



ENERGY TRUST OF OREGON PERSONAL ENERGY REPORT 3-MONTH REPORT

Final

Prepared for:

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1. EXECUTIVE SUMMARY

Energy Trust of Oregon (Energy Trust), in collaboration with NW Natural (NWN) and Portland General Electric (PGE), initiated OPOWER's Personal Energy Report (PER) on a pilot basis to 60,000 single family households in both NWN and PGE's territories in the Portland Metropolitan Area. The goal of the PER is to provide Energy Trust, NWN, and PGE customers with information about their household's electric and natural gas consumption and to offer tips on how they can conserve energy. This pilot represents the first dual fuel, multi-utility collaboration for OPOWER. As of June 1, 2011, the collaboration has sent two PERs to customers. This report represents the first of three studies conducted to assess the value of the PER to customers and to provide process findings for the pilot. Our findings may be summarized into two primary categories: (1) customer feedback; and (2) pilot coordination and implementation.

1.1 *Customer Feedback*

As of this report, The OPOWER pilot and collaboration has successfully launched its second report and customers view the collaboration favorably. The majority (63%) of customers feel that the collaboration between Energy Trust, NW Natural, and PGE is valuable, and nearly half of customers (45%) are reading the report from cover to cover. In addition, 43% of customers have discussed the report with others, most commonly members of their household.

Overall, two-thirds of customers have a favorable impression of the report (mean of 3.3 on a 1-5 scale, 1 being "poor" and 5 being "excellent"), and two-thirds (66%) of customers are satisfied with the overall level of detail in the report. Of all sections of the report, the Historical Comparison section received the highest mean usefulness score (mean of 3.7 on a 1-5 scale, 1 being "not useful" and 5 being "useful"), followed by the Neighborhood Comparison Section (3.3). The Energy Saving tips received the lowest usefulness ratings (3.1).

Just over three-quarters of respondents (78%) said they understood their household's energy consumption better after reading the report; however, only 38% said they learned new ways to save energy from the report. This is noteworthy, as our data indicates that customers who learned new ways to save were more likely to take action after receiving the report (45%, compared to 21% for those who did not learn new ways to save) and more likely to have plans to take action in the future (67%, compared to 47% for those who did not learn new ways to save). For this reason, the educational content of the report is an important part of moving customers to energy saving action. We found that the customers who *did not take action* in the year prior to receiving the report were not significantly more likely to have taken action since receiving the report, or to have plans to take action in the future.

Over 60% of customers had taken action to reduce their energy consumption in the year prior to receiving the energy report. Since receiving the first two reports, 30% of customers have taken action and 57% of customers have plans to take action in the future. Most of the actions that customers took since receiving the report have been conservation behaviors

and most of the actions that customers are planning to take in the future are efficiency-measure based actions.

1.2 Pilot Coordination and Implementation

Energy Trust's PER is the first OPOWER-implemented program to incorporate three organizations into the launch of a single report. This collaboration offered the unique advantage of using customer billing information from two utilities while also providing energy savings tips from Energy Trust. However, the partnership required greater planning and coordination in advance of the program launch than was anticipated. As a result, the initial launch was delayed from the original 2010 launch to January 2011. The primary reasons for the delay were: (1) the extended contract development process due to legal concerns about customer data sharing procedures and (2) increased coordination and review due to the number of collaborating organizations. These issues were resolved in time for the 2011 launch, but affected savings estimates and budgets for the 2010 portfolio. In addition, due to data transfer errors in customer data for the first report, roughly 100 customers received the wrong usage information on their report. This issue was quickly resolved, and the contaminated customers were dropped from the study. After the initial design and launch, the pilot implementation has been successful.

1.3 Recommendations

Based on the results of the 3-month survey, the evaluation team has the following recommendations to improve the OPOWER Pilot.

1.3.1 PER Design and Customer Engagement

Overall, customers are satisfied with the PER. To enhance the report, we recommend the following:

- **Continue to develop methods to ensure that the PER is providing customers with information that is customized and new to them.** The survey results indicate that ensuring that customers are learning new information may be key to maximizing energy savings. To do this, we recommend the following:
 - **More actively promote the website and clearly indicate that it can provide new and customized information.** Currently, few customers use this feature; however, it is the primary tool that customers can use to customize the program. Through the website, customers are able to enter household-specific data and receive customized tips. In this respect, the website offers a unique opportunity for customers to seek out new information. For this reason, the program should more actively call out and promote this feature.
 - **Develop additional ways to provide customers with more detailed household information on the PER.** Customers expressed an interest in viewing and accounting for changes to their household, including changes in occupancy or year-to-year differences in weather patterns in the historical comparison

graphs. If possible, the pilot should consider ways to provide more detail and explanatory information in the PER itself.

- **Clarify the criteria for selecting “Neighbors” in the Neighborhood Comparison Section.** Although the report defines the term “Neighborhood,” many customers misunderstood the definition, leading to skepticism of the data. To reduce these concerns, the pilot should consider ways to clarify this term.

1.3.2 Coordination and Implementation

As noted earlier, the primary challenges in the PER launch resulted from unanticipated complications in coordinating multiple organizations and most of the issues encountered through the pilot planning and implementation process have now been resolved. The resolution occurred through new management at OPOWER and lessons learned in the collaboration process. To maintain and enhance ease of coordination and implementation if the pilot is expanded to additional regions, we offer the following recommendations.

- **Energy Trust and collaborating utilities should lengthen the timeline for program launch when incorporating new organizations.** The initial program launch timeline was unrealistic given the legal and data sharing negotiations and agreements inherent in collaboration. Looking forward, the program should use the pilot launch period as a point of reference for future roll out, and anticipate similar challenges if the program is expanded to other regions served by Energy Trust.
- **Provide greater lead-time for document review due to the extensive collaboration in decision-making.** OPOWER should account for the time needed to fully integrate the utilities and their respective decision-makers into the planning and review process.
- **Energy Trust and the collaborating utilities should consider developing methods for random checks on data integrity.** Given some of the issues faced in the launch of the pilot, such as providing the wrong billing data to customers, a process for conducting random checks of report data accuracy should be developed.

2. STUDY INTRODUCTION AND DATA COLLECTION

This report represents the first of three studies conducted as part of the PER process evaluation. In support of the 3-month study, our team conducted three major data collection efforts: (1) in-depth interviews; (2) review of available program materials; and (3) a telephone survey of PER customers. We briefly describe these tasks below:

- **In-depth interviews with program staff and implementers (n=8):** We conducted in-depth interviews during June 2011 with Energy Trust, NW Natural, Portland General Electric, and OPOWER. The interviews explored the topics of collaboration, pilot design, and initial feedback from implementation.
- **Review of available program materials:** This review assessed pilot materials including marketing materials, program policies, procedures, tracking databases, and other pilot documentation to assess pilot effectiveness, develop research questions for survey efforts, and determine if we needed to track additional information for future evaluation efforts.
- **3-Month Customer Feedback Survey (n=200):** We fielded this survey to 200 OPOWER Pilot customers in June 2011. We timed the survey to occur just after customers had received their second PER. The primary objective of this survey was to collect information on how customers are interacting with the PER, their initial reactions to the content of the PER, and any actions customers may have taken or plan to take as a result of receiving the report. We provide respondent characteristics in Appendix A and a copy of the survey instrument in Appendix B.

3. PILOT OVERVIEW

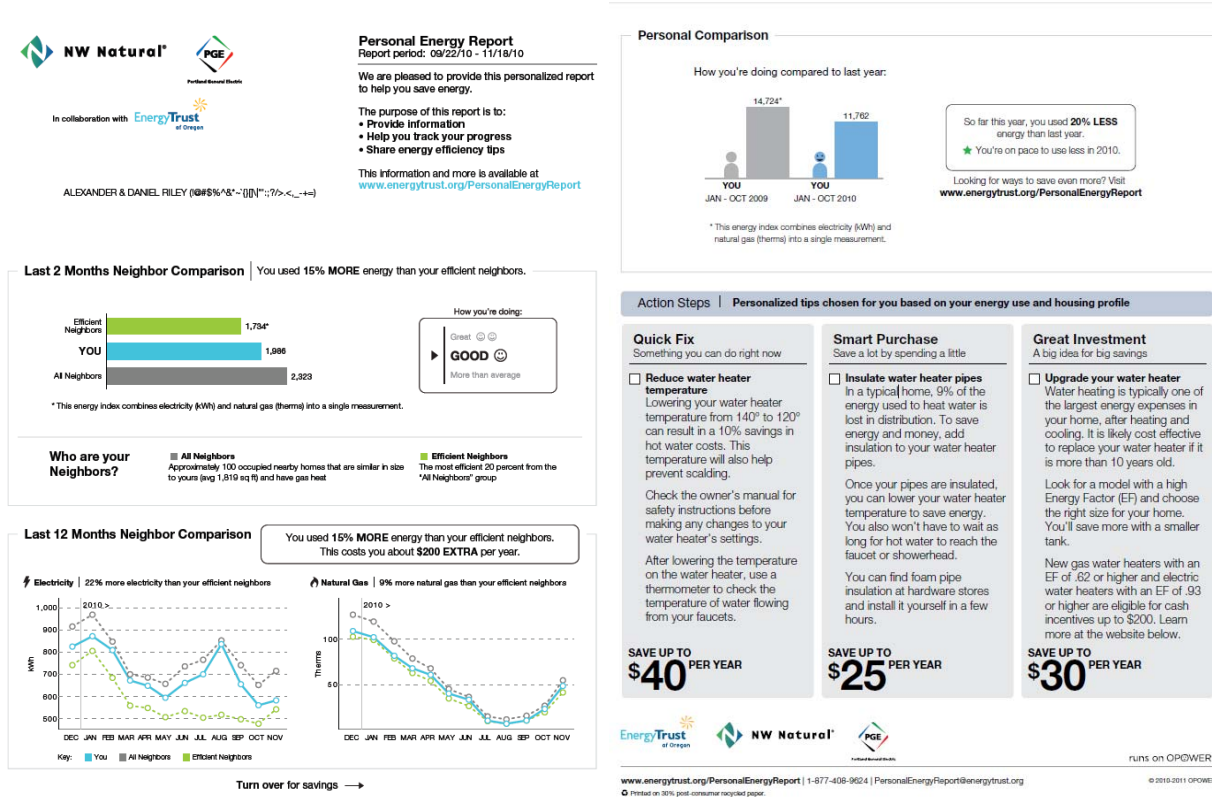
3.1 Pilot Description

Energy Trust of Oregon initiated the OPOWER Pilot to provide customers with information about their household's energy consumption and offer tips on how they can conserve energy. This program is being delivered on a pilot basis to 60,000 single-family households who are served by both NWN and PGE. If the pilot meets its goals and maintains or enhances customer satisfaction levels, it will be considered for expansion in 2012 and potentially a full rollout in the future.

The OPOWER Pilot randomly assigned qualifying customers to a customer (treatment) group and an equally sized control group. The treatment group received the PER, while the control group is retained for an experimental design impact evaluation. Energy Trust will conduct this evaluation to verify the savings associated with the PER.

Customers receive a PER every two months over the course of not less than one year. The PER consists of a one-page, double-sided report which details customers' energy consumption (electricity and natural gas). The report compares the customer to 100 comparable houses in their area. The report also includes historical comparison charts, which track the household's energy consumption over time. To help customers conserve energy, there are customized tips printed on the backside of the report.

Figure 1. Sample PER



Additionally, OPOWER maintains a website where customers can access an online version of their PER.

3.2 Pilot Goals

The primary goal of Energy Trust’s OPOWER Pilot is to achieve a 1.4% reduction in electricity usage and a 1% reduction in natural gas usage. Secondary goals include promoting other Energy Trust energy efficiency programs to NWN and PGE customers through the tips section of the report and creating indirect behavioral change such as seeking out information and sharing information with friends and family.

Table 1. Pilot Description

Description	Pilot Overall
Implementer	OPOWER
Pilot Theory	The Pilot is designed to provide normative comparisons coupled with energy savings recommendations to educate and motivate customers to take energy saving actions and behaviors within their homes.
Outreach Tactics	Personal Energy Reports (direct mail) and website (promoted in the Personal Energy Report)
Cross-Program Participation Tracking	Energy Trust of Oregon tracks cross-program participation among PER customers and other Energy Trust programs.
Reporting	Quarterly reports include number of customers and savings based on planned energy savings percent per household and baseline consumption per cohort.
Date of launch	January 2011
Energy Saving Goals	<ul style="list-style-type: none"> • 1.4% electric savings (162kWh) • 1% gas savings (7 therms)
Secondary Goals	<ul style="list-style-type: none"> • Promote other Energy Trust energy efficiency programs • Raise awareness of energy saving opportunities • Create indirect behavioral change
Number of customers	60,000 customers
Target customers	Single-family households who are customers of NWN or PGE.

The first PER was sent out in January of 2011. The pilot plan specified sending six reports over the subsequent 12 months. However, due to some difficulties in the pilot launch (which we describe later in this report) the pilot has delivered two rounds of reports as of June 2011.

3.3 OPOWER Pilot Collaborators

This Pilot is the first joint collaboration between Energy Trust, PGE, and NWN to administer OPOWER energy reports to customers. In addition, it is the first time that OPOWER has collaborated with three parties to deliver a public goods funded project. Below, we briefly describe the role of each organization in the implementation of the OPOWER Pilot.

- **Energy Trust of Oregon:** Energy Trust of Oregon is a nonprofit corporation that, through an agreement with the Oregon Public Utility Commission, receives public purpose funds to promote energy efficiency, renewable energy and market transformation. Energy Trust is the lead coordinating entity in the OPOWER pilot. Energy Trust commissioned this pilot to help NWN and PGE customers save energy through behavioral change, and to promote other Energy Trust programs.
- **Collaborating Utilities:** NWN and PGE are co-sponsors of the OPOWER pilot. NWN is the natural gas supplier in the region, with over 650,000 customers in Oregon and Southwest Washington. PGE is an electricity provider in the region, with over 800,000 customers in a 4,000-square mile service territory in the Greater Portland Metropolitan Area. As collaborating utilities, NWN and PGE assist Energy Trust in the oversight of the PER content and are responsible for providing data on their customers directly to OPOWER to support the implementation of the pilot. In addition to saving energy, the primary goal of these two utilities is to preserve or enhance customer satisfaction through the delivery of the reports.
- **Pilot Implementer:** OPOWER is the implementation contractor for this pilot. OPOWER collects data on customers from the utilities, acquires 3rd party information for households in utility service territory, merges multiple data streams into a reporting system, sends out reports, and maintains the website, where customers can access an online version of their PER.
- **Customer Support Call Centers:** Energy Trust contracts with a call center that handles calls to the hotline provided on the PER, with three representatives exclusively dedicated to PER calls. As needed, calls are routed from NWN and PGE to the Energy Trust call center. OPOWER does not communicate directly with customers outside the delivery for the PER.

4. CUSTOMER SATISFACTION AND OPT-OUTS

Overall, customers appear to be satisfied with the pilot. The opt-out rate is low, with 0.27% of customers opting out as of July 2011. Of those that chose to opt out of the pilot, 20% were not upset, but simply did not find the report useful.

Notably, the primary reason for calls to the call center is to discuss household energy use, indicating that the report is raising awareness of customers' energy use. In addition, 16% of calls are customers asking for transfers to other Energy Trust programs, indicating that the in-bound calls serve as an opportunity to provide customers with information on Energy Trust programs. Table 2 summarizes the reasons for inbound customer calls and emails.

Table 2. Communication to the PER Hotline/Email (January 21-July 14, 2011)

Reason for Call/Email (not mutually exclusive)		Number of Calls/Emails	Percentage of Total Calls/Emails
Primary Reason	Conversations about energy use	162	27%
	Opt-outs*	151	26%
	General feedback	130	22%
	Update profile/info	89	15%
	Complaint (not opt-out)	63	11%
	Technical difficulties	32	5%
Secondary Reason	Transferred to other Energy Trust programs	94	16%
	Noted being home during the day	66	11%
	Regarding privacy concerns	36	6%
Total calls		590	

*20% of these were not upset; they just did not find the report useful.

Note: Categories are not mutually exclusive. Calls can be categorized under multiple reasons.

5. PILOT COORDINATION AND IMPLEMENTATION

5.1 *Design and Planning*

Although OPOWER delivers energy reports to utilities' customers around the country, this project is unique in several ways. First, due to the structure and mission of Energy Trust, this project involves the cooperation of two utilities and Energy Trust. Second, because the two utilities provide different fuels in overlapping territories, there are concerns about fuel switching, so the PER has to remain fuel neutral. Energy Trust, PGE, NWN, and OPOWER underwent an extensive process of reviewing and revising the implementation plan and materials for this pilot to develop a product and plan that would meet the needs of all the collaborating stakeholders.

Through the collaboration, a number of efforts were made to ensure that the pilot fairly and equally represented all collaborating utilities and to ensure continued customer satisfaction throughout the engagement process. Below we outline the primary ways the collaborating parties worked together to ensure high standards for customer engagement.

- In addition to weekly email communication, the four collaborating parties met bi-weekly until launch, and monthly thereafter, to discuss implementation issues.
- Extensive Review of Report Content and Tips:
 - Energy Trust, PGE and NWN conducted an extensive review of the library of tips provided by OPOWER. The review included copyediting as well as customizing tip content and ensuring that all tips are fuel-neutral unless fuel type is known.
 - The team also reviewed the report contents and made some suggestions for improvement, such as adding keys to graphs.
 - The team developed a protocol for placing logos on the various materials that was fair to all parties involved.
 - The team conducted a review of the web portal.
- Development of a Call Center Coordination and Communication Protocol:
 - Energy Trust has established a call center to handle all customer comments or inquiries. The number to this call center is published on the report.
 - The team developed call center FAQ's and protocols.

5.2 *Challenges to the Process*

It is important to note implementation challenges in the pilot launch when considering the expansion of the PER program from a pilot to a program. Here, we discuss program challenges in two primary categories: (1) pilot design and planning; and (2) pilot launch and implementation.

5.2.1 Pilot Coordination and Design

The primary challenges in the OPOWER pilot developed through the design and planning process. Below we outline challenges cited by the collaborating organizations that occurred during the pilot design and planning process.

Energy Trust began planning for the PER in the fall of 2009 in anticipation of a pilot launch for the 2010 portfolio. The OPOWER pilot was delayed until January 2011 to resolve a number of issues that arose during the collaboration and planning process, affecting the portfolio goals and budgets in 2010. The primary reasons for the delay were: (1) the extended contract development process due to legal concerns about customer data sharing procedures and (2) increased coordination and review due to the number of collaborating organizations. These issues were resolved in time for the 2011 launch, but affected savings estimates and budgets for the 2010 portfolio. This is important to note specifically as the program considers rolling out to more customers in additional utility territories.

In addition to the challenges faced in the collaboration process, there were challenges in the design of the PER itself. Below we describe the primary issues cited by the collaborating organizations that were resolved for the 2011 launch:

- **Lack of Customer Fuel Source Data:** Energy Trust and the utilities do not have complete data on primary heating fuel for their customers. In response to the concerns about fuel switching, OPOWER could not provide data accurate enough to identify households' primary fuel source, making it difficult to ensure that gas customers would not receive electric heating tips and vice versa. When OPOWER was not able to do this, Energy Trust and the utilities felt that OPOWER had overpromised certain capabilities that were outside the limitations of their product.
- **Accurate Comparisons:** As OPOWER cannot guarantee that they have accurate data on primary fuel source or home size, there may be some inaccuracies in the neighbor comparison section if customers are compared to neighbors with different primary fuel sources or home sizes.
- **Tip Review and Development:** OPOWER leverages a tip library, which includes over 150 pages of energy saving tips that may be rotated through the tip-specific module of the report. In the design process, OPOWER provided Energy Trust, NWN, and PGE with a list of tips from their tip library for review. The tip review process took longer than anticipated. The primary reasons cited for the extended review process were to reword the copy to Energy Trust standards and edit the content of the tips. Eventually, the team was able to successfully copyedit the tips and revise the content in support of Energy Trust standards.
- **PER Flexibility:** Initially, Energy Trust and the utilities felt that there was a certain degree of flexibility in OPOWER's PER to allow them to accommodate the unique needs of this pilot. As the process of designing the report continued, some of the customizations proved to be more difficult than originally expected or not possible at all. In particular, two issues presented challenges: customizing the tips provided to customers and customizing the PER to the customer based on their heating fuel.

5.2.2 Pilot Launch and Implementation

To resolve the previously mentioned issues that arose in the planning and design process, OPOWER provided a different project manager midway through the pilot, which improved relations between the involved parties through improved communication around the PER pilot, collaborators' expectations, and OPOWER's capabilities. This change in management greatly improved the quality of communication and coordination between Energy Trust, NWN, PGE, and OPOWER.

Although overall pilot implementation has gone well, there has been one problem with the data transfer process. During the preparation of the data for the first report, about 100 customers were matched with the wrong account number and received the wrong usage information on their report. The delivery of the pilot, including the website, was halted immediately while the issue was resolved. The customers who were involved in the error were dropped from the study, and the delivery of the pilot was resumed.

Some minor document version control challenges arose out of the collaboration process and the collaboration is considering using a Sharepoint site to resolve the issue.

6. RESULTS FROM PER CUSTOMER FEEDBACK SURVEY

The Opinion Dynamics evaluation team designed a 3-month survey to gain feedback on customers' reactions to the first two PERs sent by the collaboration. The goal of this survey was to assess the following researchable issues:

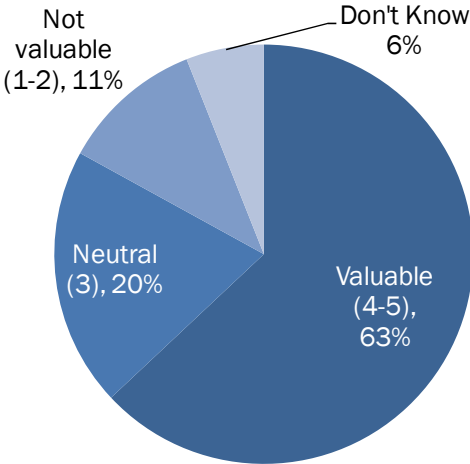
- 1. How do customers view the collaboration between Energy Trust, PGE, and NWN?
- 2. What do customers do with the PER?
- 3. What are customers' initial impressions of PER content?
- 4. What effect does the PER have on customers' awareness and knowledge of their energy use?
- 5. What effect has the PER had on customers' actions?

We detail results in this section of the report.

6.1 *How do customers view the collaboration between Energy Trust, PGE, and NWN?*

This project is a unique collaboration between Energy Trust, PGE, and NWN to bring an energy efficiency pilot to customers. We asked customers how valuable they feel this collaboration is. The majority (63%) feel that this is a valuable collaboration between organizations.

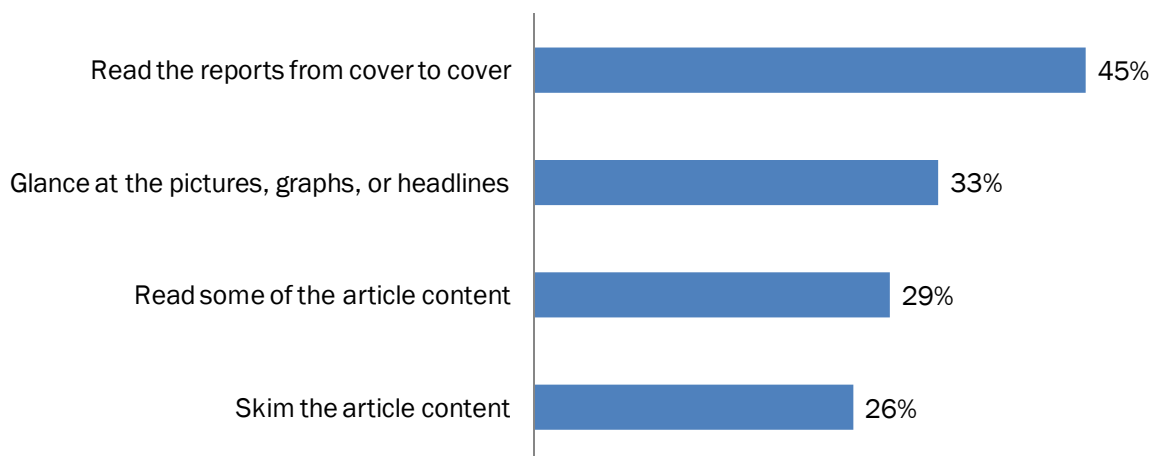
Figure 2. Perceived Value of the Collaboration between Energy Trust, PGE, and NWN (n=200)



6.2 *What do customers do with the PER?*

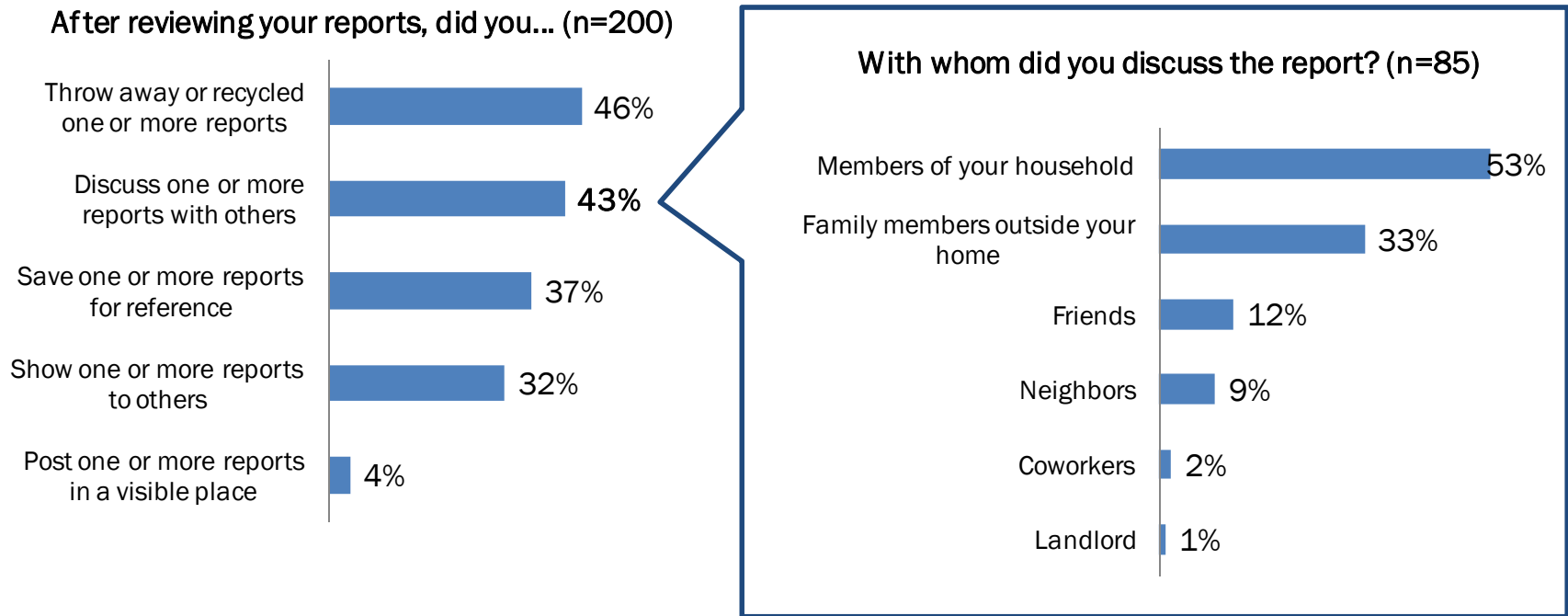
Almost half (45%) of the customers read the report from cover to cover. In other studies, we have found that customers who do not read the entire report are most likely to read the neighbor comparison and the historical comparison found on the front of the report and least likely to read the tip section found on the back of the report. While we did not ask specifically which sections customers read, the usefulness scores reported in this survey for each section of the PER (see Figure 9.) seem to align with these findings.

Figure 3. Depth of Report Review (n=200, multiple response)



Overall, 75% of customers use the report in one way or another after their initial read. Of all uses, customers are more likely to indicate that they discuss the report with others (43%). Of those who have these discussions, customers are most likely to discuss the report with members of the household or family members who live outside the home. In addition, 37% of customers have saved at least one report for reference, and 32% have actually shown the report to others.

Figure 4. Customer Uses of the PER after Review (n=200)



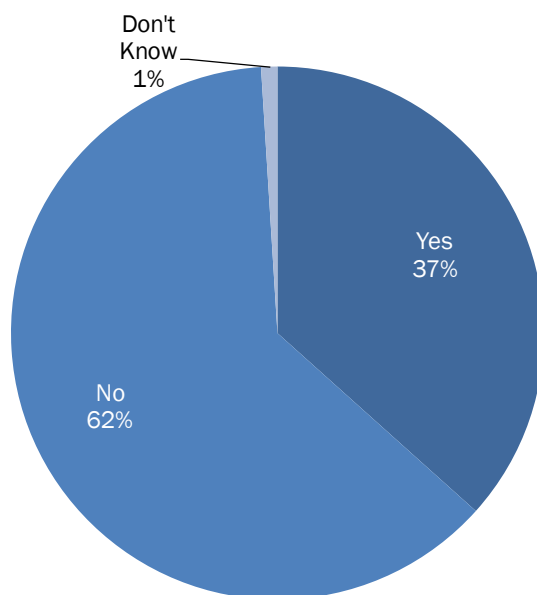
In addition, more than a third of customers are using the energy report to track consumption over time. Customers use the report to generate discussion about energy use, to explain energy use to their children, and to judge how well they are doing in their efforts to conserve.

“I use the report simply by looking to what energy I have used and how I am doing with conserving as much energy as possible.”

“[I use the report] to motivate our children, praise them or let them know to be more mindful of energy use.”

“I talked it over with my husband, filed it and look over the file to improve our energy usage.”

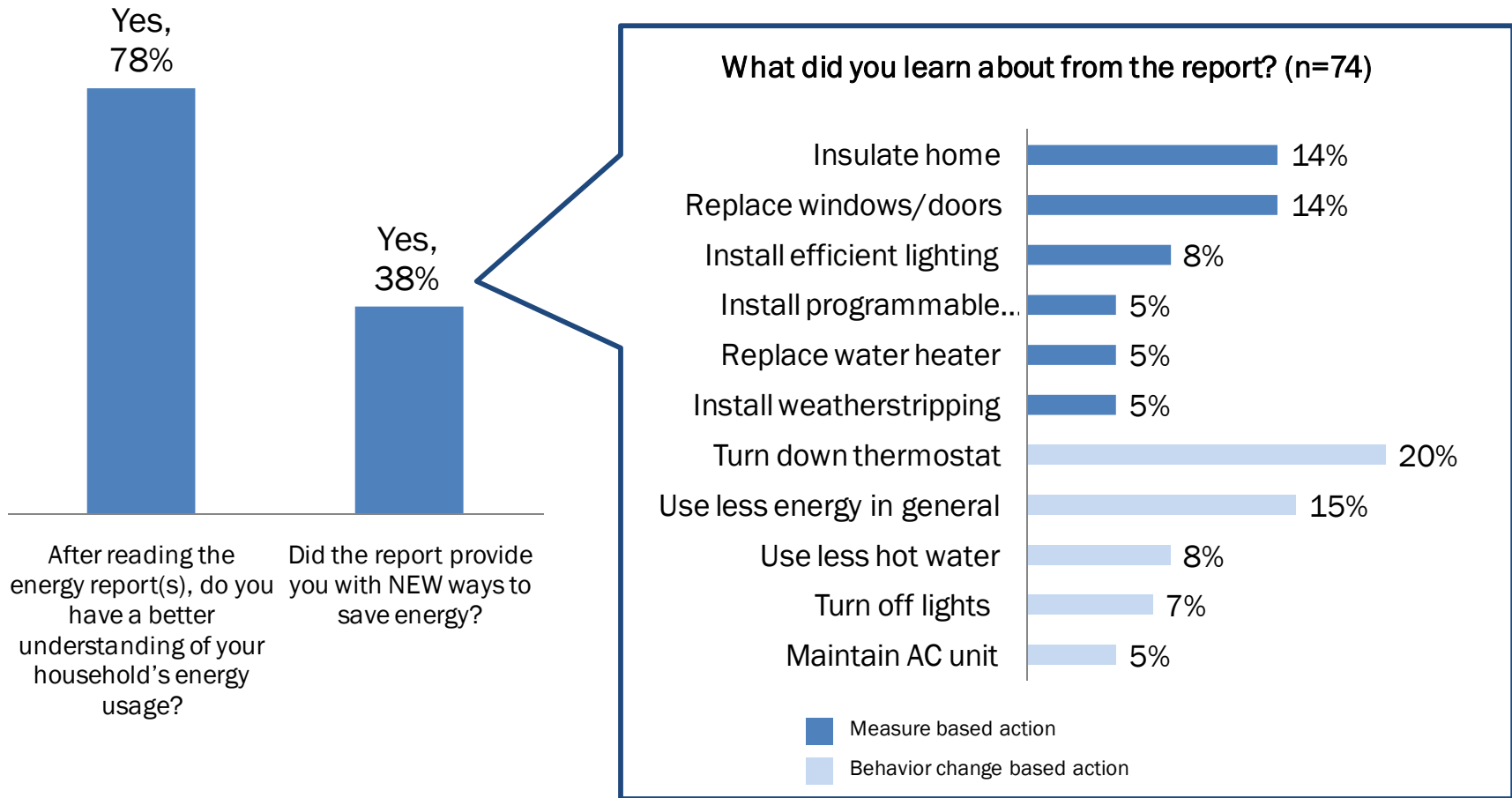
Figure 5. Are you using the energy report to track your consumption over time? (n=200)



6.3 What effect does the PER have on customers' awareness and knowledge of their energy use?

The purpose of the PER is to raise customers' awareness of their energy consumption and to give them informational tools to decrease their usage. The report is primarily educating customers on their household energy use, and to a lesser extent, educating them on new ways to save energy. Almost 80% of customers thought they had a better understanding of their energy consumption after reading the report, but only 38% had learned new ways to save energy. The customers who did learn new information from the report learned both conservation behaviors and efficiency measure based techniques to save energy. Customers reported learning to turn down the thermostat (20%), followed by installing insulation (14%) and replacing windows and doors (14%). See Figure 6 for more detail on these findings.

Figure 6. Educational Effects of the PER (n=200)

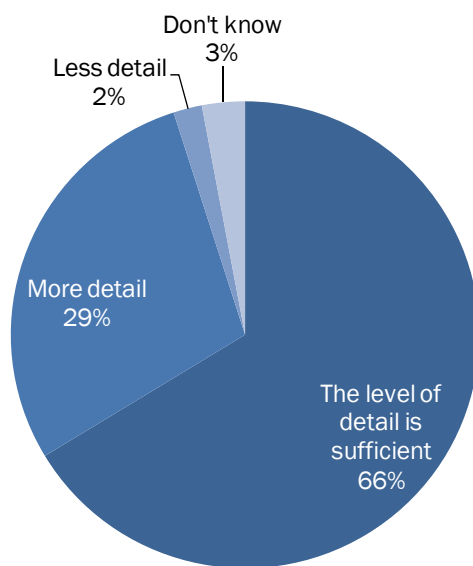


6.4 *What are customers' initial impressions of PER content?*

As can be seen in Figure 9, overall, customers have a favorable impression of the report – two-thirds give it a favorable rating. The most commonly cited concerns about the report had to do with the accuracy of the information provided in the neighbor comparisons and use of paper to deliver the report as opposed to an electronic version. Customers also requested that the reports include more references to resources, such as rebates they qualify for or recommended contractors, which would help them implement the energy saving tips in the report.

In addition, two-thirds of customers are satisfied with the overall level of detail in the report, but nearly a third would like more detail. Specifically, more detail on the historical comparison section received the highest number of requests.

Figure 7. Satisfaction with Level of Detail in Report (n=200)



Customers rated the historical comparison section as the most useful section, with over 60% of customers giving it a rating of useful or very useful. Respondents spoke of how the historical comparison graph prompted them to think about changes to their home over the past year such as a child leaving for college or the installation of new windows, and the effect those changes have on the household's energy consumption.

“My household has changed in number of people and I was constructing a few things. I saw how much I was actually using and I realized how much energy my electric heated tile in my bathroom actually cost me.”

“It showed us the times when we were using more energy so we could be thinking of what we could do at that time.”

“We were able to think back, ‘What were we doing differently last year at this time?’”

We asked customers who gave low usefulness scores to any section how that section could be made more useful. The most common recommendation was to add weather data to the graph so customers can distinguish usage changes due to weather conditions from usage changes that are a result of some other factor. Customers also asked for more detailed and accurate information, a way to account in the graph for changes to the household, and information that stretches back farther than one year.

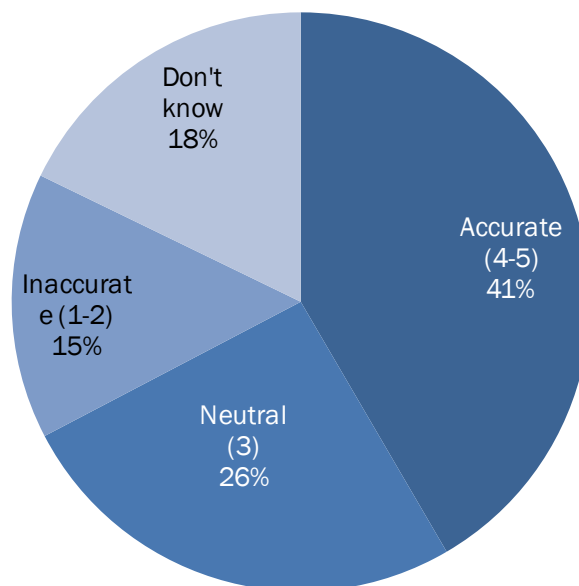
The next most useful section of the PER according to customers is the neighborhood comparison, with 49% of customers rating it as useful or very useful. Many of the reasons for how the neighborhood comparisons were useful were either that they made people feel good for using less energy than their neighbors or motivated them to do better if they were using more energy than their neighbors.

“If my neighbors are doing well, it makes me think, ‘If they can do it, so can I.’”

“It gave us a goal to beat our neighbors.”

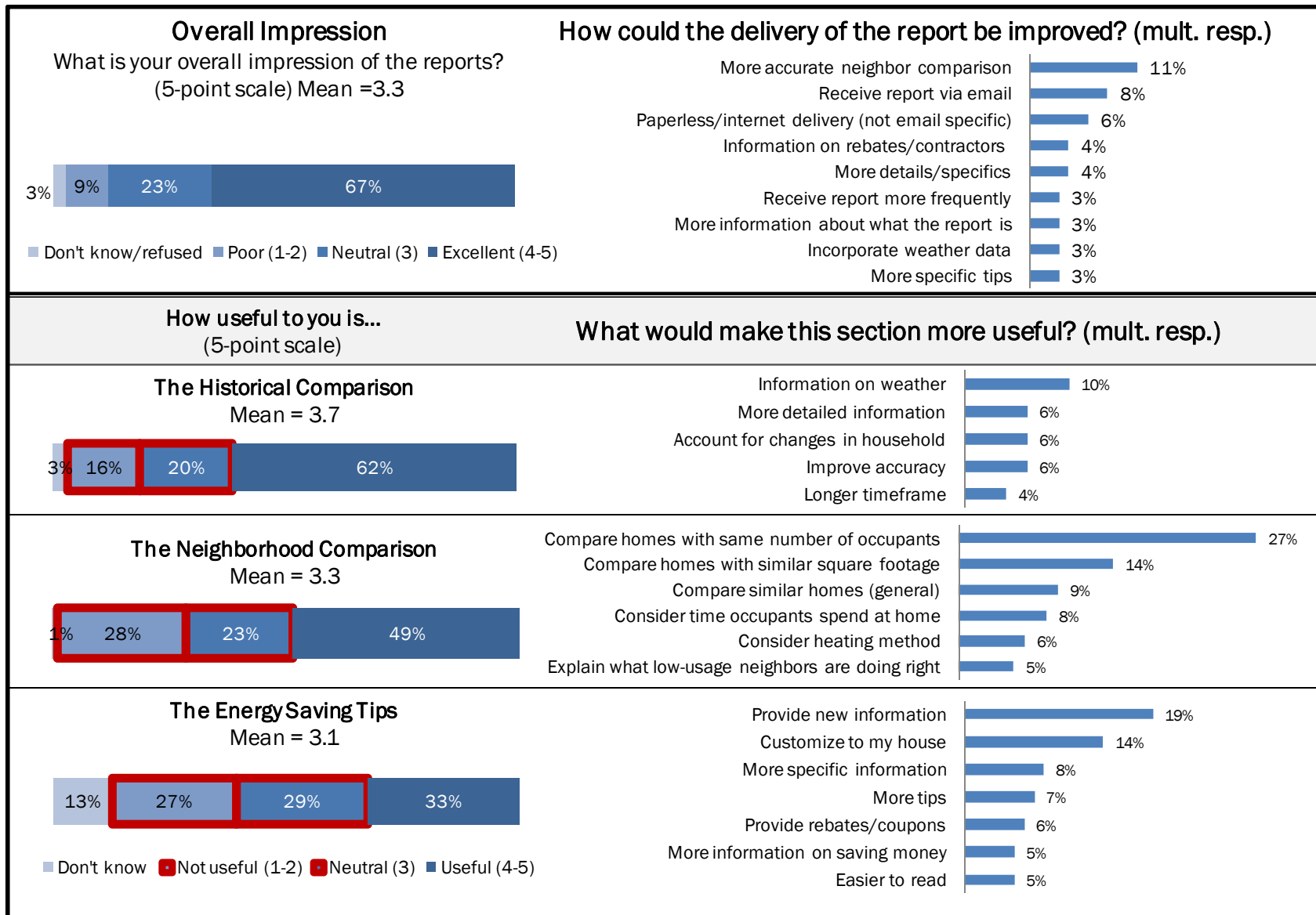
Customers who did not find the neighborhood comparison useful were concerned about which homes they were being compared with. Previous research has shown that customers may doubt the accuracy of the neighbor comparison if they do not understand how their comparison group was selected. This survey showed that only 41% of customers believe that the neighbor comparison is accurate.

Figure 8. Perceived Accuracy of the Neighbor Comparison (n=200)



Although the report already does many of these things, customers suggested that they be compared with homes of the same size, with the same heating method, and with the same number of occupants (who spend the same number of hours at home). Furthermore, customers suggested that the report would be more useful if it explained specifically what the more energy efficient neighbors were doing that reduced their energy consumption.

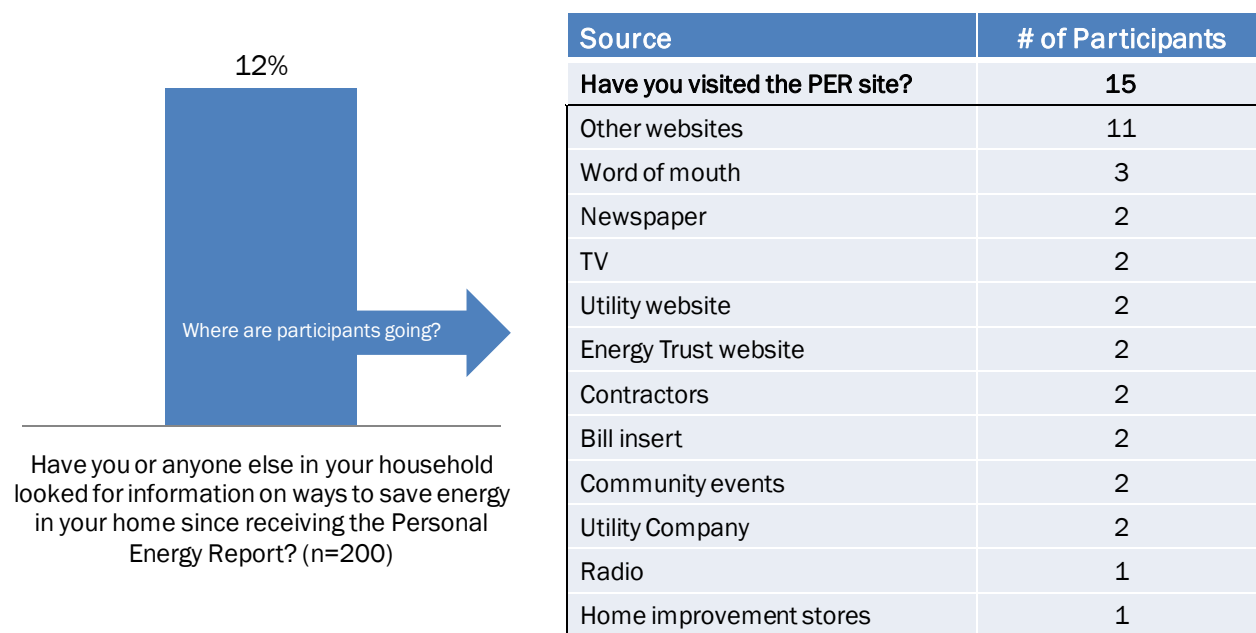
Figure 9. Customer-suggested Improvements to PER Report Modules



6.4.1 What effect has the PER had on customers' actions?

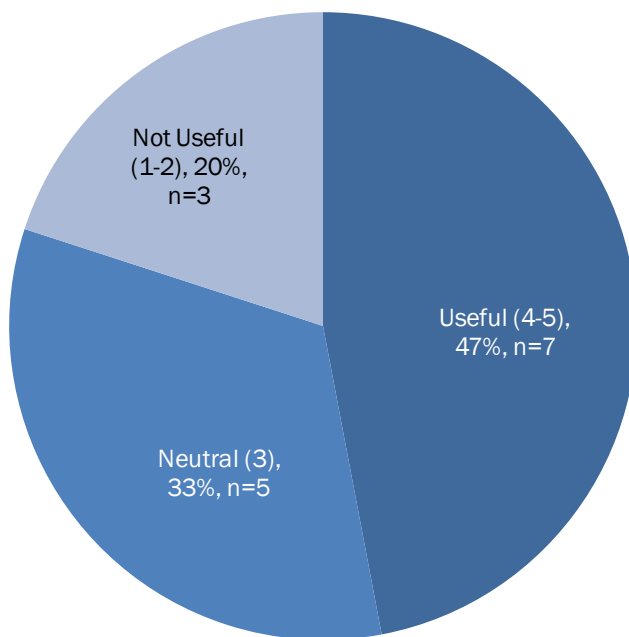
An important aspect of this research effort is to determine what action customers are taking as a result of reading the report. We asked customers if they had looked for additional information on ways to save energy in their homes since receiving the report. Very few (12%) had sought out additional information. Figure 10 lists the sources that customers turned to for additional information. When asked specifically if they had visited the PER website, more customers reported visiting the website than any other information resource.

Figure 10. Number of customers who sought out additional information



Only 15 customers were able to comment on the usefulness of the website, but less than half of those said they found it useful. In future survey efforts, we will take a closer look at why the majority of customers are not visiting the website.

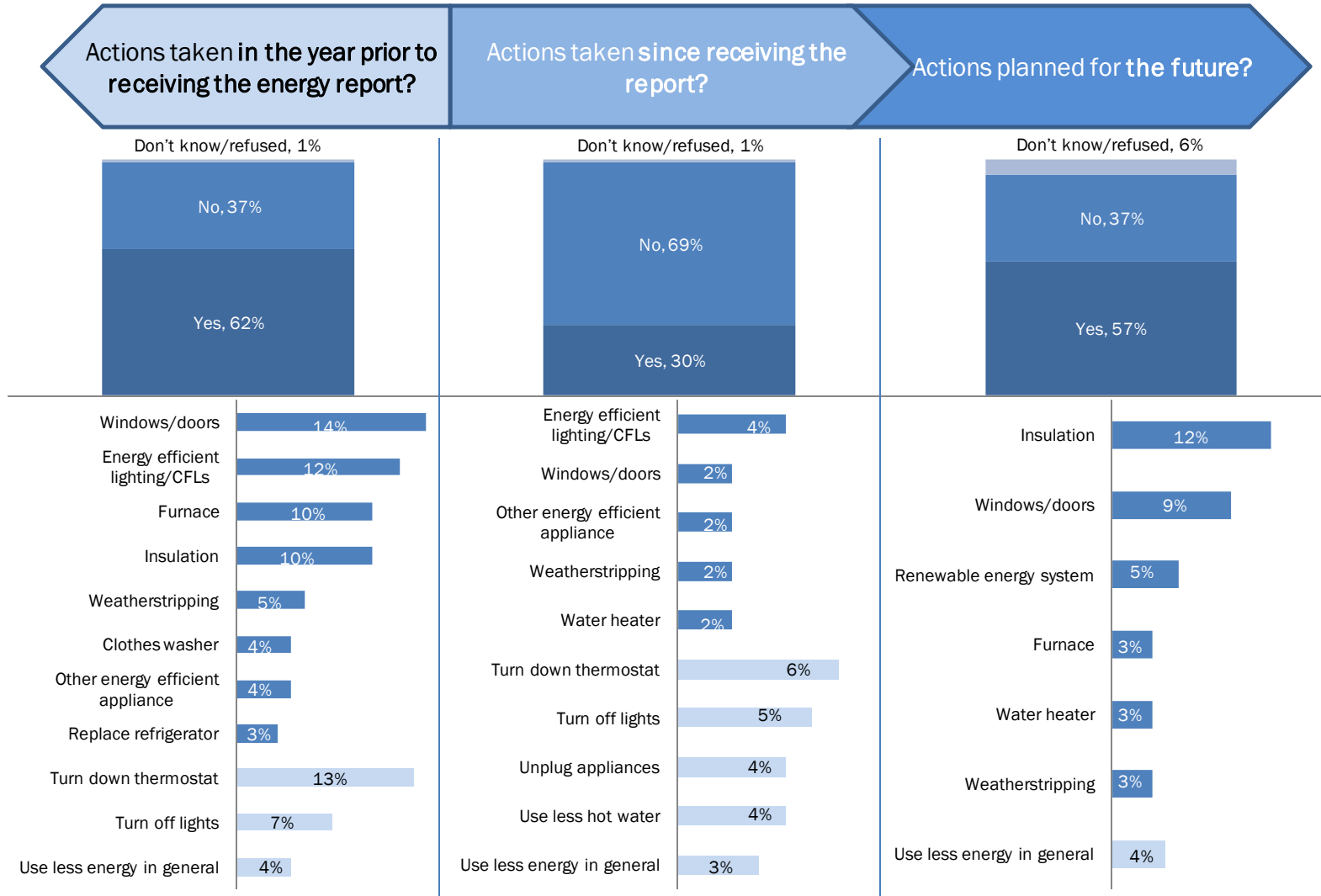
Figure 11. Usefulness of the PER Website



*On a scale of 1-5 where 1 is 'not very useful' and 5 is 'very useful', how useful did you find the website?
(n=15)*

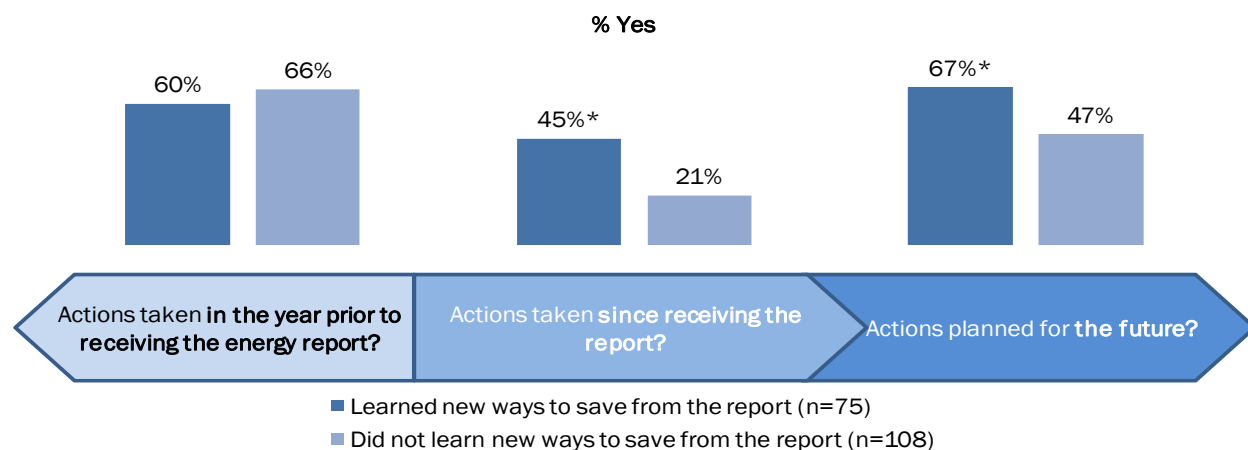
Figure 12 shows what energy saving actions were reported by customers in the year prior to receiving the report and since receiving the report, and what energy saving actions customers are planning to take in the future. Over 60% of customers had taken action to reduce their energy consumption in the year prior to receiving the energy report, mostly in the form of installing efficiency measures. A smaller percentage of customers have taken action since receiving the report (30%), but this could reflect the shorter timeframe – it has been no more than six months since customers received their first report. For the most part, customers have taken conservation behavioral actions, such as turning down their thermostat (6%), turning off lights (5%), or unplugging appliances (4%) since receiving the report. In the future, 57% of customers have plans to take action and most of those planned actions are efficiency measures, such as installing insulation (12%) or installing new windows and doors (9%).

Figure 12. Energy Saving Actions Taken by PER Customers



To learn more about who was taking actions and what effect the report had on their decisions, we looked at the data in several different ways. The first comparison we made was between customers who said they learned something new from the report and those who did not. There was no significant difference in these two groups in actions taken prior to receiving the report, but customers who said they learned something new were significantly more likely to have taken action since receiving the report and to have plans to take action in the future.

Figure 13. Likelihood of Taking Energy Saving Actions by Knowledge Gain



*Denotes statistical significance at 95% level.

We compared the customers who did take action in the year prior to receiving the report with those who did not. We found that the customers who *did not take action* in the year prior to receiving the report not significantly more likely to have taken action since receiving the report, or to have plans to take action in the future.

We also looked at the action data by age and income. There was no significant difference by age. As Table 3 shows, there was only one significant difference by income. Customers with \$150,000 or more in annual income were more likely than those with annual incomes between \$50,000 and \$89,999 to have plans to take action to reduce their energy consumption in the future.

Table 3. Likelihood of Taking Energy Saving Actions by Income

Annual Income	Household	Taken Action in the Past	Taken Action since receiving the report	Plans to take action in the future
Less than \$30,000 (a)		47%	27%	53%
\$30,000-\$49,999 (b)		73%	27%	50%
\$50,000-\$89,999 (c)		60%	34%	51%
\$90,000-\$149,999 (d)		66%	26%	55%
\$150,000 or more (e)		59%	41%	76%* (c)

* Denotes statistical significance at the 95% level compared to the \$50,000-\$89,999 group.

7. RECOMMENDATIONS

Based on the results of the 3-month survey, the evaluation team offers the following recommendations to improve the OPOWER Pilot.

7.1.1 Coordination and Implementation

This pilot is first collaboration between two independent utilities and a program administrator for an OPOWER program. As a result of this, there were many lessons learned in the launch of this pilot for program expansion to additional utility territories. Below, we provide our recommendations to further enhance the programs' success by drawing on these lessons learned.

Most of the issues encountered through the pilot planning and implementation process have now been resolved. This occurred through new management at OPOWER and learning from partners in the collaboration. To maintain and enhance ease of coordination and implementation, we offer the following recommendations.

- **Energy Trust and collaborating utilities should lengthen the timeline for program launch when incorporating new organizations.** The initial program launch timeline was unrealistic given the legal and data sharing negotiations and agreements inherent in collaboration. Looking forward, the program should use the pilot launch period as a point of reference for future roll out, and anticipate similar challenges if and when the program is expanded to other regions served by Energy Trust.
- **Provide greater lead time for document review due to extensive collaboration in decision-making.** While the collaboration has progressed relatively smoothly between Energy Trust, NWN, and PGE, the utilities have expressed a desire for more lead-time in the planning, review, and commenting on pilot efforts, including evaluation. Energy Trust should account for the time needed to fully integrate the utilities into the planning and review process.
- **ETO and the collaborating utilities should consider developing methods for random checks on data integrity.** Given some the issues faced in the launch of the pilot, such as providing the wrong billing data to customers, a process to conduct random checks of report data accuracy should be developed.

7.1.2 PER Design and Customer Engagement

Overall, customers are satisfied with the PER. However, the primary customer-reported areas for improvement include receiving more *new* energy saving tips and providing more detailed household-specific information to customers. To enhance the report, we recommend the following:

- **Continue to development methods to ensure that the PER is providing customers with information that is new to them.** Survey results show that one of the most important factors influencing whether customers take action after receiving the

report is whether the report provided them with *new* ways to save energy. Ensuring that customers are learning new information may be key to maximizing energy savings. Besides simply varying the tips that are published on each report, customizing the tips can help make sure they are new and relevant to each customer. To further this, we recommend:

- **More actively promote the website and increase its prominence on the report.** Currently, few customers use this feature; however, it is the primary tool by which customers can provide the program with information about their households. The collaboration should consider ways to enhance the promotion of the website and better call out this feature to customers as a source for new information and customization. Currently, the website information is not prominent, and more effectively promoting this feature on the page may improve the pilot's success. In future survey efforts, we will explore why customers do not use the website more frequently.
- **Consider developing ways to provide customers with more detailed household-specific information.** Although customers report that the historical household comparison section is the most useful section of the report, customers expressed an interest in being able to account for changes to their household and weather data in the historical comparison graphs. If possible, the pilot should consider ways to provide more detail and explanatory information in this section. As noted above, the website may serve as a go-to source for this information.
- **Clarify the criteria for selecting "Neighbors" in the Neighborhood Comparison Section.** Although the report defines the term "Neighborhood," many customers misunderstood the definition, leading to skepticism of the data. To reduce these concerns, the pilot should consider ways to clarify this term.

APPENDIX A. ATTITUDE STATEMENTS AND DEMOGRAPHICS

Table 4. Attitude Statements (n=200)

	Mean -PER Recipients (n=200)	Mean - similar study in California (n=752)
I regularly try to convince my friends and family to use less energy.	3.2	3.2
I am more likely to change my actions if people I respect have already taken action.	2.8	3.1
My day-to-day life is so busy that I often forget to take actions that save energy.	2.4	2.6
I am not willing to sacrifice my personal comfort in order to save energy.	2.2	2.2
I do NOT feel responsible for conserving energy because my personal contribution is very small.	1.7	2.0

Table 5. Demographics and Household Characteristics

Primary Fuel Source	
Natural Gas	99%
Wood	2%

Homeownership	
Own/buying	98%
Rent/lease	3%

Age	
25-34 years	3%
35-44 years	17%
45-54 years	20%
55-64 years	27%
65 years and over	35%

Income	
\$10,000-\$29,999	8%
\$30,000-\$49,999	13%
\$50,000-\$69,999	18%
\$70,000-\$89,999	15%
\$90,000-\$109,999	12%
\$110,000-\$149,999	8%
\$150,000-\$199,999	4%
\$200,000 or more	5%
Don't Know/Refused	20%

House type	
Single-Family detached home	91%
Single-Family attached home	7%
Duplex, triplex, four-plex	2%

APPENDIX B. 3-MONTH CUSTOMER FEEDBACK SURVEY

Energy Trust of Oregon OPower Personal Energy Report Participant Phone Survey

May 13, 2011

This is a telephone survey that will go to 200 randomly selected customers who received a Personal Energy Report (PER) from Energy Trust of Oregon. The goal of the survey is to understand customer reactions to the format and content of the PER and any actions they may have taken as a result of receiving the PER. The survey will also measure customers' perception of Energy Trust and collaborating utilities.

Introduction

Hello, my name is _____, calling from Opinion Dynamics Corporation on behalf of Northwest Natural Gas, Portland General Electric and Energy Trust of Oregon. We are conducting a survey for Energy Trust regarding a Personal Energy Report. Your answers will be completely confidential and we are not selling anything. This survey should only take 10-15 minutes of your time. Your feedback is very important and we appreciate your time. For quality purposes, this call may be monitored or recorded.

Northwest Natural Gas, Portland General Electric and Energy Trust began sending Personal Energy Reports to customers in your area earlier this year. The Personal Energy Report is a one page, double-sided report sent by mail, separate from your gas or electric bill. It compares your energy use to your neighbors' and provides tips for saving energy and reducing your bill.

Do you recall receiving the Personal Energy Report?

Are you the person in your household who is most familiar with the energy report?

(CONTINUE WITH CORRECT CONTACT)

SCREENERS

Before we talk about the Personal Energy Report, I have a few questions about your household.

SC1. Do you own or rent your home?

1. Own/buying
2. Rent/lease
8. Don't Know
9. Refused

SC2. What type of fuel do you use primarily to heat your home?

01. Natural gas
02. Bottled, tank or LP gas
03. Electric
04. Oil, kerosene
05. Coal (coke)
06. Wood
07. Solar
00. Other, specify: [OPEN END]
96. No fuel
- 98 (Don't know)
- 99 (Refused)

SC3. What is your age?

1. (24 yrs or younger)
2. (25 to 34 yrs)
3. (35 to 44 yrs)
4. (45 to 54 yrs)
5. (55 to 64 yrs)
6. (65 years and over)
98. (Don't Know)
99. (Refused)

[THANK YOU AND TERMINATE IF ANY SC1-SC3=DK/REF]

“Thank you for your responses. Now we are going to begin the main survey.”

MAIN QUESTIONNAIRE

Readership Frequency

RS1. Approximately how many energy reports do you recall receiving?

0. (Zero / None) [THANK AND TERMINATE]
1. (One)
2. (Two)
3. (Three)
4. (Four or more) [THANK AND TERMINATE]
98. (Don't Know) [THANK AND TERMINATE]
99. (Refused) [THANK AND TERMINATE]

RS2. About how many of these reports have you read or at least looked through?

0. (Zero / None) [THANK AND TERMINATE]
1. (One)
2. (Two)
3. (Three)

98. (Don't Know) [THANK AND TERMINATE]

99. (Refused) [THANK AND TERMINATE]

[ASK IF RS1>1 and RS2=1]

RS6. Can you briefly explain why you read just one report and not the others? [OPEN END, 98=Don't know; 99=Refused]

RS3. Thinking of all the reports you have received, in general, what have you done with them? Did you... [MULTIPLE RESPONSE]

1. Glance at the pictures, graphs, or headlines
2. Skim the article content
3. Read some of the article content
4. Read the reports from cover to cover
00. (Other [Specify])
98. (Don't Know)
99. (Refused)

RS4. After reviewing your reports, did you... [MULTIPLE RESPONSE]

1. Show one or more reports to others
2. Discuss one or more reports with others
3. Post one or more reports in a visible place
4. Save one or more reports for reference
5. Throw away or recycled one or more reports
00. (Other - Specify)
98. (Don't Know)
99. (Refused)

[ASK IF RS4=2]

A7. With whom did you discuss the report? [MULTIPLE RESPONSE]

1. Family members who live outside your home
2. Members of your household
3. Neighbors
4. Friends
5. Coworkers
00. Other [SPECIFY]
98. (Don't Know)
99. (Refused)

Value of Collaboration

VC1. Energy Trust, NW Natural Gas and Portland General Electric are working together to provide pilots to their customers that help them improve the efficiency of their homes and to save money on their energy bills.

On a scale of 1 to 5 where 1 is “not at all valuable” and 5 is “very valuable,” how valuable do you find the collaboration between these three organizations? [RECORD NUMBER 1-5; 8=Don't Know; 9=Refused]

Format and Content

Now I'd like to ask you about some of the information included in the Personal Energy Report.

FC1. After reading the energy report(s), do you have a better understanding of your household's energy usage?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

FC2. Did the report provide you with new ways to save energy?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

[ASK IF FC2=1]

FC3. Could you briefly explain what new ways to save energy you learned about from the report? [OPEN END]

FC4. On a scale of 1-5 where 1 is not useful at all and 5 is very useful, how useful were the energy saving tips on the back of the report? [RECORD NUMBER 1-5, 8=Don't know;9=Refused]

[ASK IF FC4>3]

FC5. Which tips were particularly useful to you? [OPEN END, 98=Don't know; 99=Refused]

[ASK IF FC4<4]

FC6. What would make the energy saving tips more useful to you?

1. (Customize to my house)
2. (Provide new information)
3. (More information on saving money)
4. (Provide references to service providers)
5. (Provide rebates/coupons)
6. (More tips)
00. (Other)[SPECIFY]
98. (Don't Know)

99. (Refused)

FC7. The report compares your energy usage to similar homes in your neighborhood. On a scale of 1-5, where 1 is not useful at all and 5 is very useful, how useful to you is the neighborhood comparison? [RECORD NUMBER 1-5, 8=Don't know; 9=Refused]

[ASK IF FC7>3]

FC8. How are the neighbor comparisons useful?

1. (Makes me feel good)
2. (Demonstrates how much I can save)
3. (Lets me know how I am doing compared to my neighbors)
4. (Raises awareness)
00. (Other)[SPECIFY]
98. (Don't Know)
99. (Refused)

FC9. What would make the neighbor comparisons more useful? [OPEN END, 98=Don't know; 99=Refused]

FC10. On a scale of 1-5 where 1 is very inaccurate and 5 is very accurate, how accurate do you think the neighbor comparison is? [RECORD NUMBER 1-5, 8=Don't know; 9=Refused]

[SKIP FC11 IF FC10=9]

FC11. Would you like to comment on the accuracy of the neighbor comparison?

5. (Concerned about how they account for **vacant homes**)
6. (Concerned about differences in **size of homes**)
7. (Concerned about the **number of people** in each home)
8. (Concerned about how they account for different **heating methods**)
9. (Concerned about **the amount of time neighbors spend in their homes**)
10. (Seems accurate)
00. (Other)[SPECIFY]
98. (Cannot comment/Don't Know)
99. (Refused)

FC12. The report provided you with a historical comparison graph of your energy use over the previous year. On a scale of 1-5, where 1 is not useful at all and 5 is very useful, how useful to you is the historical comparison graph? [RECORD NUMBER 1-5, 8=Don't know; 9=Refused]

[ASK IF FC12>3]

FC13. In what way was the historical comparison graph useful? [OPEN END, 98=Don't know; 99=Refused]

[ASK IF FC12<4]

FC14. What would make the historical comparison graph more useful? [OPEN END, 98=Don't know; 99=Refused]

IM1a. Based on what you have seen in the energy reports, what is your overall impression of the reports? Please rate the report using a 5-point scale where "1" is "poor" and "5" is "excellent." If you are not sure, please provide your best impression. [RECORD NUMBER 1-5; 8=Don't Know; 9=Refused]

[SKIP IF IM1a=8 or 9]

IM1b. Can you briefly explain why you gave this rating?

1. (Information is interesting)
2. (Information is useful/valuable)
3. (Information is not useful/valuable/interesting)
4. (Want more information)
5. (Tips are generic)
6. (Raises awareness)
7. (Report is not accurate)
00. (Other)[SPECIFY]
98. (Don't Know)
99. (Refused)

IM2. Overall, how could the report or the delivery of the report be improved? [MULTIPLE RESPONSE]

8. (Receive the report more frequently)
9. (Receive the report less frequently)
10. (Receive the report via email)
11. (Additional information) [SPECIFY]
00. (Other)[SPECIFY]
98. (Don't Know)
99. (Refused)

FC16. Do you feel that the level of detail in the report is sufficient, or would you like to receive more or less detailed information?

1. The level of detail is sufficient
2. More detail
3. Less detail
8. (Don't Know)
9. (Refused)

Actions Taken After Reading the Report

A1. Have you visited the website listed on the report?

1. Yes

- 2. No
- 8. (Don't Know)
- 9. (Refused)

[ASK IF A1=1]

A2. How often do you visit the website?

- 1. (Only visited once)
- 2. Once a week
- 3. Once a month
- 4. Once every two months
- 5. Once every six months
- 6. Once a year
- 00. (Other [SPECIFY])
- 98. (Don't Know)
- 99. (Refused)

[ASK IF A1=1]

A3. On a scale of 1-5 where 1 is not very useful and 5 is very useful, how useful did you find the website? [RECORD NUMBER 1-5; 8=Don't Know; 9=Refused]

A4. Are you using the energy report to track your energy consumption over time?

- 1. Yes
- 2. No
- 8. (Don't Know)
- 9. (Refused)

[ASK IF A4=1]

A5. How do you use the report,? [OPEN END, 98=Don't know; 99=Refused]

Now I have a few questions about actions to reduce your home's energy use that you may have taken before receiving the energy report, since reading the report, or are planning to take in the future.

A8. Did you or anyone in your household take any actions to reduce your home's energy use in the year prior to receiving the energy report?

- 1. Yes
- 2. No
- 8. (Don't Know)
- 9. (Refused)

[ASK IF A8=1]

A9. What did you do? [OPEN END]

A10. Did you or anyone in your household take any actions to reduce your home's energy use after you received the report(s)?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

[ASK IF A10=1]

A11. What did you do? [OPEN END]

A12. Do you have plans to take any actions to reduce your home's energy use in the future?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

[ASK IF A12=1]

A12b. What do you plan to do? [OPEN END]

A13. Have you or anyone else in your household looked for information on ways to save energy in your home since receiving the Personal Energy Report?

1. Yes
2. No
8. (Don't Know)
9. (Refused)

[ASK A14 and A15 if A13=1]

A14. What energy-saving information did you find? [OPEN END]

A15. What sources do you go to for this information?

1. (Newspaper)
2. (Radio)
3. (TV)
4. (Utility website)
5. (Energy trust website)
6. (Other websites)
7. (Friends, family, coworkers)
8. (Contractors)
9. (Home improvement stores)
10. (Magazines)
11. (Books)
00. (Other) [SPECIFY]
98. (Don't know)

99. (Refused)

Pilot Participation

PP1. Have you participated in any Pilots run by Energy Trust since receiving the Personal Energy Report?

- 1. Yes
- 2. No
- 8. (Don't Know)
- 9. (Refused)

[ASK IF PP1=1]

PP2. Which Pilots did you participate in? [OPEN END MULTIPLE RESPONSE]

- 98. (Don't Know)
- 99. (Refused)

Energy Conservation Attitudes

EC1. We would like to know if you agree or disagree with the following statements. Please use a scale of 1 to 5 where 1 is “strongly disagree” and 5 is “strongly agree” to indicate how much you agree or disagree with these statements. [ROTATE QUESTIONS and USE SLIDING SCALE] [8= Don't Know, 9= Refuse]

	1 Strongly Disagree	2	3	4	5 Strongly Agree
a. I do NOT feel responsible for conserving energy because my personal contribution is very small.					
b. My day-to-day life is so busy that I often forget to take actions that save energy.					
c. I regularly try to convince my friends and family to use less energy.					
d. I am more likely to change my actions if people I respect have already taken action.					
e. I am not willing to sacrifice my personal comfort in order to save energy.					
f. People should be willing to pay higher prices to protect the environment.					

Demographics

We're almost finished. I just have a few questions about your household for statistical purposes only.

D2. How many people live in your home? {RECORD NUMBER; 98=Don't Know; 99=Refused}

D3. What type of home is your primary residence?

1. Single-Family detached home
2. Single-Family attached home (such as a townhouse)
3. Duplex, triplex or four-plex
4. Apartment or Condominium, 5-units or more
5. Manufactured or Mobile Home
00. Other (specify)
98. (Don't Know)
99. (Refused)

D4. What is your household's total annual income before taxes?

1. Less than \$10,000
2. \$10,000 - \$29,999
3. \$30,000 - \$49,999
4. \$50,000 - \$69,999
5. \$70,000 - \$89,999
6. \$90,000 - \$109,999
7. \$110,000 - \$149,999
8. \$150,000 - \$199,999
9. \$200,000 or more
98. (Don't Know)
99. (Refused)

On behalf of Opinion Dynamics, Energy Trust, Northwest Natural and Portland General Electric, thank you for your time and cooperation. Your answers have been extremely valuable. Have a good day/evening.

D5. RECORD GENDER BY OBSERVATION:

1. MALE
2. FEMALE