Briefing Paper
Energy Efficiency Programs 2011-2013

June 3, 2011

Summary

This paper reviews how Energy Trust efficiency programs have performed in relation to our goals so far, and outlines strategic opportunities and challenges over the next two years. In general terms, gas programs appear to be on track through 2013, while electric programs will face a challenge to offset the loss of measures that we will be unable to rely on due to changes in energy codes, standards, and market factors.

Taking Stock

- Since 2002, cumulative savings total 254 average megawatts of electricity and 17.8 million annual therms of natural gas, equivalent to 53 percent and 51 percent, respectively, of our 2014 electric and gas saving goals.
- Since 2007, when the legislature authorized the Oregon Public Utility Commission (OPUC) to allow the investor-owned utilities to collect more than three percent of revenues for cost-effective efficiency, Energy Trust efficiency programs have accelerated.
- In 2009, the board adopted a strategic plan that calls for a 114% increase in annual gas savings, and a 73% increase in annual electric savings over the 2008-2014 time period.
- Since then, electric program savings:
    - Dipped in 2009 to 32.3 average megawatts, which is near the midpoint between conservative and stretch goals, and about 6% below 2008. The levelized cost was 2.8 cents per kilowatt hour.
    - In 2010, increased to 45.7 average megawatts, 101% of the stretch goal, and 41% over 2009. Levelized cost per kilowatt hour: 2.5 cents.
- Gas programs:
    - In 2009, saved nearly 2.9 million annual therms, 90% of the 2009 stretch goal, and 16% higher than 2008. Levelized cost: 48 cents per therm.
    - In 2010, saved 4.6 million annual therms of, 96% of the 2010 stretch goal of 4.8 million annual therms. Levelized cost: 32 cents per therm.
- Energy Trust has significantly changed its program planning since 2007, integrating it with utility Integrated Resource Plans (IRPs):
    - Energy Trust does a comprehensive resource assessment every two years to estimate savings potential over a 20-year horizon.
    - The assessment is shared with the utilities. Energy Trust and utility IRP analysts then build up program-by-program deployment scenarios estimating how much can be saved in the first five years of the planning period. These estimates are combined and extrapolated for 20 years.

- Energy Trust works with the utilities to estimate the cost of acquiring savings based on historic cost trends, planned shifts in incentives, and the mix of higher- versus lower-cost measures in the deployment scenarios. The utilities use the cost estimate to forecast funding needs to determine if an adjustment or rate filing is necessary.
- Energy Trust reviews its energy-saving measures frequently in light of current market and economic information and adjusts incentives to achieve IRP savings objectives.
- Since 2002, Energy Trust has developed a strong evaluation program to evaluate results and refine strategies. Energy Trust uses third-party evaluators to do impact and process evaluations of major programs to determine actual energy savings and assess whether the program made a difference in customers' decisions to invest in saving energy. Evaluation results are used to validate and adjust savings estimated previously and modify programs going forward.

Looking Ahead

- Gas and electric efficiency programs are at different stages of development and pose different opportunities and challenges. Gas programs are newer than electric efficiency programs, which have been in existence since the 1980s.
- For the gas programs:
  - Drivers The top two drivers of gas savings are the existing buildings (39% of savings) and existing homes (28%) programs. The remaining savings, in order: production efficiency contributes 15%, new buildings 14%, and new homes and products 4%.
  - Higher savings goals: By 2013, gas savings need to save about 30% more than in 2010 to track the strategic plan, which calls for about 5.9 million annual therms.
  - Getting there: To do this, we propose to:
    - Continue to expand our customer base through marketing, outreach and other efforts.
    - Hedge inherent volatility in our gas efficiency markets by diversifying offerings and exploring new approaches such as home water heating, information programs to encourage behavioral conservation, and demand-controlled ventilation for commercial buildings.
    - Control costs, especially in some commercial programs. We are analyzing elements of program delivery and measure cost to help manage costs.
  - Equipment contingencies: We expect to see some new efficient gas equipment in the residential sector, primarily efficient non-condensing tank water heaters for homes. Sales of efficient home hearths are also increasing, and we expect this to continue.
- Electric programs:
  - Drivers: The top two drivers of electric savings are production efficiency (34% of savings) and existing buildings (25%). The remaining savings, in

order: new homes and products contribute 11.8%, new buildings 9.8%, existing homes 9.4%, and 4.3% from NEEA sector contributions.

- Higher savings goals: The strategic plan calls for about 56 average megawatts in savings in 2013, about 10 aMW (22%) more than in 2010.
    - We expect to achieve this growth with help from an improving economy and our own enhanced efforts to reach more markets and deeper savings.
    - We also expect challenges:
        - Significant changes in state tax credit programs and federal energy incentives are likely;
        - Utility avoided costs (the cost of other resources) are reduced, and this may make fewer electric efficiency measures cost-effective.
- Lost savings due to changes in codes and markets: Apart from the 10 average megawatts of growth, we expect to lose about 13 average megawatts from measures that we will be unable to rely on, due to changes in energy codes and standards, market transformation, and market saturation.
- Replacing lost savings (high-confidence): We have high confidence that we can replace three average megawatts of this 13 average megawatts loss, from measures that are proven technically and for which there is are viable market delivery channels.
- Replacing lost savings (more speculative): Replacing the remaining loss (about 10 average megawatts) will be a major challenge. We expect to:
    - Claim some savings from market changes;
    - Benefit from new technologies and approaches (which we are watching but whose development depends mainly on others);
    - Benefit from additional promising but not-yet-ready measures and behavioral programs, which we can influence by investing in testing and refinement, and working with NEEA and to create new market-ready packages.
    - Dedicate resources to identifying and evaluating market transformation savings so we can claim them.
- Overall: How much we gain from these activities is at this point a guess, but 10 average megawatts is optimistic; it is more likely that we will fall short of our 2013 goal.
- Cost: The cost of replacement measures is likely to be significantly higher than the measures they replace.
- Volatility: Just as in 2009 and 2010, results in any given year will be better or worse. We should be prepared to scale programs and infrastructure up or down depending on how things take shape.

- State and federal tax credit programs are in flux. Once the legislature adjourns, it is likely we will need to revisit our programs in utility funding and Energy Trust budgeting processes.