IMPACT AND PROCESS EVALUATION OF 2006 AND 2007 NEW BUILDING EFFICIENCY PROGRAM

Final Report

June 2009

Prepared for:

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EXECUTIVE SUMMARY

This report presents the results of the impact and process evaluations of the New Building Efficiency (NBE) Program that Energy Trust of Oregon (Energy Trust) offered for businesses in Oregon during 2006 and 2007.

ES.1 IMPACT EVALUATION:

The main features of the approach used for the impact evaluation are as follows:

- Data for the study were collected through interviews with NBE program staff, review of program materials and processes, on-site inspections, end-use metering, and interviews with participating firms.
- On-site visits of sample sites were used to collect data for savings impacts calculations, while telephone surveys provided the information for the net-to-gross analysis and process evaluation.
  - The on-site visits were used to verify installations and to determine any changes to the operating parameters since the measures were first installed.
  - Facility staff were interviewed to determine the operating hours of the installed system and to locate any additional benefits or shortcomings with the installed system.
  - Monitoring of lighting, HVAC equipment, or motors/VFDs was conducted to obtain more accurate information on hours of operation.
- Gross savings were estimated using proven techniques, including computer simulations using DOE-2.
- Survey-based techniques for estimating free-ridership in a program were applied to the data collected through a telephone survey of decision-makers.
  - Data collected through this survey were also used to assess qualitatively the extent of program spillover effects.
  - Participants representing about a fifth of realized kWh savings provided answers that indicated some spillover was occurring.

The results of the impact evaluation of the New Building Efficiency Program for 2006 and 2007 are summarized in Table ES-1.

- The overall realization rate for the NBE program has declined over the period 2004-2007. In part this reflects a declining realization rate for lighting measures, which are accounting for increasing percentages of kWh savings for the program.

- The net-to-gross ratios for the NBE program have not changed significantly over time. Net savings have represented about two-thirds of gross achieved savings over the period 2004-2007.

Table ES-1. Summary of kWh and Therm Savings and kW Reductions for New Building Efficiency Program in 2006 and 2007

	2006		***2007***	
	kWh savings	***Therm savings***	***kWh savings***	***Therm savings***
Expected Gross	18,922,788	515,648	22,633,360	699,525
Realization Rate	101.9%	105.1%	92.3%	111.3%
Achieved Gross	19,287,774	542,169	20,889,521	778,653
Minimum Free-rider Rates				
Net-to-Gross Ratio	65.5%	67.0%	67.2%	68.6%
Net Achieved	12,625,867	363,195	14,036,588	534,112
Maximum Free-rider Rates				
Net-to-Gross Ratio	64.2%	67.0%	64.3%	67.2%
Net Achieved	12,378,921	363,195	13,458,493	522,889

ES.2 PROCESS EVALUATION

Findings and conclusions from the process evaluation of the NBE Program were as follows.

- The program has evolved nicely over the last five years. The program managers have exhibited a pattern of observing customer response to the program and adapting the program to make it more effective. Customers have noted and commented positively on the changes to the program.
- The program has communicated effectively with potential customers. One-to-one communication and word-of-mouth communication by participants has been an effective marketing strategy.
- Customers with whom we spoke indicated that overall they were satisfied or very satisfied with the program.
- The major complaint with the program has to do with the paperwork. While the paperwork is consistent with Energy Trust's fiduciary responsibilities, many customers find it difficult. This is particularly true of the smaller trade allies. Energy Trust has made some adjustments in the paperwork that have been noticed by the participants. In addition, some of the smaller trade allies have been adaptive and work with their distributors or others to complete the paperwork.
- The program has four tracks: standard, custom, LEED and Energy Star. The system of tracks may be important for administration, but there is neither interest nor widespread awareness of the tracks among clients. The track system could probably be simplified and reduced to a

two-track system of standard and custom and the LEED and Energy Star tracks incorporated into the custom track. Several participants interviewed indicated that they preferred the standard as opposed to the custom track because of the simplicity of that track and the cost of documentation for the custom or LEED tracks.

- There is widespread interest in LEED. However, because of the costs of LEED certification many customers are asking, and many design professionals are suggesting, that projects build either to LEED standards or to the most efficient green standard that the customer can afford.
- Financial incentives played different roles. Several participants suggested higher incentives. For some participants, especially large customers and national chains, there were indications that incentives may not have made much difference. For public entities, there were instances where incentives appeared to be the difference between installing the measure and having a measure value engineered out of a project. The relationship between incentives and participation is not a linear function but rather more like a step function.
- Risk is important for smaller participants, who discussed this topic a lot. Smaller customers are particularly anxious about trying technologies that might fail. It was suggested that the program might install samples at smaller locations to demonstrate the value of the equipment. This is consistent with good marketing practice.
- For national retail chains:
  - The prototype is the key determinant of what can be installed.
  - A third party, such as the rebate administration firm, can have some influence (usually somewhat small) by pointing to opportunities for potential improvements in prototypes across a wide program base although the recommendation is vetted by the national chain.
  - A financial incentive is unlikely to change the specifications for a given store although a financial incentive broadly offered by many utilities may result in an upgrade to a prototype.
  - Chains are increasingly installing and using advanced monitoring capabilities
  - Chains are often unable to take advantage of incentives for EMS systems because third party suppliers provide general rather than specific information about savings.
  - There is substantial opportunity still to be realized with retail chains especially in the lighting arena.

  Energy Trust needs to work with others to engage chains at the national level. Such national engagement of chains needs to focus on both engineering and merchandising.
- Training and webinars were positively received. The manuals were largely unused.

There were some dramatic examples of market transformation, mostly replication effects. Energy Trust may want to examine these effects in future studies. These studies should focus on replications, emulation, incidental efficiency, sustained behavior, and cultural change rather than spillover, of which the preceding are a subset.