CONSERVATION ADVISORY COUNCIL
Notes from meeting on January 12, 2011

Attending from the Council:
Jim Abrahamson, Cascade Natural Gas
Lisa Mortenson (Representing NW Natural)
Vijay Satyal (Representing Oregon Department of Energy)
Bill Welch, Eugene Water & Electric Board
Steve Lacey
Ted Light
Brien Sipe
John Volkman
Kendall Youngblood
Peter West

Attending from Energy Trust:
Tom Beverly
Matt Braman
Pete Catching
Kim Crossman
Diane Ferington
Lakin Garth
Ray Hawksley
Kate Hawley
Susan Jamison
Marshall Johnson

Others attending:
Jeremy Anderson, WISE
Theresa Gibney, Corvallis Sustainability Coalition
Andrew Ragen, Rogers Machinery
Paul Olson, Gale Contractor Services
Stephanie Vasquez, CSG
Kyle Barton, CSG
Terry Miller, CSG
Chad Gilless, Global

1. Welcome and introductions
Peter West called the meeting to order. The minutes from November 2010 were approved and the January agenda was accepted.

NOTE: All materials references are available on the Energy Trust website.

2. Market transformation gas savings
Matt Braman presented on gas savings from the Northwest Energy Efficiency Alliance that we haven't previously reported. The analysis is in the presentation and covers 2005-2009. Most importantly, Energy Trust can claim the gas savings if we are actively involved in obtaining the savings. We aren't considering NEEA savings where we weren't involved. Nobody else is claiming the gas savings, and there are no budget impacts. We have already claimed the electrical savings.

We would retroactively claim the savings and do our best to account for them in the budgets and savings numbers.

Net market effects are what we're going to claim. We're going to claim everything beyond what we have included in our savings numbers. The presentation slides explain the numbers.

This includes ENERGY STAR® clothes washers, where we were actively running the program. Net market effects are small – 39,800 therms. Regional is close to 986,100 therms. We have already claimed most of the savings.

Q: Is this for the entire funding cycle?
A: Yes, this is the sum of the five years.

Windows preceded Energy Trust. We don't claim anything before our time, but there are still significant effects. This is the biggest one in terms of savings – 287,500 therms. Impacts are

from 2008 through 2009. Starting in 2010, we accounted for these savings in budgets and programs.

Q: Is this because of the code change or Energy Trust efforts?
A: It's because of the code change, but also because NEEA and Energy Trust were working on it.

Q: The code change was the indirect driver of the ENERGY STAR effort, and made it easier to be adopted? How much of that would have happened anyway, without Energy Trust? Is that a fair way to look at it?
A: These are the net market effects beyond Energy Trust.

Q: Are there estimates of the baseline without Energy Trust and NEEA?
A: NEEA is continuing to do more work in the area, and we are using their estimates.

Q: This is one where the code stuff is difficult, because you have to lay out the realistic baselines. As they take effect, the incentives go away in a regular program, but if you are trying to influence code, the savings are still there.
A: We already claimed electric savings because of that, but we rely on NEEA's efforts for the baseline.

Q: The 287 would change downward over time, as the market catches up with the code changes?
A: The baseline will eventually change with the housing market, but any forecast right now does show big improvement in the housing market.

Q: Was there actually a natural total market baseline that NEEA did, or did you take an electric calculation/baseline and apply it to gas?
A: Builders are doing it as a builder option package or code change on the whole.

Q: It sounds like NEEA did a lot on the electric side, but not gas.
A: Ecotope does the modeling on both.

Q: It would be nice to see the calculations.
A: We should look at it on the whole later on. It's one of the bigger things NEEA is working on. NEEA is going through an exercise right now to better analyze what they're calculating.

Q: Any improvements they do would apply to the next cycle?
A: Yes, and the first cycle too.

The BetterBricks program yielded 434,000 therms of direct market effects. We still need to confirm they are on non-transport meters, because those aren't on our turf, and we shouldn't claim the savings. These are savings on the sites; not diffused through the market.

Industrial CEI Program showed a total of almost 900,000 therms. These were food processors with transport and non transport meters, so we have to analyze the savings. If they are non-transport, we will count the savings.

Q: Going back to the 8 and 4; the Cadmus evaluation for these sites is just for the sites?
A: Yes; NEEA is looking only at the sites right now.

Q: Were any in Cascade Natural Gas territory?

A: One of the industrial sites was; they were a food processor. Other savings from clothes washers would be split between NW Natural and Cascade Natural Gas.

Q: Market transformation in industrial is what?
A: Incentives are the only thing not included in market transformation. Most of the NEEA efforts were on the CEI offering and rolling out over five years. It didn't exist before in this form, which is very effective. They have gotten the CEI offering to where the resource programs can offer it and show the savings. As they deploy practices and take them up, they jump to the next standard. ISO Standard is the big thing right now, and the sites using it are proving out the concept. It appears there is a stop in the curb that involves resource acquisition programs getting involved at deployment.

Q: The NEEA program has worked well in food processing but not in pulp and paper. It seems to have to happen in production. When you look at energy use, are projects at first, but then they fall into another bucket?
A: When NEEA wasn't doing O&M, all of this was fair game.

Q: It almost seems like marketing to the execs, who then do the marketing in the plants for you.
A: NEEA pushes from the top while we push from the bottom.

Q: Are they testing ISO protocols?
A: NEEA has been very involved in the development of the standard.

Q: That goes back retroactively to previous years? How are you going to allocate from the gas side between NW Natural and Cascade Natural Gas?
A: It depends on the initiative. Homes info comes from permits and is very accurate. For washers we would have to allocate on households. Also, site specific based on where the permits are. It wouldn't really have an impact toward IRPs, either.

Q: On a going forward basis, what part would you include in forecasts?
A: You would look at baseline adjustments. Going forward we can look at this more closely for planning.

Q: Is this information meant for a committee decision?
A: Our proposal is to go forward. Are there objections?

Q: Cascade Natural Gas would like to consider it a little longer.
A: You are still catching up on the information, and we'll dialog more with Cascade Natural Gas. We're planning to proceed for lack of other objections.

Q: Do you anticipate any difficulty getting the ID of the transport customers?
A: On the industrial ones, it may be difficult, but we'll have to talk to the Cadmus staff. The commercial ones aren't hospitals, which is a good thing. It should be less of an issue.

C: That means there's still time to dialog.

3. Industrial 90 x90 pilot results

Ray Hawksley presented the Industrial 90x90 results. These were operations and maintenance electric projects only. The promotion provided incentives of up to 90 percent of project costs, up to the eight cents per kWh cap, if the customer implemented recommended energy-efficiency measure within 90 days of receiving our incentive offer. This was a successful strategy to capture energy savings in 2010 in a quick way. The lack of capital made this important as an

alternative to normal incentives. We looked at O&M measures because we were going to have a deficit in our savings goals for 2010. The opportunities were quick fixes and inexpensive. Areas of focus included minimizing loads, fixing leaks, repairing defective equipment, getting rid of open blowing processes, looking at controls, set point changes, etc.

Seventy-six percent of projects were completed within 90 days, but a few dropped out. Projects that dropped out did so because of company spending freezes and decisions that resources and priorities were such that they couldn't do it in 2010. Overall, we saw almost 21 million kWh in savings, just from these O&M projects. Incentives were about $450,000. Average project cost per site was $12,200, which resulted in a low acquisition cost for industrial companies.

Q: How close did you get to the overall project costs? It seems like you never got close to the project costs. It would be closer to $8,000 if you capped on project costs.
A: We got close — about 84 percent of project costs were covered by incentives. This ended up being very cost effective, and was very exciting for happening in such a short period of time.

This proved that there are still low-cost opportunities. It was about one-sixth of all the electric savings in the program, but we had nothing in the pipeline when we entered 2010. Average payback was less than six months before incentives.

We also learned that companies still wouldn't implement things without incentives, even when payback was less than a year. Energy Trust's involvement did have an impact, according to companies who went forward.

Q: Is it the limited-time offer or the increased percentage that causes them to go forward?
A: We felt it was the limited time, but might be both. The promotional name "90x90" sticks in peoples' memories – it was probably a combination of both factors.

Q: Most of the participants already had the knowledge of what needed to be done?
A: Many of them actually didn't, although some we brought right in because they already had offers and hadn't moved. A large number were new customers.

Q: The myth here that you are going to act on something with a less than one year payback assumes you know the work even existed.
A: You would think it makes sense, but they haven't necessarily evaluated the projects in a monetary state.

C: From an industry view, people become complacent. They kind of know that work can be done, but pass it by. Having us point out these things, and offer something moved people out of complacency and raised awareness. Giving this a lot of attention in a tough economic time is what made it work. We need to keep this kind of thing going. It's really important. We did some of the projects ourselves, but many of our customers had great experiences.

As we got closer to the deadline, new participants would come in kind of late, and we found that sometimes we could do a study and implementation at the same time. It had to be a site with solid historical data, and from that, we could do an incentive offer with the eight cent cap. We could offer a maximum and say they would get something up to that maximum. We helped them learn how to evaluate things and walk them through the process. We did this on several projects, and they were by far the most cost effective. They were well below the cap and were quickly implemented. These were 1 to 1.5 months for the projects; very exciting results.

There were still some barriers. Energy Trust is still beneficial, even if companies should be doing the projects on their own. External resources are necessary for a company to use in diagnosing problems. It's not their normal line of business.

We have to help with a persistent strategy, since this isn't capital equipment. Training and usage of equipment, permanent flow meters, permanent signage for set points, changes to procedures all help on an ongoing basis.

See slides for example projects with costs and savings included.

The next offer will be available between March 1 and June 30 of 2011.

Q: The first example you showed was 1 million kWh savings for a $135 incentive. The role of Energy Trust was just to wake them up and get them to do it. Someone had to show up to get them to do it.
A: The costs are in the time of the Allied Technical Assistance Contractor, delivery, setup, program and an incentive, but the cost is still very low. It's probably less than $8,000 to do it.

Q: I've advocated for energy managers in places like this, but what do you think it really costs Energy Trust to get the savings?
A: It would be far less than 3.2 cents per kWh of savings; a good investment.

Q: You still see waste like this going on despite our efforts.
A: It's amazing what can be caught. Turnaround time for the promotion was less than six months. Normally, we have a two-year turnaround time on projects like this.

The last project must be implemented by Sept 30, 2011. It will help move some of our hockey stick from December. We'll start with Program Delivery Contractor kickoff meetings very soon and fine tune based on the discussion.

4. Energy Performance Score pilot

Diane and Kendall presented the EPS pilot. Our EPS pilot is part of a national movement to move EPS to the existing homes market. It is an asset based metric on a home, similar to a miles-per-gallon rating on cars. It's only effective if it's reliable, accurate and gains consumer attraction. It's not a certification on a home. It's not a program. It's also not a guarantee, or an incentive, but we could design incentives to coordinate with it. It's also not a substitute for Home Performance with ENERGY STAR.

The EPS helps homeowner compare homes, like they do when buying a new home. It also provides a target for homeowners to achieve. The score shows performance on a scale, and uses data like home size, insulation levels, air leakage, heating and cooling systems and shell factors.

Phase 1 is on our website.

We have found that complicated models were no better than the less complicated ones that have fewer inputs. Having less inputs leads to improvements in how much time it would take to come up with a "miles-per-gallon" value. It saves program time and money. We found the best non-complex model had an error of +/- 30 percent. Comparisons to billing data are not an accurate test of forecasting efficacy of models.

Q: How troubling did you find it that complicated models are no better than less complex models? Does it lead us down the path of "just keep doing what we're doing?" Do we just use SHOW's quick assessment and get the same answers as the more complex models? Can we even improve?
A: We learned we can look to methods that require fewer inputs and be confident that they're as good or better.

Q: Are there no less complex models that can achieve what we're after?
A: We're going there in the next phase to make site visits shorter (three hours for HERS audits vs. 1.5 for our approach).

Q: Is there no off-the-shelf stuff that reaches that goal?
A: We are going to try some of the less complex models in the next phases. We learned that we can save money and time with less complex models that are slightly better than a checklist, and get good results. We don't yet know if they are good enough models.

The next phase will look at the Department of Energy's Home Energy Score. It will look at representations, carbon impact, including a score or not having a score, and does it actually direct people to do the right things. How good is it at predicting savings vs. comparison benchmarks? Looking at SIMPLE 2.0, Real Home Analyzer 2, DOE's Home Energy Score compared to SEEM data used by RTF. We'll look at ease of use in the field for the models.

We'll work on homeowner follow-through rates and visual presentations. The pilot will be 400 gas-heated homes; 200 will get DOE's score, 200 will use Real Home Analyzer and all 400 will get Simple 2.0. The benchmark on follow-through rates will be based on our Home Energy Reviews. We start the EPS surveys in February. We'll use BPI certified technicians for the audits. Five people from the PMC will be dedicated to doing the audits. They'll receive training on the scoring tools, scripting and contractor engagement. The homes will be randomly selected as they come to us for Home Energy Reviews. The score is done on-site, and homeowners are given recommendations sheets, a list of trade allies, incentive sheets and fact sheets on measures. An energy advisor is dedicated to them. They'll be asked to do two surveys: one a week after the assessment and one six months later. We're collaborating with DOE and our Evaluations department. They are not doing a Blower Door test, which is of key interest to DOE – is it necessary at this stage of the game? Why make the customer pay twice if they go forward with projects?

C: Every contractor is extremely against price estimates. If you have to do a cost range, please make it as wide as possible.
A: We understand, but we are trying to work for the customer, and this is one of the key things they like and want. Our Legal department feels we can use actual costs and provide a range to customers based on those.

C: Make it the actual range, based on what you see.

Q: Will the cost range be per square foot, per house type?
A: We looked at the last two years' worth of data, and every project that had a given measure done, and we used everything from the 2nd quartile to the 3rd quartile, and excluded the top and bottom quartiles as outliers. Insulation is done by the square foot. Outliers can be explained because of extreme circumstances.

C: Years ago, Home Energy Reviewers were giving out prices and it was a disaster.

A: These are now based on logic and methodology and the Home Energy Review advisors are BPI certified. Customers, the OPUC and others want this information. We have enough data to offer this information. The call center will be trained on this price range, and how to communicate the report findings to customers. They can discuss things outside the normal range.

Q: Are the energy advisors going to go into the home and attic and crawlspace to find current status? Will they have a good idea of existing conditions?
A: Yes they will. They have to fill out the existing conditions on the report. Leakage will be a range since they're not doing a Blower Door test.

We are one of 10 pilot locations to use DOE's energy score. The website www.homeenergyscore.gov has a list of all 10 locations and the types of homes. They will all use this same tool. The tool uses Energy Saver Pro, and uses RECs data in the background. A 2005 data set is behind the scenes. It provides a tips and recommendations report. All pilots should be done by June 2011. Stephanie Vasquez is the PMC point person and Kyle Barton is the field point person (both from CSG). Certified reviewers must have RESNET or BPI certifications, and complete a test online to prove they are trained and certified. The main goal is to provide feedback to DOE.

Q: The fine print assumes single-family, site built, (detached) homes?
A: The first pilot does assume that. It's intended to work on that assumption.
Please take a look at the materials on the website to see the DOE slides, because they are small print here. Some of the info explains calculations and assumptions behind the score. It also speaks about source energy. EPS uses site energy. Source energy adds in transmission and distribution losses. Site energy is what's there, on site, and may be more relevant to homeowners. Site vs. source is a national debate among energy conservation experts.

The score does take climate into account, based on listed climate zones.

Our EPS score looks different from the DOE score presentation in that it compares similar homes. The DOE score doesn't factor house size into the score. In our case, the closer you get to 0, the better. The DOE score goes from 1 to 10, with 10 being the best. Ours may show more minute opportunities, instead of the big things. It really comes down to getting the customer to get their contractor to do the work.

C: Contractors would like us to get people to them with no stops between.

C: Energy Trust has a follow-through rate of about 36 percent within two years for Home Energy Reviews.

Q: Regarding the use of dollar numbers on the performance score, what does the $1,674 represent? How does the expenditure line up with the score of 120 that you gave the customer? It's tough to explain.
A: When we go into the home, we'll have the actual energy usage data, so we're not telling them they'll save more than is possible given their actual usage. The value generated comes from the tool, and we'll need to look at it for problems if they don't match up.

Q: What if we're using less than the listed amount on the report, because we are using less than this expected average for our home?
A: The listed usage is a benchmark for the home, based on standard operating conditions. Homeowner behavior will determine if you perform better than the score or worse.

The recommendations and savings will be calibrated to the actual load. We won't say that they can save more than they actually use.

The piece of info in the corner (estimate energy costs) may distract from the message because it doesn't match up with their bills. This will be part of our consumer education efforts around the EPS.

Q: Will the number relate to all future users if you're using it for RMLS listings?
A: It's the house under standard operating conditions. In the RMLS situation, it compares two homes under their standard conditions. It compares apples to apples, not your own behaviors. You may live in a lighter way than the average assumes, and that will follow through to the recommendations. It still gives a score based on everything, but the cost is the average for a typical homeowner, for comparison's sake. It really shows the standard, and you can improve what you want from there.

We should flag it as part of our survey questions to see what homeowners think about it.

Q: The error factor is 30 percent, maybe, and you're trying to reduce it?
A: That was on the pilot, and we need to re-benchmark all the models to SEEM data, which is regionally accepted for single-family, detached homes. We're not sure the 30 percent is accurate.

Q: Did you consider going to a set number of randomly selected homes that had been Home Performance with ENERGY STAR customers?
A: We are running those through various models and looking at their usage. There are about 30 of these we are working on, and potentially 70 to get started.

Q: Hopefully you'll have homes in all states of having work done.
A: In our worst nightmare, we'll find that different models fit different home types, which will be a problem. HERS REM Rate is best for new homes, we have found, but not for existing homes. It's an offline conversation.

C: This is no different from a miles-per-gallon rating on a car. A 15-year-old is going to use the car differently than an older person. The car will perform differently. Data is published based on normal operating conditions. The car's mileage will vary based on how you drive it, no matter what the typical, posted miles-per-gallon is for that car. You need to use common analogies that people understand, like the car situation. There are ways to do this, but it will require very active efforts to put this into a familiar context. It's about explaining, more than changing the tools. We may have to tweak it based on homes and systems, just like regular miles-per-gallon values may not apply to a Prius.

C: Furnace manufacturers ran into the same thing where they bench-tested furnaces at a certain score, but found they don't perform that way in the home.

The DOE is very interested in this nationally, so it's good to be part of the tests before it's rolled out to everyone. We can be a bit out in front of it and put our flavor and rigor to it.

Recommendations are split between things to do now vs. when equipment breaks down. They are based on the state's average utility rates, average of utilities in our case. They will probably be rounded to make it simple for the consumer.

Tips are similar to our information we hand out. Evaluations will include questions about behavior.

The tool provides a summary page of inputs with a record of the score. The score is valid for three years if there are no upgrades made to the home. If they are made, you can go back into the tool with the same contractor who did the original score. You have to re-generate the score from the start. That may be a flaw in their system.

Q: The contractor has to come back out again if you've done measures?
A: You could choose to have a new score, if you need it. The homeowner would have to pay to have someone do it.

Q: Could you do that as measures are installed?
A: The way DOE does it, it prints and you cannot go back and edit it. It prevents playing with data. The tool is web based and the information goes back to Lawrence Berkeley National Labs.

Q: What is your understanding of how this is used in real estate?
A: Some realtors are using it to advertise homes. Builders are using it to differentiate their homes. Feedback is positive because it's a range, rather than all of them being 8s and 9s. The range seems to be good for builders.

Q: For a new home, is it a fixed number that's put somewhere for future use?
A: A builder can use it in the RMLS listing or tour of homes ads.

Q: If I buy this home with this score, can I change the score if I improve the home?
A: Under our system, if we can show the improvement was made, we can generate a new score. It would be a customer service.

We're doing this because we want to be able to offer recommendations and see if it's worth using or not using, and why. It helps us find out what resonates with consumers and which score will serve us better.

We'll launch the pilot in February, and have all homes scored by April. We'll evaluate in early summer, and roll it out in late 2011, to early 2012. Contractor engagement starts in January, and we are meeting with the Home Performance Guild on January 13. There is a process flow map included in the presentation.

Customers who call the call center for a Home Energy Review will be randomly selected for the DOE score or EPS. They will get the score and data inputs on site or emailed to them right after. Data collection can be done right in the reviewer's vehicle. Forms are designed to satisfy any of the rating systems.

Surveys will look at follow-through rates and compare them to standard Home Energy Review follow-through rates. We will also compare different modeling systems against each other, like SEEM data vs. RECs benchmarks. We'll look at consumer feedback one week after visits and six months later. We'll look at behavioral changes, experience with advisors and visual presentation of materials. It uses randomization of selection.

Diane and Kendall are the leads for the residential team, Stephanie and Kyle at CSG and Matt for Evaluations.

Q: Will the pilot be only NW Natural or will it include Cascade Natural Gas, too?

A: It's Portland metro only, right now.

C: In general, the contractors are pretty supportive of this, but are very concerned about the particulars of how it's rolled out. There may be a lot of things that need to be changed from a contractor perspective.
A: We appreciate the contractor support, and we need to find out from the field if this is something that will be good or something we should run away from.

Q: Are you taking costs into consideration?
A: Yes, we are looking at time and costs involved in delivering this thing. This time around, we are doing three tools, so it will take longer based on methodologies. However, after the pilot, we want to make it as inexpensive and easy to use as possible.

C: If it's something the trade allies can use as an optional tool, they will buy in, but if it's a replacement for the Home Energy Review, there may be more skepticism.
A: We have to know we have confidence in the tools.

Q: If someone calls in from NW Natural and they are randomly selected, can they opt out?
A: Yes. If they don't want to participate, we don't want to take them. We need them to be willing to do the surveys. We can give them a regular Home Energy Review. We can also do the score behind the scenes if we need the data. At this point, it's voluntary sharing of data.

5. Meeting adjournment

Peter thanked all the council members for their participation and adjourned the meeting. The next meeting is March 9, 2011.