Evaluation Committee Report

October 14, 2008

Evaluation Committee Notes

The evaluation committee met on October 14, 2008 with Debbie Kitchen, chair; Alan Meyer, board member; Dan Enloe, board member, attended by phone for the first two agenda items; Philipp Degens, evaluation manager; Sarah Castor, market research & evaluation analyst; Brien Sipe, evaluation analyst. Paul Berkowitz, CSG, attended for the heat pump pilot tune-up evaluation and Spencer Moersfelder, Energy Trust business sector manager, attended for the NBE evaluation. The meeting began at 10:05am with a brief overview of the meeting's agenda.

Topics covered:

- Heat pump tune-up pilot impact evaluation
- 2006 NBE process and impact evaluation draft report
- 2008 Solar market evaluation

Heat pump tune-up pilot impact evaluation
Conducted by Stellar Processes

Phil covered the findings from the draft report of the pilot's impact evaluation. The program aimed to provide incentives for a number of heat pump tune-up measures.

Primary findings from the study consisted of:

- Oversubscription problems due to utility publicity resulted in problems for the program's implementation team.
    - Resulted in 317 sites participating, compared to the 200 planned.
- The primary energy saving measure (temperature control cutouts, which prevent resistance heat from activating when outside temp is above 40 degrees) was already present at 25% of the sites in the study.
- Of the remaining sites, only 18% had a cutout installed.
    - Tracking data did not indicate if the cutouts were tested for operability.
- Savings *were not* apparent for any combination of sites.
    - Comparison group was not ideally matched (consumption was much higher than participant group), but showed a 2% reduction in consumption in the study period compared to the 1% reduction by the participant group.
- Phil and Paul discussed the issues stemming from the pilot and they may be resolved in a subsequent redesign of the program.
    - Contractors may be reluctant to install the cutouts, fearing 'call-backs' from customers dissatisfied with the 'cold-blow' resulting from lower temperature air coming from the heat pump unaided by resistance heat.
    - Smaller cohort of participants, with a single measure (cutout) and QC work to follow much more quickly (to verify cutouts are installed and functional).
    - Pilot is expected to be re-designed in Q1 of 2009, with goals of treating 150 homes and more closely controlling publicity.

2006 NBE process and impact evaluation
Conducted by ADM Associates

Phil covered the primary findings from the evaluation draft report. The impact study period was from January 2006 – December 2006, with site visits and customer surveys conducted from Q4 2007 – Q2 2008. The lag in the survey and visits facilitated an adequate period of time to accrue billing data for use in building simulations of energy savings.

Major findings from the impact portion:

- Electric realization rates:
  - Building simulations were used to ascertain realization rates
  - Electric realization rates ranged from 94%-104% with the exception of HVAC and motors
    - Electric HVAC's RR was 138% while motors was 56%
      - Overestimated run times are likely behind the low motor RR
  - The average realization rates in 2005 was 104%
- Gas realization rates
  - Gas rates ranged from 97%-119%, with the high end representing HVAC systems
    - The small number of measures also means there is a large variance within the realization rate of each measure
- Spencer expressed interest in seeing realization rates by prescriptive and custom tracks, to evaluate how accurate current engineering calculations are.
- Net to Gross Analysis
  - Electric free ridership:
    - Custom controls 6%
    - HVAC 28%
    - Lighting 54%
    - Other 42%
  - Gas free ridership:
    - HVAC 51%
    - Other 27%
  - Spencer expressed concern with the high free rider numbers – noting that the evaluation primarily focused on large buildings which may be vying for LEED certifications and biasing the free rider estimate higher.
  - Phil noted that Energy Trust is currently developing a market transformation model for Super T-8 lighting, and that the high free ridership reported was to be expected.
  - There was some discussion on focusing more on the Gross saving in reporting and using the free rider numbers to trigger program changes and redesign. Debbie and Alan indicated this sounds like an interesting direction to move in. Phil will take it up with Fred.
  - Other changes likely to occur in future program years:
    - NEMA premium motors may soon become standard, and will be eliminated from the prescriptive measure list
    - Incentives for major remodels have been brought in line with the existing buildings program, while new building incentives have been kept low.

        - Spencer noted that Bonneville uses high incentives for new buildings with the idea being that once missed, new buildings will not be in the retrofit market for some time.

- Spillover
    - Many respondents indicated that they installed measures without incentives
    - 17% at same facility
    - 14% at other facilities
    - Phil indicates that currently there is not a way to quantify the spillover effects in the same manner as free ridership.
        - NEEA is currently attempting to develop a methodology to quantify spillover effects which could potentially be utilized by Energy Trust programs.

NBE participant survey highlights

- Participants expressed high levels of satisfaction with the program.
- 50% of those that received the BETC indicated it was difficult to achieve the 10% better than code requirement.
- Among owners surveyed, a majority indicated that they did not believe increased efficiency correlated with increased rents, and 40% did not feel projects increased buildings' attractiveness to tenants.
- Over two thirds had some type of commissioning performed
- Over half of the participants indicated they would install additional efficient equipment without incentives while 100% said they would participate in the program again.
- Building owners from outside Oregon tended to have larger projects.

Major findings from the process evaluation

- Study focused on perceptions of market actors (qualitative in nature).
- Program satisfaction mirrored the participant survey
- One complaint was the paperwork burden:
    - Spencer indicated that currently the Oregon DOE does not accept prescriptive savings analysis for its tax credits. On the custom side, it was suggested that Energy Trust could align savings calculations with DOE's to streamline the tax credit/incentive application process.
- One recommendation was to merge the LEED and ENERGY STAR tracks into the custom track.
- Importance of incentives varied with sector, with immediacy of funding pronounced in government projects.
    - Most work fell outside the private sector, with the largest participant groups being government, non-profits, and schools.
    - Spencer indicated the challenge of finding the appropriate level of management in corporate structures to move projects through the program.
- Staff highlighted the importance of working with chains at the national level.
    - One difficulty is the writing of specs, since many high efficiency specs written for the national level fail to meet Oregon's building code.
- Energy Trust staff are active at the local level to write specs for fee-bate/re-bate programs for new construction.
    - Debbie raised concerns about the fairness of systems that may penalize building owners with tenants who are high users (e.g., data centers).

- Phil indicated that Energy Trust will be active in the use of the new commercial building stock assessment data to provide input into the use of the ENERGY STAR rating system.

Evaluation's take on the findings

- The evaluation would benefit from more analysis of the data.
  - Free rider rates across program size.
- Aggressively increasing goals may be inappropriate given economic downturn.
  - Debbie mentioned that 2009 may have plenty of work come in due to developer/construction pipelines, but subsequent program years may not be able to meet.
- Free rider estimates will have an immediate and significant effect on the program.
- Will request additional analysis from the contractor for the next draft of the report.

Solar market assessment – 2007

Prepared by Sarah Castor

Sarah Castor presented the findings from an assessment of global, national, and local trends in the solar PV market.

Highlights from the study were:

- Installed capacity
  - Global installed capacity increased 62% in 2007.
  - Commercial installations have become the main driver in the US.
  - Current worldwide capacity is approximately 3,500 MW.
- Manufacturing
  - Worldwide, manufacturing output increased 56%.
  - US output increased 74%, and currently accounts for 50% of thin film production.
- High prices continue to be the stumbling block for wider spread adoption
  - Module prices have leveled off since 2006, which saw a steady price increase due to a shortage of polysilicon.
    - Several new polysilicon manufacturing plants have come online in the US, Germany, and China but supply continues to be tight.
  - The DOE's solar program has optimistic goals for public/private partnerships aimed at achieving utility scale cost competitiveness for 2015. These costs may be achieved but prices are unlikely to fall due to increasing demand and constrained supply.
  - Given that many countries are investing in utility scale PV projects, additional capacity will continue to be purchased at prices far above cost competitive rates in much of the US.
- Technologies have not changed much since the 2006 solar market assessment conducted by Energy Trust.

- Thin films still offer promise of low costs/prices and ease of manufacturing. However, differences in efficiency levels of lab and line manufactured cells remains large.

Oregon PV manufacturing market

- Several new and planned facilities are aiming to be producing near capacity in Oregon within the next two years.
- Capacities range from 25 MW to 500 MW, with a total of over 700 MW, representing an increase in current world capacity of around 20%.

Outlook

- Extension of PTC for solar will help to keep demand stimulated and encourage continued domestic R&D, and help maintain local infrastructure and expertise.
- Oregon's small installation market will continue to be unable to influence price.
- Green light greater Portland is preparing to issue a report on Oregon's competitive advantage with regard to PV manufacturing.
- Large growth in output and capacity is expected but solar is expanding from a very small base.

Next meeting is scheduled for November 19th or November 21st from 10am-1pm

Meeting adjourned at 12:50pm