FINAL 2008 Energy Trust of Oregon

Production Efficiency Impact Evaluation

Presented to

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Presented by

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Section 1. Executive Summary

Energy Trust of Oregon's (Energy Trust) Production Efficiency (PE) program offers energy efficiency services for industrial processes of all kinds, including manufacturing, agricultural, and water/wastewater treatment. The PE program provides funding for studies to identify energy-saving opportunities and financial incentives to help businesses implement them. Navigant Consulting conducted an impact evaluation of the 2008 PE program, which included two components:

1.) Site-level analysis, including field verification and equipment logging, of 24 large sites with custom energy efficiency projects to verify program impacts; and
2.) A review of 17 project files and the savings calculators for the Small Industrial Initiative (SII).

1.1 Program Impacts

As seen in Table 1-1, the impact evaluation yielded an end-use program realization rate of 86% and corresponding gross savings of 67,735,063 kWh.

Table 1-1. Impact Summary of the 2008 PE Program

Indices of Program Savings Value	Value
Working Estimate of 2008 Program Savings	78,687,954 kWh
Realization Rate	86%
Gross Savings Estimate	67,735,063 kWh
Demand Savings Estimate	8,659 kW

The working estimate of savings includes 3,234,335 kWh installed through the SII. The PE program delivered gas savings of 17,555 therms from eight projects implemented at six participant sites. Because of the relatively small scope of these gas projects, the impact evaluation of the 2008 PE program did not include gas measures.

Interviews with PE program participants yielded a free-ridership estimate of 23% and a net-to-gross ratio of 77%. Table 1-2 shows the final 2008 PE program net savings estimates amounted to 51,971,014 kWh, or 66% of 2008 program working savings.

Table 1-2. Free-Ridership Summary of the 2008 PE Program

Indices of Program Savings Value	Value
Gross Savings Estimate	67,735,063 kWh
Net-to-Gross Ratio	77%
Net Savings Estimate	51,971,014 kWh
Net Savings as a Percentage of Working Savings	66%

1.2 SII Review

Navigant Consulting found the SII Prescriptive Savings Calculators to accurately estimate savings accrued from energy efficient upgrades of pumps, motors, air compressors, etc. The prescriptive input assumptions (e.g., loading factors, motor efficiencies, etc.) used in each calculator correlate with industry standards and are representative of "average" operating or installation conditions.

1.3 Recommendations

Recommendation 1: Pursuant to the Plant Closure Study (Recommendation Four of the 2007 PE Program Impact Evaluation), define and project future savings estimates at the program level.

Though more prevalent in the 2007 PE Program, the 2008 PE Program had a number of sites that suffered from reduced savings as a result of unforeseen closures. A Plant Closure Study will more accurately characterize the impact of these production changes on realized savings.

In addition to the economic malaise, modified production schedules and capacity led to changes in system configurations which were not incorporated into original study findings. This often resulted in realized savings that differed significantly from original projected savings, despite the measure being correctly installed.

Recommendation 2: Conduct follow-up measurement and verification (M&V) on projects that were not fully implemented. Consider providing incentives and/or engineering support for the commissioning of these projects to capture the unrealized energy savings.

The partial implementation of measures at three sites resulted in low project realization rates. In these cases, there is opportunity for the site to achieve additional energy savings and improve the project realization rates by completing these projects in the future. Some site contacts indicated to the Navigant Consulting engineer that follow-up projects were being considered. Energy Trust should attempt to verify subsequent project activities and document the energy savings.

In the case of one site, providing an incentive or engineering support for the commissioning of the project would have identified and corrected initial system failures and ensured that the project measures were performing as expected, thereby improving the project's realization rate.

Recommendation 3: Use consistent end-use classifications for the various pumping measure applications.

Pumping projects evaluated for the 2008 PE program fell into several categories: pumping as a part of water treatment (sites 14 and 15), irrigation water pumping (sties 11 and 12), process water or other liquid pumping (sites 16 and 25), and vacuum pumping (site 13). The Navigant Consulting team recommends the water pumping measures be categorized into one of two end-use classifications, Pumping and Irrigation Pumping, and that vacuum pumping measures be classified as Process.