Process and Impact Evaluations of the 2005-2006 ETO Home Energy Solutions Program

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EXECUTIVE SUMMARY

INTRODUCTION

The Energy Trust Home Energy Solutions (HES) program provides cash incentives to Oregon households to encourage the adoption of energy efficiency measures. The program covers a range of efficient equipment options that provide electricity and gas savings to customers living in single-family, multi-family, and manufactured homes in mobile home parks. This evaluation addresses the single-family and manufactured home sectors, as the multi-family component will be covered by Itron in a separate impact evaluation.

The first part of this report is the process evaluation of the HES program. The process evaluation component was structured to collect information on how the program is being implemented so that recommendations for program improvement can be made. The main components of this section are analyses of participant, non-participant, and trade ally phone survey results. Beginning in 2005, the HES program was managed by a new program implementation contractor that changed many of the program offerings, so the process evaluation focuses on how the program is being delivered since these changes went into effect.

The second part of the report is the impact evaluation of the HES program. The goal of the impact evaluation is to develop reliable measurements of specific gas and electric savings for the years 2005 and 2006. These impact estimates will be used for future savings and budget planning. This information will also be used in Energy Trust's annual true-up of program savings in 2008.

EVALUATION OVERVIEW

This report presents the process and impact evaluation results for Energy Trust's Home Energy Solutions (HES) program, covering the 2005 and 2006 program years.

Major evaluation tasks for this evaluation include the following:

- *Logic model and program theory.* A logic model and program theory established a starting point for all evaluation activities. The structure of the logic model, which links program activities and expected outcomes, is a useful instrument for identifying specific program assumptions that can be tested using a survey or other primary data collection activities.

- *In-depth interviews.* In-depth interviews were conducted with program managers, program implementers, and other key staff members in August 2007 and April 2008. Program staff members helped to gauge program progress, provided valuable insight into daily operations, and proposed research topics to be addressed by the evaluation. These interviews also assisted with the development of a program history, which defines the program changes since Conservation Services Group took over the program management role.

- *Participant surveys.* The primary data collection instruments for the HES program were phone surveys with program participants residing in single-family and manufactured homes. The surveys explored the participant experience with program services and addressed the research issues identified by the logic model and in-depth interviews. Key topics include the effectiveness of program marketing, participation drivers, spillover and free ridership, and satisfaction with the program. All surveys for this evaluation were fielded over the phone by Itron's call center from November 2007 to January 2008. Participants were asked to consider equipment installations since January 2006.

- *Non-participant surveys.* A non-participant survey was used to explore the attitudes and knowledge of people who have not directly received HES program services. Main areas of research included program awareness, effectiveness of marketing, barriers to participation, and spillover effects. Non-participants were asked to consider equipment installations since January 2006.

- *Trade ally (vendor) surveys.* An additional survey was conducted with vendors to examine how vendors use program services and to measure levels of satisfaction with various aspects of the HES program. The sample was divided into active HES vendors and non-active HES vendors. Non-active vendors completed five or less HES jobs during the 2005–2006 period. A separate non-participant vendor survey was used to determine how non-participating contractors view the program.

- *Additional program-specific data collection.* Other key evaluation activities included a review of all available program documents, marketing materials, and past evaluations.

- *Self-report Analysis.* The self-report analysis uses phone survey data to develop estimates of free ridership and spillover for heat pumps, gas furnaces, insulation, windows, and CFL measures, using data from the participant and non-participant surveys.

- *Billing Model.* The billing regression model uses electric and gas bills combined with survey and weather data to estimate realized kWh and therm impacts.

KEY FINDINGS

The key findings for the 2005–2006 HES program years are summarized below.

Utilities are a critical partner in promoting the HES program in Oregon. Most frequently, participants and non-participants learned of the program through utility bill stuffers. Among non-participants, there is a relatively high level of awareness about Energy Trust and its incentive programs, but there is room for growth. Almost half of all non-participants surveyed are aware of Energy Trust or its programs, but about half of this group did not know what the Energy Trust does. Moreover, more non-participants were familiar with the Oregon tax credit than the HES cash

incentives. There may be other ways to utilize utility marketing channels to promote the HES program, such as through more extensive advertisement on individual utility websites.

Some Energy Trust marketing resources are under-utilized. Many vendors consider the HES program to be a valuable component of their marketing to sell energy efficient equipment, but most have not used Energy Trust marketing support. Almost 70 percent of active vendors were on the HES List of Trade Ally Contractors and half of this group said that the list has increased their sales of energy efficient equipment. However, most participating vendors have not utilized any Energy Trust marketing materials or program literature. In addition, over 80 percent of vendors have not used Energy Trust's co-op marketing service.

The HES program implementers are striving to make the program more market-based by encouraging vendors to promote multiple measures to their client. Besides the primary measure, 23 to 48 percent of participants (depending on measure category) reported that their contractors recommended other energy saving measures for their homes. Vendors report that they promote multiple measures to their customers at higher rates (especially at duct sealing jobs), but a substantial share of vendors still said that they rarely or never engage in this activity.

Furthermore, the surveys examined what motivated customers to participate in the HES program. Results pointed to multiple influences, including a desire to save energy, the HES cash incentive, contractor suggestions, the HER, and the Oregon tax credit.

- The most common reason participants purchased new equipment across all measure categories was to save energy.
- Roughly one-third of respondents said that the HES cash incentive was "very influential" on their purchase decisions.
- 30 to 50 percent said that their contractors were "very influential" on their purchase decisions, depending on measure category.
- 35 percent of respondents who had a Home Energy Review subsequently installed new equipment, and about half of that equipment was rebated through the HES program.
- Most HES participants also received an Oregon tax credit, when available. Ninety-three percent of participants who received a HES cash incentive for a gas furnace also received an Oregon tax credit, and the two incentives appear to exert a roughly equal influence on the purchase decision.

Moreover, the surveys probed vendor satisfaction with the Energy Trust support services, such as the trade ally training and the trade ally web pages. Most participating vendors found the trade ally training useful, but a small portion of

vendors have been to a training in the past year. Only 28 percent of active vendors and 14 percent of non-active vendors have participated in Trade Ally Training in the past year. About 70 percent of both vendor groups who had participated in the training rated it as extremely or very useful. Alternatively, vendors had a lukewarm reaction to the trade ally web pages. Only about half of active and non-active vendors found the web pages to be moderately or very helpful.

The surveys also gauged participant satisfaction with the Energy Trust and with their contractors.

- Satisfaction with Energy Trust staff is generally high. Overall, about 60 percent of participants were very satisfied with the Energy Trust staff, and about 80 percent were at least moderately satisfied. The highest rate of dissatisfaction for active vendors pertained to response time, where 10 percent of respondents are moderately unsatisfied.

- Satisfaction with the HER process is high. Seventy to 90 percent of participants were very satisfied with various aspects of the HER process. The lowest satisfaction scores were assigned to Energy Trust's role as a provider of information about saving energy and Energy Trust programs.

- Satisfaction with HES contractors is high. Over 70 percent of respondents within each measure category were extremely or moderately satisfied with their contractors overall. Over 60 percent of respondents were either extremely or moderately satisfied with the quality and completeness of the information provided by their contractors about energy saving opportunities.

Self-report results show that free ridership rates are highest for heat pumps and lowest for CFLs. Free ridership for heat pumps is estimated to be 64 percent of respondents. Gas furnaces, windows, and insulation rates range from 55 to 60 percent. As expected, free ridership is low for CFLs (nine percent), which are free and directly installed during the Home Energy Reviews.

For participant spillover, the self-report results show that CFLs and windows have the highest spillover rates and gas furnaces have the lowest. The participant spillover rates for CFLs and windows are 13 and 12 percent, respectively, when averaged over the two years of the program. Gas furnaces have an average participant spillover rate of less than one percent.

Non-participant spillover was also calculated using self-report information. The estimates were typically much higher than participant spillover, with windows having an average rate of almost 1,900 percent. Gas furnaces again had the lowest average spillover rate at 7 percent. In the end the decision was made not to include these spillover estimates in the calculation of impacts for the HES program.

The billing analysis provided net savings impacts that were quite sensitive to changes in the model specification. A cross-sectional time series model was used for both

electric and gas measures. The electric model yielded kWh realization rates with an average of 71 percent and the gas model gave an average therm realization rate of 124 percent.

Two elements of the administrative process slow program delivery: processing incentives and developing marketing materials.

- The incentive processing system is cumbersome and often leads to delays. Energy Trust staffers reported that the incentive forms are multiple pages, and often separate forms must be filled out for each measure. As a result, both contractors and their customers often omit critical information, which delays incentive payments. While few surveyed participants were extremely dissatisfied with the incentive payment process, they gave the lowest satisfaction scores for the ease of applying for financial incentives and the turnaround time in receiving the incentive.

- In addition, the process of developing program marketing materials is inherently cumbersome. Marketing pieces are vetted by CSG, Energy Trust, and the appropriate utilities. The time lag for this sequential process limits the usefulness of time-sensitive marketing information.

Recommendations

The following recommendations are for the 2005-2006 program cycle. The evaluation team recognizes that many of these issues are currently being addressed.

- **Streamline the incentive processing system.** Efforts should be made to shorten and simplify incentive payment forms that the contractor or client fills out. This will lessen the occurrence of omitted information and speed up the process, as well as minimizing potential participants who are dissuaded by lengthy paperwork. A web-based form should also be considered. Web-based forms can decrease database errors (currently information must be transferred from paper forms to Fast Track), require all fields to be completed, and allow for an instantaneous information transfer.

- **Emphasize Energy Trust marketing support services to trade allies.** Only 32 percent of active vendors have utilized Energy Trust marketing materials or program literature. Even less—17 percent—have used the co-op marketing service. While the majority of active vendors do actively promote the incentive offers as a part of their marketing activities, 28 percent do not. Thus, the program should consider ways to make participation in co-op marketing easier, and emphasize participation requirements in the trade ally orientation. The marketing support service should also be a key component of trade ally recruitment. In addition, the program should consider if the underutilized Energy Trust marketing materials can be better tailored to fit the needs of HES contractors.

- **Ramp up efforts to encourage contractors to deliver other information about saving energy and Energy Trust program offerings while on-site.** Most

respondents are very satisfied with the Energy Trust staff and HES contractors, and thus represent a captive audience for further energy efficiency recommendations. Data from both the participant and vendor surveys indicate that only some contractors recommended other energy saving measures to their HES clients. Contractors can increase their collective business and energy savings allocated to the Energy Trust if they more frequently integrate other energy efficiency recommendations into their normal home visits.

- **Add additional content to the trade ally web pages.** The program should look for opportunities to increase the utility of the web page for current trade allies, as most survey respondents had tepid reactions to the helpfulness of the web pages. Topics of interest might include technical advice on installing the HES measures and more details on the marketing support offered. Examples of the collateral produced by firms that have used the co-op marketing support, as well as specific information on the financial incentives offered, may increase the appeal of the co-op marketing service.

- **Further investigate what other information HER participants would like to receive during or after their audits.** Currently, HER participants receive a checklist of energy saving opportunities, which also notes the maximum Energy Trust cash incentives for each measure and whether there is an Oregon tax credit available for each measure. The paperwork also lists the next steps to find a qualified HES contractor to install the measures, the Trade Ally List of Contractors, and brochures explaining the Home Performance with ENERGY STAR. However, respondents indicated that they were the least satisfied with the information provided on how to find more information on saving energy. While they are on-site, contractors could ask if there was additional information that customers would like. In the future, contractors could be trained to provide this information directly or they might distribute redesigned or additional program materials that more clearly identify other information sources.

- **Include a link to the Energy Trust HES program on the Oregon Department of Energy "Residential Energy Tax Credit" website.** There is a high level of awareness of the Oregon tax credit among non-participants, but respondents still most frequently cite the higher costs of energy efficient products/services as a barrier to adoption. Therefore, increasing the visibility of the Energy Trust HES program through modes connected to the Oregon tax credit may increase awareness and participation in the HES program. Currently, the Oregon tax credit website includes links to other energy efficiency programs, including: utility incentives, the ENERGY STAR website, the State Home Oil Weatherization program, and federal incentives. Energy Trust may want to consider working with the Oregon Department of Energy to add an additional link on the tax credit website that launches web-surfers to the HES program website, which would increase the visibility of the HES program. Notably, Energy Trust already advertises Oregon tax credits on its HES website.

- **Work with the electric and gas utilities to increase advertising for Energy Trust cash incentives on their websites.** Only three percent of non-participants learned of the Energy Trust or its incentives from their utility websites. Non-participants in this sample receive electricity from PGE, Pacific Power, and EWEB, and purchase gas from NW Natural, AVISTA, and Cascade Natural Gas. EWEB does not advertise Energy Trust/ HES or link to the Energy Trust website.[1] PGE only advertises HES cash incentives for heat pumps. Increasing the visibility of the HES program on these websites is a low-cost manner of channeling utility customers to the Energy Trust program.

In addition, there may be untapped opportunities to link on-line and paper energy audit services provided by local utilities to HES cash incentives and HERs.

- **Explore ways to better coordinate the production of marketing materials.** Because the collaborative process of developing marketing materials is inherently cumbersome, every effort should be made to coordinate marketing approaches, including collaborative face-to-face brainstorming and concept development between Energy Trust, the Program Management Contractors (PMCs), and the utilities.

[1] Utility websites scanned in March 2008