Meeting notes
Evaluation Committee Meeting

January 28, 2011 10am-1pm

Attendees:
Debbie Kitchin, Board Member – Committee Chair
Alan Meyer, Board Member
Dan Enloe, Board Member
Tom Eckman, Expert Outside Reviewer, Northwest Power and Conservation Council
Phil Degens, Evaluation Manager
Brien Sipe, Evaluation Project Manager
Jason Christensen, Evaluation Intern
Sarah Castor, Evaluation Project Manager
David Jackson, Lockheed Martin, Business Development Manager
Fred Gordon, Director of Planning and Evaluation
Kate Hawley, NW Natural Washington Coordinator
Lewis Colon, CSG, Senior Manager of Strategy and New Initiatives
Lucinda Gilman, CSG, Program Analyst
Marshall Johnson, Existing Homes Program Manager
Matt Braman, Planning Program Manager
Murali Varahasamy, Lockheed Martin, Existing Buildings Program Manager
Pete Catching, Planning and Economic Analysis Manager
Peter West, Director of Energy Programs
Roger Spring, Evergreen Lighting (by phone)
Ryan Bliss, Research Into Action (by phone)
Scott Kenaston, Evergreen Lighting (by phone)
Spencer Moersfelder, Existing Buildings Program Manager
Steve Lacey, Director of Operations
Sue Meyer Sample, Chief Financial Officer
Terry Miller, CSG, Existing Homes Program Manager

The meeting began at 10am with a review of the agenda.

Agenda
1. T12 Bonus Initiative report
2. NW Natural Washington Evaluation
3. Billing Analysis: Existing Homes Gas Measures
4. Next meeting date and agenda

Review of the Organizational Redesign Evaluation was postponed until the next meeting.

1. T12 Bonus Initiative report
Contractor: Metaresource Group

The goals of this evaluation were to assess contractor reaction to the temporary lighting bonus offered for replacement of T12 fixtures with T8 fixtures. T12s will be phased out of energy codes in the next few years and the bonus attempted to hasten the conversion of fixtures. The bonus was offered August 1, 2010 through December 15, 2010. The program expected to increase the

number of replacements for that period by 5,000 units. Tom asked for clarification that the incentive and goals were for fixtures and not lamps (it was for fixtures). Phil said the evaluation took only two weeks and is an example of the quick turnaround we can do on simple projects.

The evaluation interviewed 11 lighting contractors to obtain feedback needed to determine whether the bonus should be continued past December 15. Main findings were:

- Many T12 fixtures remain unconverted – seven of the contractors said that 50 percent or more of fixtures still have not been converted.
- The bonus incentive was viewed as important in selling projects by all contractors.
- Most say they did not have time to market the incentive.
- All but one say the bonus incentive should be continued.

Debbie and Alan said that the original bonus time frame was too short for most customers to act. Fred said that the lighting market assessment done in 2009 showed only 12 percent of fixtures were T12, and wanted to know why these contractors saw it differently. Phil said that these contractors are talking about certain markets segments where they are still selling a lot of fat tubes. He added that there was more bonus traction in Southern Oregon – Portland may be mostly T8s, but not other places.

Dan asked what the ROI is for going from T12s to T8s if you just need to replace the lamps (not the fixture). Phil said each saves 213 kWh per year; Dan estimated that's $20 a year in savings, so payback is 4 or 5 years – the bonus shaves a year off. He also asked when the energy code will change. Fred said that for ballasts, it hasn't been decided, but probably around 2014; for lamps 2013. Dan said that getting people to move ahead of code fits our mission.

Fred noted that some newer lamps fit in old ballasts and also provide more light, so they don't need as many ballasts. He said we are in the process of constructing a market transformation model and it looks like we have influenced the change in ballast standards. Debbie agreed that the discrepancy in estimated saturation was because of special market segments. She also noted that T8s have been code for at least 13 years in Oregon new construction. Dan said that since the ballast seems to be where the biggest savings are, it is good that the ballast is the requirement for the incentive, not just the lamp.

Findings (continued):

- The program estimated that the bonus had exceeded its goal of 5,000 additional fixtures by 3,700 (8,700 total). This represents 1,853,000 kWh savings (average 213 kWh per fixture).
- The bonus spurred the trade ally pool to sell projects during a recession and helped get the program close to its stretch goal.
- Southern Oregon saw an increase where lighting trade ally activity was historically flat.
- Eastern Oregon did not see as significant of an increase as the rest of the state.
- The evaluation recommended extending the bonus on the basis of interviews.

Alan asked why there was no increase in activity in Eastern Oregon. Roger responded that there are fewer active trade allies there. Alan said that should mean there is more opportunity there. Murali said he hopes to get more projects in Eastern Oregon this year since we are continuing the bonus through November 1, 2011.

Alan said the question is still how we motivate customers to act quickly while still providing enough time for larger organizations to act. Debbie said that it depends on the market segment.

Roger said that the trade allies surveyed were the top, most active allies and they are usually good at selling projects, but they were convinced that this bonus tipped more projects than they could have otherwise. They processed 350 projects in a month where they usually process 100.

Fred asked whether we will desensitize customers to the urgency if we always extend bonuses. Roger said that he made it clear at the recent trade ally training sessions that November 2011 is a hard cut-off date.

2. NW Natural Washington Pilot Evaluation

Contractor: Research Into Action

Energy Trust began running a pilot program for NW Natural in its Washington service territory in October 2009. The pilot provided a set of gas efficiency services and incentives to their 53,000 residential and commercial customers. There are significant differences in offerings between Energy Trust's programs in Oregon and the Washington pilot (no custom commercial measures, no residential appliance incentives, availability of a gas furnace incentive). There is limited coordination with Clark County PUD on energy efficiency.

The pilot was extended from September 30, 2010 through December 31, 2010 and re-labeled a program for the 2011 year. Kate said there will be a decision on May 25th on whether we will continue administering the program fulltime. Debbie asked whether the Board approved of the extension for 2011; Kate said they did so in December. Fred noted that the board will want to approve a long term commitment.

Fred asked why it changed from a pilot to a program. Kate said NW Natural wanted to establish a longer term view for the offering. Phil noted that custom projects not available in the pilot are now available in the program.

In the first year of operation (Oct. 2009-Sep. 2010), the pilot acquired 120,900 therm savings, nearing the WUTC high goal of 130,000 therms (low goal was 97,500). The pilot did not meet its internal goals for the residential sector (36,952 vs. 43,875 conservative goal), but exceeded its internal goal in the commercial sector (83,945 vs. 71,500 goal). New homes were not included in the pilot and goals but added an additional 4,050 therm savings. Kate said there have been 90 homes so far.

Alan noted that the goals were fairly small. Phil said that was because the territory is small and it was the first year up and running there. Debbie noted that when we started doing gas programs here, we were already doing electric, so the program was mostly in place. Phil said that it takes time to get contractors and customers aware. Debbie said it also takes contractors time to find customers.

The number of projects went up in the 3rd and 4th quarter of 2010; it took time to process some of the projects and incentives.

Research questions for the evaluation were:

- Do trade allies experience specific challenges to selling energy efficiency services and equipment in Washington?
- How do the needs for energy efficiency improvements of SW WA natural gas customers compare to those of Oregon natural gas customers?

- What obstacles, if any, do trade allies face in completing an Energy Trust incented project?
- Should Energy Trust undertake additional marketing efforts to promote the program?

Phil noted that we had limited budget for evaluation. Alan asked for verification that the evaluation budget came from NW Natural Washington customers. NW Natural did allocate separate funds that were not from Oregon public purpose funds. Debbie asked where money for future evaluations will come from, and whether the budget will be larger. Phil said that will be negotiated with the WUTC. Kate said we will have more in the budget for next year. Debbie asked because there is so much more we want to know about the customers that can't be found from secondary sources – we need a survey. Fred said the question is how good a program can we afford to run in a small territory. We're finding that out from this pilot/program.

The evaluation included a review of program documents, review of a Clark County demographic report (produced by Evaluation staff), review of Energy Trust's Trade Ally Survey and Fast Feedback from Washington, interviews with program and PMC staff, and interviews with 11 trade allies that primarily serve the SW WA market.

Demographic Findings:

- Bulk of NW Natural customers are in Clark County.
- Compared to Multnomah County, there are fewer gas households (1 in 3 homes), newer housing stock (46% built since 1990), and greater home ownership rates.
- Gas only program is relevant to a small percentage of households and newer housing reduces the need for weatherization services. Greater home ownership should counteract this.

Debbie was surprised how different Washington is demographically. She asked if codes were introduced at about the same time. Tom said yes, although 2x6 walls weren't code in Washington until 1996. Phil said the low prevalence of gas means we should do targeted marketing, not mass marketing. Dan asked if NW Natural could identify older accounts. Phil said we're not allowed to use billing data to target customers, but Brien said we have property records and we could use those. Alan asked about the use of billing data for marketing with all utilities. Peter said John Volkman is negotiating a new agreement, but we don't have an OPUC liaison, so it is taking a long time.

Fast Track analysis shows Washington based residential contractors were more active than those based in Oregon (average of 7 vs. 4 projects) and six contractors were responsible for 40% of the residential projects. Phil said we had assumed our contractors in Oregon would work more in Washington than they have; Debbie noted that there is still some activity.

Trade ally (TA) interview findings:

- Program started at the beginning of the heating season possibly hampering awareness and TA participation
- 5 of the interviewed contractors had worked with us less than one year
- 9 had sufficient information to market the pilot/program to customers
- Most (9 of 11) were satisfied with Energy Trust
- Two respondents had issues with inspections and two had issues with billing paperwork
- Contractors largely had a high degree of awareness of available programs:
    - 8 always mention our incentives

    - 7 always mentioned the federal tax credit
    - 7 actively promoted Clark County PUD programs
- All 11 said they always promote the most efficient systems
- 10 had submitted or helped submit program paperwork (9 reported difficulties but did not see these as serious obstacles)
- 9 contractors indicated that their customers were receptive to energy efficiency projects
- 4 said that customers were unaware that incentives were available before they undertook the project
- Almost all felt that most customers were largely unaware of energy efficiency offerings available
- Almost all felt that there were no major obstacles to the program

Phil noted that training and forms help are important for us to provide.

Contractors had lots of suggestions for program improvements, including more collaboration with SW Washington organizations and utilities and dropping the “of Oregon” in our name. Tom encouraged Energy Trust to coordinate with Clark and other PUDs on market research. Peter noted that this was only the first year so we were establishing relationships. Peter asked if Amber has been consulted on dropping “of Oregon” – she should have a say. Phil said it was just a suggestion and she has reviewed the document.

Fred said the suggestions on providing information on financing options were interesting, since NW Natural has a financing offer and contractors don’t use it often. Kate added that GreenStreet lending is available in Washington.

On the commercial sector side, 10 contractors did all of the projects. Lockheed Martin also did direct installs of steam traps. Phil suggested we could extend the commercial contractor network.

Debbie noted that the ratio of projects and therms over time is interesting, there is lots of variation. Phil said there are relatively few commercial projects, which causes variability.

Fast Feedback surveys show customers are generally satisfied with the program and its aspects. Dan noted that you generally want a year of billing data before people are asked to evaluate the performance of the measures. Fred said that was true, but it is still worth asking after only a few months.

Phil said he noticed there were not a lot of furnace projects – they turnover every 20 years, so that’s 5% of the market that need to be replaced every year. Matt noted that they may just not be getting our incentive.

Recommendations:

- Create Washington-specific marketing materials to educate consumers that the program is available to residents of Southwest Washington as well as Oregon.
- Adapt marketing messages to educate consumers that newer housing stock can also benefit from EE improvements
- Coordinate marketing efforts with Clark County PUD.
- Carry out targeted marketing activities to outlying areas of Clark County
- Recruit trade allies that serve outlying areas into the program
- Recruit more Washington-based trade allies to promote greater penetration in that market.

- Direct resources to assisting building shell contractors to promote their services.
- Educate HVAC contractors to promote duct sealing, air sealing, insulation, and other building performance measures

Tom said to be sure to look at territory maps, not just census data for targeted marketing. Debbie said we should also pay attention to home vintage. Phil said it is most important to market to trade allies, so they can promote the program in applicable homes.

Energy Trust's take:

- The pilot has successfully met goals in its first year of operations with regard to customer and trade ally satisfaction.
- The program is blazing a new path under difficult economic conditions. It is doing this with a limited set of offerings and for a single fuel with little collaboration from the resident electric utility.
- Trade allies seem optimistic and are for the most part satisfied with Energy Trust and aligned with the program goals.
- We should actively recruit Washington based trade allies in 2011 and think about how to get Oregon contractors over the river.
- We should rethink "of Oregon" for marketing purposes.
- Some innovative ideas have been developed, such as direct install of steam traps and the study funding process

Phil also said we should compare our TA list with Clark PUD's.

Dan suggested that in the spirit of Tom Peterson, who used his wife's name in his rebranding, we should be "Energy Trust of Oregon and SW Washington, too".

Alan asked if we are looking at forming a subsidiary. Fred said we haven't found it worth the trouble so far. Sue said there would be a fair amount of cost involved. Fred said it might require a separate board.

Phil said that the direct installs of steam traps were particularly successful and Fred notes that this is the delivery method in Oregon now as well – Washington was the pilot for that. Brien mentioned steam traps now cost half as much with the new delivery method. The study process has also changed: the customer now pays for the study (rather than Energy Trust paying a portion) and when they do a project we pay them back for part of the cost of the study.

Dan concluded by saying that if we offer Home Energy Reviews in SW Washington (we do), we can also use the tagline "Free is a very good price".

3. Billing Analysis: 2008 Existing Homes Gas Measures

Brien presented the analysis following on the work he did for 2006 and 2007 program years. Findings are relatively consistent from year to year, which is reassuring. However, determining savings from air sealing continues to be an issue.

Measure	2006 only	2007 only	2008
Air sealing	15	-25	5.2
Duct sealing	32**	37**	5.6
Gas furnace	75***	78***	68***
Windows†(per sqft)	47 (0.19***)	9 (0.034)	50 (0.2***)
Ceiling insulation (per sqft)	75 (0.06***)	59 (0.047***)	65 (0.052***)
Floor insulation (per sqft)	43 (0.04***)	47 (0.041***)	59 (0.051***)
Wall insulation (per sqft)	54 (0.05***)	61 (0.061***)	62 (0.06***)
Duct insulation (per sqft)	8 (0.04)	33 (0.16**)	28 (0.14***)

** and *** indicate that estimates are statistically significantly different from zero.
†Deemed windows savings are based on 'incremental' savings, impact estimates in this table represent 'replacement' savings and are not de-rated to account for baseline assumptions.

Window savings estimates have to be de-rated to account for the current assumed baseline of a 0.35 U-value window. Alan asked if NEEA claims the rest of the savings between the old window and 0.35. Phil said NEEA doesn't claim gas savings and Fred said that 0.35 was the baseline before Energy Trust was established.

Dan pointed out that based on average project size, ceiling insulation saves the most overall (65 therms). Sarah noted that it also has slightly higher free ridership, lowering net savings somewhat.

Phil noted that windows are always becoming more efficient and the baseline is moving. Debbie added that more styles are available in efficient models. Phil said that Energy Star is moving to 0.30 U-value and we are going to be adding a stand-alone measure for 0.22 windows this year. Marshall noted that isn't final, but we may have two tiers at 0.30 and 0.22. We are currently still evaluating and we need to estimate free ridership to know if they will pass cost-effectiveness. Fred said that we might be able to claim market transformation on the change from a baseline of 0.35 to 0.30 U-value. Tom asked what was going on with windows in 2007 (only 9 therms). Brien said he is checking into this and Phil noted that is it not statistically significant.

On average participants in our gas program saved 8% of their total load. However, air and duct sealing seem to have no savings. Brien said that there was one contractor who did the majority of the 2008 projects and this contractor did not appear to do an effective job, based on billing analysis. Other contractors who were active in 2006 and 2007 did show savings for their duct sealing jobs of around 30 therms; however, air sealing jobs still show no savings for any contractors. Since 2008, there have been enhancements to program documentation requirements and incentive structure that may result in more savings. (Details are discussed below "conclusions", further down in these notes). Dan gave the analogy of a leaky tire even if you plug most of the holes, that just makes the same amount of air push out of the remaining hole with more force; you have to plug all the holes to see a benefit. Brien said that in addition to the problem contractor being rejected as a trade ally, the measure requirements have changed and contractors are now required to specify where they performed the air sealing. Tom said that this is a consistent problem for all air sealing programs – the program only knows the air tightness after sealing, not before.

Michael Blasnik (Blasnik and Associates) and Scott Pigg (Energy Center of Wisconsin) have been contracted to review these analyses and they approved of the methods and results. Methods used were from workshops on best practices conducted in 2008.

Sample attrition is mostly due to inability to match billing data to participants and is believed to be random. We are improving the billing database by the end of Q1 2011 and this is expected to reduce attrition. Two types of models were used to estimate savings and results were very stable across models. A variation excluding outliers was also estimated and results were fairly similar.

Savings were also estimated for common bundles of measures and show that interactive effects reduce the savings for the additional measures; as Tom says, “You can’t save the same therm twice”.

Dan pointed out that in one model wall insulation saved more than ceiling insulation, the opposite of a different model. Marshall said in some cases walls may save more than ceiling since walls usually have no insulation to start, but the program allows ceilings to have up to R18 pre-treatment.

Brien pointed out a nice finding: modern furnaces are about 14% more efficient that old ones (AFUE of 0.94 vs. 0.80) and the gas furnace savings estimate was 15% of total heating load, which aligns well.

Models show that “naturally occurring” savings were about 20 therms. Tom noted that in general, gas loads are declining over time. Matt also noted that 2008 was the year of large gas rate increases which motivated people to save. Fred added that it could be caused by spillover, we just don’t know.

Phil said that savings per square foot for insulation are similar to estimates coming out of Wisconsin. Debbie said that should not necessarily be the case, since they have different housing stocks. Brien said that intuitively there should be some correlation, though they won’t be the same. Phil said that Wisconsin has been doing weatherization as long as we have and it is reassuring that they aren’t wildly different.

Most 2008 duct sealing contractors show some savings (except for the problem contractor), but for air sealing, none of the contractors’ work showed savings. Fred asked for verification that the program changed mid-2009, and it did. So we may not see savings from billing analysis for a while.

Dan said that new furnace and gas water heaters are required to get combustion air from outside the house (old ones didn’t) and so they have to heat the air to inside temperatures. This isn’t being accounted for in the air sealing modeling. Fred said if you seal up the house, the furnace has to work harder to pull air inside. Steve said that it was not as simple as that. Phil said that the cost of a new vent was not worth the extra savings.

Fred asked if furnace estimates account for incremental savings rather than replacement. Brien said no and Phil said it is not worth de-rating for baseline.

Conclusions:

- Gas savings appear to be stable over program years (with some exceptions).
- Consistent modeling techniques yield comparable results across program years.
- No measureable air sealing savings; duct sealing estimated savings are also zero.
    - One high volume contractor performed over 50% of projects involving these measures.
    - This contractor also did over half of the total projects involving these measures in 2009.

- Energy Trust is exploring options for the future of air sealing:
    - Prescriptive, with checklist?
    - Included in insulation installation spec?
    - Incentive rolled into insulation incentives?

Tom asked about the current quality control process for air sealing. There is now a checklist to verify all places sealed. Marshall added that test-out (post-treatment blower door test) is verified. He asked Tom if it would make a difference to change from measuring sealing in CFM50 to ACH50. Tom said that normalizing to home (by using ACH50) may help you measure better sealing, but savings should still be showing up using CFM. Using ACH won't find savings; our best chance to find savings is to look at homes we really thought were sealed properly.

Dan said that in his experience with his home, you have to go around and look at all areas (preferably with an infrared camera) especially up high on the walls. Tom said that it is hard to do air tightness right and to make it last. Marshall noted that there was no history of certification for this and little training until BPI came in. They are now improving knowledge and he hopes to see changes in savings in future program years.

Fred said that we can't seal homes as tightly as in other parts of the country because of mold issues. Tom added that it may make some problems (like mold and air quality) worse. He said that state's low income weatherization programs spend a lot of time on this area, and we should take a look at their training. We also want sealing not to cost a lot.

Phil said that Michael Blasnik and Scott Pigg were surprised to see no air sealing savings, but they work on low income weatherization where there are better opportunities for savings, other services, and costs are lower – their mission statement is different.

Debbie asked about areas for further research and implications for programs; should we continue air sealing? Fred said we're waiting to see 2009 savings – if there is a way to make it work, we should stay in. Phil said we expect to have 2009 results in mid-2011. Tom is interested to see how the program is performing since changing requirements. Fred said we will also be looking at cost-effectiveness of insulation. Matt said that right now ceiling is the most cost-effective and is just marginal; prescriptive duct sealing would be much cheaper and would get the measure to cost-effectiveness.

4. Next meeting date and agenda

The next meeting will probably cover:

- Existing Buildings 2008-2009 Impact Evaluation
- Plant Closure Study
- Fast Feedback Q3 2010
- Business Listing and County Tax Assessor File Database Pilot Study
- Organizational Redesign Evaluation

The committee discussed the status of other projects currently underway.

The meeting adjourned at 12:55pm.

The next meeting is scheduled for Friday, April 29th, 10am to 1pm.