2013	2014	2015	2016 (to date) ²⁷
48,000	14,048	35,029	34,309	17,288

As part of this evaluation, ILLUME surveyed 201 ESK recipients over the phone to learn about their experience with the kits. Survey questions focused on installation rates of kit components, sources of awareness of kits, motivation for ordering a kit, satisfaction with both the kit itself as well as the process of ordering it, and kit influence on investigating other energy efficiency actions in the home. We provide the results of these surveys below.

²⁵ For a detailed explanation of the decision to shift focus away from kits in program year 2013, see Research Into Action, Inc. & MetaResource Group. *Final Report: Existing Homes Process Evaluation*. 2014. Available at: http://energytrust.org/library/reports/EH_Process_Eval_0414.pdf

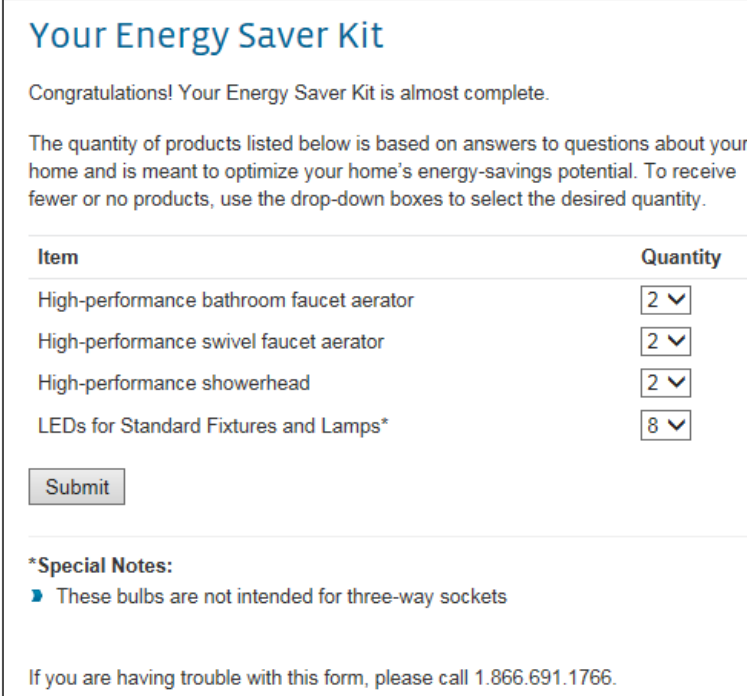
²⁶ 2012 kits contained a fixed number of kit components, depending only on the customer’s electric utility and water heating fuel and utility.

²⁷ Number of delivered kits as of August 8, 2016.

METHOD OF ORDERING ENERGY SAVER KITS

Customers primarily receive the ESK by completing an online form on Energy Trust’s website or providing information through Energy Trust’s customer service telephone line (76% and 16% order the kit through these sources, respectively²⁸). Both methods of ordering ask for the home characteristics, which determine the makeup of each participant’s kit.

Figure 6. Screenshot of Energy Saver Kit Web Order Form



Your Energy Saver Kit

Congratulations! Your Energy Saver Kit is almost complete.

The quantity of products listed below is based on answers to questions about your home and is meant to optimize your home’s energy-savings potential. To receive fewer or no products, use the drop-down boxes to select the desired quantity.

Item	Quantity
High-performance bathroom faucet aerator	2 ▼
High-performance swivel faucet aerator	2 ▼
High-performance showerhead	2 ▼
LEDs for Standard Fixtures and Lamps*	8 ▼

***Special Notes:**

- ▶ These bulbs are not intended for three-way sockets

If you are having trouble with this form, please call 1.866.691.1766.

The web-based platform customizes the kit contents based on the customers’ response to a number of household questions, including electric and gas utilities, water heating fuel, number of bathrooms and efficient lightbulbs currently installed, and whether the home contains recessed ceiling light fixtures. For example, the web platform will automatically include two bathroom faucet aerators for customers that report two or more bathrooms. The system defaults to the highest allowable number of measures based on the survey results. Participants have the option of manually reducing the number of items. Figure 6 shows a screen shot of the final page of the web form, completed for a hypothetical single-family home with qualifying electric and water heating utilities, two showers and no recessed ceiling light fixtures. It shows the message customers receive with instructions on how to receive fewer or no products. Table 13 shows the number of recipients who received the maximum number of items for each measure across the entire sample.²⁹

²⁸ Other sources include community events and work events.

²⁹ These results exclude respondents who do not recall whether they installed items or not.

Table 13. Participants Who Received Maximum Number of Items

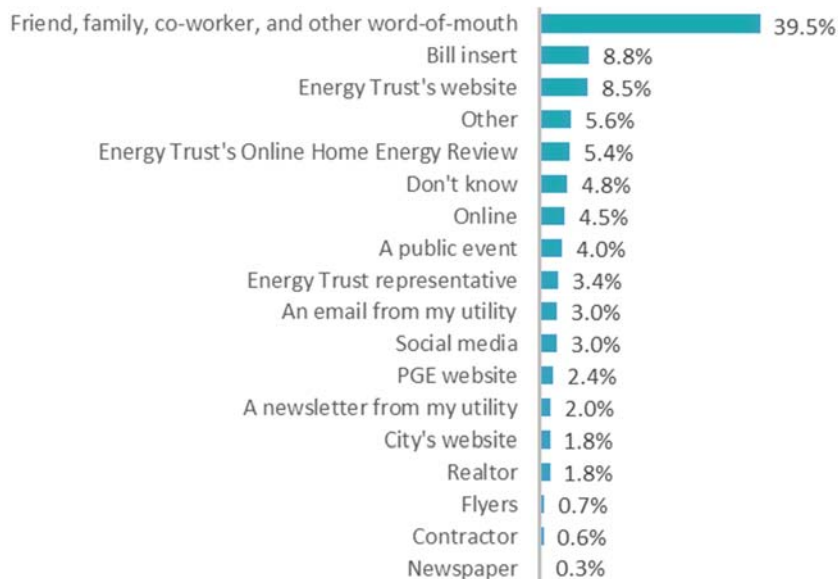
MEASURE	RECEIVED MAXIMUM NUMBER	PERCENT OF TOTAL RECIPIENTS
Bath Aerator	87	55.4%
Kitchen Aerator	72	47.7%
Showerhead	92	54.4%
A-lamp	177	99.4%
Reflector	104	98.1%

The number of lightbulbs may be reduced from eight to zero for a-lamps and from four to zero for reflectors; the number of water devices may be reduced from two to one or zero.

SOURCES OF AWARENESS AND MOTIVATION FOR ORDERING KITS

To gauge sources of awareness, we asked all recipients how they first learned about the Energy Saver Kit. As shown in Figure 7, respondents commonly (39%) learned about the kits through word-of-mouth from a friend, family, co-worker or other acquaintance. Interestingly, past ESK program reports have identified that more recipients become aware of the program by utilities’ emails rather than word-of-mouth. The anomaly of almost 40% of recipients being aware of kits by word-of-mouth might be representative of just this sample of recipients.

Figure 7. How Recipients Learned About Energy Saver Kits



MOTIVATION FOR ORDERING KIT

We also asked ESK recipients what motivated them to order a kit, allowing for open-ended multiple responses. Respondents cited three common reasons more frequently than other responses options: wanting to save energy, wanting to save money on utility bills, and wanting to try out LED bulbs. A complete list of motivations is presented in Table 14.

Table 14: Motivation for Ordering Kit

MOTIVATION	PERCENT (n=201)	NUMBER OF RECIPIENTS
I want to save energy in my home	37.0%	74
I want to save money on my utility bills	31.7%	64
I wanted to try out LED light bulbs	30.5%	61
Receiving free items is a good deal	18.2%	37
I want to help the environment	8.6%	17
A friend encouraged me to order it	5.4%	11
Other	4.7%	9
Needed items	1.8%	4
Talking with an energy trust representative	1.2%	2
Previous experience with program, or similar program	0.7%	1
My home is not efficient	0.7%	1

INSTALLATION RATES

When ordering an Energy Saver Kit, participants first provide characteristics of their home, either via the web-based order form or via telephone. Based on home characteristics, Energy Trust compiles a kit containing a variable number of energy efficiency measures, as follows:

- Low-flow bath faucet aerator (up to two)
- Low-flow kitchen faucet aerator (up to two)
- High performance showerhead (up to two)
- A-lamp LED light bulb (up to 8)
- Reflector LED light bulb (up to 4)

For each measure included in their kit, we asked recipients:

1. How many items they installed
2. [If they installed fewer than all] Whether they planned to install all the remaining items

3. [If they planned to install remaining items] When they planned to install remaining items (within 0-6 months, 7-12 months, or >12 months)
4. [If they installed any items] How many items had they removed, if any]

ILLUME calculated installation rates based on responses to the above questions using three different methods. Note that these classifications and definitions are consistent with the prior study, completed in 2014³⁰. We provide comparisons to the prior study where of value.

- **Item installation rate** is the net number of items installed (number installed minus number later removed) divided by total number of items received. Item installation rates estimate the rate of items currently in use by respondents.
- **Measure removal rate** is the number of items removed divided by the number of items installed (for those that received the item).
- **Recipient action level by measure** is the percent of recipients who installed none, some or all of the items they received.
- **Projected installation rate** is the maximum possible installation rate, per item. We asked respondents who did not install all items received whether they planned to install the remaining items. We calculated the projected installation rate as the net number of items currently installed plus the number of items respondents planned to install, divided by the total number of items received.

ILLUME calculated all installation rates at both the utility level as well as overall. Installation rates for lighting measures are comparable between the electric companies only, Pacific Power and PGE. Installation rates for the water measures are available for all utilities, and are based on the recipient's water heating utility. Eight were excluded from the following calculations for water measures because due to a misalignment in Energy Trust's database between the domestic hot water fuel being reported as gas, yet they had "No Gas" reported for gas provider information. Additionally, recipients were excluded from calculations if recipients received measure items but did not remember whether they did, or did not, install any of the items.

Item installation rates are shown in Table 15 while item removal rates are shown in Table 16. Results indicate that the lighting measures had higher installation rates than the water measures. A-lamp bulbs had the highest installation rate (74.1%) while kitchen aerators had the lowest installation rate (30.9%). ILLUME tested the statistical significance of the difference in item installation rates from 2014 to 2016 at a 90% confidence interval³¹. Measures showing a statistical difference are highlighted in gray, all of which are a negative relationship: highlighted installation rates are significantly lower than those found in the 2014 evaluation.

³⁰ Research Into Action, Inc. & MetaResource Group. *Final Report: Existing Homes Process Evaluation*. 2014. Available at: http://energytrust.org/library/reports/EH_Process_Eval_0414.pdf

³¹ A 90% confidence interval means that 90% of the time, the true installation rate will fall within this interval. If 2014 item installation rates fall above the 2016 90% confidence interval, then the 2016 item installation rates are significantly lower than 2014's. If the 2014 item installation rates fall below the 2016 90% confidence interval, then the 2016 item installation rates are significantly higher than 2014's. If 2014 item installation rates fall within the 90% confidence interval for 2016 rates, then there is no significant difference between the item installation rates.

Table 15: Item Installation Rates*

Measure	PGE		PACIFIC POWER		NW NATURAL		CASCADE NATURAL GAS		TOTAL	
	Rate	Total Items	Rate	Total Items	Rate	Total Items	Rate	Total Items	Rate	Total Items
Bath Aerator	44.4%	81	50.8%	65	51.2%	41	40.4%	57	46.3%	244
Kitchen Aerator	33.8%	74	32.2%	59	27.5%	40	28.0%	50	30.9%	223
Showerhead	46.2%	91	48.5%	68	54.3%	46	48.2%	56	48.7%	261
A-lamp	69.1%	744	79.6%	677					74.1%	1,421
Reflector	55.7%	185	61.5%	234					58.9%	419

* GRAY SHADING INDICATES RESULTS ARE STATISTICALLY SIGNIFICANTLY DIFFERENT FROM THE 2014 EVALUATION (AT THE 90% LEVEL OF PRECISION).

Table 16: Measure Removal Rate

Measure	PGE		PACIFIC POWER		NW NATURAL		CASCADE NATURAL GAS		TOTAL	
	Rate	Total Items	Rate	Total Items	Rate	Total Items	Rate	Total Items	Rate	Total Items
Bath Aerator	0.0%	36	2.9%	34	0.0%	21	4.3%	24	1.7%	115
Kitchen Aerator	10.7%	28	5.0%	20	0.0%	11	7.1%	15	6.8%	74
Showerhead	8.7%	46	2.9%	34	14.3%	29	3.6%	28	7.3%	137
A-lamp	0.6%	517	0.7%	543					0.7%	1,060
Reflector	4.6%	108	2.0%	147					3.1%	255

RECIPIENT ACTION LEVEL BY MEASURE

The second type of installation rate we calculated was the recipient action level by measure. Table 17, Table 18, and Table 19 show the percentage of respondents who installed none, some (at least one), or all items received, by utility and overall. The data suggests that recipients are more likely to install lighting measures compared to water measures. Most (94%) of A-lamp recipients and 73% of reflector bulb recipients installed at least some of their bulbs compared with 59%, 52%, and 42% that installed at least some of their showerheads, bath aerators, and kitchen aerators, respectively.

Additionally, a higher percentage of recipients installed none of the water measures received in comparison to lighting measures. Kitchen aerators had the highest percent of recipients installing none (57%) of the items received, while A-lamps had only 6% of recipients installing none of the bulbs received.

These findings suggest that kit recipients place a higher value on lighting measures than on water measures. Furthermore, given that nearly a third (30.5%) of respondents cited “trying out LED bulbs” as a motivation for ordering the kit, it is possible that many kit recipients were solely interested in receiving free LED bulbs, leaving many water measures unused.

Table 17: Recipient Action Level by Measure, Electric Utilities

Measure	PGE				PACIFIC POWER			
	None	Some	All	PGE Total Recipients	None	Some	All	Pacific Power Total Recipients
Bath Aerator	52.6%	5.3%	42.1%	57	41.9%	14.0%	44.2%	43
Kitchen Aerator	57.1%	16.1%	26.8%	56	55.0%	15.0%	30.0%	40
Shower head	45.3%	14.1%	40.6%	64	40.0%	20.0%	40.0%	45
A-lamp	8.6%	49.5%	41.9%	93	3.5%	35.3%	61.2%	85
Reflector	29.8%	29.8%	40.4%	47	25.4%	27.1%	47.5%	59

Table 18: Recipient Action Level By Measure, Gas Utilities

Measure	NW NATURAL			NW Natural Total Recipients	CASCADE NATURAL GAS			Cascade Natural Gas Total Recipients
	None	Some	All		None	Some	All	
Bath Aerator	48.0%	12.0%	40.0%	25	46.9%	21.9%	31.3%	32
Kitchen Aerator	56.0%	28.0%	16.0%	25	56.7%	20.0%	23.3%	30
Shower head	32.1%	28.6%	39.3%	28	40.6%	21.9%	37.5%	32

Table 19: Recipient Action Level By Measure, All

TOTAL RECIPIENT LEVEL OF INSTALLATION BY MEASURE				
Measure	None	Some	All	Total Number of Recipients
Bath Aerator	47.8%	12.1%	40.1%	157
Kitchen Aerator	56.3%	18.5%	25.2%	151
Showerhead	40.8%	19.5%	39.6%	169
A-lamp	6.2%	42.7%	51.1%	178
Reflector	27.4%	28.3%	44.3%	106

Finally, we calculated projected installation rates for each measure received, below. Projected installation rates are calculated as the maximum possible installation rate, including the percent of customers who have already installed, or are planning to install the items³². All projected installation rates are higher than their corresponding item installation rates, which signifies that many recipients still plan to install their remaining items. The total projected installation rate for reflector bulbs increased the most (33%) from its item installation rate, while kitchen aerators increased the least (14%).

³² Survey respondents who said they planned to install the items were asked to provide a timeframe: 0-6 months, 7-12 months, or 12+ months. Projected installation rates include all respondents who chose any of these timeframes, and excluded any respondents who answered “don’t know.”

Table 20: Projected Installation Rates

Measure	PGE		PACIFIC POWER		NW NATURAL		CASCADE NATURAL GAS		TOTAL	
	Rate	Total Items	Rate	Total Items	Rate	Total Items	Rate	Total Items	Overall Rate	Total Items
Bath Aerator	59.3%	81	69.2%	65	68.3%	41	71.9%	57	66.4%	244
Kitchen Aerator	52.7%	74	40.7%	59	37.5%	40	44.0%	50	44.8%	223
Showerhead	62.6%	91	57.4%	68	67.4%	46	76.8%	56	65.1%	261
A-lamp	93.3%	744	91.9%	677					93.1%	1,421
Reflector	91.4%	185	92.9%	234					91.6%	419

As noted above, findings from this evaluation show a drop in ESK item installation rates since the previous evaluation in 2014. For a side-by-side comparison of installation rates by measure between 2014 to 2016, please see Table 21.

Table 21: Change in Installation Rate between 2014 and 2016

Measure	2014		2016	
	Rate	Total Items	Rate	Total Items
Bath Aerator installation rate	63.0%	313	46.3%	244
Kitchen Aerator installation rate	46.0%	240	30.9%	223
Showerhead installation rate	62.0%	295	48.7%	261
A-lamp installation rate	75.0%	234	74.1%	1,421
Reflector installation rate	57.0%	182	58.9%	419

There are a few potential explanations for why installation rates decreased for the water saving devices. First, respondents may inadvertently be requesting more items than they intend to use. As shown above in Figure 4 the web order form automatically populates fields based on home characteristics (e.g. number of showers in the home). And although the form provides the option of reducing the number of items, it may not be explicit enough to encourage some participants to carefully consider 1) whether they want the items; and 2) if they realistically think they can and will install them in a reasonable amount of time, such as within 3 months. That said, it should be noted that the web-based order form did not change since the previous evaluation, and therefore does not explain the reduction in installation rates.

Second, given that the projected installation rates show that many recipients do intend to install their remaining ESK items, there may be some issue preventing them from installing measures in a timely manner; however, we did not research this question in the survey.

REASONS FOR NOT INSTALLING ITEMS

Technical issues and dissatisfaction with device performance were the most common reason for respondents saying they had not installed measures, and this was particularly so for the water devices. For a complete list of reasons given for not installing the items, please see Table 22, below. One of the most common reasons, across all measures, was that the item did not fit. Common “other” responses for showerheads include respondents stating that there was weak water pressure, they prefer a handheld showerhead or that the general performance of the ESK showerhead was poorer compared to what was previously installed. For A-lamp bulbs, only one recipient provided a reason for why the item was not installed; the recipient stated that it was because one of the bulbs received did not work.

Table 22: Why Respondents Have Not Installed Remaining Items

Response Choice	WATER MEASURES			LIGHTING MEASURES	
	Bath aerator (n=52)	Kitchen Aerator (n=76)	Showerheads (n=61)	A-lamp (n=1)	Reflector bulb (n=6)
Didn't fit	39.0%	43.6%	20.1%	0.0%	0.0%
Haven't gotten around to it or don't have the tools I need	0.0%	3.1%	6.0%	0.0%	42.0%
Got more (number of) items than needed	0.0%	10.9%	0.2%	0.0%	0.0%
Current one is still working	26.0%	16.5%	39.5%	0.0%	20.6%
Too difficult to install it, don't know how to do it	9.5%	6.1%	2.3%	0.0%	0.0%
Didn't know what that was	0.0%	1.7%	0.0%	0.0%	0.0%
Other	25.6%	21.5%	34.3%	100%	37.4%

*Multiple responses allowed; sum of percentages may therefore be greater than 100.

The responses to this question also highlighted a lack of need for the water saving devices. A considerable number of respondents said they did not install the measure because their current one is still working. This is consistent across all water saving measures, although significantly more prevalent for showerheads. Further, the most common “other” responses for the kitchen aerators and bath aerators were that the respondent either did not need the item or only needed one of the items.

This latter finding highlights that Energy Trust may be sending kit contents that are unnecessary to customers who do not plan to install them. Recipients were asked if they plan on installing any remaining items. Table 23 shows the percent of recipients that are planning on installing any remaining items, and the percent who are not planning on installing any remaining items. Clearly, the lighting measures had the highest percent of

respondents planning on installing their remaining items, while the water measures had much lower percent of recipients planning on installing the remaining items.

Table 23: Plan To Install Remaining Items

MEASURE	PERCENT WHO PLAN ON INSTALLING REMAINING ITEMS	PERCENT WHO DO NOT PLAN ON INSTALLING REMAINING ITEMS	TOTAL NUMBER OF RECIPIENTS
Bath Aerator	50.6%	49.4%	85
Kitchen Aerator	32.0%	68.0%	97
Showerhead	43.9%	56.1%	82
A-lamp	98.8%	1.2%	84
Reflector	100.0%	0.0%	53

Recipients who had remaining items and stated that they planned on installing these, were asked when they plan on installing these item, and were provided the choices of 0-6 months, 6-12 months, “Never”, or “Don’t know.” Table 24 shows the distribution, by measure, for the time periods of when recipients plan on installing their remaining items. No respondents stated that they “Never” plan on installing the remaining items; this is most likely due to these respondents already stating that they are planning on installing their remaining items. Bath aerators have the highest percent of recipients stating that they will install remaining items within in the next six months, while A-lamp has the lowest percent of recipients stating that they plan on installing any remaining items in this same period. For the electric measures, recipients may just plan on waiting for a current light bulb to burn out before installing any remaining bulbs they received in their kits.

Table 24: When Recipients Plan To Install Remaining Measures

MEASURE	PLAN TO INSTALL 0-6 MONTHS	PLAN TO INSTALL 6-12 MONTHS	PLAN TO INSTALL 12+ MONTHS	DON'T KNOW	TOTAL NUMBER OF RECIPIENTS
Bath Aerator	62.8%	14.0%	14.0%	9.3%	43
Kitchen Aerator	54.8%	12.9%	12.9%	19.4%	31
Showerhead	58.3%	16.7%	11.1%	13.9%	36
A-lamp	37.3%	26.5%	8.4%	27.7%	83
Reflector	60.4%	26.4%	1.9%	11.3%	53

And to the point raised earlier, it is unclear whether customers fully realize they have the option to reduce the number of kit items if they do not anticipate installing them at all. Seventeen comments were made where recipients stated that there should be an option to reduce the number of items to receive, or to not include certain items. Updating the web form to make these options clearer to users may be an area worth considering and could ultimately increase the water device installation rates.

SATISFACTION WITH ENERGY SAVER KITS

ILLUME asked ESK recipients questions about satisfaction with their customer experience and satisfaction with the products that they received. We also asked recipients about their level of satisfaction with the performance of the products received, and more specifically their satisfaction with the A-lamp bulbs, reflector bulbs and showerheads. As shown in Table 25 and

Table 26, expectations where either met or exceeded for all measures. The ease of ordering the kit received the highest level of satisfaction, with 96.3% of respondents stating that the experience either met or exceeded their expectations. Recipients of showerheads reported a higher incidence of the measure falling short of expectations than the light bulbs, which may have been a contributing factor to the lower installation rates for showerheads.

Table 25: Satisfaction with Customer Experience

Satisfaction Level: Did the experience...	Courtesy when ordering over phone (n=31)	Ease of ordering the kit (n=198)	Time it took to receive your kit (n=201)	Design of kit (n=200)
Exceed your expectations	58.0%	63.1%	34.6%	29.4%
Meet your expectations	37.9%	33.2%	52.5%	63.8%
Fall short of your expectations	4.1%	2.5%	7.9%	0.0%
Don't know	0.0%	1.3%	5.0%	1.9%

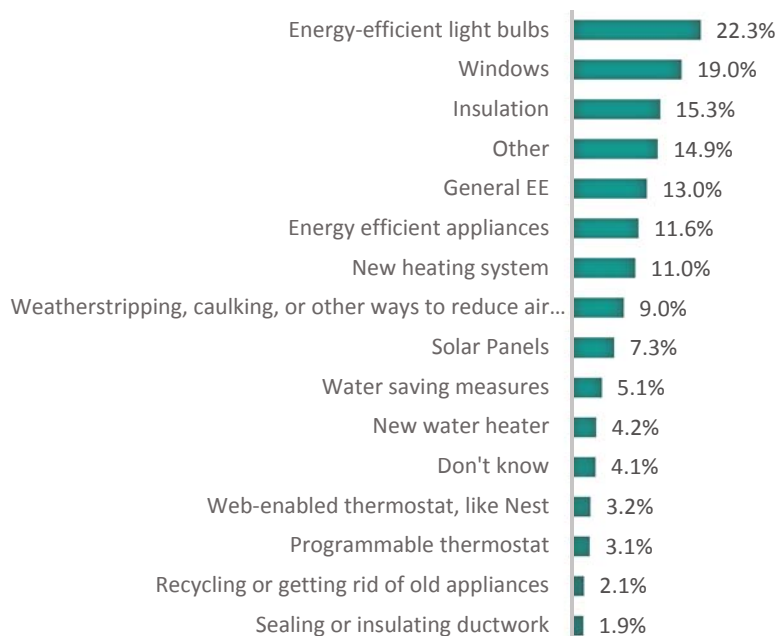
Table 26: Satisfaction with Kit Components

Satisfaction Level	Overall (n=196)	A-lamp bulbs (n= 183)	Reflector bulbs (n=89)	Showerheads (n=139)
Exceed your expectations	40.4%	44.8%	42.3%	20.8%
Meet your expectations	55.0%	49.5%	48.9%	57.8%
Fall short of your expectations	1.9%	3.5%	0.0%	9.8%
Don't know	2.8%	2.2%	8.8%	11.6%

INFLUENCE OF ESK ON PURCHASING OR INVESTIGATING OTHER ENERGY EFFICIENCY OPTIONS

ILLUME asked all recipients about the influence of the ESK program on investigating other energy efficiency purchases, such as purchasing additional items that were provided in their ESK or purchasing items outside the scope of the ESK program. Results showed that 29.2% (n=192) of recipients purchased additional LED bulbs, while about 5% (n=172) purchased additional showerheads. Only one person purchased an additional kitchen aerator (n=172) and no one purchased an additional bath aerator (n=172). In addition, recipients investigated other energy efficiency measures, shown in Figure 8. Seventy-five percent of recipients (n=123) investigated one or more additional measure. The two most common “other” measures that recipients investigated were solar panels (9 recipients) and conducting general efficiency research (16 recipients).

Figure 8: Other Energy Efficiency Action Investigated (N=123)



ENERGY TRUST’S ONLINE HOME ENERGY REVIEW TOOL

Survey participants were asked whether any member in their household used the Energy Trust’s Online Home Energy Review tool and what they had done as a result of using this tool. All participants were asked whether they used the Online Home Energy review tool, except for those who, earlier in the survey, identified the tool as a means of motivating or making them aware of the kits (11). Of those who were asked (n=190), 23.9% said they had used the tool, 70.2% stated that they had not used the tool and 5.8% did not know whether they had used the tool. For those that had used the tool, or had previously identified the online tool as what either motivated them or made them aware of the kits (n=57) they described their experience with the online tool, as shown in Table 27.

Table 27: Home Energy Review Tool Actions Taken or Considered

ACTION TAKEN OR CONSIDERED	NUMBER OF PARTICIPANTS (N=57)	PERCENT
You're planning to complete at least one recommended upgrade	23	41.2%
You've already completed at least one recommended upgrade	21	37.4%
You are not planning to complete any of the recommended upgrades	6	10.8%
Don't know	6	10.6%

The most common response was that the participants are planning on completing at least one of the recommended upgrades (41.2%) and some participants have even completed at least one of the upgrades (37%). Overall, the Online Home Energy Tool seems to be driving users to at least plan on upgrading their equipment.

VI. STRATEGIC PORTFOLIO REVIEW

At the evaluation kickoff meeting, and subsequently during our in-depth interviews, Existing Homes program staff articulated a key challenge facing the program – the loss of some measures from the portfolio due to cost-effectiveness declines in recent years, and the need for the program to “adapt quickly” to continue delivering savings and providing value to customers. The following bulleted lists illustrate some of the measure changes the program has seen over the past three years.

Existing Homes has discontinued the following measures/offerings:

- Air and duct sealing in single family homes
- Duct insulation
- Home Performance assessments
- In-home Home Energy Reviews
- Solar water heating
- Personal energy report pilots

Other measures have seen declining volume or cost-effectiveness constraints:

- Ceiling, wall and floor insulation
- Air and duct sealing in manufactured homes
- Heat pumps and ductless heat pumps (DHPs)

The program also added some new measures:

- Smart thermostats
- Pool pumps
- Tier 3 heat pump water heaters
- Higher incentives for certain measures when installed in single family rentals

Given these changes, ILLUME conducted a strategic review of the Existing Homes measure portfolio to identify strengths, weaknesses and opportunities.

CURRENT PORTFOLIO

Across its three residential programs – Existing Homes, New Homes and Products - Energy Trust offers a broad array of energy efficiency measures, shown in Appendix I. Current Energy Trust Residential Measure Portfolio. Although the focus of this evaluation is on the Existing Homes program, it is useful to look across residential programs when considering new opportunities, as there is often program overlap. It is important to note that the suggestions here are qualitative; a quantitative savings assessment for potential measures was beyond the scope of this work. These recommendations are based on our secondary review of available literature, as well as in-depth interviews conducted on this and other projects.

RESEARCH OBJECTIVES

Our portfolio review had two main objectives:

1. To give an overview of the national landscape for residential programs, including insight on regulatory requirements for cost-effectiveness (measure vs. program)
2. To provide portfolio design and program delivery recommendations

As part of that review, we conducted five key research activities:

- A review of Energy Trust's current Existing Homes portfolio
- A secondary review of national program implementation models and cost-effectiveness criteria
- A review of ILLUME's own past portfolio optimization work
- An in-depth look at the top two performing states for energy efficiency,³³ Massachusetts and California
- An interview with a Massachusetts program manager

This section explains our findings and recommendations related to this research.

THE NATIONAL LANDSCAPE

According to ACEEE's 2015 State Energy Efficiency Scorecard, Oregon ranked #4 in the nation for its energy efficiency policy and program efforts. In our research, we took a look at each state, with a focus on the top 10 states (Top Ten), to compare program delivery mechanisms and cost-effectiveness requirements by state. The results of this review are depicted in Figure 9 and Figure 10. Notably, Oregon and New York are the only two Top Ten states that require cost-effectiveness screening at the measure level, while the remaining Top Ten states run cost-effectiveness tests at the program or portfolio level. Although ILLUME recognizes that Energy Trust must follow the cost-effectiveness regulations set forth by the Oregon Public Utilities Commission, this finding illustrates that the majority of national energy efficiency leaders are able to draw upon the flexibility that program and portfolio-level cost-effectiveness testing affords in designing innovative program offerings. Given the constraints of measure-level cost-effectiveness screening, Oregon's placement in the nation's top 5 states shows its level of commitment to pursuing energy efficient solutions in the state.

³³ According to ACEEE's State Energy Efficiency Scorecard, <http://aceee.org/state-policy/scorecard>. ACEEE annually produces the Scorecard in conjunction with the US Department of Energy to rank states on their energy efficiency policy and program efforts.

Figure 9: Top Ten States in ACEEE's 2015 State Energy Efficiency Scorecard

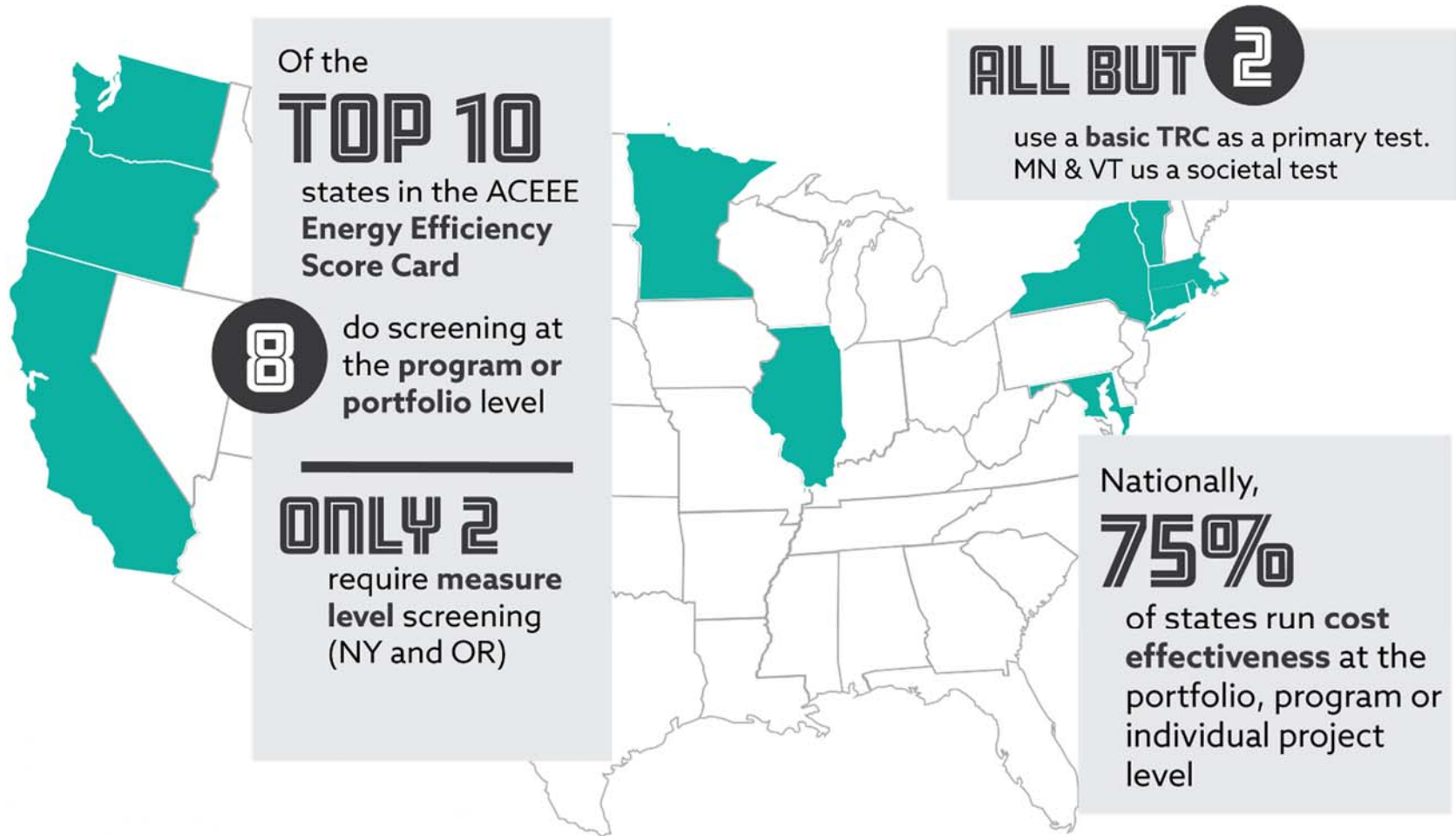
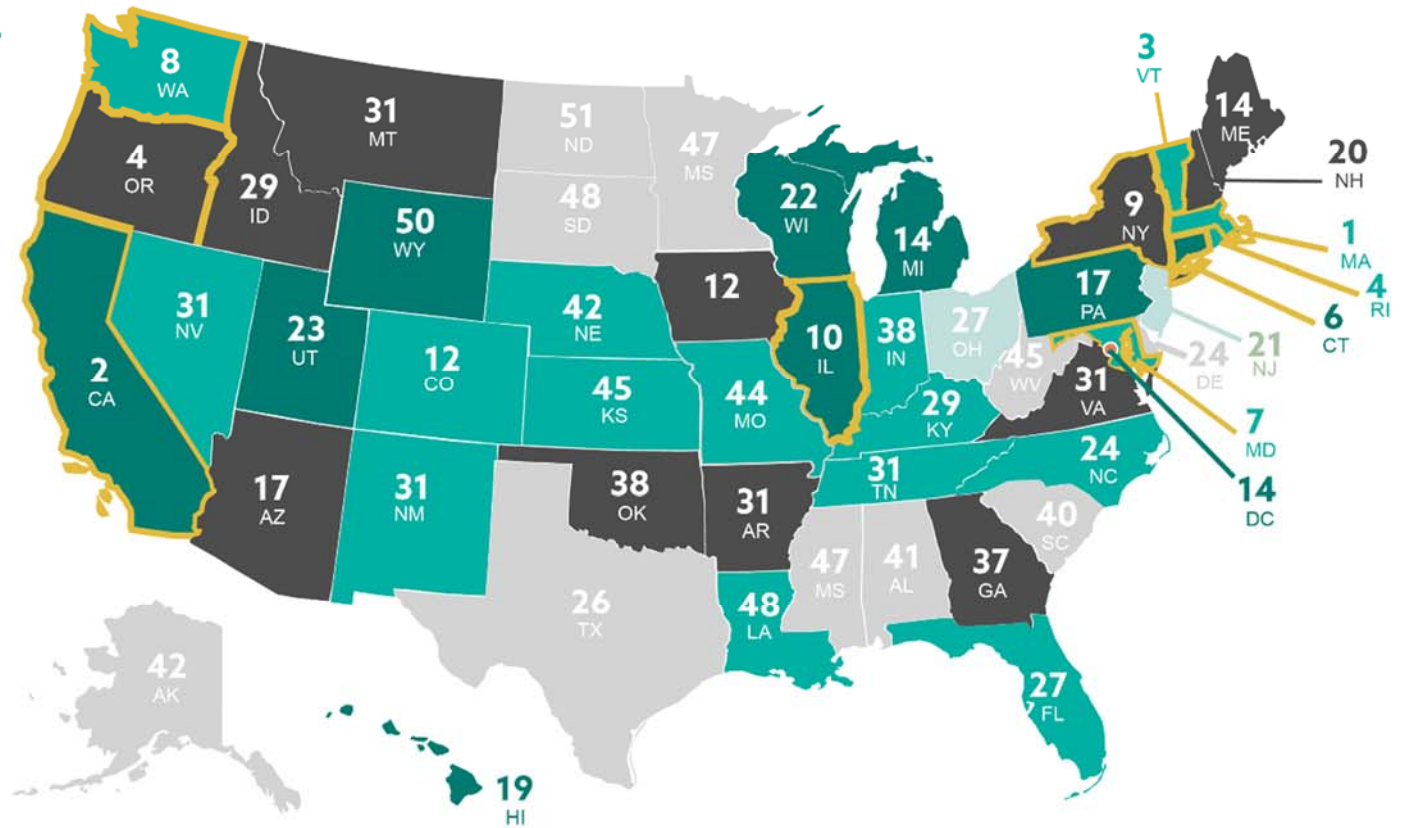


Figure 10 : Cost-Effectiveness Screening Requirments By State



NATIONAL TRENDS IN HOME RETROFIT PROGRAMS

Through our research on this and other projects, we have observed several national trends and take-away lessons related to the current state of home retrofit programs.

1. ***There is no “magic” measure.*** Although there have been “slam-dunk” energy efficiency measures in the past that reliably delivered cost-effective savings to residential customers (e.g. efficient lighting), program portfolios can no longer rely on any one “magic measure.”
2. ***“One and done” is no longer the belief.*** While it used to be a widely held belief that you had one chance to affect change in the home, industry leaders now agree³⁴ that the idea that programs have a one and done chance does not hold true; many programs are now evolving to offer customers multiple paths and timelines for participation, looking for ways to stage them through a lifetime of participation.
3. ***Customers are looking for solutions.*** Programs offer a convenient means to organizing internally but are of little importance to customers. Instead, customers are looking for solutions, regardless of what internal program silo they fall into. A number of utilities across the U.S. are starting to look at how to provide customers with tailored solutions that don’t force customers down discreet program paths.
4. ***Most programs view portfolios holistically.*** As mentioned above, most energy efficiency programs across the country have more flexibility than Oregon does in program design due to cost-effectiveness testing rules. Nationally, the most common unit for cost-effectiveness testing is at the program level. This approach allows utilities to determine if the collection of activities a customer may undertake in a program is cost-effective, giving customers more choices and greater opportunity to achieve savings. With that said, however, point 5 explains that added flexibility in program design is not a panacea for the cost-effectiveness challenge.
5. ***Many programs are struggling to meet cost-effectiveness thresholds.*** Even with more flexibility in delivery and design, many existing home programs nationwide are struggling to meet cost-effectiveness goals; this is not a challenge unique to Oregon and will require programs to think differently about how to effectively meet goals.
6. ***Propensity targeting is key.*** Programs are more successful if they can start with the right customers. Programs in Indiana, Massachusetts, New Mexico and in several Southeastern states³⁵ are employing sophisticated propensity modeling techniques to target customers most likely to take action. Propensity modeling is more precise than targeted marketing campaigns, as it is predictive in nature, looking at the characteristics of past participants and using that information to create personas. These personas can then be compared to the market as a whole to identify those people who “look” the most like those who have participated in the past. Once these customers are identified, programs can target them directly through direct marketing of the program’s choice such as direct mail, direct email, or even phone calls, depending on the size of the list. Some utilities using propensity targeting have shifted mass marketing funds to targeted marketing to high propensity customers, resulting in similar overall marketing costs with a higher rate of return. In one recent modeling project completed by ILLUME, 70% of those

³⁴ ILLUME, SnoPUD Literature Review and Interview Findings, November 2015.

³⁵ Because propensity efforts are working directly with customer data, the specific details of the effort cannot be made public.

identified as a “best target” participated in the program, indicating that the model identified likely participants with high accuracy.

A CLOSER LOOK AT THE TOP TWO STATES – MASSACHUSETTS AND CALIFORNIA

Beyond looking broadly at common cost-effectiveness screening conventions and program delivery trends, we went a little deeper with our research to learn more about the factors that contribute to the success of Massachusetts and California.

#1 STATE - MASSACHUSETTS

We spoke with a program manager³⁶ from a major Massachusetts utility to learn about their cost-effectiveness rules, how they approach portfolio design, what their most cost-effective measures are, and how they employ innovative program delivery strategies. The results of that interview are as follows:



- Cost-effectiveness is met at “core initiative” level, which is similar to the individual offerings of Energy Trust programs. Examples of Massachusetts residential core initiatives include the Home Energy Services (HES) audit program, Heating and Cooling Equipment, Lighting, Consumer Products, Multifamily Retrofit, and New Construction.
- Some program related costs are deemed “hard to measure” – these are costs that have no savings and things like interest buy-down costs. In addition, Massachusetts allows programs to claim avoided costs for water efficiency measures, which contribute to high benefit-cost ratios for aerators and showerheads.
- The top three most cost-effective residential measures are lighting, thermostats, and dehumidifiers.
- Insulation is always offered due to climate; this is possible because of the core initiative cost-effectiveness approach.
- Looking ahead to future measures: Massachusetts will be focusing on smart technology and demand response.
- Program delivery highlights include:
 - Direct install of wireless thermostats as part of HES, with small co-pay.
 - Innovative financing – interest-free heating equipment loans for up to 7 years. The program partners with local banks and buys down interest rates.
 - Massachusetts operates on a 3-year plan cycle. Each cycle, the utilities choose one issue or topic to advocate for change with their regulators and interveners. Past examples include removing the requirement that some evaluation results be applied retroactively to the past years’ results and the addition of more oil fuel measures for inclusion into the programs.

While Massachusetts offers significant learnings around what a successful existing homes program looks like, it should be noted that the climate, fuel rates, and availability of funding for energy efficiency in

³⁶ Source: Interview with program manager at Eversource, June 16, 2016

Massachusetts are different from those in the Pacific Northwest, allowing more room for marginal measures to be cost-effective.

#2 STATE - CALIFORNIA

For our research into California, we reviewed publicly available program information through the EESTATS³⁷ website. Key findings include:



- California meets cost-effectiveness screening at the portfolio level.
- Existing Homes is struggling to meet cost-effectiveness in California. Across all major utilities, home retrofit programs are struggling with benefit-cost ratios significantly <1.0 net Total Resource Cost Test (TRC)³⁸. However, because they measure cost-effectiveness at the portfolio level, the programs noted below can “carry” home retrofit.
- The most cost-effective programs are:
 1. New construction (Savings by Design – SCE, 2.90)
 2. Lighting (Primary Lighting Program – SCE, 2.40)
 3. Multifamily (MF EE Rebate Program – PG&E, 2.40)
- Los Angeles County developed a pilot “Flex Path” program with ARRA³⁹ funds, which offered a notable program delivery strategy:⁴⁰
 - The program was intended to test market acceptance of a simple, flexible prescriptive approach to engage both homeowners and contractors: The program offers customers “points;” for taking certain energy efficiency actions, with more points yielding higher incentives, with a total cap at \$1,500.
 - Program uptake was so strong in its first year that within 9 months it was fully subscribed with many more customers on a waiting list by year’s end.
 - The offering was coordinated with the local LA County utilities – Los Angeles Department of Water and Power (LADWP), Southern California Edison (SCE) and Southern California Gas Company (SoCalGas) –which allowed the utilities to share costs associated with improvements and achieve economies of scale in delivery.
 - The pilot was successful; the program continued after the conclusion of the ARRA grant and was still in operation through 2016.

California is rapidly evolving program delivery approaches in response to many of the challenges and concerns shared by Energy Trust of Oregon and other programs across the U.S. Close tracking of efforts in this state may prove valuable.

³⁷ EESTATS website <http://eestats.cpuc.ca.gov/Default.as>

³⁸ The Total Resource Cost (TRC) Test measures the net cost of an energy conservation program, viewing the program as a utility resource option. Both utility and participant costs are included. The TRC Test reflects the impacts of a program on both participating and non-participating customers. A TRC value less than 1 means that the total costs of the measure exceed the total benefit to customers.

(Definition source: https://beopt.nrel.gov/sites/beopt.nrel.gov/files/help/Total_Resource_Cost_Test.htm)

³⁹ American Reinvestment and Recovery Act of 2009. <https://www.energy.gov/recovery-act>

⁴⁰ <http://publicagencies.theenergynetwork.com/home/showdocument?id=176>

PORTFOLIO AND PROGRAM RECOMMENDATIONS

Based on our research, we recommend that Existing Homes program managers consider the following actions to plan an effective and current portfolio:

1. Program-level vs. measure-level cost-effectiveness

If state cost-effectiveness rules preclude using program-level cost-effectiveness, explore the possibility of using a package of measures for an average house as the input for cost-effectiveness testing. This may not improve the overall cost-effectiveness of the portfolio but could be a means to addressing cost effectiveness challenges of some individual measures. Using this approach could a) allow more cost-effective measures to carry the less cost-effective measures and b) provide customers a broader choice of measures to install, potentially making the program more appealing to customers. In addition, it allows the Existing Homes program to retain the benefit of measures that are currently being counted towards other Energy Trust programs even though they are being installed as part of a weatherization or retrofit effort.

2. Continue trade ally engagement as a means for increasing participation

In the past two years, Energy Trust has intentionally focused on engaging, mentoring, and supporting trade allies to be the face of the Existing Homes program with residential customers. Energy Trust is aware that working with trade allies to increase both volume of participants and number of measures installed per participant can impact program cost-effectiveness by putting more of the marketing and outreach “costs” on the trade allies, decreasing Energy Trust’s cost per customer acquired.

In addition to leveraging the trade allies more heavily to be the boots on the ground, Energy Trust might consider working with trade allies to encourage customers to either a) take more action at one time (important if a package of measures for an average house can become a “measure” for cost-effectiveness testing) or b) if they cannot take multiple actions at once, to stage their upgrades over time, which reduces cost per acquisition through process efficiencies of working with customers who are not starting from scratch. Staging may require working to support contractors in following up with customers and providing reminder tools that help keep the customer moving along a continuum of participation.

3. Monitor the success of midstream efforts such as ESRPP and consider how those can be implemented in Oregon and translated to other markets such as heating and cooling

Midstream models not only offer the opportunity to reduce the incentive cost per unit, it also allows programs to move more volume with a lower cost per acquisition by putting the programs focus on working with a handful of market actors (retailers, distributors, contractors) as opposed to individual end users. While true midstream models (those where the use of the incentive is at the discretion of the market actor) are still in pilot phases, they could offer a means to move significant volumes of products at lower cost per kWh or therm saved than more traditional end-use customer rebate models.

4. Consider employing more sophisticated propensity screening to target those customers most likely to take energy efficiency actions

Propensity modeling requires going beyond geographic or usage targeting. It looks at multiple variables and rates customers on their likelihood to take actions. Propensity modeling can be done

at the program or measure level and in one model, was found to correctly identify 70% of program participants when targeting followed customer modeling.

5. Consider designing mechanisms that give customers incentive to take multiple actions

Many programs offer multiple measure bonuses, but the feedback from contractors is that they are often too complicated and/or not compelling.⁴¹ LADWP had success by moving to a more simplified points system for each measure; more points yielded higher incentive amounts. This approach appeared to be more positively received by contractors than “bonus” approaches.

6. Conduct further research into, and/or track, the savings and market potential of the following measures and program designs:

- Connected lighting and appliances – while primarily viewed as providing opportunity to address demand, there is early evidence that these devices may also reduce overall energy use in the home.
- Dehumidifiers – the Massachusetts program manager we interviewed cited dehumidifiers as a highly cost-effective measure in their portfolio. Although climate conditions are different in Massachusetts, a study of dehumidifier sales volume and ENERGY STAR market share in Oregon may find that an incentive is warranted. Savings potential in Oregon is not known, but Massachusetts assumes an annual energy savings of 73 kWh from an ENERGY STAR unit compared to a new baseline unit, and 34 kWh annual energy savings of baseline units compared to an existing unit.⁴²
- Midstream rebate models – as discussed above, pilots using this approach should be monitored closely.
- Cooling – should the trend of hot summers with increasing cooling degree days continue in the Oregon, cooling measures may become an increasingly cost-effective option for the program. Eleven of the 18 trade allies we interviewed said they have seen a rise in demand for air conditioning in recent years, with most (7) of those saying the demand is increasing across the state, in urban and rural, eastern and western areas alike.
- On-bill financing and interest rate buy-down offers – Energy Trust currently offers on-bill financing for home performance upgrades, upgrades in moderate incomes homes, and ducted and ductless heat pump purchases. However, several trade allies mentioned that more consistent availability of on-bill financing across program offerings would improve their ability to sell efficient equipment.

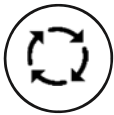
In summary, Energy Trust is not alone in struggling to meet cost-effectiveness in the Existing Homes program. Of those states leading the way, a more flexible program-level or portfolio-level cost-effectiveness screening may be making it easier to identify and implement customer solutions. Given the current regulatory construct in Oregon there may be very little in the way of portfolio adjustments that can solve the immediate challenges faced by the program today. Instead, Energy Trust of Oregon may wish to consider revisiting the way in which programs are organized and delivered, including moving away from the current program model. Thinking in terms of customer solutions, rather than program silos, may improve the program’s success at reaching new customers who are willing to participate.

⁴¹ Energy Trust has offered multiple measure bonuses in the past, without a significant effect on overall participation rates.

⁴² Massachusetts Technical Reference Manual, Program Years 2013-2015 (most recent available), page 95. http://ma-eeac.org/wordpress/wp-content/uploads/TRM_PLAN_2013-15.pdf

CONCLUSIONS & RECOMMENDATIONS

In this evaluation, we conducted research activities in pursuit of four core objectives:



DOCUMENT PROGRAM
DELIVERY &
COORDINATION
PROCESSES



EVALUATE THE EFFECTS
OF RECENT PROGRAM
CHANGES



ASSESS ENERGY SAVER
KIT EFFECTIVENESS



CONDUCT STRATEGIC
PORTFOLIO REVIEW

The conclusions and recommendations from our evaluation are presented below, organized by core objective.

CORE OBJECTIVE 1 – DOCUMENT PROGRAM DELIVERY & COORDINATION PROCESSES

A variety of market actors engage in this program, including four funding electric and gas utilities, the PMC, and trade allies. All parties are key for program delivery and success. Below we provide key findings related to engagement with these groups.

Conclusion – Utilities, market actors, and the program management contractor (PMC) all regard Energy Trust positively overall, although some utility representatives and market actors expressed a desire for more frequent and effective communication. Most entities working with Energy Trust’s Existing Homes program expressed satisfaction with communication and collaboration. The electric utilities, in particular, appear to have a strong working relationship with Energy Trust and PMC staff. However, the gas utilities expressed frustration at a lack of available measure options for their customers, as well as a perceived need for more proactive communication from Energy Trust.

Recommendation – Consider refreshing Energy Trust’s communication approach with the gas utilities to ensure they feel heard and included in program processes. Although the gas companies are aware that natural gas measures are currently facing cost-effectiveness challenges that Energy Trust cannot control, more intentional communication and explanation to utilities around these issues may help to alleviate the gas utilities’ feelings of being left out of the process.

CORE OBJECTIVE 2 – EVALUATE THE EFFECTS OF RECENT PROGRAM CHANGES

Similar to many residential energy efficiency programs across the country, Energy Trust’s Existing Homes program has seen its portfolio of measures become increasingly constrained by economic, regulatory, and market conditions in recent years. Cost-effectiveness thresholds have become more difficult to meet due to fuel costs, new codes and standards, and market changes. To address these challenges and continue to provide relevant energy efficiency programs to the customers of its funding utilities, Energy Trust has steadily evolved its program approach to the residential existing homes market.

Recent program changes include:

Increased Midstream Engagement – A shift in implementation approach to focus more on midstream engagement, particularly with respect to heating systems, water heating, and thermostats, with the intent to influence stocking practices by distributors, increase the availability of affordable, qualified models in the supply chain, ensure these products are offered to consumers, and remove the administrative burden of completing forms, which has been a barrier to customer participation. Program efforts to increase midstream engagement include direct distributor support, detailed next.

Distributor Support – Created new mechanisms for engaging distributors, including:

SPIF – Began offering Sales Performance Incentive Fund (SPIF) to distributors for sales of qualifying equipment receiving an Energy Trust incentive;

Information sessions – Coordinated with distributors to offer information and training sessions on Energy Trust incentive offerings to contractors;

Online Home Energy Review – Discontinued the in-home Home Energy Review (HER) home audit program, while continuing to offer online HER;

Energy Saver Kits (ESK) – Replaced CFLs with LEDs in Energy Saver Kits;

Rental Measures – Began offering a gas furnace incentive, as well as increased insulation incentives for single-family rentals;

Savings Within Reach – Expanded income eligibility levels for moderate-income incentives

Trade Ally Support – Created new and/or updated processes and tools, including:

Account management model – A single point of contact who provides program guidance, mentorship and support for trade allies;

Instant incentives – A process by which contractors deduct the incentive amount directly from a customer’s bill, carrying the cost of the incentive until receiving reimbursement from Energy Trust;

Web forms – The option for trade allies and customers to submit incentive forms online;

Trade ally portal – A web-based repository of information where trade allies can log in and view project details for all of the active and completed projects they have submitted for an incentive, as well as access program forms;

Newsletter/blog – An information source called *Insider* that provides both general information to all trade allies, as well as specific information on program offerings, market-related topics, tips and education;

Introduction of EPS to New Homes program in Washington – Transitioned from a program based around ENERGY STAR and Earth Advantage certifications to the Energy Trust’s EPS™ (energy performance score), in alignment with the New Homes program in Oregon.

Desk Quality Assurance (QA) – A new approach to project QA that, among other things, includes a decrease in the number of on-site inspections by program staff, and the implementation of a desk review process for some projects. In addition, the New Homes program in SW Washington transitioned to a more direct, in-depth QA process, where previously Energy Trust had relied on the Northwest Energy Efficiency Alliance (NEEA) and their ENERGY STAR® Homes QA process.

Conclusion – **The program’s decision to shift focus toward midstream market actors and trade allies is still relatively nascent; our evaluation revealed evidence of early successes as well as continued opportunity for enhancement.** Although trade allies have responded positively to the more focused attention they have received through the account management model, there is still opportunity to further engage and train trade allies to effectively be the “face of the program.” For example, some of the less active or lower-rated trade allies we interviewed expressed an interest in becoming more active.

Recommendation - **Consider further tailoring communications to reflect trade allies’ unique businesses, level of program activity, star rating, geography, and/or target market.** For example, consider reaching out to trade allies with lower star ratings and/or level of program activity and determining a) their individual interest in more focused support, and 2) their unique needs, such as basic program orientation, introduction to marketing opportunities, and mentorship on outreach strategies based on geographic location.

Conclusion – **Although Energy Trust provides a variety of marketing tools to assist trade allies in selling efficient equipment through the program, trade allies are not consistently using or aware of the tools.**

Recommendation – **Continue efforts to reach out individually with trade allies to raise awareness of the availability of marketing tools and information resources.** Explore opportunities for expanded trade ally training and mentorship on the availability of tools such as cooperative marketing funds, the booklet of measure incentive information, and website development funds. While many trade allies take full advantage of the suite of offerings, others remain unaware of the tools, or do not utilize them.

Conclusion – **Most trade allies who qualified to offer instant incentives had used them to varying degrees, but the perceived benefit of them was mixed.** The program introduced the instant incentive with the hope that it would act as a tool to help trade allies make the sale of an efficient model of equipment over a standard efficiency model. In addition, the instant incentive structure requires the trade ally to submit complete project forms to receive reimbursement. Energy Trust hoped that by putting the onus on the contractors to fill out the forms, rather than the customer, the program would receive more complete and accurate program data. Of the trade allies we interviewed, most trade allies who were qualified to offer instant incentives did. However, the preference to use this incentive method over the traditional customer application appeared to be dependent on trade ally personal preference, with no evidence of fundamental concerns or process issues.

Conclusion – Although the program’s attempts to engage distributors via the SPIF and sponsored contractor training events are still new and require further research to determine effectiveness, this evaluation found that these first efforts may be improved with modifications. Although the evaluation only spoke with two of the seven distributors currently working with Existing Homes, both expressed hesitation regarding the SPIF. While they felt it was a good concept, they perceived the administrative burden of meeting the SPIF requirements to be high. Only one distributor had offered contractor information sessions, and did not perceive them as effective.

Recommendation – Continue to explore different incentive structures that will motivate distributors to sell more efficient equipment to their contractors while reducing administrative processes. Distributors interviewed were more receptive to the idea of an instant incentive, payable directly to the distributor as opposed to the customer or to their contractors, but it is not clear that this mechanism would reduce administrative burden, as incentive requirements also require details such as customer address.

Conclusion – The shift in quality assurance procedures to include a desk review option appears to be achieving its intent of reducing the number of field inspections while maintaining project quality. In 2015, QA home visits decreased significantly over the course of the year, while pass rates for QA inspections remained stable. Most trade allies interviewed did not notice the change, and those who did notice did not think it impacted their projects.

CORE OBJECTIVE 3 – ASSESS ENERGY SAVER KIT EFFECTIVENESS

Energy Trust provides free Energy Saver Kits to customers that include LED light bulbs, efficient showerheads, and faucet aerators. Customers request the kit by telephone, or via a web order form. Customers who order a kit online answer questions about their home. Based on home characteristics, customers are given different numbers of items. The web form defaults to the highest number of items allowable within each home (e.g., two faucet aerators for homes that have two or more bathroom faucets), but customers have the option of reducing the number of items prior to submitting the form. The Energy Saver Kit was last evaluated in 2014. Most measures remained consistent during this evaluation, with the exception of the inclusion of LEDs and removal of CFLs.

Conclusion – Installation rates for water saving devices decreased since the last evaluation in 2014 whereas lighting measures stayed consistent. It is unclear from the survey and population data why the installation rates decreased between these two evaluation periods. One possible reason is that respondents may have received more water saving devices than they wanted or needed (perhaps a function of the “opt-out” nature of the online tool). Additionally, one motivating factor for obtaining the kits is to obtain LEDs, newly added to the kit in place of CFLs. Recipients may have been more interested in receiving the light bulbs, yet obtained all kit contents.

Recommendation: Explore customers’ experiences and decisions around the number of items received, without actual or intended installation, including experience with the online order form. The study did not directly assess customers’ experiences and decision-making processes at the point of requesting the items, including their initial intent to install. Targeted exploration for why customers are requesting the water saving devices, then not installing those items, should be investigated more deeply to explain the installation rates (particularly for water saving devices) and provide further insight into potential options for maximizing the installation rate (including possible modifications to the Energy Saver Kit order form, described below).

Recommendation: Consider changing the Energy Saver Kit order form to engage customers more directly on the number of items requested. The form automatically includes the maximum number of items allowed, which customers may then reduce if they desire. It may be that customers are not thinking about that choice. The following types of changes to the form may engage customers in thinking through their options: 1) adding photographs of measures and creating a more intuitive “shopping cart” interface similar to those of popular online stores; 2) changing from an opt-out to an opt-in order form to encourage customers to be more intentional about which items they request; and 3) including information about how to install the items, so customers can see what is involved.

Conclusion – Several Energy Saver Kit recipients reported that the kit influenced them to explore additional energy saving actions in their homes. Customers reported a variety of actions, with the most prominent being the purchase of additional LED bulbs after receiving their kit (nearly a third (29%) of respondents reported this action).

CORE OBJECTIVE 4 – CONDUCT STRATEGIC PORTFOLIO REVIEW

Existing Homes program staff articulated a key challenge facing the program – the loss of many measures from the portfolio due to cost-effectiveness declines in recent years, and the need for the program to “adapt quickly” in order to continue delivering savings and providing value to customers. Given this input, ILLUME conducted a strategic review of the Existing Homes measure portfolio to identify strengths, weaknesses and opportunities.

Conclusion - Given current economic conditions and regulatory constraints, Existing Homes has seen a reduction in the number of cost-effective measures available to its portfolio, highlighting a need for new mechanisms to drive additional program participation. The evolving market, which has resulted in increased installation costs for some measures, as well as a reduction in avoided costs due to reductions in fuel prices, has resulted in decreased savings and cost-effectiveness, which limits measure offerings, particularly given Oregon’s cost-effectiveness requirements. Energy Trust continues to identify opportunities to optimize process efficiencies, reduce program costs and increase participation (thereby maintaining cost-effectiveness); however, program staff and utilities expressed it is becoming increasingly difficult to do so.

Recommendation – With the availability of cash incentives reduced, additional program and marketing approaches may need to be considered. Two specific tools we recommend exploring are 1) Low-interest financing, which becomes more attractive to customers as incentives become less available, and can be a valuable option for helping trade allies close sales of energy-efficient equipment; and 2) Employing sophisticated propensity modeling that goes beyond targeted marketing to more efficiently reach those customers most likely to take action.

APPENDIX A. STAFF/PMC INTERVIEW GUIDE

Energy Trust of Oregon: Task 2: Interviews with Energy Trust Staff Energy Trust Residential Programs and Marketing Staff Interview Guide

These interviews will focus on gaining insight into the special issues affecting the Existing Homes program – particularly those with relevance for portfolio optimization, customer experience improvements, and partner network enhancements.

We covered many topics in our kick-off meeting. The goal of this conversation is to make sure we capture all the details and do not overlook important factors in our research. You'll have to forgive me if I ask you to repeat things we've already discussed; our aim is to be thorough.

This guide is not intended to be read verbatim but rather used as a guide for the interviewer in exploring topics, and may change based on the actual discussion. Topics may be amended or skipped based on the area of expertise provide by each staff member.

INTRODUCTION & WARM UP

This interview should take approximately one hour of your time. Before we start, I would like to ask for your permission to record this interview to ensure my notes are accurate.

First, could you please briefly describe your role in the Existing Homes Program?

PROGRAM UPDATES: RECENT CHANGES, NEW CHALLENGES

1. At our kickoff meeting, we learned that the program has undergone some substantial changes since 2013, including changes to customer engagement approaches, incentive structures, measures for rental units, and kit delivery, to name a few. From your perspective, what were the most influential of these recent changes? Please describe these changes and how they impacted the program.
2. What marketing strategies and/or market entry point(s) have you used to reach home owners vs. rental property owners?
3. We understand that one of the biggest challenges facing the program recently has been the need to reduce program delivery costs while also delivering more savings. Has the program addressed these challenges? If so, how? [Probe for program delivery strategies; measure-focused strategies; trade-offs between quality customer experience and cost effective program delivery]

PARTICIPANT EXPERIENCE

1. I'd like to ask you a question about the language we use to talk about participants of this program. For example, should we exclusively use "participant" when talking about Energy Trust

program participants? When is it appropriate to use the terms “customer” vs. “end user;” “trade ally” vs. “market actor?”

2. Please describe the types of participants you have in the Existing Homes program. Have participant types changed since 2013? [PROBE: Market actors vs. end users]
3. What is your current process or processes for engaging and routing participants into the program? PROBE for:
 - a. Variation based on target participants
 - b. Variations based on target measures
 - c. Other ways in which the engagement process may vary
4. In thinking about property managers and distributors as new types of participants or market actors, how do you envision engaging them? How is that different than your current activities?
5. As discussed at the kickoff, the Existing Homes team thinks of participant engagement with the program as episodic rather than a continuous journey. Do you agree with this distinction? How would you characterize Existing Home’s engagement with participants?
6. Has the presence of “competing” residential energy efficiency organizations and products changed any aspects of the Existing Homes program? If so, how?
7. [Susan Jamison, Marketing Manager] Please describe your approach to marketing the Existing Homes program. [PROBE for marketing priorities; targeted marketing toward high propensity energy savers; how the diversity initiative affects marketing efforts; competition in the marketplace]
8. During the kickoff meeting, the team talked about how Existing Homes works to achieve smaller, per household savings across a large number of households, vs. larger savings across fewer households. How is this achieved?
9. Recognizing that the Energy Trust’s Diversity Initiative is still new, please describe it as best you can, and how it is different/distinct from (previously called underserved) “new participant” outreach? How is it similar? Is there any overlap?
10. Does the diversity initiative affect program goals? Why or why not? Does it impact program design? Why or why not?
11. Do you think there is the right amount of focus in the area of diversity, or equity of service? If not, how should it change?
12. How did the income requirements for Savings Within Reach change in 2015? The 2015 Annual Report states that this change “allowed account managers to help trade allies see the benefits of the Savings Within Reach program, in turn increasing participation.” How so?

MEASURE PORTFOLIO DESIGN OPTIMIZATION

13. What is your process for determining whether to add a measure to the Existing Homes Portfolio?
14. [CLEAResult only] What actions are you taking to add new savings opportunities to the portfolio?
15. [CLEAResult only] What new energy saving measures or services are you currently considering? Are any of these in development/in the process of being implemented?
16. [CLEAResult only] Please describe any challenges you have faced in the measure development process. What are the “increasing constraints” we heard about at the kickoff meeting?
17. We understand that there is a desire to move away from relying on kits for savings. Why? How might this be achieved? Are any of these activities currently underway?
18. What do you see as the key barriers to transitioning away from kits?
19. [Energy Trust only] When are the results from the Savings Risk Analysis anticipated? How will these findings affect planning for program delivery in the near term? The long term? What is your process for adjusting and changing the measure mix based on these results? [PROBE: How will measures be phased in and out?]
20. Since 2013, Existing Homes has added measures in single family and duplex rental homes. During the kickoff meeting, we heard that windows, heating systems, and water heating are “accelerating” measures. Is this accurate? Which measures are declining, and why?
21. The gas furnace measure for rental properties was specifically mentioned as a measure of interest for this evaluation. Why? Has it been successful? If so, are these successes transferable to other measures?
22. Is your process for adding new rental measures different from owner-occupied homes? If so, how?
23. What are the key barriers facing the manufactured homes market? How is the Existing Homes program working to address these? [PROBE for remaining opportunities in this market]

PARTNER NETWORK

24. [CLEAResult only] In the 2015 Annual Report, CLEAResult describes a new regional delivery strategy, where account managers engage with local market actors, focusing on “key accounts and midstream market actors, including retailers and distributors.” Can you elaborate on this approach, particularly with respect to the specialized track enrollment for trade allies?
25. How would you describe your current working relationship with Existing Homes trade allies? How has this relationship changed since 2013?

26. 2015 was the first year Existing Homes did not offer in-home Home Energy Reviews. Has this had an impact on trade ally business? If so, how? Has this affected trade ally business leads through Energy Trust?

COORDINATION

27. How would you describe the effectiveness of communication between Energy Trust and CLEAResult?
28. [Energy Trust only] How effective is Energy Trust's relationship with NW Natural and Cascade Natural Gas? Are there any significant challenges or successes?

WORKING IN WASHINGTON STATE

29. Are there unique needs in Washington, particularly with respect to new construction? [PROBE - We heard: ET of Oregon doesn't resonate; the homes are younger; WA is still learning what ETO is and has to offer; many new homes being built in SW WA – any others?]
30. Do marketing efforts differ in Washington State from those in Oregon?
31. What is Energy Trust's working relationship like with Clark County PUD? Does it differ from other utility relationships [PROBE - We heard: More collaborative; joint promotion of programs; sharing of savings. Other?]. Is Clark County's focus on customer service a successful model for ETO's purposes? Can it be replicated at other utilities?

CLOSING

32. Can you think of any other insights you have to share that I haven't asked about?

Thank you so much for your time.

APPENDIX B. GROUP INTERVIEW GUIDE - ELECTRIC UTILITIES

Energy Trust Existing Homes Process Evaluation: Task 3: Electric Utility and Marketing Staff Interviews – PGE, Pacific Power

ELECTRIC UTILITY INTERVIEW GUIDE

Originally created by Evergreen Economics

OBJECTIVES:

Gather utility feedback on collaboration with Energy Trust and PMC staff, utility role in marketing and recruitment, satisfaction with program design and collaboration outcomes.

AUDIENCE:

PGE, Pacific Power

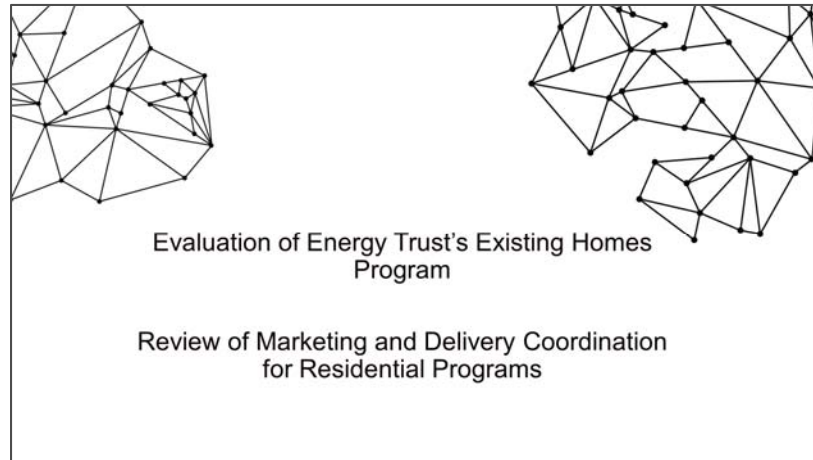
We will conduct two in-person group interviews, one with PGE and one with Pacific Power, with Energy Trust staff present.

1.0 INTRODUCTION

Note: Attendees will fill out nametags with first and last name and company name.

Hi everyone, thank you all for taking the time to meet today. My name is [NAME] and I'm with ILLUME Advising. My firm has been hired by Energy Trust to conduct an evaluation of their Existing Homes program. We're going to spend the next hour and a half discussing [PGE or Pacific Power]'s coordination with Energy Trust on the marketing and delivery of residential programs.

*PPT slide –



If you haven't already done so, please fill out a name tag with your first and last name and company, so that we can all easily identify each other. For note taking purposes, we'll record this meeting. When you speak up with a comment, please identify yourself by first name and company. Any comments you make will not be attributed to you directly in our evaluation report, so please feel free to speak honestly during today's discussion.

For today's meeting, there are six main topics we will cover, those are:

- Name and role of each attendee
- Marketing and recruitment
- Customer experience with Energy Trust programs
- Program design
- Collaboration successes and challenges
- Final thoughts and comments

*PPT slide –

AGENDA
Topics we'll cover today

- Name and role of each attendee
- Marketing and recruitment
- Customer experience with Energy Trust programs
- Program design
- Collaboration successes and challenges
- Final thoughts and comments

4 ILLUME

Throughout the meeting, we'll use PowerPoint slides to help everyone follow along with the questions and stay on topic. For all questions, we'll pose the question to the group and allow time for both [utility] and Energy Trust staff to respond to the question.

2.0 RESPONDENT ROLE

*PPT slide –

Respondent Role
Your role in Energy Trust's residential programs

- Name and role at organization
- Role with respect to Energy Trust programs
- Time in current role
 - If role has changed in the last two years, please explain
- Program staff with whom you primarily work

4 ILLUME

1) First, can each of you briefly summarize your role at your organization, how long you have been in this role, and how you support Energy Trust's residential program activity? We'll go around the room and give everyone a chance to respond. [Probe for which program/staff the utility respondents primarily work with]

3.0 PROGRAM MARKETING

*PPT slide –

Program Marketing

- What is [utility]'s role in program marketing?
- How is program marketing coordinated between [utility] , Energy Trust, and PMC staff?
- What marketing efforts was [utility] involved in during 2014 and 2015?
- What worked well in marketing during this time?
- Were there any marketing challenges? If so, what were they?
- Would you like to see any changes to program marketing in 2016 and beyond? If so, what changes would you like to see?

5

ILLUME

- 2) What is [utility]'s role in program marketing?
- 3) How is the program marketing coordinated between [utility], Energy Trust, and PMC staff? [Probe on regular marketing calls, written marketing plans, coordination of marketing messages and branding]
- 4) What marketing efforts was [utility] involved in during 2014, 2015, and so far in 2016?
- 5) What went well in marketing during this time?
- 6) Were there any marketing challenges? If so, what were they?
- 7) Would you like to see any changes to program marketing in 2016 and beyond? If so, what changes would you like to see?

4.0 CUSTOMER EXPERIENCE

*PPT slide –

Customer Experience

- Do customers know where to get information on Energy Trust programs?
- Are [utility] staff able to answer customer questions about programs, or direct them to where they can find an answer?
- What is the process for directing customers to programs in which they are interested in participating?
 - How has this process been working?
- How satisfied have customers been with Energy Trust programs?
- What (if any) specific feedback have you heard from customers about the programs?

6

ILLUME

- 8) Do customers typically know where to go to get information on Energy Trust programs?
- 9) Are [utility] staff able to answer customer questions about the programs or direct them to where they can find an answer?
 - a) If needed: Are there sufficient resources (time/budget) for utility staff to address customer questions and direct them to programs?
- 10) What is the process for directing customers to programs when they are interested in participating?
How has this process been working?
- 11) How satisfied have customers been with Energy Trust programs?
- 12) What (if any) specific feedback have you heard from customers about the programs?

5.0 PROGRAM DESIGN

*PPT slide –

Program Design

- How does [utility] receive updates regarding program changes?
 - How well is this communication process working?
- What do you think are the main barriers to residential program participation?
- Does [utility] see any opportunities for future program design changes? Please explain.

7 ILLUME

13) How does [utility] receive updates regarding program changes? [Probe, if not mentioned: does the Conservation Advisory Council (CAC) serve as a source for information about program updates, incentive level changes, etc.?.]

a) How well is this communication process working?

14) What do you think are the main barriers to residential program participation?

15) Does [utility] see any opportunities for future program design changes? Please explain.

6.0 COLLABORATION SUCCESSES AND CHALLENGES

*PPT slide –

Collaboration Successes and Challenges

- What were the most significant collaboration efforts in 2014 and 2015?
- What are the biggest successes you've had in collaborating?
- What challenges have you experienced in collaborating?
 - How were those challenges addressed or resolved?

8 ILLUME

- 16) What were the most significant collaboration efforts between Pacific Power and Energy Trust in 2014 and 2015?
- 17) What are the biggest successes have you had in collaborating?
- 18) What challenges have you experienced in collaborating during this time?
- a) How were those challenges addressed or resolved?

7.0 FINAL THOUGHTS AND WRAP-UP

*PTT slide –

Final Thoughts and Wrap-Up

- Could communications between Energy Trust and [utility] be improved in any way?
 - Are there any outstanding issues or concerns?
- Do you have any recommendations for improving the collaboration process? Please explain.
- Do you have any other thoughts on the topics we discussed today, or anything else we didn't cover?

9 ILLUME

- 19) Thinking about the collaboration process overall, could communications between Energy Trust and Pacific Power be improved in any way?
- a) Are there any outstanding concerns or issues?
- 20) What recommendations do you have for improving the collaboration process? What, if anything, would improve the outcomes of collaboration with Energy Trust? [Probe to see if role responsibilities are clear, if not already mentioned.]
- 21) Do you have any other thoughts or comments on the topics we discussed today?
- a) Would you like to discuss these now, or at a later time?

Those are all our questions. Thanks for your time today and good information!

Please don't hesitate to contact us if you have any additional thoughts on the topics we discussed today. Our contact information is shown on the PowerPoint slide if you need to get in touch with us. We may follow-up with some additional questions once we review the notes from our meeting today.

APPENDIX C. INDIVIDUAL INTERVIEW GUIDE - GAS UTILITIES

Energy Trust Existing Homes Process Evaluation: Task 3: Electric Utility and Marketing Staff Interviews – NW Natural, Cascade Natural Gas

UTILITY INTERVIEW GUIDE

Originally created by Evergreen Economics

OBJECTIVES:

Gather utility feedback on collaboration with Energy Trust and PMC staff, utility role in marketing and recruitment, satisfaction with program design and collaboration outcomes.

AUDIENCE:

NW Natural, Cascade Natural Gas

We will conduct two phone interviews, one with NW Natural with up to two representatives on the call, and one with Cascade Natural Gas.

1.0 INTRODUCTION

Hello, my name is [NAME] and I'm with ILLUME Advising. Thank you for taking the time to speak with me today. My firm has been hired by Energy Trust to conduct an evaluation of their Existing Homes program. In this interview, we'll discuss [NW Natural or Cascade Natural Gas]'s coordination with Energy Trust on the marketing and delivery of residential programs.

For note taking purposes, I'll record this meeting. Any comments you make will not be attributed to you directly in our evaluation report, so please feel free to speak honestly during today's discussion. [If more than one interviewee is on the call] When you have a comment, please state your first name prior to speaking.

For today's interview, there are six main topics we will cover, those are:

- Name and role of each attendee
- Marketing and recruitment
- Customer experience with Energy Trust programs
- Program design
- Collaboration successes and challenges
- Final thoughts and comments

2.0 RESPONDENT ROLE

1. First, can each of you briefly summarize your role at your organization, how long you have been in this role, and how you support Energy Trust's residential program activity? We'll go around the room and give everyone a chance to respond. [Probe for which program/staff the utility respondents primarily work with]

3.0 PROGRAM MARKETING

2. What is [utility]'s role in program marketing?
3. How is the program marketing coordinated between [utility], Energy Trust, and PMC staff? [Probe on regular marketing calls, written marketing plans, coordination of marketing messages and branding]
4. What marketing efforts was [utility] involved in during 2014, 2015, and so far in 2016?
5. What went well in marketing during this time?
6. Were there any marketing challenges? If so, what were they?
7. Would you like to see any changes to program marketing in 2016 and beyond? If so, what changes would you like to see?

4.0 CUSTOMER EXPERIENCE

8. Do customers typically know where to go to get information on Energy Trust programs?
9. Are [utility] staff able to answer customer questions about the programs or direct them to where they can find an answer?
 - a. If needed: Are there sufficient resources (time/budget) for [utility] staff to address customer questions and direct them to programs?
10. What is the process for directing customers to programs when they are interested in participating? How has this process been working?
11. How satisfied have customers been with Energy Trust programs?
12. What (if any) specific feedback have you heard from customers about the programs?

5.0 PROGRAM DESIGN

13. How does [utility] receive updates regarding program changes? [Probe, if not mentioned: does the Conservation Advisory Council (CAC) serve as a source for information about program updates, incentive level changes, etc.?
 - a. How well is this communication process working?
14. What do you think are the main barriers to residential program participation?
15. Does [utility] see any opportunities for future program design changes? Please explain.

6.0 COLLABORATION SUCCESSES AND CHALLENGES

16. What were the most significant collaboration efforts between Pacific Power and Energy Trust in 2014 and 2015?
17. What are the biggest successes have you had in collaborating?
18. What challenges have you experienced in collaborating during this time?
 - a. How were those challenges addressed or resolved?

7.0 FINAL THOUGHTS AND WRAP-UP

19. Thinking about the collaboration process overall, could communications between Energy Trust and Pacific Power be improved in any way?

a. Are there any outstanding concerns or issues?

20. What recommendations do you have for improving the collaboration process? What, if anything, would improve the outcomes of collaboration with Energy Trust? [Probe to see if role responsibilities are clear, if not already mentioned.]

21. Do you have any other thoughts or comments on the topics we discussed today?

a. Would you like to discuss these now, or at a later time?

Please don't hesitate to contact us if you have any additional thoughts on the topics we discussed today. I may follow-up with some additional questions once I review the notes from our interview today.

APPENDIX D. INTERVIEW GUIDE- CLARK PUD

Energy Trust Existing Homes Process Evaluation Task 3: Utility and Marketing Staff Interviews – Clark Pud

CLARK PUD UTILITY INTERVIEW GUIDE

OBJECTIVES:

Gather utility feedback on collaboration with Energy Trust and PMC staff, utility role in program marketing, satisfaction with program design and collaboration outcomes.

AUDIENCE:

Clark PUD

This interview will be conducted by phone

1.0 INTRODUCTION

Note: Interview will be scheduled by email with the utility contact provided by Energy Trust.

Hi, this is _____ calling from ILLUME Advising. Is now still a good time to discuss Clark PUD's coordination with Energy Trust staff on commercial and industrial programs?

If yes: Great, let's get started.

If no: When is a good time to reschedule our interview?

2.0 RESPONDENT ROLE

- 1) First, can you briefly summarize your role at Clark PUD, how long you have been in this role, and how you support Energy Trust residential program activity?

[Probe for which program/staff the utility respondents primarily work with]

3.0 UTILITY AND ENERGY TRUST COLLABORATION

- 2) Can you give an overview of the communication and collaboration process between Clark Public Utilities and Energy Trust?
- 3) What were the most significant collaboration efforts between Clark Public Utilities and Energy Trust in 2014 and 2015? *[Probe on collaboration regarding program design, marketing, increasing program participation/program savings and maintaining a high level of customer satisfaction.]*

- 4) What is the level of coordination with Energy Trust regarding Clark's residential customers and their participation in energy efficiency programs?
 - a) How well is this coordination working?
 - b) What could be improved?
- 5) What are the biggest successes have you had in collaborating?
- 6) What challenges have you experienced collaborating? *[Probe on whether there were any challenges due to the design of Energy Trust programs]*
 - a) How were those challenges addressed or resolved?

4.0 PROGRAM MARKETING

- 7) What is Clark Public Utilities' role in program marketing for Energy Trust programs?
- 8) How is Energy Trust involved in program marketing for Clark Public Utilities' residential programs?
- 9) How is the program marketing coordinated between Clark Public Utilities, Energy Trust, and PMC staff? *[Probe on regular marketing calls, written marketing plans, coordination of marketing messages and branding]*
- 10) What marketing efforts was Clark Public Utilities involved in during 2014, 2015, and so far in 2016?
- 11) What went well in marketing and recruitment during this time?
- 12) What challenges were there in recruiting program participants?
- 13) Would you like to see any changes to program marketing in 2016 and beyond? If so, what changes would you like to see?

5.0 UPCOMING PROGRAM CHANGES

- 14) Are there any changes planned for Clark Public Utilities' residential programs in the following areas?
 - a) Incentive offerings?
 - b) Eligible measures?
 - c) Marketing?
 - d) Outreach?

6.0 FINAL THOUGHTS AND WRAP-UP

- 15) Thinking about the collaboration process overall, could communications between Energy Trust and Clark Public Utilities be improved in any way?
- a) Are there any outstanding concerns or issues?
- 16) What recommendations do you have for improving the collaboration process? What, if anything, would improve the outcomes of collaboration with Energy Trust? *[Probe to see if role responsibilities are clear, if not already mentioned.]*
- 17) Do you believe there are additional opportunities for collaboration with Energy Trust beyond what is currently done?
- a) If yes, what are those opportunities?
- 18) Do you have any other thoughts or comments on the topics we discussed today?
- a) Would you like to discuss these now, or at a later time?

Those are all our questions. Thanks for your time today and good information!

APPENDIX E. TRADE ALLY INTERVIEW GUIDE

Energy Trust Existing Homes Process Evaluation: Task 6: Market Actor Interview Guide – Trade Allies

MARKET ACTOR INTERVIEW GUIDE – TRADE ALLIES

OBJECTIVES:

Assess the effectiveness of new tools and technologies meant to drive greater program participation, as well as further develop and support the trade ally/market actor network.

Research Questions include:

- What are the effects of recent changes to program processes, such as quality management and incentive processing?
- How many trade allies are offering instant incentives, and how is that process working for them and their customers?
- What are trade allies' experiences with web forms, the new trade ally web portal?
- How could the program drive more applications through web forms?
- How effective are communications between market actors and Energy Trust?
- How can Energy Trust improve its relationship with trade allies and distributors to increase cost effective energy savings?
- How do trade allies/market actors approach selling certain measures of interest, such as DHPs and air conditioning?

AUDIENCE:

- Trade allies – 20 Oregon, 5 Washington
-

1.0 INTRODUCTION

Hello, my name is [INTERVIEWER NAME] and I'm calling on behalf of Energy Trust of Oregon. As part of our evaluation of their Existing Homes program, we are talking with Trade Allies like you to learn about your working relationship with Energy Trust, particularly with respect to recent changes in program processes. Do you have 20-30 minutes to answer some questions, or can we schedule time within the next week to talk?

[IF AGREE TO INTERVIEW, OTHERWISE THANK AND TERMINATE]

Thanks for taking the time to talk today. For note taking purposes, I'd like to record this interview. Any comments you make will be kept confidential and will not be attributed to you directly in our report.

2.0 ROLES AND RESPONSIBILITIES (RR)

- RR1. [ASK ALL] First, can you tell me your title?
1. President/CEO
 2. Manager
 3. Sales person
 4. Other, please specify:_____ [ASK ALL] What is your role in the organization?
- RR2. [ASK ALL] How many years has your firm been an Energy Trust Trade Ally (an estimate is fine)?
- _____

3.0 FIRMOGRAPHICS (F)

- F1. [ASK ALL] What services does your company provide to residential customers as an Energy Trust Trade Ally? [CHOOSE ALL THAT APPLY]
1. HVAC
 2. Building Shell (insulation, air sealing, doors, windows)
 3. Lighting
 4. Plumbing (water heating)
 5. Other, please specify: _____
- F2. [ASK ALL] How many people work at your firm? _____
- F3. [ASK ALL] When you consider all of the projects your firm completes in a year, what percentage are conducted in Oregon? 1. ___% 2. None 3. DK
- F4. [ASK ALL] How about Washington? 1. ___% 2. None 3. DK
- F5. [ASK ALL] Based on annual revenues, what percentage of your work is done in the residential sector? 1. ___% 2. None 3. DK
- F7. [ASK IF F3>0] And over the past year, about what percentage of your firm's residential projects in Oregon received Energy Trust incentives? 1. ___% 2. None 3. DK
- F8. [ASK IF F4>0] And about what percentage of your firm's residential projects in Washington received Energy Trust incentives? 1. ___% 2. None 3. DK

4.0 INCENTIVE PROCESSING

1. [ASK Q1-Q6 ONLY IF 3-STAR-rated Trade Ally] Has your firm utilized instant incentives?
 1. Yes
 2. No
 66. Other (please specify) _____
 88. Don't Know

2. [IF USED INSTANT INCENTIVES] How do you explain instant incentives to your customers?
3. Do your customers ever submit their own incentive applications?
 1. Yes (On approximately what percentage of projects? _____)
 2. No
66. Other (please specify) _____
88. Don't Know
4. [IF CUSTOMER SUBMITTED AND INSTANT INCENTIVES] Has the instant incentive changed the way you communicate with your customers about purchasing efficient equipment?
5. [IF CUSTOMER SUBMITTED AND INSTANT INCENTIVES] Have you noticed a difference in how instant incentives drive customer decisions as compared to incentives paid directly to the customer?
6. [IF CUSTOMER SUBMITTED AND INSTANT INCENTIVES] Which incentive structure do you prefer? Why?
7. [ASK ALL] Do you use Energy Trust incentives to promote and sell your services? [IF YES] How? [CHOOSE ALL THAT APPLY – DO NOT READ LIST]
 1. Include Energy Trust incentives on bid documents
 2. Inform potential customers their project may qualify for Energy Trust incentives
 3. Include Energy Trust in brochures and other printed materials
 4. Mention Energy Trust incentives in radio or TV advertisements
 5. Promote affiliation with Energy Trust on company website
 6. Other, please specify: _____
 7. DK
8. [If Q7=1] How often do you include incentives on bid documents?
 1. Always
 2. Most of the time
 3. Sometimes
 4. Never
 5. DK
9. [ASK ALL] How often do you suggest equipment or services that may qualify for Energy Trust incentives to potential customers that did not specifically ask for them?
 1. Always
 2. Most of the time
 3. Sometimes
 4. Never
 5. DK
10. [ASK ALL] Do you have any suggestions for how Energy Trust could improve its incentive processes?

4.1 WEB FORMS

11. Have you used Energy Trust's web forms when completing an application for an incentive?
 1. Yes
 2. No
 66. Other (please specify) _____
 88. Don't Know

12. [IF USED FORMS] About what percentage of the applications you submit are through Energy Trust's web forms? _____%

13. [IF Q11=2 OR Q12<100%] Why do you choose to submit paper over web-based forms?

14. [IF Q12<100%] Do you anticipate using web forms with the same, less, or increased frequency in the next year?
 - a. Same frequency
 - b. Less frequency
 - c. Increased frequency

15. [ASK ALL] Do you have any suggestions for how the web forms could be improved? [PROBE for ease of uploading documents and/or scanning and uploading signatures]

16. [ASK ALL WHO USE FORMS <100% OF THE TIME] Would these improvements encourage you to use web forms more often?

5.0 CHANGES TO QA/QC REQUIREMENTS

17. Related to QA/QC requirements, beginning in 2015 the program introduced what's called a "desk review" or "desk QA." It allows for fewer on-site project verifications for some measures. Was your firm aware of this change?
 1. Yes
 2. No
 66. Other (please specify) _____
 88. Don't Know

18. Have you noticed a decrease in on-site QA/QC visits?

19. [IF AWARE OF CHANGE] Has the use of desk QA affected your experience with completing projects? [If yes] How so?

6.0 USE OF TRADE ALLY WEB PORTAL

20. Are you aware that Energy Trust offers a web portal to trade allies?

1. Yes
2. No [SKIP TO Q26]
66. Other (please specify)_____
88. Don't Know

21. [IF AWARE OF PORTAL] Based on your knowledge, what types of information or access is available on the web portal?

22. Have you used the portal?

1. Yes (How frequently?_____)
2. No
66. Other (please specify)_____
88. Don't Know

23. [IF USED PORTAL] What was the purpose of your visit to the portal? [PROBE FOR INFORMATION REVIEWED]

24. [IF AWARE AND HAVE NOT USED PORTAL] Why haven't you used the web portal yet?

25. [IF USED PORTAL] Did the web portal meet your expectations? Was there any functionality that would be useful to your firm that you did not find? Please explain.

7.0 RENTAL MEASURES

26. [IF F1=1] Have you worked with rental property owners to install qualifying gas furnaces? What about other qualifying measures?

27. [IF Q26=YES] Is your approach to selling efficient furnaces different with rental property owners compared to owner-occupied homeowners? [IF YES] Please explain. [Probe for unique barriers in the rental market]

8.0 OTHER MEASURES OF INTEREST

8.1 THERMOSTATS

[IF F1=1 (HVAC contractors) ASK Q28-32]

28. What is the most common type of thermostat you install? Why is that?

29. How often do you offer Wi-Fi enabled, or "smart" thermostats to your customers?

- a. What kinds of customers *don't* you talk about smart thermostats with? Why?

- b. Are there things that inhibit you from bringing up smart thermostats with all your customers? (Please explain)
- c. Do you have experience using Wi-Fi enabled thermostats for heat pump control settings, specifically electric resistance lockout?
- d. [If yes] In what portion of your heat pump projects have you used WiFi thermostats this way? How effectively do smart thermostats function for this?

8.2 AIR CONDITIONING

- 30. Do you see customer demand for air conditioning growing in Oregon? Do you see demand growing in one geographical area vs. another (probe for urban versus rural)? Please explain.
- 31. Are customers deciding between different options for cooling solutions? For example, window A/C vs. central A/C vs. heat pumps? In any cases, are they displacing another cooling system? [If yes] what are they typically displacing?
- 32. Do customer decisions around air conditioning vary by their home's heating source?

9.0 ENERGY TRUST TOOLS AND INFLUENCE

- 33. [ASK ALL] Over the past year, has your firm changed any services you offer to residential customers?
 - 1. Yes
 - 2. No
 - 3. DK
- 34. [ASK IF Q33 = YES] What services changed and why? [What was added, what was dropped]
- 35. [ASK IF Q33 = YES] Were any of these changes influenced by Energy Trust's residential program in 2015-2016? Please explain. [Probe to clarify whether response relates to Existing Homes program or other residential offerings]
- 36. Do you use any of the following Energy Trust marketing tools?
 - a. Incentive booklet
 - b. Website listing
 - c. Cooperative marketing opportunities
 - d. Other tools? Please specify
- 37. Do these tools help you reach more customers? Do you have any suggestions for how these tools could be improved?
 - a. Incentive booklet
 - b. Website listing
 - c. Cooperative marketing opportunities

38. Do you read the *Insider* blog or monthly *Insider* email newsletter? [Indicate which one, or both]
39. [If Q38=Yes] Do the *Insider* blog and email newsletter meet your needs? [If yes] What do you find useful about them?
40. [If Q39=No] What would make them more useful to you?

10.0 EFFECTIVENESS OF COMMUNICATION

41. Recently, Energy Trust has moved toward an account management model of providing support to its trade allies, which provides you with a single point of contact for program support. How effective has communication been with your account manager?
42. Have you experienced a difference in the level of support you receive, now that you have this single point of contact? Have you:
- a. Received timely responses to your questions?
 - b. Received clear responses to your questions?
43. Do you have any suggestions for how Energy Trust could improve communication with trade allies?

11.0 POTENTIAL FOR IMPROVEMENT

44. Do work with Energy Trust on any other programs besides Existing Homes? [Probe for installation of measures in Energy Trust's New Homes program]
45. [If Q44=YES] Is trade ally support consistent across programs? Specifically, is the support you receive consistent across programs with respect to:
- a. Ease of incentive processing?
 - b. Access to call centers?
 - c. Availability and responsiveness of account managers?
46. [If the level of support is not consistent across programs] Do you have any suggestions for ways Energy Trust can improve consistency of support?
47. Is there anything else that would make the trade ally network more valuable to you and your firm?
48. Is there anything Energy Trust could do to further support your firm in expanding sales of qualifying equipment, products or services? (Please explain)

APPENDIX F. DISTRIBUTOR INTERVIEW GUIDE

Energy Trust Existing Homes Process Evaluation Task 6: Market Actor Interview Guide – Distributors

MARKET ACTOR INTERVIEW GUIDE – DISTRIBUTORS

OBJECTIVES:

Assess the effectiveness of collaboration with Energy Trust, particularly with respect to the Sales Performance Incentive Fund (SPIF), education and outreach to contractors, effectiveness of processes, and how processes can be improved to further support distributors.

Research Questions include:

- How is the Existing Homes program working for distributors?
- How effective has the SPIF been for distributors, specifically in creating a linkage between distributors and Energy Trust programs, and driving sales for key equipment measures?
- How do water heater distributors approach educating installers, particularly with respect to 0.67+ EF gas tank water heaters?
- How do distributors upload project information to Energy Trust?
- How effective are communications between distributors and Energy Trust?
- How can Energy Trust improve its relationship with distributors to increase sales of qualifying equipment?

AUDIENCE:

- Distributors – Existing Homes (2 of 3)
-

1.0 INTRODUCTION

Hello, my name is [INTERVIEWER NAME] with Illume Advising and I'm calling on behalf of Energy Trust of Oregon. As part of our evaluation of their Existing Homes program, we are talking with distributors like you to learn about your working relationship with Energy Trust. Do you have 15-20 minutes to answer some questions, or can we schedule time within the next week to talk?

[IF AGREE TO INTERVIEW, OTHERWISE THANK AND TERMINATE]

Thanks for taking the time to talk today. For note taking purposes, I'd like to record this interview. Any comments you make will be kept confidential and will not be attributed to you directly in our report.

2.0 ROLES AND RESPONSIBILITIES (RR)

RR3. [ASK ALL] First, can you tell me your title?

1. President/CEO
2. Manager
3. Sales person
4. Other, please specify: _____ [ASK ALL] What is your role in the organization?

RR4. [ASK ALL] How many years has your firm been working with Energy Trust (an estimate is fine)?

3.0 FIRMOGRAPHICS (F)

F1. [ASK ALL] What types of products does your company distribute as part of your work with Energy Trust? [CHOOSE ALL THAT APPLY]

1. HVAC (please specify _____)
2. Plumbing (please specify _____)
3. Other, please specify: _____

F2. [ASK ALL] How many people work at your firm? _____

F3. [ASK ALL] When you consider all of the products your firm sells in a year, what percentage are sold in Oregon? 1. ___% 2. None 3. DK

F4. [ASK ALL] How about Washington? 1. ___% 2. None 3. DK

F5. [ASK ALL] Based on annual revenues, what percentage of your work is done in the residential sector? 1. ___% 2. None 3. DK

F6. [ASK ALL] Based on annual revenues, what percentage of your work is done in the commercial sector? 1. ___% 2. None 3. DK

4.0 RECENT CHANGES

Interviewer to read: Now I'd like to ask you about your experience with Energy Trust's Sales Performance Incentive Fund (SPIF).

4.1 SALES PERFORMANCE INCENTIVE FUND (SPIF)

49. How long has your company received SPIFs from Energy Trust for selling qualifying equipment?
50. Please describe how the SPIF process works at your company.
51. What effect, if any, as the SPIF had on the way you approach product stocking and the way you communicate with contractors about equipment choices?
 - a. Stocking practices:
 - b. Communication with contractors about equipment:
52. How satisfied are you with the SPIF program so far?

4.2 PROCESSES AND PROCEDURES

53. Please describe the process by which you submit data to Energy Trust to receive SPIF payment.
54. How well are these processes working for you?
55. Do you have any suggestions for how the SPIF submittal process could be improved?

5.0 ENERGY TRUST INFLUENCE

56. [ASK ALL] Over the past year, has your firm changed the way you promote, stock, and sell qualifying equipment?
 1. Yes
 2. No
 3. DK
57. [ASK IF Q33 = YES] What changed and why? [Probe for changes in stocking, promotion, and communication with contractors]
58. [ASK IF Q33 = YES] Were any of these changes influenced by your work with Energy Trust? Please explain.

59. [ASK ALL] How often do you suggest equipment that qualifies for Energy Trust incentives to contractors that did not specify such equipment?
1. Always
 2. Most of the time
 3. Sometimes
 4. Never
 5. DK
60. Has your company collaborated with Energy Trust to host “lunch and learns” or other trainings with contractors?
1. Yes
 2. No
 66. Other (please specify)_____
 88. Don’t Know
61. [IF Q60=1] Please describe the content of these events.
62. [IF Q60=1] Have these events been effective in encouraging contractors to specify qualifying equipment? Please explain.
63. [IF Q60=2] Why haven’t you hosted a lunch and learn?
64. [ASK ALL] Is there another format, alternative to lunch and learns, that might be more effective in educating contractors? If so, what would that look like? [Probe for specifics]
65. [ASK ALL] Would it be effective to bring in manufacturers to speak to installers directly about efficient equipment?
66. [IF F1=4] Have you worked with contractors specifically on promoting qualifying gas tank water heaters (these are gas tank water heaters with an EF of 0.67 or greater)?
1. Yes
 2. No
 66. Other (please specify)_____
 88. Don’t Know
67. [IF Q66=1] Please describe how you’ve worked with contractors to promote sales of 0.67+ EF gas tank water heaters.
68. [IF Q66=1] What else could Energy Trust do to encourage installers to specify 0.67+ EF gas tank water heaters?
69. [ASK ALL] Do you use Energy Trust marketing materials to promote Energy Trust incentives? [IF YES] In what ways?

70. [ASK ALL] Have you used your own marketing and promotion materials to support Energy Trust? [IF YES] In what ways?

6.0 EFFECTIVENESS OF COMMUNICATION

71. How often you do communicate with Energy Trust or CLEAResult to discuss your participation in the SPIF program? [Probe for primary contact]

72. In your experience, how effective is communication with Energy Trust? CLEAResult?

73. Have you:

- a. Received timely responses to your questions?
- b. Received clear responses to your questions?

74. Do you have any suggestions for how Energy Trust could improve communication with partners like you?

7.0 POTENTIAL FOR IMPROVEMENT

75. If Energy Trust were to provide incentives directly to distributors for each unit sold, instead of providing a SPIF to your company and an incentive to the customer or contractor, would this impact your ability to promote qualifying equipment to customers? How would you leverage the incentive to drive volume of efficient units?

- a. Could you collect and provide information on the customer and site receiving the unit, such as customer contact information and site address, to Energy Trust?
- b. [IF 27a= NO] What would make it difficult to collect this information? Could Energy Trust do anything to support you in collecting this information?

76. Is there anything Energy Trust could do to further support your firm in expanding sales of qualifying equipment? (Please explain)

APPENDIX G. NEW HOMES VERIFIER INTERVIEW GUIDE

Energy Trust Existing Homes Process Evaluation Task 6: Market Actor Interview Guide – New Home Verifiers

MARKET ACTOR INTERVIEW GUIDE – NEW HOME VERIFIERS

OBJECTIVES:

Assess the effectiveness of collaboration with Energy Trust on New Homes verification, particularly with respect to implementation of the Energy Performance Score (EPS), tools and technologies meant to drive greater program participation, effectiveness of processes, and how processes can be improved to further support new home verifiers.

Research Questions include:

- How is the New Homes program working for new home verifiers?
- What is new home verifiers' experience with EPS?
- Last year, verifiers submitted applications using paper forms. Verifiers now use a database called Axis? How well is the new process working?
- How effective are communications between new home verifiers and Energy Trust?
- How can Energy Trust improve its relationship with new home verifiers to increase cost effective energy savings?

AUDIENCE:

- New Home Verifiers – New Homes (2 of 4)
-

1.0 INTRODUCTION

Hello, my name is [INTERVIEWER NAME] from Illume Advising and I'm calling on behalf of Energy Trust of Oregon. As part of our evaluation of their Existing Homes program, we are talking with new home verifiers like you, specifically who verify new homes in Washington, to learn about your working relationship with Energy Trust, particularly with respect to recent changes in program processes. Do you have 15-20 minutes to answer some questions, or can we schedule time within the next week to talk?

[IF AGREE TO INTERVIEW, OTHERWISE THANK AND TERMINATE]

Thanks for taking the time to talk today. For note taking purposes, I'd like to record this interview. Any comments you make will be kept confidential and will not be attributed to you directly in our report.

2.0 ROLES AND RESPONSIBILITIES (RR)

RR5. First, can you tell me your title?

1. President/CEO
2. Manager
3. Sales person
4. Other, please specify: _____ [ASK ALL] What is your role in the organization?

RR6. How many years has your firm been working with Energy Trust on the New Homes program (an estimate is fine)? _____

3.0 FIRMOGRAPHICS (F)

F1. How many people work at your firm? _____

F2. When you consider all of the new homes your firm verifies in a year, what percentage are conducted in Oregon? 1. ___% 2. None 3. DK

F3. How about Washington? 1. ___% 2. None 3. DK

4.0 PROGRAM EXPERIENCE

4.1 ENERGY PERFORMANCE SCORE (EPS)

1. Please describe the process by which your firm interacts with Washington builders to participate in the EPS program. [Interviewer note: be sure respondent speaks to Washington projects only]
 - a. How many builders do you work with in Washington?
2. Please describe the process by which your firm interacts with Energy Trust to achieve an EPS score on new homes.
3. What other services, if any, does your firm offer builders, beyond EPS verification?
4. Do you work with any new homes certifications in Washington?
 3. Yes
 4. No
 67. Other (please specify) _____
 89. Don't Know
5. [IF Q4=1] What other certifying bodies do you work with?
6. What has your experience been like working with Energy Trust on EPS?

4.2 INCENTIVE PROCESSING

7. I understand that in 2015, for homes in Washington, verifiers submitted incentive applications to Energy Trust via paper. In 2016, Energy Trust set up an online database called Axis, which they had previously used for only Oregon homes. How is the new Axis database working?
8. Is there anything you'd like to improve about the Axis database?

9. Do you have any other suggestions for how Energy Trust could improve its incentive processes?

5.0 MARKETING AND PROMOTION OF EPS

10. Do you use Energy Trust marketing materials to promote EPS to builders in Washington? [IF YES] In what ways? If no, how do they promote EPS to Washington builders?
11. How do builders in Washington typically respond when you tell them about EPS? Is there anything else Energy Trust could provide to Washington builders to help them more effectively participate? [Probe for types of information, tools that would be helpful]
12. Do you provide marketing materials for builders to use in their own promotion of EPS to homebuyers? Please describe.
13. Have you used your own marketing and promotion materials to support Energy Trust? [IF YES] In what ways?

6.0 EFFECTIVENESS OF COMMUNICATION

14. How often you do communicate with Energy Trust or CLEAResult to discuss EPS projects in Washington? [Probe for which firm]
15. In your experience, how effective is communication with Energy Trust? CLEAResult?
16. Have you:
 - a. Received timely responses to your questions?
 - b. Received clear responses to your questions?
17. Do you have any suggestions for how Energy Trust could improve communication with verifiers?

7.0 POTENTIAL FOR IMPROVEMENT

1. Do you have any other suggestions for how Energy Trust could improve its New Homes EPS program?
2. Is there anything Energy Trust could do to further support your firm in expanding the reach of EPS to new homes in Washington? (Please explain).

APPENDIX H. ENERGY SAVER KIT SURVEY GUIDE

MEMORANDUM

To: Sarah Castor and Marshall Johnson, Energy Trust of Oregon

From: Michelle Bruchs and Mallika Jayaraman, ILLUME Advising, LLC

Subject: Energy Saver Kit Draft survey instrument and sample plan

Date: May 27, 2016

The Energy Trust of Oregon Existing Homes process evaluation includes three primary data collection efforts:

1. Market actor interviews with contractors, distributors, and new home verifiers
2. Interviews with participating utilities
3. Survey with Energy Saver Kit (ESK) recipients

This memo provides the goals and draft survey instrument for Task 4, Survey with ESK Recipients.

A. GOALS AND SAMPLING PLAN

Over the past few years, Energy Trust has made changes to the design of the Energy Saver Kit program. In 2012, kits included a fixed number of measures (CFLs, showerheads and faucet aerators) based on participants' utility and water heating fuel. In the beginning of 2013, Energy Trust moved to a "Build Your Own Kit" offering, which provided a variable number of each measure based on characteristics of participants' homes, such as number of bathrooms. Program participants now fill out an online questionnaire and, based on their responses, receive one of 10 different kit configurations. Light bulbs provided have been changed from CFLs (a-lamps, reflectors and specialty bulbs) to LEDs (a-lamp and reflectors).

The goal of this survey is to contact 200 ESK participants to determine if the most recent design change has resulted in changes in installation rates or customer satisfaction. Additionally, this will be our first opportunity to collect installation rates for LEDs. Specifically, we will explore:

- Participants' initial motivation for ordering the kits,
- Measure installation rates, and
- Participant satisfaction with the equipment in the kits.

In addition to these activities, we recommend including questions designed to measure if/how the kits are supporting greater awareness of, and interest in, broader Energy Trust Existing Homes or Products program offerings.

The survey will be customized to reflect the contents of each participants' kit. ILLUME or Leede will create indicator variables for each kit item, which will be populated based on each kit configuration. These variables will be programmed into the survey, per the survey logic outlined below, to customize the questions for each participant.

B. SURVEY GUIDE

INTRODUCTION

Hi, my name is _____ and I'm calling on behalf of Energy Trust of Oregon. You recently received a free Energy Saver Kit that may have contained energy-efficient light bulbs, high performance faucet aerators and/or showerheads. I'm calling today to ask you a few questions about how are you using the items you received, and how satisfied you are with them.

AS NEEDED:

We know your time is valuable but the survey will only take a few minutes.
This is not a sales call.

SCREENING

[ASK ALL]

S1. May I speak with [NAME]?

1. Yes
2. No, unavailable [SCHEDULE CALLBACK]
88. Don't know [THANK AND TERMINATE]
99. Refused [THANK AND TERMINATE]

S2. Our records indicate that your household received a free Energy Saver Kit from Energy Trust of Oregon, which included [Read list of kit components] First, could you confirm you received the kit?

1. Yes
2. No [ASK IF ANYONE ELSE COULD BE MORE AWARE AND GATHER NAME IF YES. IF NO, OFFER THE NUMBER OF THE PROGRAM SO THEY CAN CALL TO CHECK STATUS OF KIT DELIVERY, IF DESIRED 1-866-311-1822. THANK AND TERMINATE]
88. Don't know [THANK AND TERMINATE]
99. Refused [THANK AND TERMINATE]

FEEDBACK ON MARKETING AND OUTREACH [ASK ALL]

[ASK ALL]

F1. How did you first learn about the Energy Saver Kit opportunity? [INTERVIEWER: DO NOT READ ITEMS] [SINGLE RESPONSE]

1. Friend, family, co-worker, and other word-of-mouth
2. Energy Trust's Online Home Energy Review
3. Through talking with an Energy Trust representative
4. Energy Trust's website
5. Contractor
6. An email from my utility
7. A newsletter from my utility
8. Bill insert
9. A public event
66. Other, please specify: [OPEN-ENDED RESPONSE]
77. Not applicable
88. Don't know
99. Refused

F2. How did you go about ordering your Energy Saver Kit? [INTERVIEWER: DO NOT READ ITEMS] [SINGLE RESPONSE]

1. Through Energy Trust's website
2. Through Enhabit (home audit)
3. At a community event
4. Energy Trust's customer service phone line
66. Other, please specify: [OPEN-ENDED RESPONSE]
77. Not applicable
88. Don't know
99. Refused

MOTIVATION

[ASK ALL]

M1. What motivated you to order an Energy Saver Kit? [DO NOT READ, MULTIPLE RESPONSES]

1. A friend encouraged me to order it
2. Energy Trust's Online Home Energy Review
3. Talking with an Energy Trust representative
4. I want to help the environment
5. I want to save energy in my home
6. I want to save money on my utility bills
7. I wanted to try out LED light bulbs
8. Receiving free items is a good deal
66. Other, please specify: [OPEN-ENDED RESPONSE]
88. Don't know
99. Refused

ASSESSING ENERGY SAVER KIT INSTALLATION

LED A-LAMP BULB

[ASK A1-A4 IF ASKALAMP=1]

A1. Next, let me ask you about the A-lamp LED light bulb(s) you received. This is an LED bulb that looks like a traditional light bulb. Can you confirm that you received [#ALAMP] A-lamp LED(s) in your kit?

1. Yes
2. No, I received a different number of A-lamp LEDs [How many? [RE-RECORD #ALAMP: ____]]
3. No, I did not receive any A-lamp LEDs [SKIP to R1]
88. Don't know [SKIP to R1]
99. Refused

A2. How many A-lamp LED light bulb(s) from the kit did you install in your home? [SINGLE RESPONSE]

1. ____ [RECORD NUMERIC VALUE]
77. Not applicable
88. Don't know
99. Refused

[ASK IF (A2=1) AND (A2_1<#ALAMP)]

A3. Do you plan to install the remaining [#A-lamp-A2] LED A-lamps you received? [SINGLE RESPONSE]

1. Yes
2. No
88. Don't know
99. Refused

[ASK IF A3=1]

A4. When do you think you will install them? [SINGLE RESPONSE]

1. 0-6 months
2. 6-12 months
3. 12+ months
4. Never
88. Don't know
99. Refused

[ASK IF A3<>1 OR A4=4]

A5. Why have you not installed the remaining [#A-lamp-A2] A-lamp LED light bulb(s)? [INTERVIEWER: DO NOT READ ITEMS] [MULTIPLE RESPONSE]

1. Didn't work as intended (Please specify: _____)
2. Haven't gotten around to it
3. Got more (number of) items than needed
4. Current one is still working
5. Don't like the quality of the light
6. Brightness – either too bright or too dim for my needs
7. Takes too much time to install it/No time/Too busy
8. Don't have the tools I need
9. Don't have the items any longer (threw away, gave away)
66. Other, please specify: [OPEN-ENDED RESPONSE]
77. Not applicable
88. Don't know
99. Refused

[ASK IF A2=1 AND A2_1>0]

A6. Did you remove [IF A2_1=1 READ: "the" IF A2_1>1 READ: "any of the"] A-lamp LED bulb(s) you initially installed?

- 1. Yes
- 2. No
- 88. Don't know
- 99. Refused

[ASK IF A6=1]

A7. Why did you remove the A-lamp(s)? [DO NOT READ; MULTIPLE RESPONSE]

- 1. Brightness – either too bright or too dim for my needs
- 2. Don't like the quality of the light
- 66. Other, please specify: [OPEN-ENDED RESPONSE]
- 88. Don't know
- 99. Refused

REFLECTOR LIGHT BULB

[ASK R1-R4 IF ASKREFLECTOR=1]

R1. Next, let me ask you about the [#REFLECTOR] LED reflector light bulb(s) you received. This is a light bulb that looks like a spotlight and provides focused lighting. These bulbs often are used in recessed or can lighting fixtures in the ceiling. Can you confirm that you received [#REFLECTOR] LED reflector light bulb(s) in your kit?

- 1. Yes
- 2. No, I received a different number of LED reflector light bulbs [How many? [RE-RECORD #REFLECTOR: ____]]
- 3. No I did not receive any LED reflector light bulbs [SKIP to SH1]
- 88. Don't know [SKIP to SH1]
- 99. Refused

R2. How many LED reflector light bulb(s) from the kit did you install in your home?

[SINGLE RESPONSE]

- 1. _____ [RECORD NUMERIC VALUE]
- 77. Not applicable
- 88. Don't know
- 99. Refused

[ASK IF (R2=1) AND (R2_1<#REFLECTOR)]

R3. Do you plan to install the remaining [#REFLECTOR-R2] LED reflector light bulb(s) you received? [SINGLE RESPONSE]

- 1. Yes
- 2. No
- 88. Don't know
- 99. Refused

[ASK IF R3=1]

R4. When do you think you will install them? [SINGLE RESPONSE]

- 1. 0-6 months
- 2. 6-12 months
- 3. 12+ months
- 4. Never

- 88. Don't know
- 99. Refused

[ASK IF R3<>1 OR R4=4]

R5. Why did you not install the remaining [#REFLECTOR-R2] LED reflector light bulb(s)? [INTERVIEWER: DO NOT READ ITEMS] [MULTIPLE RESPONSE]

- 1. Didn't work as intended (Please specify: _____)
- 2. Haven't gotten around to it
- 3. Got more (number of) items than needed
- 4. Current one is still working
- 5. Don't like the quality of the light
- 6. Brightness – either too bright or too dim for my needs
- 7. Takes too much time to install it/No time/Too busy
- 8. Don't have the tools I need
- 9. Don't have the items any longer (threw away, gave away)
- 66. Other, please specify: [OPEN-ENDED RESPONSE]
- 77. Not applicable
- 88. Don't know
- 99. Refused

[ASK IF R2=1 AND R2_1>0]

R6. Did you remove [IF R2_1=1 READ: "the" IF R2_1>1 READ: "any of the"] LED reflector bulbs(s) you initially installed?

- 1. Yes
- 2. No
- 89. Don't know
- 100. Refused

[ASK IF R6=1]

R7. Why did you remove the reflector light bulb(s)? [DO NOT READ; MULTIPLE RESPONSE]

- 1. Brightness – either too bright or too dim for my needs
- 2. Don't like the quality of the light
- 66. Other, please specify: [OPEN-ENDED RESPONSE]
- 88. Don't know
- 99. Refused

SHOWERHEAD

[ASK SH1-SH4 IF ASKSHOWERHEAD=1]

SH1. Next, I'd like to ask you about the [#SHOWERHEAD] showerhead(s) you received. Can you confirm that you received [#SHOWERHEAD] showerhead(s) in your kit?

- 1. Yes
- 2. No, I received a different number of showerheads [How many? [RE-RECORD #SHOWERHEAD: _____]]
- 3. No I did not receive any showerheads [SKIP to B1]
- 88. Don't know [SKIP to B1]
- 99. Refused

SH2. How many high performance showerheads from your kit did you install in your home? [SINGLE RESPONSE]

- 1. _____ [RECORD NUMERIC VALUE]
- 77. Not applicable
- 88. Don't know
- 99. Refused

[ASK IF (SH2=1) AND (SH2_1<#SHOWERHEAD)]

- SH3. Do you plan to install the remaining [#SHOWERHEAD-SH2] showerheads you received? [SINGLE RESPONSE]
1. Yes
 2. No
 88. Don't know
 101. Refused

[ASK IF SH3=1]

- SH4. When do you think you will install them? [SINGLE RESPONSE]
1. 0-6 months
 2. 6-12 months
 3. 12+ months
 4. Never
 88. Don't know
 99. Refused

[ASK IF SH3<>1 OR SH4=4]

- SH5. Why have you not installed the remaining [#SHOWERHEAD-K2] showerheads? [INTERVIEWER: DO NOT READ ITEMS] [MULTIPLE RESPONSE]
1. Didn't know what that was
 2. Didn't fit
 3. Didn't work as intended (Please specify: _____)
 4. Haven't gotten around to it
 5. Got more (number of) items than needed
 6. Current one is still working
 7. Didn't fit with my decor
 8. Takes too much time to install it/No time/too busy
 9. Too difficult to install it, don't know how to do it
 10. Don't have the tools I need
 11. Don't have the items any longer (threw away, gave away)
 66. Other, please specify: [OPEN-ENDED RESPONSE]
 77. Not applicable
 88. Don't know
 99. Refused

[ASK IF SH2_1>0]

- SH6. Did you remove [IF SH2_1=1 READ: "the" IF SH2_1>1 READ: "any of the"] showerhead(s) you initially installed?
1. Yes
 2. No
 90. Don't know
 102. Refused

[ASK IF SH6=1]

- SH7. Why did you remove the showerhead(s)? [DO NOT READ; MULTIPLE RESPONSE]
1. Did not work properly
 2. Flow too low
 3. Leaked
 66. Other, please specify: [OPEN-ENDED RESPONSE]
 88. Don't know
 99. Refused

BATH AERATOR

[ASK B1-B4 IF ASKBATH_AERATOR=1]

B1. Next, let me ask you about the [#BATH_AERATOR] bathroom faucet aerator(s) you received. This is a small metal piece that you can screw in to a bathroom sink faucet to reduce water flow. Can you confirm that you received [#BATH_AERATOR] bath aerator(s) in your kit? .] [INTERVIEWER: DO NOT READ ITEMS]

1. Yes
2. No, I received a different number of bath aerators [How many? [RE-RECORD #BATH_AERATOR: ____]]
3. No I did not receive any bath aerators [SKIP to K1]
88. Don't know [SKIP to K1]
99. Refused

B2. How many bathroom faucet aerators from the kit did you install in your home? [SINGLE RESPONSE]

1. _____ [RECORD NUMERIC VALUE]
77. Not applicable
88. Don't know
1. Refused

[ASK IF (B2=1) AND (B2_1<#BATH_AERATOR)]

B3. Do you plan to install the remaining [#BATH_AERATOR-B2] bathroom faucet aerators you received? [SINGLE RESPONSE]

1. Yes
2. No
88. Don't know
99. Refused

[ASK IF B3=1]

B4. When do you think you will install them? [SINGLE RESPONSE]

1. 0-6 months
2. 6-12 months
3. 12+ months
4. Never
88. Don't know
99. Refused

[ASK IF B3<>1 OR B4=4]

B5. Why have you not installed the remaining [#BATH_AERATOR-B2] aerators? [INTERVIEWER: DO NOT READ ITEMS] [MULTIPLE RESPONSE]

1. Didn't know what that was
2. Didn't fit
3. Didn't work as intended (Please specify: _____)
4. Haven't gotten around to it
5. Got more (number of) items than needed
6. Current one is still working
7. Takes too much time to install it/No time/Too busy
8. Too difficult to install it, don't know how to do it
9. Don't have the tools I need
10. Don't have the items any longer (threw away, gave away)
66. Other, please specify: [OPEN-ENDED RESPONSE]
77. Not applicable
88. Don't know
99. Refused

[ASK IF B2_1>0]

B6. Did you remove [IF B2_1=1 READ: "the" IF B2_1>1 READ: "any of the"] bathroom faucet aerator(s) you initially installed?

- 1. Yes
- 2. No
- 91. Don't know
- 103. Refused

[ASK IF B6=1]

B7. Why did you remove the aerator(s)? [DO NOT READ; MULTIPLE RESPONSE]

- 1. Did not work properly
- 2. Flow too low
- 3. Leaked
- 66. Other, please specify: [OPEN-ENDED RESPONSE]
- 88. Don't know
- 99. Refused

KITCHEN AERATOR

[ASK K1-K4 IF KITCHEN_AERATOR>=1]

K1. Next, let me ask you about the [#KITCHEN_AERATOR] kitchen faucet aerator(s) you received. This is a medium-sized metal and white plastic piece that you can screw in to a kitchen faucet to reduce water flow. Can you confirm that you received [#KITCHEN_AERATOR] kitchen aerator(s) in your kit?

- 1. Yes
- 2. No, I received a different number of kitchen aerators [How many? [RE-RECORD #KITCHEN_AERATOR: ____]]
- 3. No I did not receive any kitchen aerators [SKIP to SAT1]
- 88. Don't know [SKIP to SAT1]
- 99. Refused

K2. How many kitchen faucet aerators from the kit did you install in your home? [SINGLE RESPONSE]

- 1. ____ [RECORD NUMERIC VALUE]
- 77. Not applicable
- 88. Don't know
- 99. Refused

[ASK IF (K2=1) AND (K2_1<#KITCHEN_AERATOR)]

K3. Do you plan to install the remaining [#KITCHEN_AERATOR-K2] kitchen faucet aerators you received? [SINGLE RESPONSE]

- 1. Yes
- 2. No
- 88. Don't know
- 99. Refused

[ASK IF K3=1]

K4. When do you think you will install them? [SINGLE RESPONSE]

- 1. 0-6 months
- 2. 6-12 months
- 3. 12+ months
- 4. Never
- 88. Don't know
- 99. Refused

[ASK IF K3<=1 OR K4=4]

K5. Why have you not installed the remaining [#KITCHEN_AERATOR-K2] kitchen aerators? [INTERVIEWER: DO NOT READ ITEMS] [MULTIPLE RESPONSE]

1. Didn't know what that was
2. Didn't fit
3. Didn't work as intended (Please specify: _____)
4. Haven't gotten around to it
5. Got more (number of) items than needed
6. Current one is still working
7. Takes too much time to install it/No time/Too busy
8. Too difficult to install it, don't know how to do it
9. Don't have the tools I need
10. Don't have the items any longer (threw away, gave away)
66. Other, please specify: [OPEN-ENDED RESPONSE]
77. Not applicable
88. Don't know
99. Refused

[ASK IF K2_1>0]

K6. Did you remove [IF K2_1=1 READ: "the" IF K2_1>1 READ: "any of the"] kitchen faucet aerator(s) you initially installed?

1. Yes
2. No
88. Don't know
99. Refused

[ASK IF K6=1]

K7. Why did you remove the aerator(s)? [DO NOT READ; MULTIPLE RESPONSE]

1. Did not work properly
2. Flow too low
3. Leaked
66. Other, please specify: [OPEN-ENDED RESPONSE]
88. Don't know
99. Refused

SATISFACTION

[ASK ALL]

Next, I'd like to ask you about how well your kit met your expectations.

[ASK IF A1=1 OR A1=2]

SAT1. In particular, did the A-lamp LED light bulb(s):

1. Fall short of your expectations
2. Meet your expectations
3. Exceed your expectations
77. Not applicable
88. Don't know
99. Refused

[ASK IF R1=1 OR R1=2]

SAT2. What about the reflector LED bulb(s) you received, did it/they

1. Fall short of your expectations
2. Meet your expectations
3. Exceed your expectations
77. Not applicable
88. Don't know
99. Refused

[ASK IF SH1=1 OR SH1=2]

SAT3. And the showerhead(s) you received, did it/they:

1. Fall short of your expectations
2. Meet your expectations
3. Exceed your expectations
77. Not applicable
88. Don't know
99. Refused

SAT4. Thinking about the kit as a whole, how well did each of the following meet your expectations? [PROGRAMMER: USE A GRID, RANDOMIZE ITEMS. IF F2<>4, DO NOT READ d.]

- a. ...Performance of the products you received
- b. ...Design of the products you received
- c. ...Ease of ordering the kit
- d. ...Courtesy of the person you spoke with on the phone when ordering
- e. ...Time it took to receive your kit

[SINGLE RESPONSE]

1. Fell short of your expectations
2. Met your expectations, or
3. Exceeded your expectations
77. Not applicable
88. Don't know
99. Refused

SAT4aa. (IF SAT4a=1) How did the performance of the products you received fall short of your expectations? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

SAT4bb. (IF SAT4b=1) How did the design of the products you received fall short of your expectations? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

SAT4cc. (IF SAT4c=1) How did the ease of ordering the kit fall short of your expectations? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

SAT4dd. (IF SAT4d=1) How did the courtesy of the person you spoke with on the phone when ordering fall short of your expectations? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

SAT4ee. (IF SAT4e=1) How did the time it took to receive your kit fall short of your expectations? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

[ASK ALL]

SAT5. Overall, how satisfied are you with the Energy Saver Kit using a 5-point scale, where 1 is 'not at all satisfied' and 5 is 'very satisfied'? [RECORD 1-5, 88 – Don't know, 99 – Refused]

SAT6. Do you have any suggestions for how this kit could be improved? [OPEN END RECORD RESPONSE, 88 – Don't know, 99 – Refused]

INFLUENCE OF ENERGY SAVER KIT

[ASK ALL]

11. Since you received the kit, have you purchased any more of the following items? [MULTIPLE RESPONSE]
- a) [IF ASKALAMP=1 or ASK REFLECTOR=1] LED light bulbs. [IF YES ASK: How many?] [RECORD 1-9, 10 – 10 or more, 77 – Have not purchased more light bulbs, 88 – Don't know, 99 – Refused]
 - b) [IF ASKSHOWERHEAD=1] High-performance showerhead. [IF YES ASK: How many?] [RECORD 1-9, 10 – 10 or more, 77 – Have not purchased more showerheads, 88 – Don't know, 99 – Refused]
 - c) [IF ASKBATH_AERATOR=1] High-performance bathroom faucet aerator. [IF YES ASK: How many?] [RECORD 1-9, 10 – 10 or more, 77 – Have not purchased more aerators, 88 – Don't know, 99 – Refused]
 - d) [IF ASKKITCHEN_AERATOR=1] High-performance kitchen faucet aerator. [IF YES ASK: How many?] [RECORD 1-9, 10 – 10 or more, 77 – Have not purchased more aerators, 88 – Don't know, 99 – Refused]

[ASK IF 11.a, b, c, or d =YES]

12. Did you purchase these items because of your experience with the kit? [SINGLE RESPONSE]
- 1. Yes
 - 2. No
 - 88. Don't know
 - 99. Refused

[ASK ALL]

13. Has your experience with the Energy Saver Kit encouraged you to investigate additional energy saving home improvements? [SINGLE RESPONSE]
- 1. Yes
 - 2. No
 - 88. Don't know
 - 99. Refused

[ASK IF 13=1]

14. What have you investigated? [INTERVIEWER: DO NOT READ ITEMS]
[MULTIPLE RESPONSE]
- 1. New heating system
 - 2. Programmable thermostat
 - 3. Web-enabled thermostat, like Nest
 - 4. Energy-efficient light bulbs
 - 5. New water heater
 - 6. Insulation
 - 7. Windows
 - 8. Weatherstripping, caulking, or other ways to reduce air leakage
 - 9. Sealing or insulating ductwork
 - 10. Energy efficient appliances
 - 11. Recycling or getting rid of old appliances
 - 66. Other, please specify: [OPEN-ENDED RESPONSE]
 - 88. Don't know
 - 99. Refused

ONLINE HOME ENERGY REVIEW

[IF M1=2 OR F1=2, SKIP TO P2]

P1. Have you or any other member in your household used Energy Trust's Online Home Energy review tool? It's an online tool that helps you estimate your home's energy use and provides a list of energy saving improvements you can make at your own pace. [SINGLE RESPONSE]

1. Yes
2. No
88. Don't know
99. Refused

[ASK IF P1=1]

P2. Which of the following best describes what you've done or may do as a result of your experience with the Online Home Energy Review? [READ LIST; SINGLE RESPONSE]

1. You've already completed at least one recommended upgrade
2. You're planning to complete at least one recommended upgrade in the next 6 months.
3. You are not planning to complete any of the recommended upgrades in the next 6 months.
88. Don't know
99. Refused

DEMOGRAPHICS

[ASK ALL]

Thanks for all of this information. I have a few final questions about you.

D1. Do you rent or own your home?

1. Rent
2. Own
66. Other, please specify: [OPEN-ENDED RESPONSE]
88. Don't know
99. Refused

[ASK ALL]

D2. Which of the following best describes your home?

1. Single family detached
2. Single family attached
3. 2-4 unit structure
4. 5-9 unit structure
5. 10+ unit structure
6. Mobile or manufactured home
66. Other, please specify: [OPEN-ENDED RESPONSE]
88. Don't know
99. Refused

[ASK ALL]

D3. Please select the range that includes your annual household income from all sources in 2015 before taxes. Just stop me when I get to the correct category. [SINGLE RESPONSE]

1. Under \$10,000
2. 10 up to \$30,000
3. 30 up to \$40,000
4. 40 up to \$50,000
5. 50 up to \$60,000

- 6. 60 up to \$70,000
- 7. 70 up to \$90,000
- 8. 90 up to \$110,000
- 9. 110 up to \$150,000
- 10. 150 to \$200,000
- 11. Over \$200,000
- 88. Don't know
- 99. Prefer not to say

[ASK ALL]

- D4. What is your race? [MULTIPLE RESPONSE]
- 1. White
 - 2. Black, African American
 - 3. American Indian or Alaska Native
 - 4. Asian
 - 5. Native Hawaiian or other Pacific Islander
 - 6. Hispanic, Latino, or Spanish origin
 - 66. Other, please specify: [OPEN-ENDED RESPONSE]
 - 77. Not applicable
 - 88. Don't know
 - 99. Refused

[ASK ALL]

- D5. What is the highest level of education you have completed so far? [SINGLE RESPONSE]
- 1. Some high school
 - 2. High school graduate or equivalent (e.g., GED)
 - 3. Trade or technical school
 - 4. Some college (including Associate degree)
 - 5. College degree (Bachelor's degree)
 - 6. Some graduate school
 - 7. Graduate degree, professional degree
 - 8. Post-graduate
 - 88. Don't know
 - 99. Refused

Those are all of my questions. Thanks so much for taking the time to talk with me! The information will help Energy Trust improve its Energy Saver Kit offering – to continue helping people save energy and money.

APPENDIX I. CURRENT ENERGY TRUST RESIDENTIAL MEASURE PORTFOLIO

Measures	Existing Homes		New Homes		New Manufactured Homes		Existing Manufactured Homes		Products		Savings Within Reach	
	OR	WA	OR	WA	OR	WA	OR	WA ⁴³	OR	WA	OR	WA
Air Conditioner			x									
Appliances - Clothes Washer									x	x		
Appliances - Dishwasher			x	x								
Appliances - Recycling ⁴⁴									x			
Gas Heating - Boiler	x	x										
Gas Heating - Direct Vent Fireplace	x	x										
Gas Heating - Direct Vent Heater		x										
Gas Heating - Furnace		x	x	x							x	
Heat Pump - Ducted	x		x					x ⁴⁵			x	
Heat Pump - Ductless	x		x		x			x			x	
Heat Pump - Optimization or controls	x							x			x	
Home Energy Review (online)	x	x							x	x		
Insulation - Attic, Ceiling, Wall, Floor	x	x	x	x							x	
Insulation - Boiler Pipe	x	x										
Insulation - Duct		x	x	x								
Kit - Energy Saver	x	x										

⁴³ Energy Trust does not offer a manufactured homes program in SW Washington.

⁴⁴ Sunsetting at the end of 2016.

⁴⁵ Energy Trust is currently running a pilot on a ducted heat pump offering in Oregon manufactured homes.

Measures	Existing Homes		New Homes		New Manufactured Homes		Existing Manufactured Homes		Products		Savings Within Reach	
	OR	WA	OR	WA	OR	WA	OR	WA ⁴³	OR	WA	OR	WA
Kit - Living Wise	x	x										
Lighting - Direct Install	x						x					
Lighting - Non-Direct Install			x						x			
Sealing - Air			x	x			x					
Sealing - Duct			x	x			x					
Solar	x		x									
Spa/Pool - Cover	x											
Spa/Pool - Pump	x											
Testing - Air Leakage							x					
Testing - Combustion Appliance Zone			x	x								
Testing - Duct Leakage							x					
Thermostat - Programmable			x	x								
Thermostat - Smart	x	x					x		x	x		
Ventilation			x									
Waste Water - Treatment System	x		x									
Water Efficiency - Direct Install	x	x					x					
Water Efficiency - Non-Direct Install			x						x	x		
Water Heater - Gas	x	x	x				x		x	x		
Water Heater - Heat Pump	x		x						x			
Water Heater - Tankless			x	x								
Windows	x	x	x	x			x					

APPENDIX J. FINAL DISPOSITION OF ESK SURVEY

SAMPLE REPORT BY LAST DISPOSITION: PORTLAND

06/25/16

DISPOSITION CODE	DESCRIPTION	RECORDS
1	No Answer	84
2	Busy	10
3	Answering Machine	700
4	Bad Number/Disconnected	54
5	Wrong Number	
6	Immediate Refusal	74
7	Failed Screener	2
8	Quota Full	
9	Complete	200
10	Immediate Callback	45
11	Mid Terminate	3
12	Mid Callback	12
13	Privacy Manager	
14	Take Me Off Your List	2
15	Duplicate	
16	Language Barrier	3
17	Hearing Impairment	1
18	S1 - Don't know	
19	S1 - Refused	1
20	S2 - No, didn't receive a kit	6
21	S2 - Don't know if receive a kit	3
22	S2 - RF if received a kit	
23	Business	11
24	Left 800#	
TOTAL ATTEMPTED		1211
	Not Attempted	161
TOTAL SAMPLE		1372