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MEMO

Date: 20 August 2008
To: Board of Directors
From: Brien Sipe, Evaluation Analyst
Philipp Degens, Evaluation Manager
Diane Ferington, Senior Residential Sector Manager
Subject: Staff response to 2005-2006 HES impact and process evaluations

From the process point of view Energy Trust's Home Energy Solutions- Existing Homes (EH) program performed well during the evaluation period, as participant and vendor satisfaction with the program were consistently high, particularly for program staff and contractor interactions.

The survey results also revealed high self-reported free rider rates for many of the measures. The free rider rates were validated by contractor perceptions of what constitutes the typical efficiency of equipment being offered by the contractor and purchased by consumers.[1] These high free rider rates have implications on program design.

The high free rider rates support the conclusion that market transformation is well underway or taken place for gas furnaces and heat pumps. Changes in the market support changes to the program. Changes to consider would be such things as raising the efficiency level at which incentives are offered, changing incentive levels or change the target market. In the case of heat pumps this could mean only offering incentives to heat pumps with an HSPF of 9.0 or better (if cost effective). In the case of gas furnaces the choice could be to bring to an end the incentive as there are currently no existing cost-effective higher efficiency options or to focus on niche markets such as near low income, rental or specific regional markets. Changes to the HES program are being considered and discussed, as is the development of a market transformation model to measure program impacts.

High spillover rates were also estimated for certain technologies. Participants' spillover was modest except in the case of windows (12%) and CFLs (12%). In the case of nonparticipants HVAC equipment spillover was also modest (5% gas furnace and 7% heat pump). However the spillover for insulation (49%), CFLs (465%) and windows (~1,900%[2]) was in another realm entirely.

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[1] It should be noted that the free rider methodology used in this evaluation is different from that of previous evaluations and therefore the results are not directly comparable.

[2] The evaluation penetration rate is adjusted to reflect that ~90% of windows are energy Star or better and that Trade Allies surveyed reported on average that ~60% of their EE window sales were U 0.32 or better.

The Board Evaluation Committee directed staff to consider spillover on equal footing with free ridership. This was one reason why the resources were allocated in this evaluation to survey over 2,000 nonparticipants. In the past, self reported spillover estimates were included in our calculation of market effects and offset self reported free rider adjustments resulting in relatively small changes to the program's reported savings. Including spillover savings from CFLs and windows installed in electrically heated homes our program's savings will not have much of an overall effect as they are already being captured by the savings reported by NEEA's market transformation programs. However, the spillover savings of insulation and windows installed in gas heated homes are not being captured anywhere and could have significant impacts on the total reported program savings,

With spillover beginning to result in significant program savings, staff recommends that more reliable savings estimates are needed. This is because the spillover is currently estimated using self reports and there is little information on:

- Baseline conditions
- Efficiency levels of purchased equipment
- Purchase decision process

Spillover will be researched as either a separate study or as a separate task in the next evaluation.

The billing analysis yielded disappointing results in that the model results were quite sensitive to the model specification. Stable savings estimates at the measure level could not be estimated and at the program level provided a fairly wide range of savings estimates. The model savings resulting in kWh realization rate ranging from 41%-99% and gas savings from 61%-191%. As the models included a nonparticipant comparison group the savings represent savings net of free ridership but not adjusting for nonparticipant spillover. Inclusion of the nonparticipant spillover impacts will significantly change the net savings realization. Given the unstable nature of the estimated savings staff recommends using the working savings. The working savings are within the range of estimated realized savings and using them as the program savings does not unduly penalize or reward the program.

Staff recommends revisiting the billing analysis and incorporating into the analysis weather normalized annual consumption of each participant. This will allow us to analyze changes in energy consumption at the program or even at the individual account level. We will continue to keep using simple regression models such as the cross-section time-series used in this evaluation and explore the use of even more complex models when appropriate. We also plan to have national experts review Energy Trust data processing and billing analysis methods and make recommendations for changes in methods or approaches that should be considered.

In the areas of program recommendations:

Streamline the incentive processing system

- Energy Trust is planning to pilot web-based forms. The first will be focused at the clothes washer program and will be slowly expanded to other measures and programs. This will hopefully streamline much of the program paperwork.
- Ongoing efforts by the ITAC have also resulted in the streamlining and reduction of the information needed in the program paperwork

Improving Energy Trust trade ally services and communications:

- At the beginning of 2008 Energy Trust required its trade allies to reapply. This has allowed Energy Trust to focus on the most committed trade allies.
- Energy Trusts is currently in the process of redesigning its website and will increase trade ally content.

Energy Trust and utility coordination

- Utility based communications are the most common source of information about Energy Trust's programs. To optimize the use of this channel Energy Trust will continue to coordinate marketing and communications activities with those of the utilities.