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Final Report

2010 Oregon Residential Awareness and Perceptions Study

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August 23, 2010



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2010 OREGON RESIDENTIAL AWARENESS AND PERCEPTIONS STUDY



ACKNOWLEDGEMENTS

We would like to thank Energy Trust of Oregon, Inc. for conceiving of this project and giving us the support needed to conduct it. We also wish to acknowledge the many residents of Oregon who agreed to participate in the survey and provided their responses to our questions; we appreciate their willingness to participate.



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EXECUTIVE SUMMARY

This report provides the results of the *2010 Oregon Residential Awareness and Perception Study*. This is the third consecutive year Research Into Action, Inc. and our subcontractor, Abt SRBI, Inc., have conducted an *Oregon Residential Awareness and Perception Study* for Energy Trust of Oregon (Energy Trust). The goal of this report is to provide findings and recommendations Energy Trust may use in its marketing and residential energy-saving programs.

From May through July 2010, Abt SRBI, Inc. completed 956 interviews with Oregon households in Energy Trust's service area – a change from previous years when residents were surveyed statewide. This year's survey included purchased cell phone numbers to counteract a sampling challenge due to the increasing number of cell-phone-only households.

The data suggest that almost half (48%) of the Oregon households within the Energy Trust service territory recognize the name of "Energy Trust." This awareness has grown steadily since our first study in 2008; it is now 16% higher than just two years ago. We estimate the rate of participation in Energy Trust programs at 17%. This is a large increase since 2009, which we attribute partly to the improved measurement method. We continue to note significant discrepancies between the levels of urban and rural Oregonians' awareness of Energy Trust and participation in its programs.

As in the past studies, we observe demographic and attitudinal differences between reported participants in Energy Trust programs and nonparticipants. Participants overwhelmingly were homeowners who lived in single-family homes that are older in age and larger in structure. Compared to nonparticipants, participants were more likely to heat their homes with natural gas, have a higher household income, and be more educated. They exhibited greater concern of human impact on the environment and stronger sense of responsibility to limit their energy use.

We also studied specific home features and energy-using behaviors. The Oregon households we surveyed have an average of 2.2 television sets. Fifty-four percent of the surveyed households reported they had an air-conditioning system, of which 27% were room air-conditioners. We estimate a CFL penetration rate of 86%, which is virtually unchanged since 2009, but the number of CFLs installed has increased slightly. On average, about 56% of a respondent's laundry loads were washed in cold water only, and only 15% of clothes were dried on a line or rack. The ENERGY STAR® label was recognized by 72% of the Oregon households surveyed (64% nationwide).

We offer the following conclusions and recommendations:

- ➔ **Conclusion 1: The new sampling strategy largely remedied the sampling problem due to increasing cell-phone-only households.** Demographic distributions of



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completed samples were generally within reasonable ranges around the census even without post-weighting. The sampling strategy that combined landline RDD and a purchased list of random cell phone numbers, together with inclusion of key demographic quotas and post-weighting the results to reflect differential selection probabilities, resulted in a balanced sample overall.

Recommendation: Continue to use this sampling and data collection method for large-scale surveys for general households. The development of cell phone usage should be monitored, and sampling for future surveys needs to address the change accordingly.

- ➔ **Conclusion 2: Energy Trust’s marketing effort seems to be working well, since almost half of the households we contacted in the Energy Trust service area recognized the Energy Trust of Oregon name.** Since 2009, the overall awareness level has increased by 7%. Although we observed more notable increases particularly in rural areas, the urban-rural gap in Energy Trust awareness still is prominent. Moreover, many of those aware still lack substantive knowledge of Energy Trust programs.
- ➔ **Conclusion 3: Overall, reported participation in Energy Trust programs is about 17%.** As we found in our analysis of general awareness of Energy Trust, urban households continue to participate in Energy Trust programs more frequently than do households in rural Oregon. The improved questionnaire seems to more accurately measure the self-reported participation rate.

Recommendation: Self-reported participation should be compared with actual participation to confirm the validity of the new method to measure self-reported participation. While we believe that the new measurement better captures the participation rate, it is essential to assure the validity of the approach.



MEMO

Date: October 5, 2010
To: Board of Directors
From: Sarah Castor, Evaluation Project Manager
Subject: Staff Response to the 2010 Residential Awareness and Perceptions Study

The 2010 Oregon Residential Awareness and Perceptions Study is our third annual awareness survey. The goals of the study, as in previous years, were: 1) to gather information about the level of awareness Oregonians have of Energy Trust; 2) to test the effectiveness of marketing strategies and as an indicator of where investment is needed; 3) to compare awareness and participation with similar figures from last year's study and 4) to better understand behaviors and perceptions surrounding the topics of energy and climate change.

Unlike previous years' surveys, this year only residential customers of utilities served by Energy Trust were contacted rather than residents statewide to exclude households that were not eligible for our services. The sample also included more customers of Cascade Natural Gas, since this relatively small customer group was poorly represented in previous years.

Awareness among customers of our funding utilities increased again, to 48% in 2010. We were also pleased to see that better crafted questions on participation reflected more accurate rates of self-reported participation – on average 17% territory-wide. Our own analysis of program participation relative to residential utility accounts indicates actual participation upwards of 20%.

The effort we have put into the last year's outreach activities, marketing and earned media in outlying areas is paying off, with significant increases in awareness and participation in Southern and Eastern Oregon. In addition, a third of those aware of Energy Trust learned about us through mass media channels, a significant increase from past years.

As with last year, we are glad to see that the vast majority of our participants were satisfied with their experience and that many plan to participate in our residential programs again (as do many nonparticipants). We are also heartened to see that CFLs continue to hold their ground in Oregon household lighting despite a national decrease in shipments and sales due to the economic recession.

We plan to continue the survey on an annual basis, to track awareness and participation, as well as provide an opportunity to explore different energy use behaviors and test new marketing messages.

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INTRODUCTION

In April 2010, Energy Trust of Oregon, Inc. (Energy Trust) commissioned Research Into Action, Inc. to conduct a study about general awareness and perceptions of energy efficiency, energy use, and related topics among residential customers within Energy Trust's service territory. Prior to this study, Research Into Action conducted similar research inquiries about general awareness and perceptions of energy topics for Energy Trust in 2008 and 2009. Unlike the 2008 and 2009 studies, this year's study did not include a segmentation analysis.

STUDY PURPOSE

The purpose of the *2010 Residential Energy Awareness and Perceptions Study* was to understand Energy Trust customers' general interest, awareness, and perceptions regarding energy use, energy efficiency, and willingness to participate in Energy Trust programs. The goal was to obtain information that Energy Trust can use to design and support marketing and implementation of current and future Energy Trust programs and campaigns. Based on insights from the previous studies and discussions with Energy Trust staff, the Research Into Action team examined the following research areas in 2010:

- ➔ Awareness of Energy Trust;
- ➔ Participation in Energy Trust programs;
- ➔ Attitudes, perceptions, and beliefs about curtailing energy use;
- ➔ Home features and energy use behaviors;
- ➔ Awareness of ENERGY STAR®; and
- ➔ Housing and demographic information.

The Research Into Action team compared the results from the 2010 study with those from the *2008 and 2009 Residential Energy Awareness and Perceptions Studies*.

ORGANIZATION OF THIS REPORT

This report is organized into four main chapters. Chapter 1 introduces the study and our report. In Chapter 2, we discuss the methodology of the study, including the sampling plan. In the third chapter, we present the findings from a question-by-question analysis and compare results from the *2010 Residential Energy Awareness and Perceptions Study* to the 2008 and 2009 studies. In Chapter 4, we present our conclusions and recommendations. The appendices include the survey questionnaire, final survey disposition, and rationale for using post-stratification weights in the overall sample.



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METHODOLOGY

This chapter describes detailed data collection and analysis procedures we used to ensure the research produced a representative sample, reliable data, and sound analyses.

SURVEY INSTRUMENTS

In order to develop the 2010 survey instrument, the Research Into Action team, in collaboration with Energy Trust staff, prioritized the research issues and questions from the prior *Residential Awareness and Perceptions Studies*. We included many questions from the 2009 survey instrument in the 2010 questionnaire to facilitate the cross-study analysis. We also omitted questions relating to “awareness of renewable energy,” changed several questions in the “Energy Usage” section, and added questions to address previously unexplored research areas. In addition, we replaced the “Attitude and Perception” section of the 2009 questionnaire with the Bonneville Power Administration’s “gearbox” questions to ensure that 2010 Energy Trust segmentation scheme is congruent with other Northwest utilities’. The past studies that served as references in the design of the survey instrument included:

- ➔ Residential Segmentation Questionnaire, Puget Sound Energy, 2008
- ➔ Residential Website Survey, Energy Trust of Oregon, 2007
- ➔ 2006 Energy Conservation, Efficiency, and Demand Response, Schulman, Ronca and Bucuvalas, Inc., 2006
- ➔ 2008 Energy Conservation, Efficiency, and Demand Response, Schulman, Ronca and Bucuvalas, Inc., 2008
- ➔ 2001 Residential Energy Consumption Survey, U.S. Department of Energy, Energy Information Administration, 2001
- ➔ 2004 California Statewide Residential Appliance Saturation Study.

The survey questionnaire primarily was closed-ended, with a few opportunities for interviewers to capture verbatim responses. We included several screening questions to make certain that we contacted those who regularly make decisions about the households’ energy use; that the households were used as a residence, not for business; and that we minimized response bias by not interviewing household members who were utility employees.

Abt SRBI, Inc. pre-tested the 2010 survey questionnaire with 20 initial contacts on June 8, 2010. The final instrument is included in Appendix C.

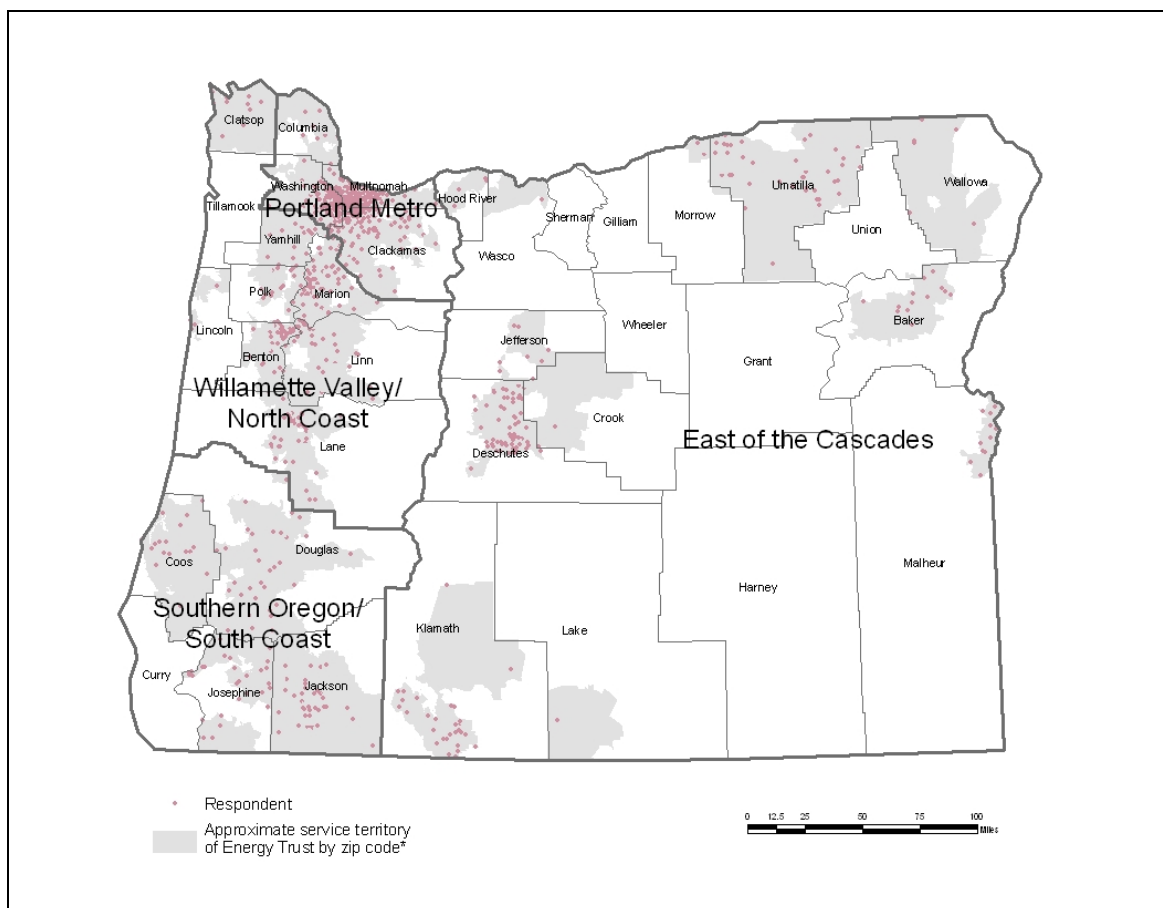


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SAMPLING

Energy Trust provides services to customers of Oregon’s investor-owned electric and gas utilities – Portland General Electric (PGE), Pacific Power, NW Natural, Cascade Natural Gas, and until 2009, Avista. These utilities serve rural and urban customers throughout Oregon, including those in most of the metropolitan areas in the state. Energy Trust also provides services to a limited number of customers in Washington, but we excluded these customers from this study. Thus, the population for this study includes electric and/or natural gas customers served by Energy Trust in Oregon, which is slightly smaller than the population of all electric and/or natural gas customers in the state.¹

Figure 2.1: Sampling Map



Note: Utility service territory is defined by the boundaries of zip codes where the utility provides service to at least some residential customers.

¹ The population of the 208 and 2009 studies included households in the entire state of Oregon.



To obtain a sample representative of the study population, we used a landline phone list generated by the Random Digit Dialing (RDD) technique and a purchased list of random cell phone numbers. This strategy addresses a dramatic increase in consumers' use of cell phones as their primary phone. A Center for Disease Control and Prevention (CDC) study² reported 18% of Oregon households were cell-only in 2007, and 25% of all U.S. households were cell-only in 2009³. Moreover, a 2009 appliance saturation survey conducted by Abt SRBI for the Pacific Northwest region revealed cell-phone-only households were engaged in many energy-using behaviors that differed from those of the landline-only households.⁴ With this in mind, we determined that a final list of completed interviews comprised of 20% cell phone numbers and 80% landline numbers contacted by RDD provided an appropriate ratio to address the sampling challenge due to the prevalence of cell-phone-only households.

We also stratified our sample to ensure that the sample reflects key demographic proportions of the study population. The overall sample needed to be representative of four geographic regions⁵, homeowners and renters, and age of the primary householder (Table 2.1). The RDD list provided ZIP codes we used to manage the geographic quota. We tracked the age and rental unit quota by monitoring responses to the screening questions. This stratification method, together with the inclusion of the cell-phone-only households, assured a more balanced sample overall.

During the data collection process, we had two quota sets to achieve our overall sampling strategy. First, when the response rate dropped significantly after we reached the sampling quota for homeowners/renters, we determined we had enough cases for renters (n=253) and we eliminated the homeowner/renter quota to use post-stratification weights to adjust for under-representation of renters in the overall sample. Second, we intentionally over-sampled Cascade Natural Gas customers living in the East of the Cascades area in order to achieve an overall confidence level of 95% with $\pm 10\%$ precision within this sub-population. Thus, the final sample consisted of 956 interviews: 873 from the base sample (our initial estimate) and 83 from the East of the Cascades over-sample. This sample was adequate for analyzing the targeted population segments with sufficiently high levels of confidence and accuracy ($95\% \pm 10\%$).

² Center for Disease Control, National Health Statistics Repots, <http://www.cdc.gov/nchs/data/nhsr/nhsr014.pdf> (March 11, 2009).

³ Center for Disease Control, Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July – December 2009, <http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201005.pdf>.

⁴ Abt SRBI, Appliance Saturation Survey, November 2009.

⁵ Energy Trust programs serve gas and electric ratepayers in most of the key metropolitan areas in Oregon, as well as those living and working in less populated areas of the state. To reach a representative sample, we divided the household population into four geographic regions: Portland Metropolitan, Willamette Valley/North Coast, Southern Oregon/South Coast, and East of the Cascades. This scheme allowed for analysis and reporting of the results that was consistent with those in the prior studies.



We applied post-stratification weights to the final sample to ensure that it appropriately represented the population per key demographic characteristics (For more details about post-stratification weights, see Appendix B). Table 2.1 shows the population, sample, and weighted sample proportions of the key demographic characteristics.

Table 2.1: Sampling Quota

CHARACTERISTIC	HOUSEHOLD POPULATION		SAMPLE		
	DATA SOURCE	PERCENT	FREQUENCY	PERCENT	WEIGHTED PERCENT
TELEPHONE STATUS					
Cell-Only Households	2009 National Health Interview Survey (CDC)	25%	97	10%	25%
Landline-Only Households		15%	208	22%	15%
Landline & Cell – primarily cell phone users		15%	134	14%	15%
Landline & Cell- not primarily cell phone users		44%	517	54%	44%
REGION					
Portland Metropolitan	Energy Trust Database	50%	439	46%	50%
Willamette Valley / North Coast		25%	218	23%	26%
Southern Oregon / South Coast		14%	123	13%	14%
East of the Cascades		11%	176	18%*	10%
HOME OWNERSHIP					
Owner	2000 Census	64%	703	74%	64%
Renter		36%	253	26%	36%
AGE OF RESPONDENT					
Younger than 65 Yrs of Age	2000 Census	79%	729	76%	79%
65 Yrs or Older		21%	227	24%	21%

(*) Abt SRBI, Inc. intentionally completed 83 additional interviews with contacts who live in the East of the Cascades area; 60 of those were with Cascade Natural Gas customers.

DATA COLLECTION AND ANALYSIS

The telephone interviews were conducted from Abt SRBI's call center using trained, professional survey managers and interviewers who use a computer-assisted telephone interview system (CATI). In order to maximize meaningful participation in the survey, Abt SRBI project managers trained all staff about the nature of the study, the importance of the information being collected, and management of the sample.

Prior to the full-scale fielding, Abt SRBI conducted 20 pretest surveys to identify any problems with respondents' (and interviewers') understanding of questions or any issues with the length of



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the survey. Based on the results of the pretest, the project team made some insignificant modifications to some questions. The pretest data is included in the final dataset.

Abt SRBI conducted the fielding from June 9 to July 8, 2010. They called during day, evening, and weekend hours to reach as many contacts as possible. To counteract non-response bias, Abt SRBI made at least five attempts per contact to complete the surveys with the least amount of samples necessary. Interviews lasted an average of 14 minutes, including the screening questions. The cooperation and response rates were 57.9% and 9.2% respectively ⁶ (See Appendix A for detailed final dispositions).

The project team analyzed the completed survey data using *SPSS Version 18*. The syntax file documents all procedures employed for data cleaning, data transformation and statistical analysis. We explain the analytic approaches in more detail in Chapter 3.

⁶ The participation rate was calculated by treating the numerator as all respondents who completed required survey questions; the denominator consisted of those who completed required questions, those who began but terminated before completing all required questions, and those who refused entirely. This is a standard response rate calculation method set by the Council of Applied Statistical Research Organizations (CASRO).





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QUESTION-BY-QUESTION FINDINGS

In this chapter, we present the results of our question-by-question analysis. We analyzed each question independently. We also combined some questions or transformed data by recoding or computing variables to gain more meaningful information. In particular, we examined key responses by appropriate demographic, participant/nonparticipant, and other available statistics. We then conducted a statistical analysis of the differences among these key responses to assess respondents' awareness of Energy Trust, participation in Energy Trust programs, various energy use behaviors.

We applied post-stratification weights to ensure that the 2010 sample was representative of the target population. Our reported findings include only the weighted estimates. Appendix B outlines our procedures for applying the post-stratification weights to the 2010 sample.

When possible, we compared notable findings from this 2010 survey to the results of the 2008 and 2009 *Residential Energy Awareness and Perception Studies*.⁷

In this chapter, we report on the following analyses:

- ➔ Awareness of Energy Trust
- ➔ Participation in Energy Trust Programs
- ➔ Attitudes, Perceptions, and Beliefs
- ➔ Home Features and Energy Use Behaviors
- ➔ Awareness of ENERGY STAR®
- ➔ News Source
- ➔ Test of Campaign Messages

AWARENESS OF ENERGY TRUST

At the beginning of the survey, without explanatory prompting, we asked the respondents if they had heard of Energy Trust of Oregon. Figure 3.2 shows the 2010 results by region and compares

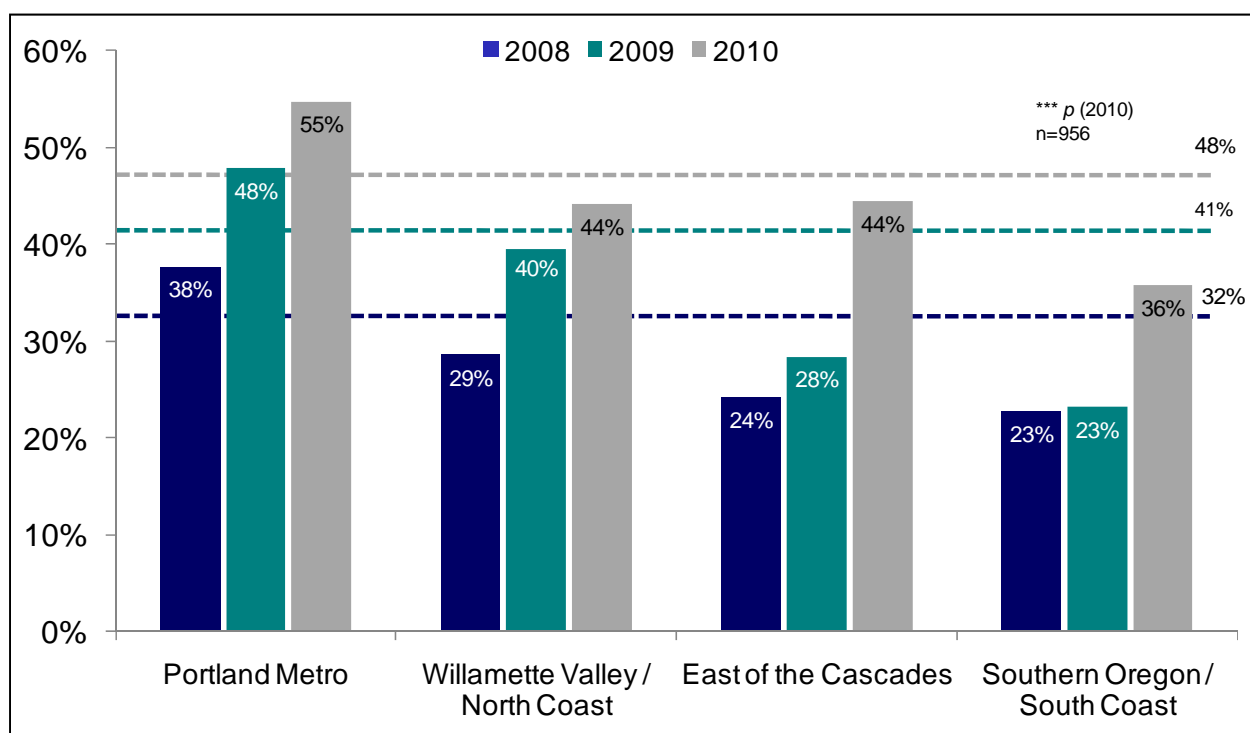
⁷ The study population of 2008 and 2009 surveys was the entire households in the state of Oregon. In order to make the 2010 data comparable with the previous studies, we reanalyzed the 2008 and 2009 data only among the respondents that reside in the Energy Trust service territory; households that receive services from PGE, Pacific Power, NW Natural, Cascade Natural, or Avista. In this year's study, Avista customers were not included.



them to the 2009 and 2008 findings. Forty-eight percent of the people we interviewed in 2010 reported they had heard of Energy Trust, compared to 41% in 2009 and 32% in 2008.⁸ We observed this improvement in every region, most significantly in the East of the Cascades (44%, +16 percentage points from 2009) and Southern Oregon/South Coast regions (36%, +13 percentage points from 2009).

The regional difference in respondents' awareness of Energy Trust in 2010 was statistically significant (chi-square test significant at $p < 0.01$). The Portland Metropolitan area had the highest level of Energy Trust awareness (55%), followed by East of the Cascades (44%), Willamette Valley/North Coast (44%), and Southern Oregon/South Coast (36%).

Figure 3.2: Unaided Awareness of Energy Trust by Region



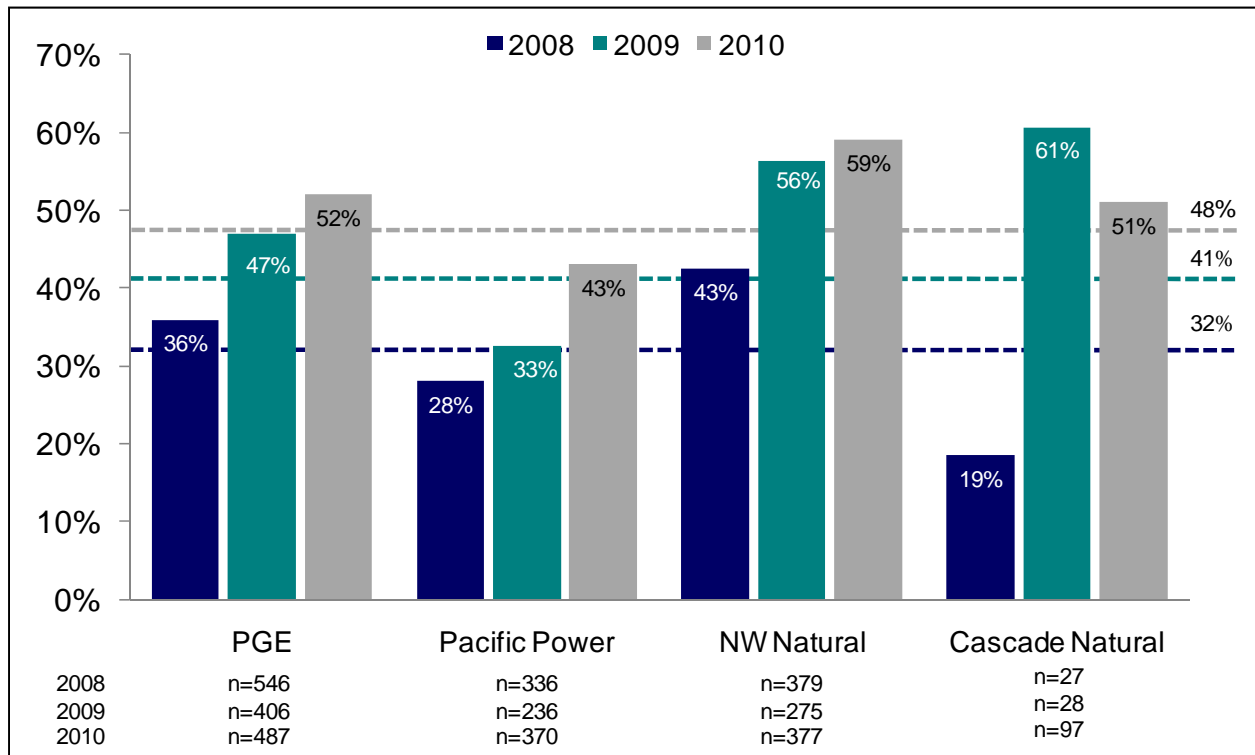
We also compared awareness of Energy Trust based on respondents' electric and natural gas utility(ies) (Figure 3.3). Respondents served by all utilities except Cascade Natural were more aware of Energy Trust in 2010 than in 2009. Data revealed that Cascade Natural ratepayers were

⁸ The 2008 study asked an aided awareness question rather than eliciting an unaided response, making the difference between 2008 and subsequent years more notable (unaided awareness is usually lower than aided awareness).



less aware of Energy Trust in 2010 than in 2009. This decline likely is associated with the small sample size of the Cascade Natural customers we surveyed in 2009 (n=28). In 2010, we intentionally interviewed more of these customers (n=97) to achieve an overall confidence level of 95% with $\pm 10\%$ precision. For this reason, we believe that 2010 result is more accurate.

Figure 3.3: Unaided Awareness of Energy Trust by Utility

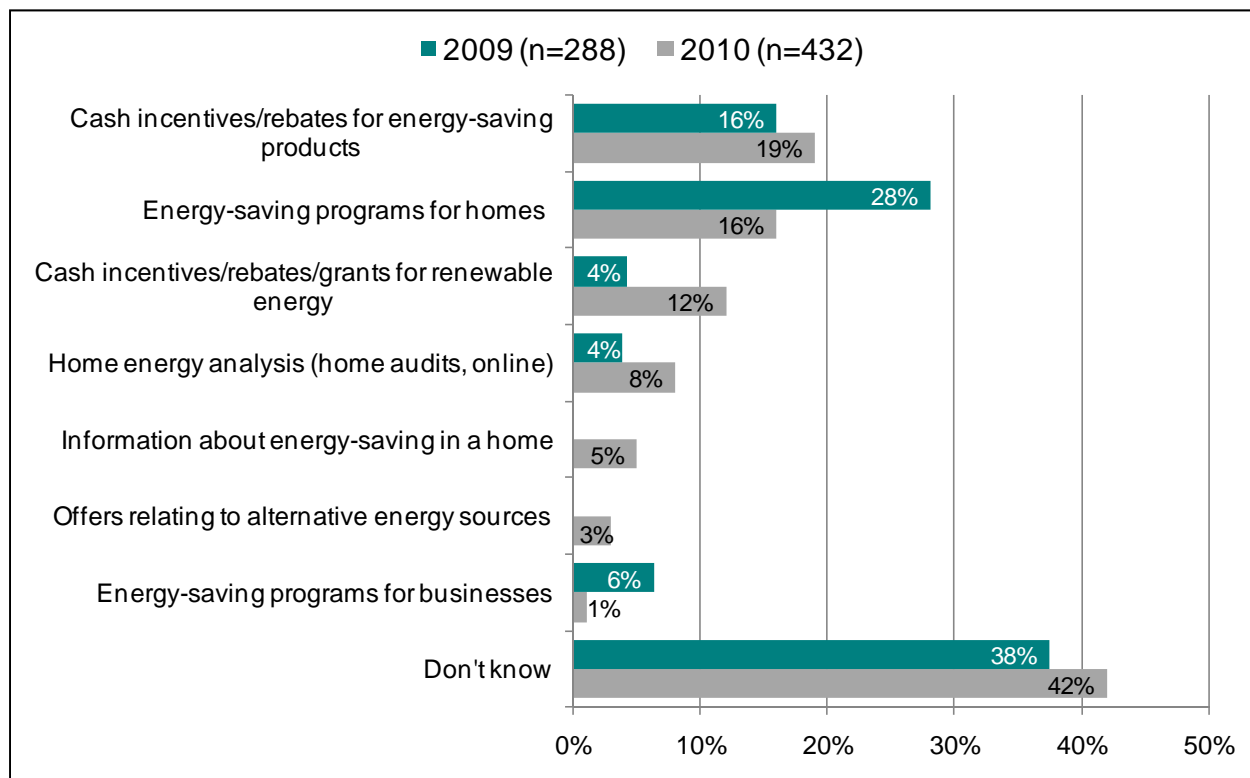


We asked the respondents who said they were aware of Energy Trust an open-ended question about their knowledge of Energy Trust programs and services. This question had several pre-coded categories; we re-categorized “other” responses as appropriate. Figure 3.4 shows the responses to this question for 2009 and 2010.

In 2010, respondents most frequently mentioned that Energy Trust provides cash incentives or rebates for energy-saving products (19%), followed by energy-saving programs for homes (16%) and cash incentives for renewable energy (12%). About 8% reported they were aware that Energy Trust offered home energy analysis such as energy audits. Since 2009, awareness of cash incentives for renewable energy increased (+8 percentage points), while awareness of Energy Trust’s energy-saving programs for homes decreased substantially (-5 percentage points). As in 2009, of the respondents who recognized the Energy Trust name, many respondents (42%) reported they knew nothing about Energy Trust programs and services in 2010.



Figure 3.4: Knowledge of Energy Trust's Program Offerings



Note: In 2009, only the first-mentioned response was recorded, but we allowed multiple responses in this year's study.

In addition, we asked these respondents an open-ended question about how they first heard about Energy Trust and its programs. Figure 3.5 shows the responses by region.

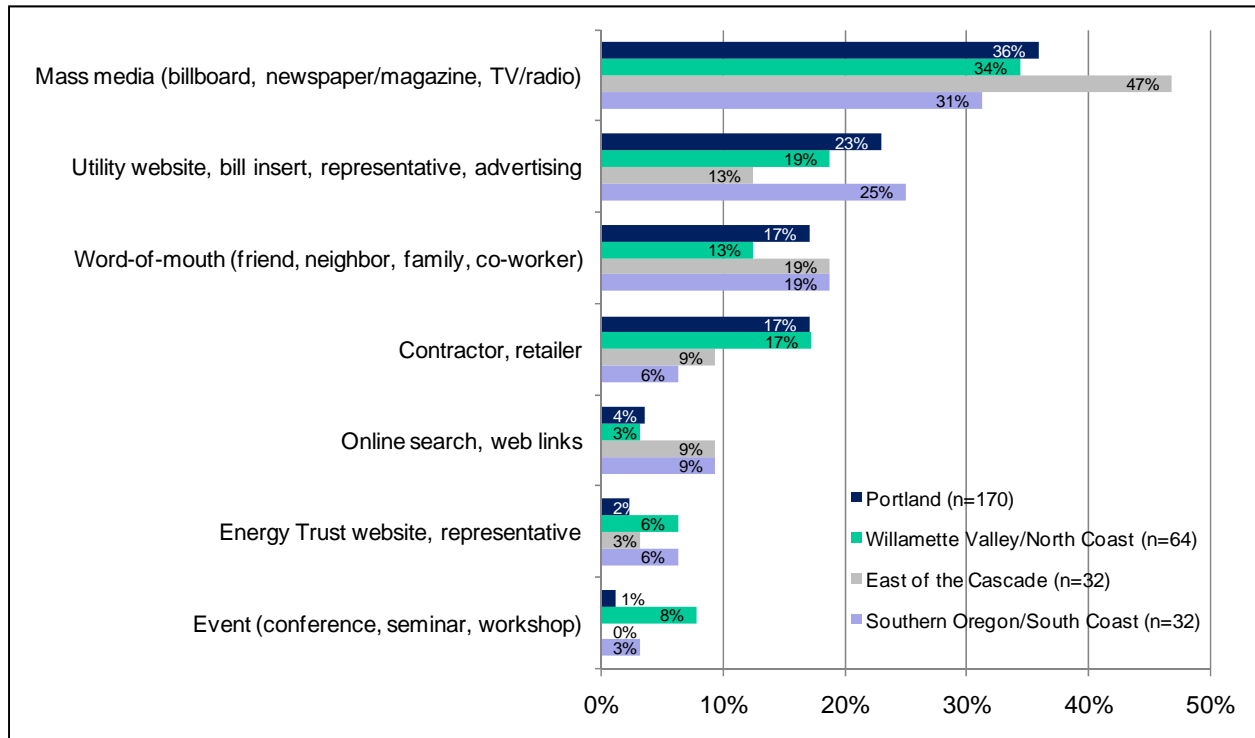
Overall, among the respondents who could recall how they first heard about Energy Trust and its programs, 33% mentioned mass media advertisements, while 20% identified their utility as the original source – most frequently the utility's bill insert, direct mail, website, or direct contact with representatives. Fifteen percent of those we interviewed mentioned word-of-mouth contact as the primary way they learned about Energy Trust, while 13% said their contractor/retailers first told them about Energy Trust. A very few contacts who were able to remember how they first heard about Energy Trust (3-5%) reported that they learned about Energy Trust during an online search, through attendance at events, or from the Energy Trust website and Energy Trust representatives.

There were some notable differences in the source of information about Energy Trust between regions. Households East of the Cascades, compared with other regions, more frequently reported they first heard of Energy Trust through mass media source (47%), but less frequently reported they heard about it from their utilities (13%). Households in Portland metro and Willamette Valley, compared with other two regions, more frequently reported that they heard about Energy Trust from their contractors or retailers (17%).



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Figure 3.5: Source of Initial Information about Energy Trust



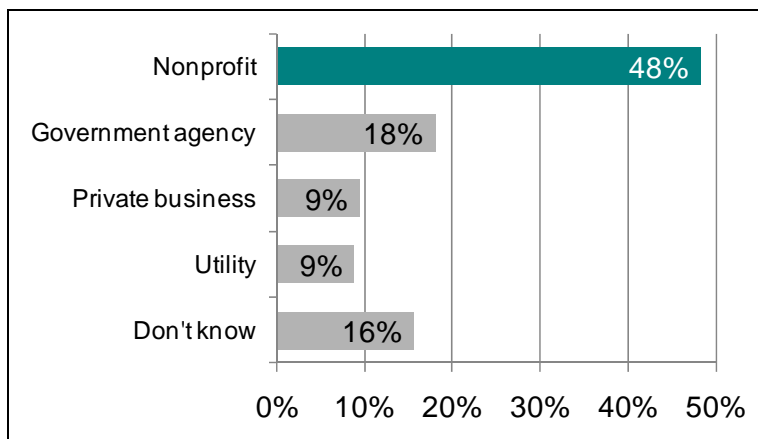
Note: The question had pre-coded categories. We re-categorized “other” responses later as appropriate.

To further assess respondents’ views about Energy Trust, we asked several additional questions. First, we asked those who had heard of Energy Trust if they perceived it as a government agency, non-profit organization, utility, or other private business. Almost half of them (48%) correctly reported it as a nonprofit organization. However, many respondents also thought Energy Trust is a government agency (18%), a business entity (9%), or a utility (9%).



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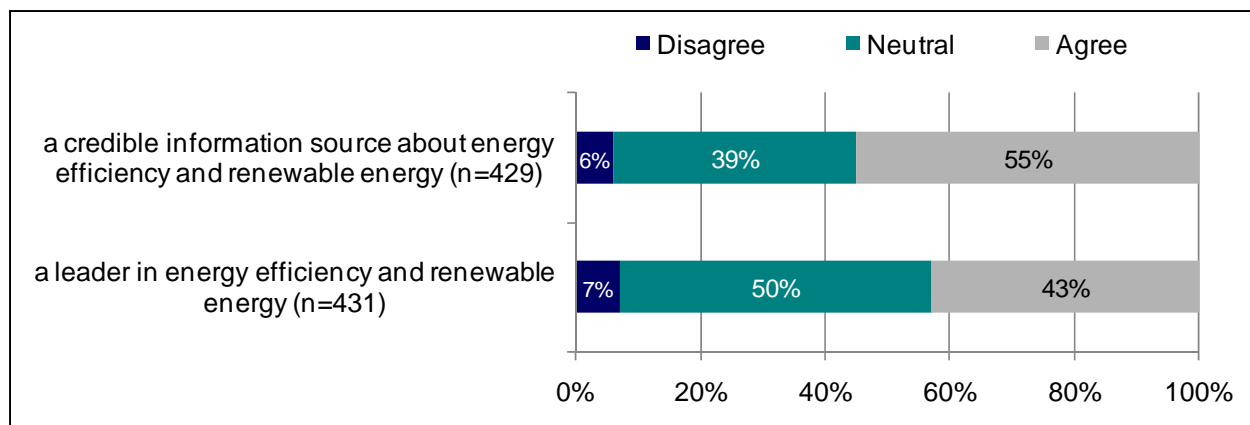
Figure 3.6: Perception of Agency Type (n=430)



Note: The question was asked only to those who have heard about Energy Trust (n=461).

The 2010 study examined respondents’ thoughts about Energy Trust’s role in providing services and information about energy efficiency and renewable energy. A majority of those aware of Energy Trust said it is a credible source of that information.

Figure 3.7: Perceptions of Energy Trust



Note: “Don’t know” responses were treated as ‘neutral’ responses. The question was asked only to those who have heard about Energy Trust (n=461).

PROGRAM PARTICIPATION

We considered the respondents who reported participating in Energy Trust programs or who had received a rebate check from Energy Trust to be participants in Energy Trust programs.

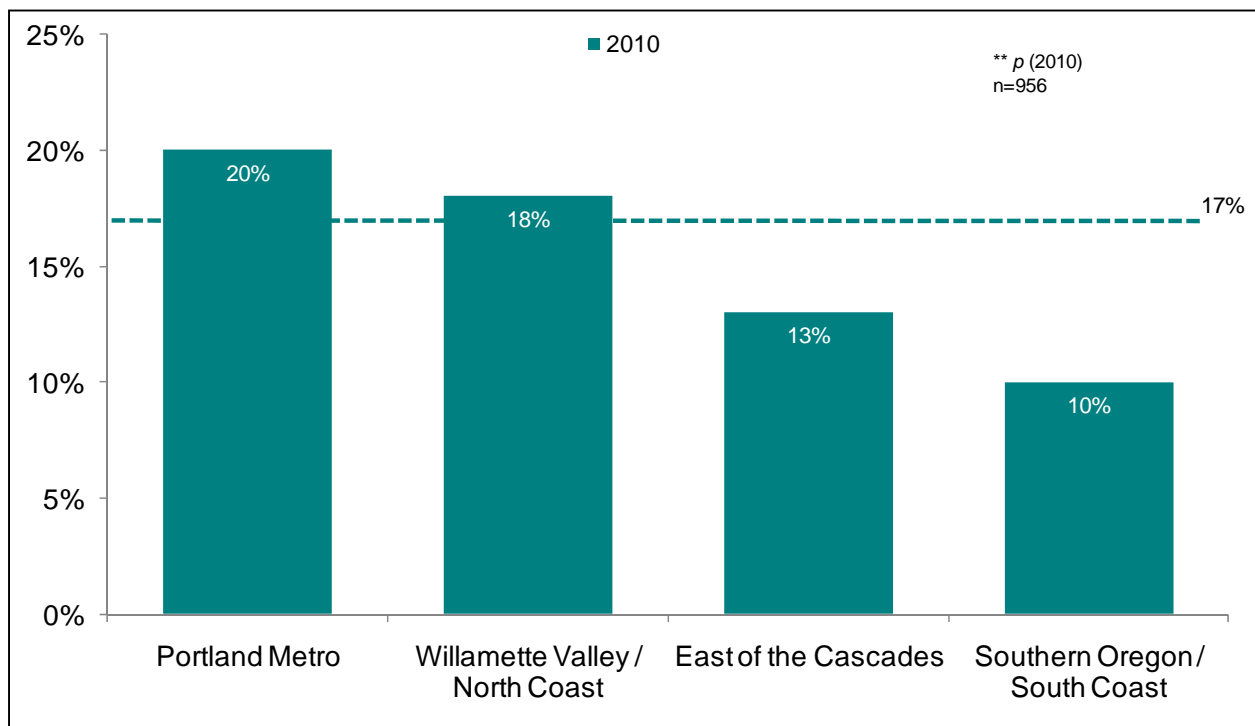


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In the in-depth study of Energy Trust program participation using data from the *2009 Residential Energy Awareness and Perception Study* and Energy Trust’s customer database, we found notable discrepancies between actual and self-reported participation in Energy Trust programs. In particular, we noted that the analysis based on self-reported data from the 2009 survey significantly underestimated the participation rate across all regions in Oregon. We determined that this likely was caused by a survey question that failed to capture participants who had used the Home Energy Review, one of the most common measures. We have corrected that in this year’s questionnaire to better measure participation in Energy Trust programs.

Figure 3.8 shows the program participation results by region. The overall self reported participation rate in 2010 was 17%. The 2010 regional difference in respondents’ participation in Energy Trust programs was statistically significant (chi-square test significant at $p < 0.01$). The Portland Metropolitan area had the highest participation rate (20%), followed by Willamette Valley/North Coast (18%), East of the Cascades (13%), and Southern Oregon/South Coast (10%).

Figure 3.8: Participation in Energy Trust Programs by Region

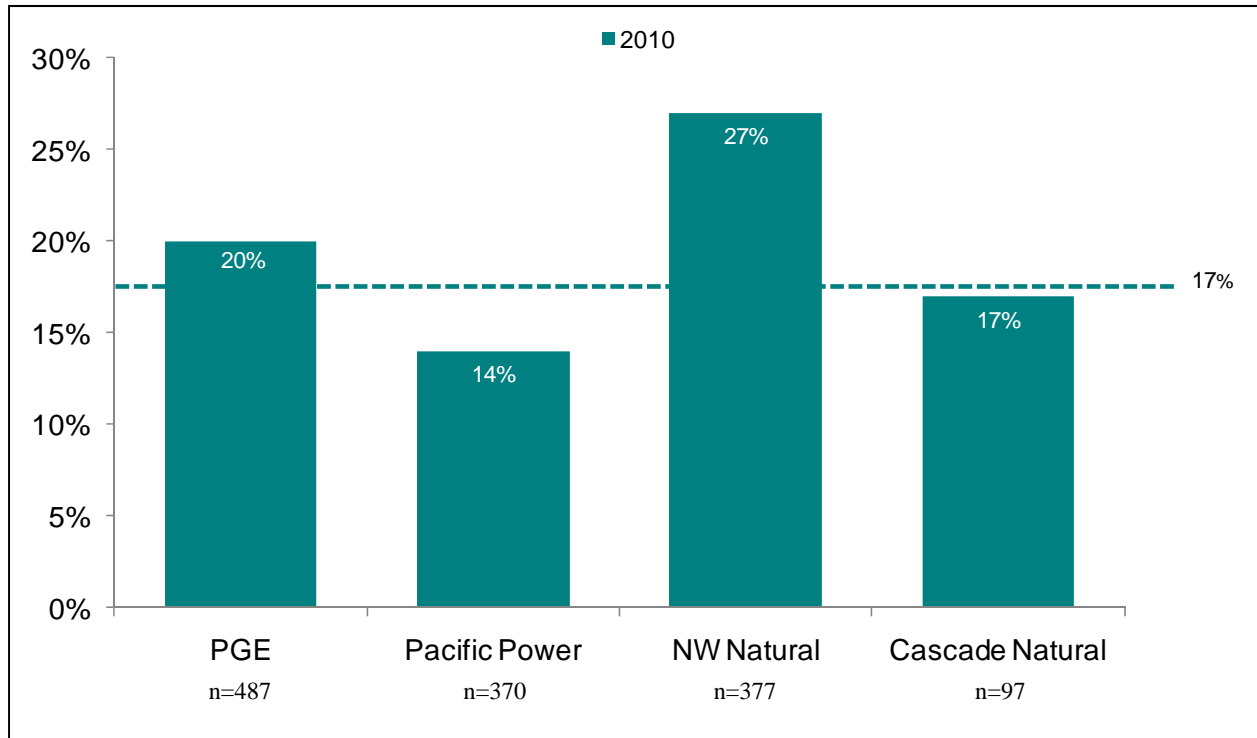


We also compared participation rates per respondents’ electricity and natural gas providers (Figure 3.9). Among electricity providers, PGE customers reported the highest participation rate



(20%). Participation among customers of NW Natural was the highest among all utilities (27%) in this study.⁹

Figure 3.9: Participation in Energy Trust Programs by Electricity and Natural Gas Provider



When asked about their experiences with the Energy Trust programs in which they participated, 80% of participants reported being satisfied with Energy Trust programs in 2010 (“4” or “5” on a 5-point scale). This is almost the same level of satisfaction reported in 2009 (Table 3.1).

⁹ Energy Trust provides more offerings to customers with both natural gas and electricity. While electricity-only residential customers, for the most part, have the same number of end uses (e.g., space heating and cooling, water heating, appliances, lighting, electronics, etc.), they receive fewer offerings from Energy Trust.



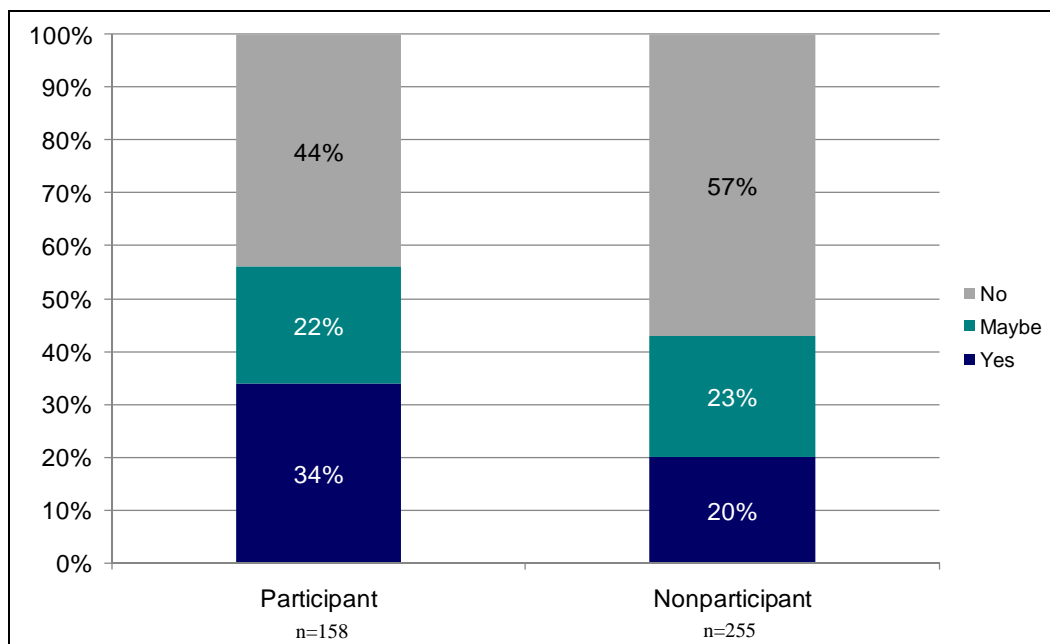
Table 3.1: Satisfaction with Energy Trust

	VERY DISSATISFIED			VERY SATISFIED	
	1	2	3	4	5
2010 (n=181)¹	3%	3%	15%	26%	54%
2009 (n=62)	7%	2%	8%	27%	57%

¹ Those stating “don’t know” (4 out of 185) were excluded from this analysis.

Additionally, we asked those who were aware of Energy Trust if they intended to apply for an incentive or receive a Home Energy Review in the ‘near future’. Respondents participating in Energy Trust programs were significantly more likely to say “yes” than nonparticipants (chi-square test significant at $p < 0.01$). Specifically, 34% of those who participated in Energy Trust programs compared to 20% of nonparticipants who were aware of Energy Trust were willing to apply for an incentive or request a Home Energy Review (Figure 3.10).

Figure 3.10: Future Participation



Finally, we asked every respondent to name the top three actions they would like to take to make their home more energy-efficient. This question had several pre-coded categories; “Other” responses were re-categorized appropriately. Table 3.2 shows the results. Respondents most frequently said they would like to install insulation, air sealing, or weather stripping (32%), followed by new windows (27%). Participants were significantly more likely than



nonparticipants to want to install or replace insulation, a heating/cooling system, and a solar electric or solar hot water system (Table 3.2).

Table 3.2: Actions Respondents Would Like to Take to Improve Energy Efficiency

ACTIONS	WEIGHTED PERCENTAGES			SIG. (P) ¹
	TOTAL (N=956)	PARTICIPANT (N=164)	NON-PARTICIPANT (N=792)	
Installing insulation, air sealing, and weather stripping	34%	45%	31%	***
Installing new windows	27%	28%	27%	ns
Installing efficient heating/cooling system	17%	29%	15%	***
Replacing aging/inefficient appliances	14%	15%	14%	ns
Installing solar electric/hot water system	13%	24%	10%	***
Nothing (home is already energy-efficient)	17%	4%	20%	***

¹ Asterisks (*) denote statistical significance between participants' and nonparticipants' responses when sample size was sufficient.

*** Chi-square test significant at $p < 0.01$

Characteristics of Participants

To explore participant and nonparticipant characteristics further, we examined several key demographic variables in depth. Table 3.3 displays differences between participants and nonparticipants regarding key housing and demographic characteristics. We found participants and nonparticipants were significantly different statistically in all of these characteristics.

Compared with nonparticipants, participants were overwhelmingly homeowners (91%). They were more likely to reside in single-family dwellings that were relatively older and larger than nonparticipants' homes. Participants were more likely to heat their space and water with natural gas than electricity. Participants also were significantly more likely to have larger household incomes, their head of household was more likely to have a college degree, and were slightly older than nonparticipants.

These trends are consistent with findings from the two previous studies.



Table 3.3: Housing and Demographic Characteristics

CHARACTERISTICS	WEIGHTED PERCENT	
	PARTICIPANTS (N=164)	NONPARTICIPANTS (N=792)
HOME OWNERSHIP		
Owner	91%	58%
Renter	9%	42%
HOUSING TYPE		
Single-family	88%	62%
Multifamily	9%	28%
Other	3%	10%
YEAR HOME BUILT		
Before 1960	36%	24%
1960 – 1979	34%	32%
1980 – 1999	25%	26%
After 2000	6%	19%
HOUSE SIZE		
2 BR or less	19%	38%
3 BR	48%	41%
4 BR or more	34%	21%
FUEL FOR SPACE HEATING		
Electricity	27%	45%
Natural gas	64%	41%
Other	9%	14%
FUEL FOR WATER HEATING		
Electricity	39%	61%
Natural gas	60%	38%
Other	1%	1%
HOUSEHOLD INCOME		
Less than \$30,000	8%	29%
\$30,000 – \$50,000	11%	20%
\$50,000 – \$70,000	23%	17%
\$70,000 – 109,000	27%	19%
\$110,000 or more	31%	14%
EDUCATION LEVEL OF PRIMARY HOUSEHOLDER		
Without college degree	31%	60%
With college degree	69%	40%
		Continued



CHARACTERISTICS	WEIGHTED PERCENT	
	PARTICIPANTS (N=164)	NONPARTICIPANTS (N=792)
AGE OF PRIMARY HOUSEHOLDER		
24 yrs or younger	2%	7%
25 – 34 yrs	13%	20%
35 – 44 yrs	19%	17%
45 – 54 yrs	19%	21%
55 – 59 yrs	13%	12%
60 – 64 yrs	15%	9%
65 yrs or older	19%	13%

PERCEPTIONS OF AND ATTITUDES TOWARD ENERGY EFFICIENCY

In this year's survey, we continued to investigate respondents' perceptions and attitudes that may relate to their behaviors relating to energy efficiency. Energy Trust chose to use the Bonneville Power Administration's "gearbox" of questions about consumers' perceptions and attitudes to facilitate comparison of data across utilities in the Northwest.

These questions present statements that describe opinions or actions related to use of energy in the home or in the larger societal scale and asked respondents to rate each of the statements using a one-to-ten-point scale. A response of "one" generally meant "strongly disagree or not at all important," while "ten" was "strongly agree or extremely important."¹⁰ We organized these responses into the four categories listed in Table 3.4:

- ➔ Perceptions about impacts of energy-saving behaviors on the environment
- ➔ Attitudes about energy use in the home and the society
- ➔ Importance of energy-related attributes when purchasing goods
- ➔ Opinions about energy efficiency and renewable energy initiatives and utility providers.

Responses that showed their beliefs regarding energy-saving behaviors' effects on the environment varied notably, with a mean range of 6.75 to 8.01. Respondents' agreement with statements about the importance of saving energy in the home or the society ranged from 6.60 to 8.22. In addition, contacts rated the importance of energy efficiency attributes when purchasing goods as "fairly important" (mean range: 7.84 to 8.08), which was similar to their ratings of the importance of utilities' energy efficiency or renewable energy initiatives (mean range: 7.84 to

¹⁰ "Don't know" or "refusal" responses were treated as missing data.



8.23). These responses suggest that respondents generally were concerned about energy issues and were moderately ready to take efficiency actions.

We conducted nonparametric statistical tests¹¹ to compare responses given by participants and nonparticipants; we note significant differences with an asterisk (*) in Table 3.4. We observed significant differences between these two groups in the category “attitudes about energy use in the home and the society” In particular, Energy Trust program participants exhibited greater concern about impacts of their energy-using activities on the environment, more interest in energy issues, and a stronger sense of responsibility to limit their energy use.

Table 3.4: Attitudes, Perceptions, and Beliefs – Homeowner Responses

ITEMS	MEAN SCORES (WEIGHTED)			SIG. (P) ¹
	TOTAL	PARTICIPANT	NON-PARTICIPANT	
PERCEPTIONS ABOUT IMPACT OF ENERGY-SAVING BEHAVIORS ON THE ENVIRONMENT				
<i>How much of a contribution does ... toward protecting the environment?²</i> (scale 1-10: 1=no contribution at all;10=major contribution)				
a. Using mass transit instead of driving	7.20	7.36	7.16	ns
b. Recycling paper, cans, bottles, and plastics	8.01	7.76	8.07	ns
c. Setting heating or cooling thermostats to use less energy	7.30	7.66	7.23	ns
d. Driving an electric or hybrid gas-electric vehicle	6.75	6.93	6.71	ns
e. Replacing major appliances with more energy-efficient ones	7.16	7.31	7.13	ns
f. Replacing regular light bulbs and fixtures with energy-efficient ones	6.77	6.71	6.79	ns
g. Installing additional or upgrading insulation or windows	7.46	7.56	7.43	ns
	Continued			

¹¹ We determined statistical significance by using the Mann-Whitney U, a non-parametric test that analyzes ordinal variables comparing two groups.



ITEMS	MEAN SCORES (WEIGHTED)			SIG. (P) ¹
	TOTAL	PARTICIPANT	NON-PARTICIPANT	
ATTITUDES ABOUT ENERGY USE IN THE HOME AND SOCIETY				
<i>How much do you agree that ... (scale 1-10: 1= strongly disagree; 10=strongly agree)</i>				
h. It is very important for you to find ways to control your energy costs.	8.22	8.40	8.19	ns
i. You believe it is socially responsible to limit your use of electricity.	7.69	8.27	7.57	***
j. You are very concerned about the environmental effects of electricity-generating power plants.	6.64	7.07	6.56	**
k. You regularly review your home's energy usage.	6.60	6.89	6.55	ns
l. You pay a lot of attention to energy-related issues because they affect both your home and the country as a whole.	7.27	7.94	7.13	***
m. The long-term threat from global warming and climate change is real, and potentially catastrophic.	6.81	7.49	6.67	***
IMPORTANCE OF ENERGY-RELATED ATTRIBUTES WHEN PURCHASING GOODS				
<i>How important is...(scale 1-10: 1=not at all important; 10=extremely important)</i>				
n. Cost savings you might get from reduced electricity usage?	8.08	7.94	8.11	ns
o. Positive effects on the environment that might result from reduced energy usage?	7.84	7.93	7.82	ns
p. Purchase discounts that might be offered for purchasing energy-efficient devices?	7.93	8.20	7.88	ns
OPINIONS ABOUT ENERGY-EFFICIENT INITIATIVES FROM ENERGY PROVIDERS				
<i>How important it is to you that your energy utility company... (scale 1-10: 1=not at all important; 10=extremely important)</i>				
q. Actively encourage its customers to participate in energy- and cost-saving programs, even if that meant that you had to pay a little more in order for the company to pursue these types of initiatives?	7.84	8.08	7.78	ns
r. Do everything possible to supply renewable, clean energy, even if that meant that you had to pay a little more in order for the company to pursue these types of initiatives?	8.03	8.07	8.02	ns
s. Operate its business in an environmentally friendly manner, even if that meant that you had to pay a little more in order for the company to pursue these types of initiatives?	8.23	8.25	8.22	ns

¹ Asterisks denote significant differences between participants and nonparticipants.

² Questions a-g were asked in the 2009 study, using 0-10 point scale.



**Mann-Whitney U Test significant at $p < 0.05$

*** Mann-Whitney U Test significant at $p < 0.01$

HOME FEATURES AND ENERGY USE BEHAVIOR

We asked all respondents a series of questions about home features and behaviors that affect energy use. Tables 3.5 through 3.9 summarize the responses, with comparisons between participants and nonparticipants, as well as a statistical test of significance, when we observed notable differences. Many of these are new questions, but year-to-year comparison is shown for repeat questions.

Televisions

First, we asked the respondents to tell us the number of television sets in their homes. They reported having on average two TVs (mean=2.2) (Table 3.5). No difference was observed between participants and nonparticipants.

Table 3.5: Number of TV(s) In the Home

	WEIGHTED PERCENT
Zero	3%
1	29%
2	36%
3	19%
4 or more	13%

Air-Conditioning Units

We also asked respondents if they had air-conditioning units in their homes. A total of 54% reported that their homes had an air-conditioning system; 41% had central air-conditioning, 30% had a heat pump, and 28% had at least one room air-conditioning unit (Table 3.6). A significantly higher number of nonparticipants (31%) than participants (17%) had room air-conditioning units (chi-square test significant at $p < 0.01$). Twenty-eight percent of homes with room air-conditioning units had more than two of them (mean=1.4).



Table 3.6: Type of Air-Conditioning System (n=508)

	WEIGHTED PERCENT
Central AC (not heat pump)	41%
Heat Pump	30%
Room AC	28%
Other	2%

Compact Fluorescent Lamps

We asked respondents if any compact fluorescent lamps (CFLs) or twisty-swirly bulbs had been installed in their home. Eighty-five percent of the respondents reported their homes had at least one CFL installed (Table 3.7). As shown in Table 3.7, our data suggest that, while CFL penetration rose 5% between 2008 and 2010, the penetration of CFLs in residential homes has remained about the same since 2009. When we asked contacts who had CFLs installed in their home about the number of CFLs installed, 33% of them reported 11 or more. This represents a 4% increase since 2009, and 8% increase since 2008.

Table 3.7: Use of Compact Fluorescent Lamps (CFLs)

	2008	2009	2010
CFL Penetration	81%	86%	86%
Have more than 11 CFLs installed	25%	29%	33%

Laundry Method

For the first time this year, we asked how often respondents used specific laundry methods that can conserve energy. We asked them to estimate the percentage of laundry loads they do with cold water only and the percentage of clothes they dry without using a dryer. Table 3.8 displays the responses.

More than half of the respondents (64%) reported washing at least half (average 56%) of their laundry loads in cold water only. Older adults were less likely to use cold water than were younger adults. For example, 37% of adults age 75 or older said they use only cold water, while 63% of adults age 44 or younger said they use cold water only. Line drying or drying methods other than using a dryer were much less prevalent among Oregonians; only 15% (mean) of the total laundry loads were dried without using a dryer.



Table 3.8: Clothes Washing and Drying

	0%	1-49%	50%	51-99%	100%	Mean
Percent of laundry loads with cold water (n=918) ¹	17%	19%	14%	26%	24%	56%
Percent of clothes dried using the line/rack method (n=941) ¹	54%	39%		8%		15%

¹ Don't Know or Refused responses are treated as missing.

ENERGY STAR[®]

We asked respondents if they were aware of the ENERGY STAR[®] label, which identifies appliances that meet U.S. Environmental Protection Agency (EPA) energy efficiency standards. Table 3.9 shows the results by participation status since 2008. We estimate overall awareness of the ENERGY STAR[®] label at 72% (64% nationwide¹²), and this has grown steadily since 2008 (+11% since 2009, +14% since 2008). Participants (88%) were significantly more likely to be familiar with the label than the nonparticipants we interviewed (68%).

When asked about how frequently they factored the ENERGY STAR[®] label into their decisions about buying appliances or other products, a high proportion (79%) of those who said they were aware of the label reported they “always” or “often” considered ENERGY STAR[®]-labeled models in 2010. This is almost identical to the 2009 result. As in 2009, -participants (92%) reported that they considered ENERGY STAR[®] models significantly more frequently than did nonparticipants (75%).

Table 3.9: ENERGY STAR[®] Awareness

		TOTAL	PARTICIPANTS	NON-PARTICIPANTS	SIG. ¹ (P)
Aware of ENERGY STAR [®]	2010	72%	88%	68%	***
	2009	61%	82%	62%	**
	2008	58%	80%	56%	***
Consider ENERGY STAR [®] Models Always or Often	2010	79%	92%	75%	***
	2009	84%	94%	83%	*

¹ Statistical significance between participants' and nonparticipants' responses

¹² Consortium of Energy Efficiency (CEE) estimated the national ENERGY STAR[®] label unaided awareness at 64% in 2009. When the label is shown (aided awareness), 76% of the households recognized. Source: http://www.cee1.org/eval/2009_ES_survey.pdf.

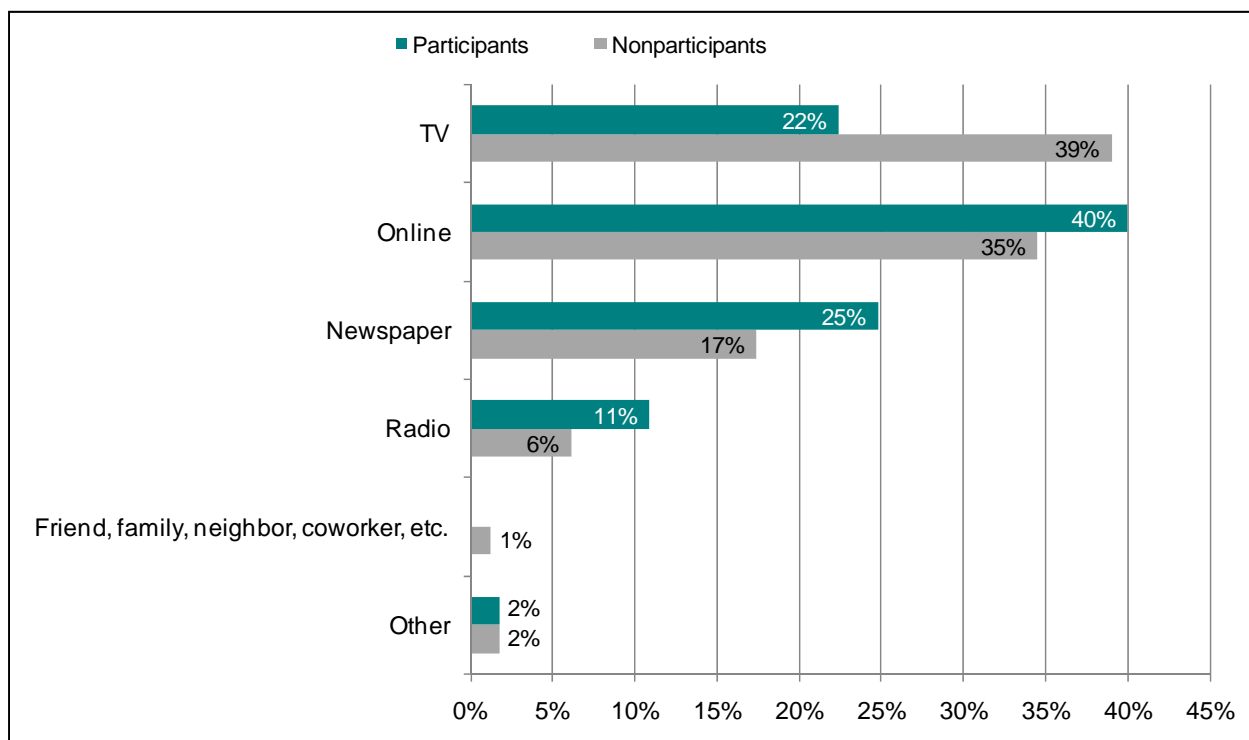


NEWS SOURCE

As part of assessing marketing outlets that reach Oregonians, we asked respondents to identify their primary source for getting news (Figure 3.10).

We found significant differences between the news sources participants and nonparticipants rely on (chi-square test significant at $p < 0.05$). Television was by far the most common news source for nonparticipants (39%), while online sources were mentioned most frequently by participants (40%). Newspapers were also common sources among participants and nonparticipants (25% and 17%, respectively).

Figure 3.11: Primary News Sources



TESTING MARKETING MESSAGES

This year's survey included questions to assess the potential effectiveness of several campaign messages Energy Trust was considering. After we read each message, we asked respondents to rate the likelihood that the message would convince them to move forward with energy-saving projects in their homes. Table 3.10 shows the results.



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Messages that received the highest ratings seem to emphasize monetary benefit. Messages that received lower ratings seem to be rather general and provide less direct benefit to consumers.

Table 3.10: Potential Marketing Messages

	PERCENT OF TOPBOXES			SIG. (P) ¹
	“4”	“5”	COMB.	
<p><i>How likely is the following message to convince you to move forward with energy-saving or renewable projects such as insulation, energy-efficient appliances or solar for your home...</i> (scale 1-5: 1=very unlikely; 5=very likely, percent shown is rating of 4 and 5 combined)</p>				
“You can save energy and money”	23%	54%	77%	ns
“Minimize energy use, maximize savings”	29%	47%	76%	ns
“Enjoy a comfortable and more energy efficient home”	24%	45%	69%	* ²
“Avoid wasting valuable resources”	24%	45%	69%	* ³
“Saving energy is good for the planet”	17%	51%	68%	ns
“Insulate yourself from energy cost increases”	23%	39%	62%	ns
“Invest now, and watch your savings add up later”	26%	32%	58%	ns
“Join the clean energy revolution”	19%	28%	47%	ns

¹ Note: Responses other than “yes” or “no” were treated as missing. The significant test is based on Mann-Whitney U nonparametric test.

² 64% and 71% (participants vs. nonparticipants, when “4” and “5” are combined)

³ 62% and 70% (participants vs. nonparticipants, when “4” and “5” are combined)





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FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

FINDINGS

Awareness

- ➔ Almost half (48%) of the householders in the Energy Trust service area in Oregon recognize “Energy Trust of Oregon.” This awareness has increased substantially—by 7% since 2009 and by 16% since 2008.
- ➔ Regional discrepancy in awareness of Energy Trust still is large. Portland Metropolitan area is the highest (55%), while Southern Oregon/South Coast region is the lowest (36%).
- ➔ The largest percentage (33%) of those aware of Energy Trust reported they first heard of Energy Trust through mass media advertisements. There are regional differences in how they first became aware of Energy Trust.
- ➔ Many of those who recognized the Energy Trust name had no knowledge of the service the organization provides (42%).
- ➔ Approximately half of those aware of Energy Trust correctly responded that Energy Trust is a nonprofit organization. A majority of those who were aware of Energy Trust reported that they perceived the organization as a trusted source of information about energy efficiency and renewable energy.

Program Participation

- ➔ Seventeen percent of the surveyed households reported they had participated in Energy Trust programs.
- ➔ Regional discrepancies in participation in Energy Trust programs are large. The Portland Metropolitan (20%) and Willamette Valley/North Coast areas (18%) had the greatest reported participation rates, while residents of the East of the Cascades (13%) and Southern Oregon/South Coast areas (10%) reportedly participated at lower rates.
- ➔ Customers of PGE (20%) and NW Natural (27%) had the highest participation rates.
- ➔ Participants’ characteristics were similar to the findings from the previous two studies. Participants were overwhelmingly homeowners who reside in single-family homes, and these homes are older and larger in size. Respondents whose single-family homes were heated with natural gas homes were significantly more likely to participate in Energy



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Trust programs. The heads of these households have higher incomes, more education, and are older than nonparticipants.

- ➔ Participants were highly satisfied with Energy Trust services. Their intention to participate in additional Energy Trust programs in the near future is significantly higher than nonparticipants'.

Perceptions and Attitudes

- ➔ Compared to nonparticipants, participants exhibited greater concern about the impacts of their energy-using activities on the environment, greater interests in general energy issues, and a stronger sense of responsibility to limit their energy use.

Home Features and Energy-Use Behaviors

- ➔ Oregon households have an average of two television sets in their home (mean=2.2).
- ➔ Fifty-four percent of the surveyed households had an air-conditioning system. Twenty-seven percent of these were room air-conditioning units, and quarter of these homes had more than two room air-conditioning units.
- ➔ The CFL penetration rate has stayed almost constant since 2009 (86%), although the number of households that reported installations of 11 or more CFLs have grown steadily since 2008.
- ➔ On average, more than half of laundry loads (56%) are washed with cold water only. Younger adults are more likely to use this method than older adults. Line/rack drying is uncommon; these options are used to dry just 15% of the clothes that need to be dried.
- ➔ Respondents said they most want to add weatherization measures (such as air sealing or installation of insulation or new windows) to improve the energy efficiency of their homes.

ENERGY STAR®

- ➔ The ENERGY STAR® label was recognized by 72% of the surveyed households. This awareness has grown steadily since 2008, when just 58% of respondents were familiar with the ENERGY STAR® label. A high proportion (79%) of those who said they recognize the label reported frequently considering selecting models with this label.

CONCLUSIONS AND RECOMMENDATIONS

- ➔ **Conclusion 1: The new sampling strategy largely remedied the sampling problem due to increasing cell-phone-only households.** Demographic distributions of completed samples were generally within reasonable ranges around the census even



without post-weighting. The sampling strategy that combined landline RDD and a purchased list of random cell phone numbers, together with inclusion of key demographic quotas and post-weighting the results to reflect differential selection probabilities, resulted in a balanced sample overall.

Recommendation: Continue to use this sampling and data collection method for large-scale surveys for general households. The development of cell phone usage should be monitored, and sampling for future surveys needs to address the change accordingly.

- ➔ **Conclusion 2: Energy Trust’s marketing effort seems to be working well, since almost half of the households we contacted in the Energy Trust service area recognized the Energy Trust of Oregon name.** Since 2009, the overall awareness level has increased by 7%. Although we observed more notable increases particularly in rural areas, the urban-rural gap in Energy Trust awareness still is prominent. Moreover, many of those aware still lack substantive knowledge of Energy Trust programs.
- ➔ **Conclusion 3: Overall self-reported participation in Energy Trust programs is about 17%.** As we found in our analysis of general awareness of Energy Trust, urban households continue to participate in Energy Trust programs more frequently than do households in rural Oregon. The improved questionnaire seems to more accurately measure the self-reported participation rate.

Recommendation: Self-reported participation should be compared with actual participation to confirm the validity of the new method to measure self-reported participation. While we believe that the new measurement better captures the participation rate, it is essential to assure the validity of the approach.





APPENDICES

APPENDIX A: FINAL DISPOSITION SUMMARY

**APPENDIX B: POST-STRATIFICATION WEIGHTING
METHOD**

APPENDIX C: SURVEY INSTRUMENT




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2010 OREGON RESIDENTIAL AWARENESS AND PERCEPTIONS STUDY



FINAL DISPOSITION SUMMARY


Table A.1: Comparison of Sample and Census

 SRBI	LANDLINE	CELL	TOTAL	DIALED %
TOTAL NUMBERS DIALED	53936	6997	60933	100.0%
BAD NUMBERS (OUT OF FRAME)	35987	1740	37727	61.9%
Business/Government Number/Non-resident	2857	211	3068	5.0%
Cell Phone	14	1	15	0.0%
Fax/Modem Number/Computer Tone	1511	39	1550	2.5%
Incomplete Call/Line Problems (Temporary)	41	47	88	0.1%
Not In Service / Disconnected	2297	1440	3737	6.1%
Dialer - bad number syntax	23273	0	23273	38.2%
Dialer - incomplete	1459	0	1459	2.4%
Dialer - new number dropped	453	0	453	0.7%
Dialer - rejected number	605	0	605	1.0%
Dialer – site congestion	7	0	7	0.0%
Dialer - site out of service	1837	0	1837	3.0%
Dialer - unknown error	696	0	696	1.1%
Possible Unassigned Number/No Answer All Attempts	937	2	939	1.5%
TOTAL GOOD NUMBERS (TOTAL SAMPLE FRAME)	17949	5257	23206	38.1%
No CONTACT	4447	350	4797	7.9%
Busy	1	4	5	0.0%
Fax/Modem/Computer Tone (live)	714	23	737	1.2%
No Answer	309	251	560	0.9%
Dialer - busy	120	0	120	0.2%
Dialer - no answer	3053	0	3053	5.0%
Live Non Contacts - OVER MAX (max set to 5)	250	72	322	0.5%


Continued



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 SRBI	LANDLINE	CELL	TOTAL	DIALED %
DEAD - NOT SCREENED	300	153	453	0.7%
Away for Duration	50	37	87	0.1%
Child/Teen Phone	9	57	66	0.1%
Foreign Language - NON-SPANISH	53	26	79	0.1%
Health Problems - LONG-TERM	62	9	71	0.1%
Hearing Problems	126	24	150	0.2%
LIVE - NOT SCREENED	5291	2407	7698	12.6%
Answering Machine/Voice Mail	4363	1933	6296	10.3%
CallBack - CALL BLOCKING	1	1	2	0.0%
Live Not Screened - OVER MAX (max set to 5)	927	473	1400	2.3%
CALLBACK - NOT SCREENED	5112	1422	6534	10.7%
Callback - APPOINTMENTS	43	10	53	0.1%
Callback - UNSPECIFIED	1361	270	1631	2.7%
Respondent Currently Not Available/Callback	13	18	31	0.0%
Hung-up	1608	458	2066	3.4%
Health Problems - SHORT-TERM	20	3	23	0.0%
Foreign Language - SPANISH	163	73	236	0.4%
Dialer - nuisance hang-up	41	0	41	0.1%
Callback - CALL BLOCKING (over max)	1	0	1	0.0%
Hung-up CB - OVER MAX	325	33	358	0.6%
Callbacks Not Screened - OVER MAX (max set to 5)	1537	557	2094	3.4%
REFUSALS - NOT SCREENED	1237	308	1545	2.5%
Refusal - CALL BLOCKING	31	0	31	0.1%
Refusal - SOFT	624	170	794	1.2%
Second Soft Refusal	113	0	113	0.2%
Refusal - HARD (do not callback)	268	105	373	0.6%
Hung-up REF - OVER MAX	40	7	47	0.1%
Refusals Not Screened- OVER MAX (max set to 5)	161	26	187	0.3%
				Continued



 SRBI	LANDLINE	CELL	TOTAL	DIALED %
SCREEN-OUTS	538	376	914	1.5%
Screen-Out	538	376	914	1.5%
QUOTA-OUTS	211	58	269	0.4%
Over Quota Terminate	211	58	269	0.4%
QUALIFIED REFUSALS	8	0	8	0.0%
Mid-Interview Terminate	0	0	0	0.0%
Qualified Soft Refusal	4	0	4	0.0%
Qualified Hard Refusal	1	0	1	0.0%
Qualified Refusals - OVER MAX (max set to 5)	3	0	3	0.0%
QUALIFIED CALLBACKS	24	8	32	0.1%
Abandoned Interview	8	1	9	0.0%
Qualified Callback	9	5	14	0.0%
Qualified Spanish Callback	1	0	1	0.0%
Qualified Callbacks - OVER MAX (max set to 5)	6	2	8	0.0%
TOTAL COMPLETES	781	175	956	1.6%
Proceed with Interview/Completed Interview	781	175	956	1.6%
Cooperation Rate 1	57.9%			
Response Rate 1	9.2%			





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POST-STRATIFICATION WEIGHTING METHOD

The distribution of the sample across home ownership (own vs. rent), region of residence, telephone status (cell-only users vs. landline-only or cell/landline users) and age deviated from the distribution of the population across these key demographic characteristics.

As Table B.1 shows, renters were under-represented relative to the census. Although we initially stratified the 2010 sample to account for homeowner/renter proportions in the population, we had to eliminate this stratum due to a significant drop in the response rate when we began to screen out homeowners to obtain the desired homeowner/renter proportions. We also chose to over-sample the population in the East of the Cascades area, and those who are customers of Cascade Natural Gas, which explains the discrepancy in sample and population proportions relating to the region of residence.

Finally, we needed to account for the prevalence of cell phone use by Oregonians. As a result, 20% of all the telephone numbers called during the survey originated from the cell-phone-only list. Even with this strategy, cell-only households were still under-represented in the sample (Table B.1). Since the distribution of the sample deviated from the distribution of the population on these key demographic characteristics, we applied post-stratification weights to ensure that the sample was representative of the chosen population. Table B.1 displays population, sample, and weighted sample proportions regarding telephone status, region of residence, homeownership, and age.

Table B.1: Comparison of Sample and Census

CHARACTERISTIC	HOUSEHOLD POPULATION (PERCENT)	SAMPLE		SAMPLE	
		FREQUENCY	PERCENT	WEIGHTED	
TELEPHONE STATUS					
Cell-only Households	From 2009 National Health Interview Survey (CDC)	25%	97	10%	25%
Landline-only Households		15%	208	22%	15%
Landline & Cell Households – primarily cell phone users		15%	134	14%	15%
Landline & Cell Households- not primarily cell phone users		44%	517	54%	44%
					CONTINUED



REGION					
Portland Metropolitan	Provided by Energy Trust	50%	439	46%	50%
Willamette Valley / North Coast		25%	218	23%	26%
Southern Oregon / South Coast		14%	123	13%	14%
East of the Cascades		11%	176	18%	10%
CHARACTERISTIC	HOUSEHOLD POPULATION (PERCENT)	SAMPLE		SAMPLE	
HOME OWNERSHIP					
Owner	2000	64%	703	74%	64%
Renter	Census	36%	253	26%	36%
AGE OF RESPONDENT					
Younger than 65 Yrs of Age	2000	79%	729	76%	79%
65 Yrs or Older	Census	21%	227	24%	21%

To deal with the complex pattern of deviations between the sample and census percentages, Abt SRBI selected a RIM weighting procedure, also known as iterative proportional fitting. First, Abt SRBI calculated weights for telephone status, region, homeownership, and age (see Equation 1).

Equation 1: $Weight = Population\ proportion \div Sample\ proportion$

(E.g. $Weight\ for\ cell\ only\ households = percent\ of\ those\ in\ the\ population \div percent\ of\ those\ in\ the\ sample$)

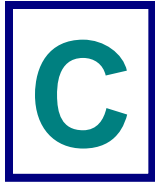
Secondly Abt SRBI re-adjusted the calculated weights to ensure that the weighted sample proportions for telephone status, region, homeownership, and age were closely matched with those proportions in the general population. The process of re-adjusting the weights occurred iteratively. In the first step, the calculated weights were applied to the data to check if weighted sample proportions were in line with the population proportions. If there were any deviations between the sample and population proportions, weights were re-adjusted. The re-adjusted weights were then applied to the data to check if the new weighted proportions were similar to those in the population. If there were still any deviations between the sample and population proportions, the weights were adjusted once more. This continued until weighted sample proportions ultimately closely resembled population proportions. Abt SRBI utilized Quantum Weighting Program software (version 11.9) for this task; convergence occurred on iteration 4. Table B.2 displays output from Quantum Weighting Program software.



Table B.2: Post-Stratification Weights

	Input Freq.	Input Percent	Projected Freq.	Projected Percent	RIM Weight	Output Freq. (Percent)
Telephone Status						
Cell-only	97	10.15	239.956	25.10	2.350316*	240.238 (25.13)
Landline-only	208	21.76	146.268	15.30	0.669737	146.304 (15.30)
Primarily Cell	134	14.02	145.312	15.20	1.092714	145.307 (15.20)
Cell & Landline	517	54.08	424.464	44.40	0.858527	424.151 (44.37)
	956	100.00	956.000	100.00		
Region						
Portland Metro	439	45.92	478.000	50.00	1.065503	478.042 (50.00)
Willamette/North Coast	218	22.59	239.000	25.00	1.096882	239.010 (25.00)
South/South Coast	123	12.66	133.840	14.00	1.098597	133.824 (14.00)
East	176	18.83	105.160	11.00	0.627007	105.124 (11.00)
	956	100.00	956.000	100.00		
Homeownership						
Homeowner	703	73.54	611.840	64.00	0.898349	611.872 (64.00)
Renter	253	26.46	344.160	36.00	1.237361	344.128 (36.00)
	956	100.00	956.000	100.00		
Age						
Younger than 65	729	76.26	755.240	79.00	0.963375	755.178 (78.99)
65 and Older	227	23.74	200.760	21.00	1.166656	200.823 (21.01)
	956	100.00	956.000	100.00		
* Indicates Rim Weight is outside the Range of 0.6 - 1.4						
Rim Weighting Efficiency 75.5 %						
Maximum Respondent Rim Weight: 3.077917						
Minimum Respondent Rim Weight: 0.363427						





SURVEY INSTRUMENT

Energy Trust of Oregon

2010 Oregon Residential Awareness and Perception Study

Note:

() indicates choose one option type question

[] indicates multiple response allowed

[ASK IF Q1~=YES] indicates skip logic (Ask if Q1 is not "yes")

Introduction

[FOR LANDLINE]

Hello, my name is _____ with SRBI Research calling to conduct an Energy Awareness Survey. This is not a sales call, and all responses will be kept confidential. I'd like to speak with a person responsible for making decisions about energy use in your household such as paying your electric or gas bill or buying new appliances. Would that be you?

() Yes

() No, respondent available

() No, respondent currently not available [THANK, SCHEDULE A CALLBACK]

() No, refused [THANK AND TERMINATE]

SC1. Do you have a cell phone in addition to the line on which we're speaking right now?

1 Yes, also have cell phone [SKIP TO SC10]

2 No, this is only phone [SKIP TO Q1]

8 (VOL) Don't know [THANK AND END, screen out]

9 Refused [THANK AND END]

[FOR CELL]

SC2. Hello, my name is _____ with SRBI Research. I know I'm calling you on your cell phone, but we are conducting an important Energy Awareness Survey. This is not a sales call, and all responses will be kept confidential. Are you in a safe place to talk right now?

1 Yes, safe place to talk



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- 2 No, call me later [SCHEDULE CALLBACK]
- 3 No, CB on land-line [RECORD NUMBER, schedule call back]
- 4 Cell phone for business only [THANK & END - BUSINESS#]
- 9 Refused [THANK AND TERMINATE]

SC3. Are you at least 18 years old?

- 1 Yes
- 2 Yes, no time [SCHEDULE CALLBACK]
- 3 No [SCREEN OUT]
- 9 Refused [THANK AND TERMINATE]

SC4. Are you responsible for making energy-related decisions for your household?

- 1 Yes
- 2 Yes, no time [SCHEDULE CALLBACK]
- 3 No [SCREEN OUT]
- 9 Refused [THANK AND TERMINATE]

SC5. Do any other people age 18 or older regularly ANSWER your cell phone, or just you?
INTERVIEWER: This question refers to the physical phone and not to their calling plan

- 1 Yes, others
- 2 No, just respondent [SKIP TO SC7]
- 9 Don't know/Refused [SKIP TO SC7]

[ASK IF SC5 = 1]

SC6. How many other people age 18 or older regularly answer your cell phone?

- [ENTER NUMBER 1-10]
- 99 Don't know/Refused



SC7. Not counting any that are used strictly for business purposes, are there other cell phones that you use regularly, or is it just the one?

- 1 Yes, use other cell phones
- 2 No [SKIP TO SC9]
- 9 Don't know/Refused [SKIP TO SC9]

[ASK IF SC7 = 1]

SC8. How many other cell phones do you use regularly, excluding those used only for business purposes?

- [ENTER NUMBER 1-10]
 99 Don't know/Refused

SC9. Not counting (this/these) cell phone(s), do you also have a regular land-line phone at home?

- 1 Yes, has a regular phone at home [SKIP TO SC10]
- 2 No, cell is only phone [SKIP TO Q1]
- 7 Don't know (VOL) [THANK AND TERMINATE]
- 9 Refused (VOL) [THANK AND TERMINATE]

[ASK IF SC1 = 1 OR SC9 =1]

SC10. Of all of the phone calls that you or your family receives, are...(Read List)

- 1 all or almost all calls received on cell phones,
- 2 some received on cell phones and some received on land lines, or
- 3 very few or none on cell phones.
- 8 (VOL) Don't know
- 9 (VOL) Refused

Q1. Prior to today, have you heard of Energy Trust of Oregon?

- Yes
- No
- DK

REF

Today, I am speaking to Oregon residents on behalf of Energy Trust of Oregon about how households use energy. It should take less than 14 minutes. First, I have a few questions to see if you qualify for this study.

S2. What is your zip code?

[NUMERIC OPEN END (5 digits)]

DK [THANK AND TERMINATE]

REF [THANK AND TERMINATE]

S3. Is this location used primarily as a residence or as a business?

Residence

Business [THANK AND TERMINATE]

DK [THANK AND TERMINATE]

REF [THANK AND TERMINATE]

S4. Are you, or is anyone in your household, an employee of an electric or gas utility company?

Yes [THANK AND TERMINATE]

No

DK [THANK AND TERMINATE]

REF [THANK AND TERMINATE]

S5. DO NOT READ - RECORD GENDER

MALE

FEMALE

S6. What is the name of your electric utility? [DO NOT READ]

PGE, Portland General Electric

Pacific Power (Pacific Power and Light, PP&L, PacifiCorp)

EWEB (Eugene Water & Electric Board)

other (SPECIFY) _____

DK

REF

S7. What is the name of your natural gas utility, if you use one? [IF NEEDED: Natural gas comes in a pipe to the house.] [DO NOT READ]

(IF NOT IN THE LIST: That is not one of the natural gas companies on my list. Are you certain that that is your natural gas utility?)

Northwest Natural

Cascade Natural Gas

Avista

NO NATURAL GAS COMPANY

DK



REF

[IF S6~=1 AND S6~=2 AND S7~=1 AND S7~=2, TERMINATE]

S8. Do you own or rent your home?

Own

Rent

DK [THANK AND TERMINATE]

REF [THANK AND TERMINATE]

S9. Please stop me when I get to your age group. [READ LIST]

24 yrs or younger

25 to 34 yrs

35 to 44 yrs

45 to 54 yrs

55 to 59 yrs

60 to 64 yrs

65 to 74 yrs

75 or older

REF [THANK AND TERMINATE]

QUOTA CHECK

S2: Geographic region

S8: Homeownership

S9: Age of primary homeowner (only limiting 65 yrs or older)

You have met our criteria for this survey, now let's go to the first question.

Awareness of Energy Trust of Oregon

[ASK IF Q1=YES, OTHERWISE SKIP TO Q10]

Q2. To the best of your knowledge, what does Energy Trust offer? [DO NOT READ, MULTIPLE RESPONSES ALLOWED, PROBE TO CLARIFY PROPER CATEGORIES]

Energy saving programs for homes (such as Home Energy Solutions for existing homes/residential, Home Performance with Energy Star, New Homes)

Energy saving programs for businesses

Cash incentives/rebates for energy saving products and installation (such as appliances, refrigerator recycling, weatherization)

Cash incentives/rebates/grants for renewable energy systems (such as solar electric/photovoltaics, solar water heating, wind turbines/wind power)

Home energy analysis (home audits, online)

Other, specify _____ Information on renewable energy, best practice of energy saving, provide incentives for approved renewable measures.



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- DK
- REF

Q3. From whom or how did you first hear about Energy Trust and its offers? [DO NOT READ, PROBE APPROPRIATELY TO GET ONE CATEGORY]

- Word of mouth (friend, neighbor, family, co-worker)
- Contractor/retailer
- Energy Trust (website, representative, advertising)
- Utility (website, bill insert, representative, advertising)
- Mass media (sign, billboard, newspaper/magazine ad, tv/radio ad)
- Event (conference, seminar, workshop)
- Online search, web links
- Other, specify _____
- DK
- REF

Q4. How would you rate the following statements about Energy Trust of Oregon using a 5-point scale where 1 is “strongly disagree” and 5 is “strongly agree”? [RANDOMIZE]

- a. Energy Trust is a leader in energy efficiency and renewable energy.
- b. Energy Trust is a credible information source for Oregon residents about energy efficiency and renewable energy.

Q5. To the best of your knowledge, do you think Energy Trust is a...?

- government agency
- nonprofit
- utility
- or, other private business?
- DK
- REF

Program Participation

Q6. Have you ever received any services from Energy Trust such as a Home Energy Review or participated in any Energy Trust programs, or received a rebate or incentive check from Energy Trust?

- Yes
- No
- DK
- REF

[ASK IF Q6=YES, OTHERWISE SKIP TO Q7]

Q6a. Did you participate at this present address or at some other address?

- Present address



- Other address
- DK
- REF

[IF Q6=NO, DO NOT ASK Q7_1]

Q7. At your present address, have you ever... [RANDOMIZE]

- received an energy audit from Energy Trust also called an energy review or energy analysis?
- purchased appliances such as a clothes washer or refrigerator and gotten a check from Energy Trust?
- installed heating or cooling system or a water heater and gotten a check from Energy Trust?
- installed insulation or air sealing and gotten a check from Energy Trust?
- installed a solar electric or solar hot water system and gotten a check from Energy Trust?
- recycled an old refrigerator or freezer and gotten a check from Energy Trust?

[ASK IF Q6=YES OR Q7_ANY=CHECKED, OTHERWISE SKIP TO Q9]

Q8. Using a 5-point scale, where 1 is "very dissatisfied" and 5 is "very satisfied," how satisfied were you with your experience with Energy Trust?

- 1: very dissatisfied
- 2
- 3
- 4
- 5: very satisfied
- DK
- REF

Q9. Do you think you will apply for an incentive or get a Home Energy Review in the near future?

- Yes
- Maybe
- No
- DK
- REF

Q10. What are the top three things that you would like to do to improve the energy efficiency of your home if you could? [DO NOT READ, CHECK UP TO THREE ITEMS]

- have energy audit done
- replace aging/inefficient appliances
- install efficient heating/cooling system
- install efficient hot water system
- install insulation, air sealing, weather stripping
- install new windows
- install solar electric/hot water system
- recycle refrigerator/freezer
- Other _____
- DK
- REF



Energy Use

Q11. How many TVs do you have in your home?

- 0
- 1
- 2
- 3
- 4
- 5
- 6 or more
- DK
- REF

Q12. Does your home have air conditioning?

- Yes
- No
- DK
- REF

[ASK IF Q12=YES, OTHERWISE SKIP TO Q14]

Q13. What type of air conditioning system do you have? Is it...

- Heat pump
- Central air conditioning (verify not heat pump)
- Room air conditioner > How many? _____
- Other: _____
- DK
- REF

Q14. Do you have any energy-saving light bulbs, also known as compact fluorescents or CFLs, in your home? These are often twisty or swirly looking bulbs or have a bend.

- Yes
- No
- DK
- REF

[ASK IF Q14=YES, OTHERWISE SKIP TO Q16]

Q15. Approximately how many of these bulbs do you have installed in your home? Would you say...?

- 1-5
- 6-10
- 11-20
- more than 20
- DK



REF

Q16. In what percent of laundry loads do you use cold water only?

_____ %

DK

REF

Q17. What percent of clothes do you dry using the line or rack method without using a dryer?

_____ %

DK

REF

ENERGY STAR®

Q18. Have you ever heard of ENERGY STAR®?

Yes

No

DK

REF

[ASK IF Q18=YES, OTHERWISE SKIP TO Q20]

Q19. When purchasing appliances and other equipment, how often do you look for products with the ENERGY STAR® label? Would you say...?

Always

Often

Sometimes

Rarely or never

DK

REF

Attitudes/Perceptions

Q20. I'm going to read a list of different actions that people can take. Using a 10 point scale, where '1' means that action makes no contribution toward protecting the environment at all and '10' means that action makes a major contribution toward protecting the environment, please tell me how much impact you think each action has. [RANDOMIZE]

How much of a contribution does [INSERT ITEM] make toward protecting the environment?

- a. Using mass transit instead of driving
- b. Recycling paper, cans, bottles and plastics
- c. Setting heating or cooling thermostats to use less energy



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- d. Driving an electric or hybrid gas-electric vehicle
- e. Replacing major appliances with more energy efficient ones
- f. Replacing regular light bulbs and fixtures with energy efficient ones
- g. Installing additional or upgrade insulation or windows

Q21. Now we'd like to understand how you think about using energy at your home. Using a 10-point scale where '1' means you strongly disagree, and '10' means you strongly agree, please indicate how much you disagree or agree with each of the following statements. Remember, disagree is a lower number, agree is a higher number.

How much do you agree that... [RANDOMIZE]

- a. It is very important for you to find ways to control your energy costs
- b. You believe it is socially responsible to limit your use of electricity
- c. You are very concerned about the environmental effects of electricity generating power-plants
- d. You regularly review your home's energy usage
- e. You pay a lot of attention to energy-related issues because they affect both your home and the country as a whole
- f. The long-term threat from global warming and climate change is real, and potentially catastrophic

Q22. Now, I'd like to ask you how important some different factors are when you shop for energy-related products and services for your home. Please use a scale of 1 to 10, where '1' means that factor is not at all important and '10' means that factor is extremely important when you are selecting which appliance or other energy-using products to purchase for your home.

How important is [INSERT ITEM]? [RANDOMIZE]

- a. cost savings you might get from reduced electricity usage?
- b. positive effects on the environment that might result from reduced energy usage?
- c. purchase discounts that might be offered for purchasing energy efficient devices?

Q23. Using a 10-point scale, where '1' means not at all important, and '10' means extremely important, please indicate how important it is to you that your energy utility company do the following things, even if that meant that you had to pay a little more in order for the company to pursue these types of initiatives? [RANDOMIZE]

- a. Actively encourage its customers to participate in energy and cost saving programs
- b. Do everything possible to supply renewable, clean energy
- c. Operate its business in an environmentally friendly manner

Market



Q24. What information source do you use most often to get general news or information? [DO NOT READ, PROBE TO CLARIFY ALL PROPER CATEGORIES]

- Newspaper
- Radio
- TV
- Online
- Friends, family, coworkers
- Other, specify _____
- DK
- REF

Q25. The following statements are messages that Energy Trust is considering using. In your opinion, how likely is the message to convince you to move forward with energy-saving or renewable projects such as insulation, energy efficient appliances or solar for your home? Please use a 5-point scale where 1 is “very unlikely” and 5 is “very likely”. [RANDOMIZE]

1=VERY INEFFECTIVE 2 3 4 5=VERY EFFECTIVE DK

- a. Enjoy a comfortable and more energy efficient home
- b. Saving energy is good for the planet
- c. Minimize energy use, maximize savings
- d. Avoid wasting valuable resources
- e. Join the clean energy revolution
- f. You can save energy and money
- g. Invest now, then watch your savings add up later
- h. Insulate yourself from energy cost increases

Thank you for your patience. I have only a few more questions.

Housing and Demographic Information

Q26. About when was your home built? [DO NOT READ]

- Before 1930
- 1930 to 1939
- 1940 to 1949
- 1950 to 1959
- 1960 to 1969
- 1970 to 1979
- 1980 to 1989
- 1990 to 1999
- 2000 or later
- DK
- REF



Q27. Do you heat your home primarily with electricity, natural gas, or something else?

[DO NOT READ LIST, BUT PROBE IF NEEDED]

- Electricity
- Natural gas
- Liquid propane gas, LPG
- Fuel oil, kerosene
- Wood
- Pellet stove
- Solar
- Other
- No fuel
- DK
- REF

Q28. Do you heat your water primarily with electricity, natural gas, or something else? [DO NOT READ LIST, BUT PROBE IF NEEDED]

- Electricity
- Natural gas
- Liquid propane gas (LPG)
- Fuel oil
- Solar
- DK
- REF

Q29. How many people, including yourself, live in your home now?

_____ # OF PEOPLE

- REF

Q30. Please stop me when I get to the type of house you live in. [READ LIST]

- A single-family detached house
- A duplex, townhouse, row house or small apartment complex with 2-4 total units
- An apartment, condominium, or townhouse complex with 5 or more total units
- A mobile or manufactured house
- Other, specify _____
- DK
- REF

Q31. What is the highest level of education you have achieved so far? [DO NOT READ]

- High school or less
- High school diploma
- Some college/associate degree/trade school
- Four-year college degree



- Some post-graduate studies
- Post-graduate degree/Masters, PhD, professional degree
- DK
- REF

Q32. Please stop me when I get the range of your household's total annual income before taxes.

- Less than \$50,000
- \$50,000 - \$109,999, or [SKIP TO Q32b]
- \$110,000 or more? [SKIP TO Q32c]
- REF [SKIP TO Q33]

Q32a. Is it...

- Less than \$10,000 [SKIP TO Q33]
- \$10,000 - \$29,999 [SKIP TO Q33]
- \$30,000 - \$49,999 [SKIP TO Q33]
- REF [SKIP TO Q33]

Q32b. Is it...

- \$50,000 - \$69,999 [SKIP TO Q33]
- \$70,000 - \$89,999 [SKIP TO Q33]
- \$90,000 - \$109,999 [SKIP TO Q33]
- REF [SKIP TO Q33]

Q32c. Is it...

- \$110,000 – \$149,999
- \$150,000 - \$199,999
- \$200,000 or more
- REF

Q33. How many bedrooms are there in your home? [DO NOT READ]

- 1
- 2
- 3
- 4
- 5 or more
- DK
- REF

[ASK IF CELL]

Follow up



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Q34. One objective of this study is to better understand how a household's energy bill may vary depending on the responses given in this survey. Energy Trust would like to access this information from your account history. To do this, we need the exact address of your residence. This is for research purposes only, and we will not provide this information to anyone and you will not be contacted further. Can you please provide us with your address?

Street: _____

Apt #: _____

City: _____

() REF

