# Evaluation Committee Meeting

September 30, 2011, 10:00 am to 12:40 pm

## Attendees

1. Debbie Kitchin, Board Member – Committee Chair
2. Alan Meyer, Board Member
3. Phil Degens, Evaluation Manager
4. Ken Keating, Expert Outside Reviewer
5. Pete Catching, Manager of Planning and Economic Analysis
6. Sarah Castor, Evaluation Sr. Project Manager
7. Lakin Garth, Planning Project Manager
8. Ted Light, Planning Project Manager
9. Rob Del Mar, Solar Sr. Project Manager
10. Susan Jamison, Homes Marketing Manager
11. Amber Cole, Director of Communications and Customer Service
12. Phil Damiano, Sr. Program Manager - PECI
13. Sue Fletcher, Communications and Customer Service Sr. Manager
14. Steve Lacey, Director of Operations
15. Karen Des, Sr. Program Manger - PECI
16. Jessica Rose, New Buildings Program Manager

**Agenda**

- 2011 Residential Awareness Survey
- 2009-2010 New Homes Process Evaluation
- 2009 New Buildings Impact Evaluation

## 1. 4th Annual Residential Awareness Survey

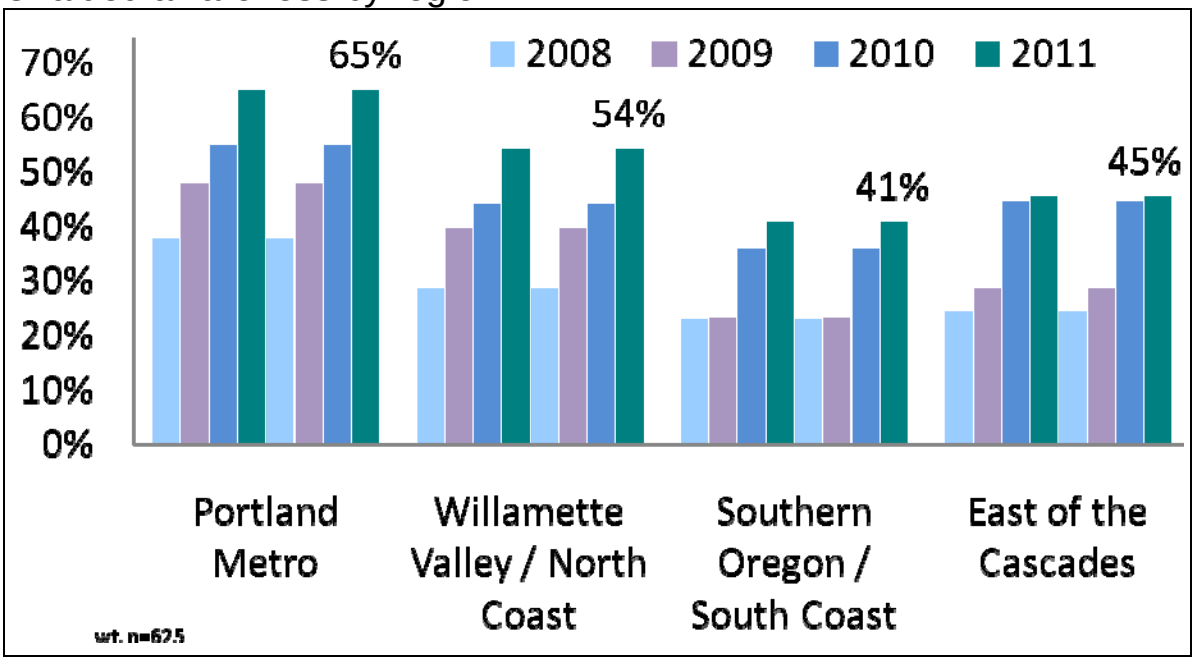
Contractor: Research Into Action

Sarah presented the results from the study.

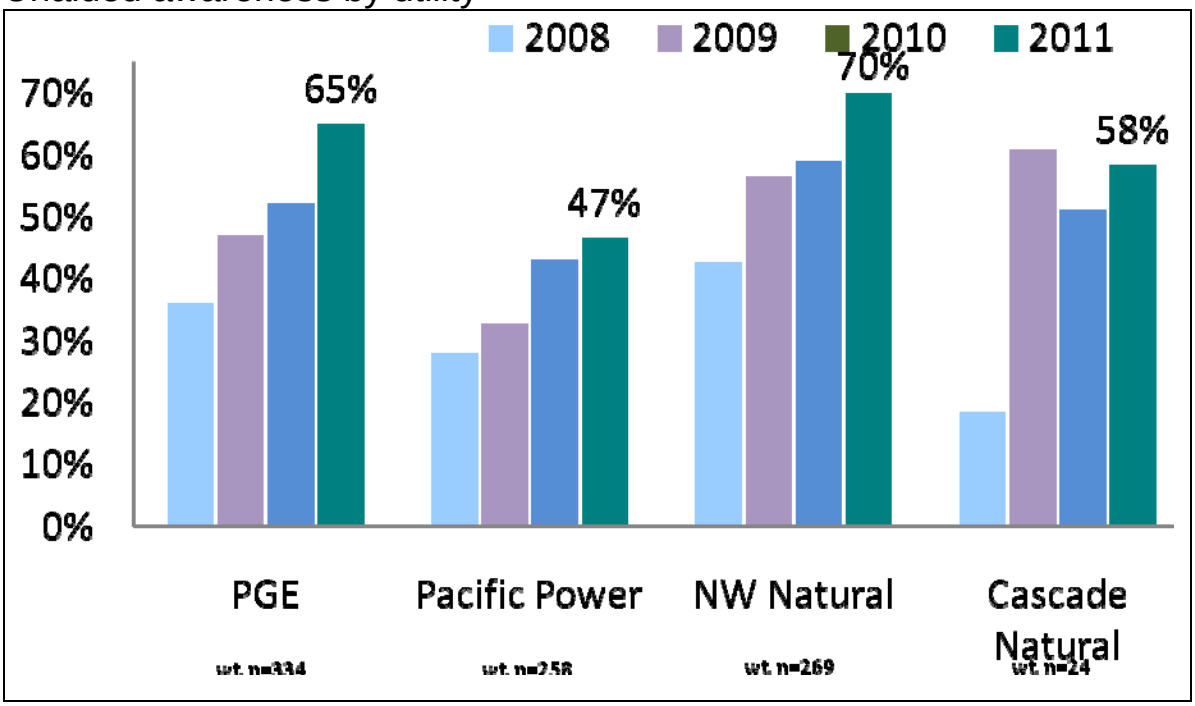
Methods:

- Mixed mode approach attempted
  - Web survey allowed for visual aids, different types of questions
  - Low response rate to postcards sent for web survey
  - Quotas completed mostly by telephone
- 637 complete responses (102 web)
- Quotas for region, home ownership, age of respondent, cell-phone only

Unaided awareness by region




Unaided awareness by utility



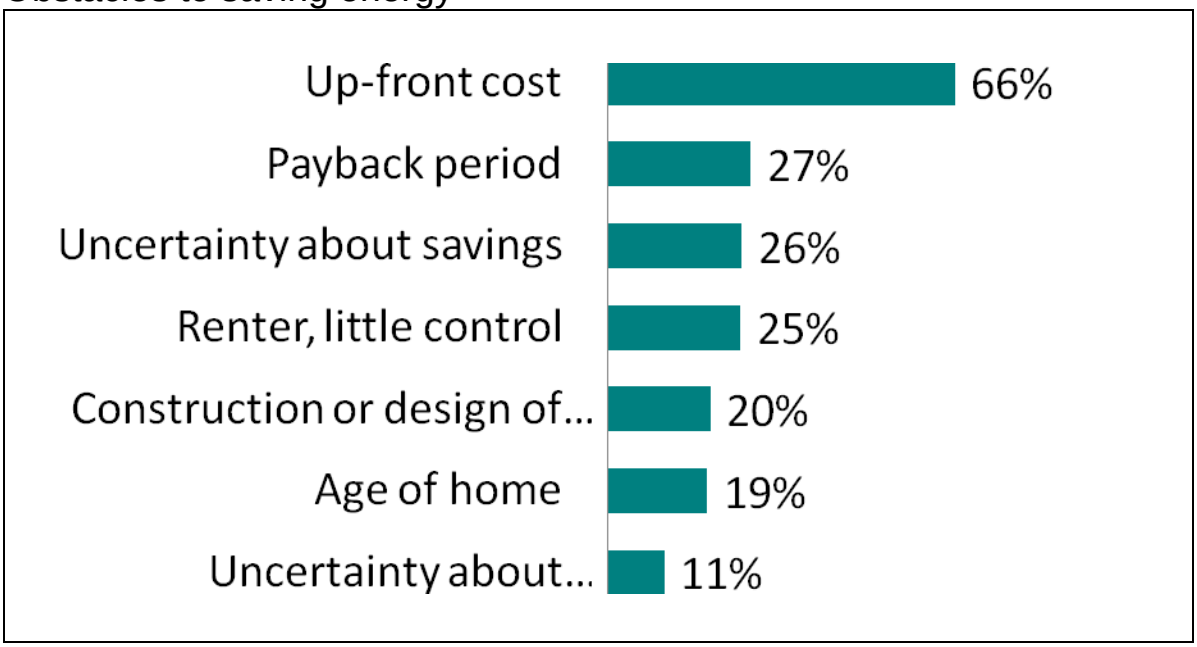

Awareness and sources of info:

- Awareness of tax credits and rebates at 83% (highest for NW Natural)
- Top sources of info about Energy Trust:
  - Mass media (especially East of Cascades)

  - Utility communications
  - Contractors/retailers
- Seen as credible and a leader by >50%
- 50% think we're a nonprofit

Participation:
- Reported: 31% (up from 17% in 2010)
- Actual: 47% (up from 26% in 2010)
  - Includes Energy Saver Kits, appliances, existing single family and manufactured homes, solar (no multifamily projects)
- Participation is lowest among Pacific Power customers East of Cascades
- Satisfaction with participation is 79% (4 or 5) and comparable to last year

## Obstacles to saving energy




Messaging
- Top marketing messages:
  - "You can save energy and money"
  - "Save energy and the planet"
  - "Enjoy a comfortable and more EE home"
- Neighbor comparison perceived to be least effective, but we know it works
- For credibility, we should emphasize non-profit and 10 years of experience

Survey recommendations for next year
- More questions on knowledge of Energy Trust, energy efficiency, and behaviors
- Give the postcard/web survey method another go, with adjustments
  - Advantages to the web survey: use of pictures, questions to rank, representative sample, more engaging

Energy Trust take (staff response)

- Awareness and participation continue to grow, but there are geographic areas where we need to work harder
- It's time to take the questions a little further now that more people are aware
- Need to better explain what Energy Trust is and does

Discussion

Debbie asked for clarification about awareness and specific knowledge of what Energy Trust does. Disparity noted between the two.

Solarize discussion: Phil indicated Energy Trust doesn't advertise these initiatives, it's community based ads, word of mouth. Ken indicated folks are very aware of solar, and that the awareness rates do appear high for the projects. Debbie asked how long Pendleton has been running, staff responded about one year. Thus, the awareness rates do appear rather high for awareness outside of the Metro area.

Obstacles to saving energy: Alan indicated that the economics are the chief driver. Debbie asked about how the age of a home would be an obstacle, Sarah and Phil indicated that respondents probably felt that their homes were too new and thus more efficient. Ken indicated that many homes have construction issues which preclude weatherization. Uncertainty about savings or bids: People may be uncertain about what savings they may actually achieve. Phil highlighted that the array of financing available may help relieve this.

Alan highlighted the up-front cost obstacle, is this indicating a need for incentives, or financing? Phil responded that we can dig into that with the next survey. Ken followed on Alan's point, indicating that having to pay something back is not the same as a rebate. Program activity usually results in high uptake for rebates relative to financing when both options are available.

Sarah highlighted findings from Puget Sound Energy research where consumers indicated they want instant rebates rather than waiting for them in the mail.

Phil Damiano asked about showing payback period. Group discussed discount rates and studies which have found a large disparity in discount rates between individuals.

Online energy survey: Debbie asked about what the online service and phone contact are for. Susan Jamison indicated that the online tool can be used by consumers to ask to be contacted for more information, where folks can be directed to sign up for audits and find trade ally web pages. Pete asked about how detailed the explanations of services were in the survey. Sarah responded that it is a trade-off on time in the survey to describe the service choices in detail. Sue indicated that the narrow differences between the three modes of intake indicate that it's a good idea to maintain multiple channels to cater to consumer preferences.

Messaging: Neighbor comparisons were perceived by respondents to be least effective, but Sarah indicated that we know it works. Ken asked how can we be so sure that it works? Staff referenced the Opower pilot currently underway. There's a sign that savings are

positive, but it's weak. Study design crucially important. Phil indicated that Ken's point is well taken; the verdict is still out on what the savings are. From the surveys of participants, the findings are quite positive, and indicate that the information provided is useful. If anything, does it drive folks to programs, at bottom, may serve as an effective marketing tool.

Amber indicated that Energy Trust will be emphasizing its status as a 'non-profit' and the agency's 10 years of experience in 2012 based on these findings. Debbie followed on by stressing "non-profit, objective and independent agency" can help credibility, as that lets people know that the agency doesn't gain from its activities.

Amber described findings from recent focus groups; when shown the same sample advertisement with different logos in the branding area, the ad with Energy Trust's logo by itself was perceived as a more credible and motivating by the focus group participants, relative to the ad with co-branding from Energy Trust and a single utility. A version of the advertisement showing all four utility logos plus Energy Trust's logo was also perceived as more credible than the version with co-branding from Energy Trust and a single utility. Staff are still waiting for the report from the focus groups.

Alan asked if we can indicate that Energy Trust is brought in by utilities in an effort to aid their customers. Amber indicated that we're working on ways to brand to address these issues. In addition, some of the lower indicators of awareness in non PDX areas are being looked at more closely.

Ted asked about awareness and concern of utility bills. Group highlighted mild winters since 2008, rate decreases, and indicators that gas rates will continue to decrease.

Recommendation on survey delivery: Debbie asked if we could use emails. Phil indicated we don't have ready access to a representative sample of the general population's emails Sarah indicated that web survey method is the way to go, but encouraging responses is an issue to tackle. Sarah indicated that Qualtrix, which was used for the survey, has panels which you can use for a fee. Debbie indicated that the mechanics of receiving a postcard, then going to a computer to fill out a survey is cumbersome. The potential for the use of cell phone messaging was discussed as well.

Alan, indicated that the recommendations in the survey, refer to the survey, rather than how to take the findings and recommend improvements to Energy Trust messaging. Sarah indicated the staff response memo will detail how Energy Trust is planning on using the survey results to improve messaging/outreach.

## 2. 2000-2011 New Homes process evaluation

Contractor: Research Into Action

Sarah presented.

Background

- Last process evaluation completed in 2009, also by Research Into Action

- EPS has been offered for more than 2 years now
- Manufactured homes program now has additional incentive for eco-rated
- Real-estate professional trade ally (REPTA) network since 2009

Methodology
- Measure review
- Interviews/surveys:
  - 14 program staff
  - 29 participating builders
  - 17 nonparticipating builders
  - 3 manufactured home builders
  - 3 manufactured home market experts
  - 58 REPTAs (new and existing homes)

Measure review findings
- 895 EPS projects, 106 stand-alones
- 98% EPS projects had 5 to 9 measures installed
  - Mostly insulation, windows, ventilation, lighting, infiltration, ducts and water heaters
- Most common stand-alone was a gas furnace or tankless water heater
- Within heating fuel, more measures means a lower EPS

Program staff interview findings
- Good communication between Energy Trust, PECI and Earth Advantage (EAI)
- Delays in marketing development process
  - Two weeks suggested by BOSs is not practical, but should shorten from current 4-6 months
- Concern about REPTA engagement
  - No clear expectations for REPTAs

2011 Building Code feedback
- Participating builders had less trouble meeting 2008 code than non-parts
- For 2011 code, participants twice as likely to report no challenges (52%, 24%)
- Main sources of info on 2011 code are builders associations and Earth Advantage – not state building code department
- Most used insulation, HVAC and windows to meet or exceed code – design not used as much

## Motivations for builders to participate in the new homes program

**Table 5-4: Reasons for Participation (Multiple Responses Allowed, *n* = 29)**

| REASON TO PARTICIPATE | TOTAL | PERCENT |
|---|---|---|
| Installing energy efficient equipment is important to our company mission | 22 | 76% |
| To gain market distinction (i.e., to market our company as a "green" builder) | 17 | 59% |
| To lower utility costs for the homes' residents | 16 | 55% |
| We wanted a low-cost way to install energy efficient features | 12 | 41% |
| To receive 3rd party verification | 3 | 10% |
| Don't know (someone else made the decision) | 1 | 3% |

Energy Performance Score:

- More than half feel:
  - It's easy to explain to buyers
  - It gives buyers an idea of energy bills
  - It helps buyers compare homes
- Mixed reviews on:
  - Ability to score high performance homes
  - Whether it's too technical for lay people

Builder satisfaction with Energy Trust

- 19 of 28 satisfied with program
  - 6 neutral, 3 dissatisfied
- Nine expressed frustration or confusion with the process, incentive levels or training
  - Working on streamlining the incentive process

Manufactured homes findings

- Manufactured home market in worse shape than site-built
  - 20 retailers have closed
  - Half of manufacturers out of business
  - Loan default rates of 30%+
  - Stricter financing requirements
- 60-65% of market is ENERGY STAR
  - Mixed opinion on trend in the last few years
- Manufacturers say buyers are unwilling to go for more than ENERGY STAR
  - Lack of consumer knowledge of other labels, energy efficiency in general
- Higher interest rates than site-built makes higher costs harder to sell
- Manufacturers are interested in DHPs, but wary of costs, buyer unfamiliarity

REPTA (Real Estate Professional trade ally) survey findings

- Purpose of REPTA network is to provide another avenue to promote residential programs
- REPTAs receive EAI and Energy Trust trainings, training reimbursement, printed materials and newsletter
  - Cooperative marketing funds available
- Currently over 300 REPTAs

- Top reasons for becoming a REPTA:
  - Distinguish as “green realtor” (78%), learn about EE (62%), be affiliated with Energy Trust (53%)

Energy Trust engagement
- 76% satisfied with training
- 45% have taken other trainings
- 53% satisfied overall with participation (34% neutral)
- Many not sure how to work with us
  - Slightly more than half have had contact with us in the last year
  - Several reported being unsure who to contact, how to receive coop assistance

Promotion of Energy Trust and EE
- 61% discuss Energy Trust “often” or “always” with buyers, 39% with sellers
- Many wanted different marketing materials
- About three quarters encourage clients to consider value of EE features (same amount for existing vs. new homes)
  - Discuss more since becoming a REPTA
- 80% have used RMLS fields for EE
- Clients don’t ask about EE financing options, and REPTAs don’t usually refer to GreenStreet
- REPTAs are interested in information and training on EE mortgages and financing

Cooperative marketing, Energy Performance Score
- Awareness is high
  - About half satisfied with process
- 87% feel EPS is a good sales tool for new homes; 58% think EPS would be good for existing homes
  - Could use a simpler explanation of EPS for clients

Recommendations and conclusions
- Room for improvement on program marketing
  - Need to better engage REPTAs and help builders who don’t sell through realtors
- Provide builders with more information on, and help with, tax credits for solar
- Promote the program as a source of info on 2011 code
- Review scoring of high performance homes by EPS
- Investigate EE mortgages, incentive for DHPs in new manufactured homes
- Clarify expectation for REPTAs and explore ways to further engagement
  - Need more than an HER referral requirement

Next steps - Site built homes
- Working to improve the marketing job-start process
- Focusing on marketing to drive consumer awareness and demand
- RETC for solar in new homes ending
- Working with ODOE and NEEA to provide info on the 2011 code
  - Need to identify which areas are most challenging

- Redesigning EPS for new and existing homes with customer perspective in mind
- Reviewing baseload assumptions in EPS modeling (for scoring high performance)
    - Developing a "Path to Net Zero" approach for 2012 – may be prescriptive

Next steps – manufactured homes
- Going back to an incentive for Energy Star only (no eco-rated) in 2012
- Will explore incentive options when new HUD code goes into effect
    - EPS for manufactured homes?
- Working with NEEA and BPA on a regional strategy for DHPs in new manufactured homes
    - Maybe model homes and/or incentives

Next steps – REPTAs
- Will be working with Existing Homes to redefine the REPTA role and expectations
    - EPS may be a useful tool for REPTAs

Energy Trust take (staff response)
- Need a new strategy for REPTAs
- Do we need to be in manufactured home market?
- For site-built, targeting of big builders should be the focus of outreach rather than trying to get more small ones

Discussion

REPTA – Debbie indicated that from the reading of the report, the market is struggling; people are struggling to maintain their livelihoods. Is this a good time to test REPTA engagement? Given that people are falling out of the market. Phil indicated that we need to clarify exactly what we're doing and assessing.

Market share and building codes

Market share: Phil Damiano – 19.7% share of single family completions year to date have an Energy Performance Score.

October will be the end of the building code grace period. Program staff indicated that design is not being used as much to meet the new code. Phil Damiano indicated that there were 9 paths allowed to get to the new code, but the program knows that most builders will be using path number 1, so the program was able to get ahead of the market and help builders meet codes.

Phil Damiano added that a few builders set out to build net zero homes, which they missed slightly, leading to disappointment. Rob suggested that the language could be 'potential for net zero' rather than 'net zero'. Ken asked how they model. Phil Damiano indicated that REMRATE is used, and the home is tested twice. Rob also indicated that the modeling software errors become larger as you get closer to a zero score.

Ken described that builders are pushing back in California about the use of modeling tools, as they are not modelers per say. HERs raters could potentially do the work, but builders

are skeptical of raters as well. Before the EPS the program provided stand alone incentives, very simple process. Now with the third party verification, there is modeling, review and the process takes longer. However, there is more money on the table with incentives relative to the older program design, but the longer process can lead to confusion/frustration.

Phil Damiano described the benchmarks that builders can build to, with identified incentive levels, but the incentive scale fluctuates according to the energy savings based on what's installed in the home. Based on blueprints, the program can identify what the builder will receive in incentives, and highlighted that this is likely not the source of frustration – most likely the lengthier process.

Pete asked about the modeling and verification costs. Phil – program costs cover these, thus, free to the builder. The program markets this service as a sales tool to bring builders into the program. Phil Damiano highlighted the number of builders in the Oregon Program were able to capture the market in NW Natural Washington territory, where the market share is now 30%, having occurred in a very short time horizon. Debbie added that the EPS can help builders differentiate their product.

Debbie asked if the REPTA trainings qualify for the real estate continuing education. Group indicated they think it does. Debbie emphasized that that would be quite helpful and encourage folks to participate if it did count towards those hours.

RMLS comment – Susan Jamison indicated that the fields aren't necessarily clear – typically 'Green' which can mean anything from solar to rain water collection. Sarah highlighted the use of certification fields, which can identify EPS, ESTAR, etc (RMLS staff have added the field 'EPS' to their listings page, allowing realtors to enter a home's actual score).

Debbie indicated some folks may register concern about EPS ratings: how often re-rating needs to occur. Ken indicated that compared to twenty years ago, the responsiveness has improved markedly.

Steve Lacey – indicated that Mayor Adams is looking to mandate the EPS within the Portland city limits. Phil Damiano indicated that the state codes division isn't likely to support that and may push back.

Accuracy of tool may be called into question – Ken highlighted that legislators will scrutinize the tool used to rate homes.

Discussion of the end of the BETC: Builders can still have a buyer receive a RETC (marketing piece) on a custom, OR a spec home, if the buyer is present and works with the builder.

Phil Damiano indicated that the codes division is doing a more than adequate job training the builders on the new code, but the rest of the market doesn't feel that this is totally accurate. Program and outreach focused on helping builders make the new code requirements.

Ken asked about the purpose of the incentive for ESTAR homes on manufactured homes when the market share is 60%. Is the incentive to maintain the market? Highlighted the NEEA effort, where the removal of the incentive led to a slight slide in the market share, but it didn't fall below 50%. Debbie asked, how much does it cost to maintain that incented market share? (This was left an open question).

Ken asked about the feasibility of installing ductless heat pumps in manufactured homes. Group discussed options for installing the units as an integral part of the home, and not taking up space in the living space. Great opportunity given that it eliminates ducts, and HVAC duct installation. Phil Damiano added that DHPs are great equipment for new, small, tight homes, where even the smallest gas furnaces are typically oversized. DHPs fill this gap, and provide AC to boot.

Debbie asked about the REPTA next steps. What are the expectations surrounding the REPTAs? Sarah indicated that it would be valuable to have an informed person working with customers at the point of sale. Phil indicated that it's just another point of contact for folks. Debbie asked if the REPTAs will really be the people that influence the consumer about the merits of energy efficiency. Continuing education credits may have been the driver, and market differentiation.

Phil – B/C needed – what level of resources do we want to invest in the REPTA network, and have a strategy to measure what we're getting from the outreach.

Debbie indicated that many folks make several improvements in the 1st year following a home purchase. We ought to look at home improvements involving energy efficiency following purchase when homeowners have been more informed (Existing homes). What are the impacts of EE on re-sale value.

## 3. 2009 New Buildings impact evaluation

Contractor: The Cadmus Group

Sarah presented.

Background

- Second year of a two-year impact evaluation by The Cadmus Group
- Purpose is to true-up the savings estimates based on analysis of operating conditions and calculation methods
- 2009 was first program year administered by PECI

Methodology

- Initial sample of 31 projects
  - Several modeled sites had to be replaced because the engineering firm would not release the model (same problem last year)
- Final sample of 34 projects representing 68% of 2009 program savings

## Sample by measure type[1]

| Measure Type | Reported Measure Quantity | Portion of Total Measures | Evaluated Measure Quantity | Portion of Sample Measures |
|---|---|---|---|---|
| Standard Lighting | 521 | 49% | 125 | 40% |
| Standard HVAC | 165 | 15% | 68 | 22% |
| Standard Motors | 251 | 23% | 57 | 18% |
| Standard Other | 64 | 6% | 29 | 9% |
| Custom | 49 | 5% | 28 | 9% |
| ENERGY STAR | 2 | 0% | 2 | 1% |
| LEED | 19 | 2% | 7 | 2% |
| Total | 1,071 | 100% | 316 | 100% |

Evaluation process

- File/document review
- Site visits
- Engineering analysis
  - Reviewing inputs and calculations
  - Simulation modeling for eligible projects
  - Calibrated with actual usage data

[1] Proportion of measures in sample for Custom and LEED tracks are incorrect, Cadmus is remedying for final report.

## Program level realization rates

| Measure Category | Total Number of Measures | Reported Electric Savings (kWh) | Reported Gas Savings (therms) | Evaluated Electric Savings | Evaluated Gas Savings | Electric Savings Realization Rate | Gas Savings Realization Rate |
|---|---|---|---|---|---|---|---|
| Standard Lighting | 521 | 7,059,897 | 0 | 7,117,845 | - | 101% | N/A |
| Standard Motors | 165 | 894,512 | 0 | 709,732 | - | 79% | N/A |
| Standard HVAC | 250 | 501,223 | 181,551 | 498,784 | 198,372 | 100% | 109% |
| Standard Other | 61 | 189,609 | 18,205 | 176,239 | 21,882 | 93% | 120% |
| Standard Outliers | 4 | 228,000 | 108,675 | 12,143 | 3,038 | 5% | 3% |
| Custom | 10 | 618,792 | 18,629 | 616,498 | 18,476 | 100% | 99% |
| Custom Shell | 10 | 181,717 | 75,942 | 40,076 | 84,008 | 22% | 111% |
| Custom HVAC | 9 | 3,688,784 | 40,213 | 4,133,523 | 20,768 | 112% | 52% |
| Custom Lighting | 16 | 1,271,887 | 0 | 1,117,040 | - | 88% | N/A |
| Custom Motor | 4 | 125,768 | 0 | 141,955 | - | 113% | N/A |
| ESTAR | 2 | 245,680 | 21,813 | 0 | 27,402 | 0% | 126% |
| LEED | 19 | 5,709,222 | 175,688 | 5,374,037 | 233,344 | 94% | 133% |
| Total | 1,071 | 20,715,091 | 640,716 | 19,937,873 | 607,289 | 96% | 95% |

Recommendations

- Remove LED exit sign incentive
  - Done in mid-2009
- Calculate lighting savings though LPD
  - Done with the adoption of the new code in Q3 2010
- Put DCV projects in the custom track
  - Done with the adoption of the new code in Q3 2010
- Review and revise specific deemed estimates (tankless, PTHP, VSDs, etc.)
- Require simulation models for modeled projects at completion
- Avoid combining ENERGY STAR with other tracks
  - Since 2010, savings are not claimed for this track; scaled back incentives for benchmarking and post-occupancy behavior and monitoring

Energy Trust take (staff response)

- 2009 realization rates better than 2008
- Many recommendations have already been implemented
- Still some measures that need scrutiny
- Must have the simulation models and usage release forms (with account numbers) at project close

Discussion

Some attrition was due to design firms not releasing the model for review by evaluation contractor. Phil clarified that the program now collects all models as a program requirement.

LEED – Debbie indicated that the Gas realization rate (RR), over 100%, one firm in the sample represented a lot of those projects, perhaps leading to bias in the RR.
Motors – VSDs, some motors installed which were required by code, not yielding savings.

Debbie asked if ESTAR is it worth maintaining a separate track given its small presence in the program. Jessica indicated that in the 2010 program redesign the ENERGY STAR track was modified significantly. The program no longer claims through this track because they are difficult to verify, also incentives were reduced from a maximum of $25,000 to a revised range from $1,000-$3,000. It was decided at the time of the 2010 redesign to continue the ENERGY STAR for a short interim period as the program develops post-occupancy leveraging verifiable metered data which is currently being learned from the program's Path To Net Zero pilot. To the consumer side – they just see program paths – and ENERGY STAR has had very little market uptake in commercial buildings.

Ken questioned the RR of the gas project that did not function in its first year. The reason for not including it in the RR was that the situation was temporary, thus, it was not factored into the RR after 2009.

Individual measure level, Cadmus recommended occupancy censors (due to 200% + RR).

Debbie asked about the mix of buildings constructed during 2009 relative to 2012 what's in the pipeline. Jessica indicated that the project pipeline is robust – with similar savings relative to 2011. Observed swings in savings are due to larger projects. Government and school projects are coming in – as with the 2009 program year – but there is a growing trend toward more small buildings.

## 4. Next month's agenda:

- IEI Pilot Evaluation
- Kaizen Blitz Pilot Evaluation
- EPS Tool Comparison
- EPS/Home Energy Score (HES) survey results

Next meeting scheduled for
December 2nd, 2011 10am-1pm

Meeting adjourned at 12:40pm.