PROCESS AND IMPACT EVALUATION OF THE 2007-2008 ENERGY TRUST OF OREGON HOME ENERGY SOLUTIONS PROGRAM

Volume 1: Summary Report

Prepared for:

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1. EXECUTIVE SUMMARY

Energy Trust of Oregon's 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 options that provide electricity and gas savings to customers living in single-family, multi-family, and manufactured home sectors.

In 2007-2008, the Home Energy Solutions program provided services to over 45,000 sites. The table below shows the breakdown of participation by sector.

Table 1. Total Participation in the Program

	2007	2008	Total
Single Family	**13,955**	**16,931**	**30,886**
Cash Incentives	8,581	10,811	19,392
Home Energy Review (HER)	5,191	5,964	11,155
Home Performance with ENERGY STAR (HP)	183	156	339
Multi-family	**127**	**182**	**309**
Manufactured Homes	**1,112**	**557**	**1,669**
Energy Saver Kits	**NA**	**12,812**	**12,812**
Total	**15,234**	**30,482**	**45,716**

Note: This table removes duplicates within the single family program; HER or HP participants who also received rebates are only counted once in this table. However, all relevant measures are counted in the next section and table.
HER participants who also received HP are counted in this table as HP. This totals 207 participants, or approximately 2% of total HER participation.

Impacts

For 2007, the evaluation found that the Home Energy Solutions (HES) program gross savings reached 89% of program goals for electricity and 137% for natural gas. Net savings reached 61% of program goals for electricity and 66% for natural gas.[1]

[1] Due to the timing of our evaluation efforts, Energy Trust will conduct the 2008 impact analysis under a separate evaluation effort.

Table 2. 2007 HES Program Energy Impacts

	Gross Impacts		Free Ridership Rate		Net Impacts	
	kWh	Therm	kWh	Therm	kWh	Therms
Ex Ante	16,555,777	800,564	0	0	16,555,777	800,564
Ex Post	14,792,298	1,098,922	0.31	0.52	10,165,209	526,782
Realization Rate	0.89	1.37			0.61	0.66

We also found that 7% of the surveyed population installed measures they considered energy efficient outside of the HES program. Although no impacts are added to the overall program values from this spillover[2], rough calculations indicate that it is possible these measures could account for about 5% of the overall energy or therm program impacts.

Program Satisfaction

Overall program satisfaction is high across all program components. Residential and multi-family participants are generally pleased with the services provided by Energy Trust. Specifically, our examination of program satisfaction found the following:

- Satisfaction is highest among manufactured homes (who received free services) (92% rating 8 or above on a scale from 0 to 10), customers that received Home Performance with ENERGY STAR services (87% rating 8 or above), and Energy Saver Kit recipients (83% rating 8 or above).
- Satisfaction is lower for multi-family participants (56% rating 5 on a scale of 1 to 5). However, responding managers of participating buildings report that tenants are extremely pleased with the program and acknowledge significant savings on their energy bills.
- Satisfaction appeared to be slightly lower for HER participants, with mean ratings for all of the HER indicators of satisfaction ranging from 8.1 to 9.4 (67% to 93% rating 8 or above).
- Interestingly, satisfaction among single-family rebate participants appears to be the lowest (79% rating 8 or above).

Notably, across all efforts, the greatest needs are for a streamlined application process and improved quality control of contractors.

Market Assessment

The HES program provides incentives for 26 measures listed in the program database; however, gas furnaces, heat pumps, insulation, duct sealing, and windows are the key

[2] No impacts are included because of the uncertainty in knowing if a measure that a customer stated was energy efficient really met the requirements of the program as well as the difficulty in gathering sufficient information to calculate a good value via a phone call without undue respondent burden.

measures promoted by the program efforts. Our exploration of the effect of the HES program on these five markets found the following:

- Energy Trust should consider increasing the gas furnace incentive requirements to 95% efficiency, which may provide an opportunity to further increase the efficiency of the gas furnace market. Trade allies suggested that incentives for 90% efficient furnaces may not be necessary, because the percentage of gas furnaces rated 90% or more efficient may be larger than stated in Energy Trust's 2009 Trade Ally assessment, and several said they sell few furnaces below 90%.
- Energy Trust should consider either reducing efficiency requirements for heat pumps or increasing the incentive levels because several trade allies expressed concern that the current incentive level/efficiency requirement combination does not make the upgrade worth it for the customer.
- Energy Trust should retain the duct sealing incentive because trade allies believe that it drives the market by creating awareness. In fact, further marketing could result in more jobs for trade allies. Trade allies felt that altering the level or structure of the incentive could be effective without shrinking the market, but further exploration is required to verify feasibility.
- The insulation incentive is fine as is and provides a large portion of business for the trade allies. Some allies suggested providing different incentive levels based on existing insulation or types of insulation installed, but further exploration is required to verify feasibility.
- Energy Trust could consider removing the requirement for the windows incentive to have a second measure installed. However, trade allies did not have a uniform opinion of the effect of the HES program on the windows market.

Program Processes

The process evaluation effort assessed eight key program processes, which include trade ally training and communications, program applications and paperwork, marketing efforts, policies and program requirements, partner collaboration, internal communications, and databases. Our in-depth interviews and surveys with trade allies, program staff, and program participants found the following:

- Energy Trust should provide additional training to increase quality control and reduce participant dissatisfaction. Energy Trust may consider performing additional contractor screening to remove inadequate contractors from the list. Further, Energy Trust should ensure that program participants are aware of the list of contractors who are qualified to make installations.

- Energy Trust should streamline the application processes to reduce confusion and incomplete responses. Trade allies suggest moving toward web-based and universal forms. Energy Trust should strive to increase trade ally awareness of the online submission process and universal forms as well as routinely provide follow-up with customers and trade allies regarding the paperwork process.

- Energy Trust should increase customer awareness of the Home Energy Solutions program by promoting measure-specific marketing materials and distinguishing between programs (especially Home Performance with ENERGY STAR and Home

Energy Reviews). There remains significant potential to increase awareness of program offerings among multi-family property owners. We also recommend proactively increasing trade ally awareness of the available marketing support and materials.

- Energy Trust should improve communication with trade allies by proactively ensuring that they are receiving the assistance they require and are provided relevant information. Trade allies noted that it would be helpful if the most important information was communicated with some type of priority designation.
- Energy Trust should promote one on one communication with collaborators in the following areas: program design, contractor training, program status updates, and marketing efforts. Further, Energy Trust and CSG can strive to improve their collaborative process particularly in the early stages of marketing efforts.

Additional recommendations are provided in this summary report, while a more descriptive write-up of findings is provided in Volume 2.

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EnergyTrust of Oregon

MEMO

Date: January 20, 2010
To: Board of Directors
From: Sarah Castor, Evaluation Project Manager
Diane Ferington, Residential Sector Lead
Subject: Staff Response to the Home Energy Solutions 2007-2008 Process and 2007 Impact Evaluation

Based on the evaluation report, the Home Energy Solutions program worked well during the 2007-2008 program years and into 2009. Program activity and savings goals have increased steadily over the past several years, while participant satisfaction with the program has remained high, particularly for Home Performance and manufactured home participants.

Since the evaluator provided draft process evaluation results and feedback to the program early on, many of the recommended changes have been completed or are underway. These include a redesign of the Home Energy Review leave-behind material and changes to the tracking of marketing efforts.

Still, the evaluator made several additional recommendations that we would like to address:

- *Provide additional contractor training to increase quality control and reduce participant dissatisfaction*

  Energy Trust will continue to offer as much training in as many locations as possible to encourage quality work. This year, the HES program will also be instituting a tiered trade ally network to elevate trade allies who consistently display quality work and excellent customer service.

- *Streamline the application processes to reduce confusion and incomplete responses*

  Energy Trust constantly reviews and improved its forms and application processes. In the last year, the program has introduced a universal form for HES incentives and an online form for HVAC measures. We have also dropped the requirement for collecting residential utility account numbers on program forms. The program also encourages trade allies to complete forms on behalf of customers to reduce missing information and improve customer experience; part of the new tiered structure will be based on whether the trade ally regularly completes forms for participants.

Beginning this spring, the program will begin regularly surveying participants from the previous month about satisfaction with program elements, including paperwork. This real-time feedback should provide information on how improvements are impacting participants.

- *Improve communication with trade allies by proactively ensuring that they are receiving the assistance they require and are provided relevant information*

  E-mails, newsletters, and the Energy Trust website will remain the preferred method of communication with trade allies. As Energy Trust program activity has increased over the past few years, it is important for us to be nimble in making changes to manage budgets efficiently. As a result, we feel the recommended 90 days notice before program and incentive changes go into effect will not be practical in all cases; however, we will provide at least 30 days notice before program changes go into effect in all cases. We will also ensure that important communications about changes and opportunities for comment are clearly identified as such.

- *Consider increasing the gas furnace incentive requirements to 95% efficiency and consider either reducing efficiency requirements for heat pumps or increasing the incentive levels*

  Due to transformation of the gas furnace market toward 90% efficiency, the program will be discontinuing the incentive at the end of May (except for customers eligible for the Savings Within Reach track). An incentive for 95% efficient furnaces is not cost-effective based on the small incremental savings over 90% units, so Energy Trust is not able to offer an incentive for this level. However, these units are eligible for state and federal tax credits.

  Current heat pump requirements and incentives will remain in effect. The premium incentive HSPF requirement of 9.0 is in line with the Oregon Residential Energy Tax Credit. In addition, our recent market transformation study of the heat pump market showed that already in 2009 44% of units installed had an HSPF of 8.5 or above.[1]

The results of the 2007 impact analysis were less satisfying than we had hoped. In particular, we are skeptical of the results showing that wall insulation saved less than floor insulation, HERs saved 49 therms in gas heated homes, and replacement heat pumps saved only 153 kWh on average. While the pooled fixed effects models used in this evaluation were more stable than those used in the 2005-2006 evaluation, the puzzling results lend more support to moving away from these types of models. Consequently, the results from this report will not be used to true-up savings for the 2007 program year or to predict future savings.

[1] http://energytrust.org/library/reports/091229_Heat_Pump_Report.pdf

The 2008 impact evaluation will be performed using weather-normalized annual consumption using a PRISM-like approach. In-house Evaluation staff will conduct the analysis with review by two outside experts in the field of utility billing analysis.