CONSERVATION ADVISORY COUNCIL
Notes from meeting September 15, 2010

Attending from the Council:
Jim Abrahamson, Cascade Natural Gas
Brent Barclay, BPA
Paul Case, Oregon Remodelers Association
Holly Meyer, NW Natural
Kip Pheil, ODOE
Stan Price, NEEC
Lauren Shapton, Portland General Electric

Attending from Energy Trust:
Pete Catching
Kim Crossman
Phil Degens
Diane Ferington
Sue Fletcher
Lakin Garth
Ashley Jackson
Marshall Johnson
Oliver Kesting
Ted Light
Spencer Moersfelder
Nick O'Neil
Jessica Rose
Paul Sklar
Eric Wilson

Others attending:
Jeremy Anderson, WISE
Phil Damiano, PECI
Tim Davis, CSG
Carollyn Farrar, NW Natural
Doug Findlay, PGE
Theresa Gibney, Corvallis Sustainability Coalition
Matt Iacovone, CSG
Emily Moore, PECI
Dan Morehouse, EWEB
Allie Robins, PECI
Andrew Rogers, Rogers
John Wallner, NEEA
David Whitmore, Cascade Energy Engineering

1. Welcome and introductions

Diane Ferington asked for introductions from the group.

2. Industrial Energy Improvement evaluation
Phil Degens introduced the IEI pilot to the group. The pilot is a one year continuous improvement process. It involved monthly networking/training workshops and one-on-one coaching between workshops. Energy savings were obtained through the pilot and these primarily operations and maintenance, low cost and no cost measures, received a $0.02 kilowatt hour Energy Trust cash incentive.

Customers were motivated by energy cost reductions. Corporate sustainability and energy management encouraged them to participate. There was a high level of satisfaction with the pilot.

Most savings came from low-cost and no-cost changes. The pilot achieved higher than expected savings. We were looking at overall savings at the meter level rather than savings analyzed by measure. The savings were normalized for facility production and output.

Participants valued the energy tracking and reporting capabilities (support by contractor SEG), employee engagement and learning how to identify energy-saving opportunities. Some firms felt that some of the training topics were redundant.

The main elements of IEI success were corporate support and leadership, corporate culture and availability of time and resources.

Some of the activities participants engaged in included the development of energy teams, compressed air improvements, HVAC, lighting, energy audits and the installation of some gas measures.

Part of the activity is the monitoring and tracking, M&T, of savings. Developing M&T processes was covered in later workshops and IEI training. In the second round of participants (the second cohort), M&T processes were developed in earlier workshops. Some of the savings came from behavioral changes (CA leak detection process implementation), others through management such as optimizing workflow. Results were not individually tracked as overall savings are seen at the meter level.

Suggestions for seminar improvement included more in-person meetings rather than webinars. Overall, people became very engaged though workshops and site visits at other participant's plants

Study conclusions show that many participants thought IEI was valuable and most reached their savings goals. Participants thought that the IEI tools would leverage additional savings in the future and they had a high level of satisfaction with SEG support.

The evaluation recommendation is that IEI should become a regular component of the Production Efficiency program. Recruiting is happening now for the third cohort of IEI, which will begin in October. Another recommendation is to review the content of the training to ensure it is not redundant, and establish a baseline and energy model for participants earlier in the process.

Evaluation staff plan to follow up with cohort one after one year and do the same with cohort two.

3. Kaizen Blitz pilot evaluation

The study period for the Kaizen Blitz pilot was May 2008 – June 2010 and the evaluation contractor was Navigant Consulting. There were eight firms interviewed, three staff interviewed and a review of documents.

The initial pilot was an onsite tune-up which identified low- or no-cost opportunities. Findings from the first site visit were captured in a final report, which documents the energy savings and action plan for the following year. The second cohort also received energy tracking software. Technical support was provided for a year to track and assist with action items and help develop a tracking system.

The evaluation showed that low-cost and no-cost measures resulted in significant savings of five to eight percent per site.

Two reports were reviewed by consultants and the findings included questions on defining the baseline, how to adjust for trends and improving clarity in describing action items and savings. A high level of expertise was conveyed to each participant without

bogging down projects and providing too many details. The level of detail provided in reports was adequate.

Interview findings show that participants were motivated by energy savings, corporate sustainability, employee awareness of energy efficiency, success of project, respect for the technical service provider Cascade Energy Engineering and identifying opportunities for energy efficiency. Once they realized the savings, they were motivated to do more. Cascade Energy Engineering helped bring in customers. The evaluation showed that the incentive levels were adequate to motivate action. The energy tracking software was deemed to be of value. Participants would likely do more energy-efficiency improvements in the future.

Participant concerns that might affect the success of the program included cost, staff buy-in and equipment failure due to aggressive energy-efficiency interventions.

Savings persistence will be helped by updating procedures and set points, conducting a system audit to check set points, work orders for maintenance of equipment and placing locks on thermostats.

Recommendations are to continue to offer Kaizen Blitz services as part of the Production Efficiency program, consider shortening the implementation time to six to nine months while considering seasonal operations and budgeting cycles, continue the 90 x 90 incentive push while considering removing the cost sharing requirement and continue Cascade Energy Engineering's role as the Kaizen Blitz service provider.

All of the technical service costs are now covered by Energy Trust. Previously 50 percent of the costs were covered, but it was found that was too great a barrier to participation. Cash incentives are still capped at 50 percent of implementation costs.

This was a successful pilot that achieved savings and satisfied customers. The pilot is actively working on improving reports and documentation of baselines and adopting new components and will continue to widen the scope of future plants. The service offerings are well suited for inclusion in the regular Production Efficiency program.

4. Industry and Agriculture Strategic Sector Plan

Kim Crossman thanked the audience and contractors for coming.

The Industry and Agriculture Sector has been in an innovation cycle for five years.

In our current state, Energy Trust serves the industry on a site-by-site basis. Oregon is the third most industrial state in the nation and industry is huge although there is often not a high awareness. Agriculture is a much smaller portion, but Oregon is still the ninth most agricultural state as part of our economy.

The budget for this sector in 2010 is $25 million and the stretch savings goal is 11.9 aMW and 900,000 therms.

The 2010 pipeline is looking strong and the current project pipeline shows us in excess of stretch goals by 10 percent. Projects start to push into next year starting in a month or two, but we hope to finish the year close to the stretch goal.

The Industry and Agriculture Sector is run in-house and without a Program Management Contractor. Program Delivery Contractors, PDCs, are outward-facing teams and bring the programs to market, develop customer relationships and are the ones who have individual savings goals that role up to what we are trying to accomplish. Allied Technical Assistance Contractors, ATACs, are engineering consultants, and perform technical studies and savings verification. Industrial Technical Service Providers, ITSPs, are consultants who provide Strategic Energy Management services or other similar direct technical services and we currently have an RFP out right now.

Savings come from three basic sources. Custom track projects include major retrofits, unique process changes and O&M measures. They also included Strategic Energy Management such as IEI and Kaizen Blitz. Calculated savings measures include the Small Industrial initiative and the lighting Trade Ally Network. Prescriptive measures have a limited pool because of difficulties of a broad range of applications.

A mega project is one that receives over $500,000 in incentives and therefore has different requirements, including needing to get incentives approved by the board.

SEM is an umbrella term referring to a variety of management practices, including using data to tune operations and reduce energy intensity, continuous improvement approaches and tools for engaging employees. IEI is one of Energy Trust's two-year-old SEM pilots.

The 90 x 90 offer (which came before CAC for input) recently ended enrollment on August 31, 2010. It brought in 54 new projects, 80 percent of which were compressed air O&M measures. We believe that this offer is providing us with a short-term lever to achieve savings. This is something that we didn't have prior. It is resulting in large average savings for a low cost per project.

The measure life of O&M is three years. An additional benefit of O&M is that we could go back and follow up with these customers after three years and reengage them in the programs.

Gas efficiency is new for the Industrial and Agriculture Sector and has been around for two years. The interesting thing about gas efficiency is some do not pay into the public purpose charge, like many large industrials. Nurseries typically do pay into the public purpose charge and we can now reach these customers and get gas savings. Two projects in Cascade Natural Gas territory brought in 50,000 therms of savings. NW Natural industrial DSM pilot for firm and interruptible customers began last year.

There is a lot of efficiency to gain and to be found. Agriculture has a small resource potential but we think there are more savings to be had from that sector beyond what was modeled in the resource potential. The Planning team will be looking at new numbers over the next few years. Industrial lighting is not as big as commercial, but this is still a great area with lots of savings. There are also plenty of savings on the gas side.

Our goal is to maintain strong relationships with participants and continue to gain success. Another basis of the sector is that we work in a custom way to produce savings within the sites. We want to develop additional cost-effective services to bring the benefit

of efficiency to small industrial and agricultural business. As we go after savings in large industrial sites, they are so cost effective, we can invest more in small industrial.

The key activities for the industrial program include tuned custom track services and incentives to continue to provide PDCs with compelling offers, staying nimble and flexible, expanding O&M and strategic energy offerings, growing the number and types of measures available, and using a marketing approach rather than a sales approach to reach some customers. An internally managed program gives us the ability to quickly design and launch a new plan.

We plan to grow the impacts in agriculture and small industrial by increasing the number and types of measures, engaging new trade allies and providing a new targeted market outreach.

Other key organizations we are working with are NEEA, Oregon Department of Energy, Bonneville Power Administration, OMEP, HPEC, NW FPA, US EPA, US DA and US DOE.

The benefits of this strategic direction are the low or no investment cost, and O&M offerings helped offset the issue of the economy. It is highly cost effective and drives additional capital projects by removing organizational barriers and encourages customers to re-invest.

The risks include the volatility of industry, complexity of offerings and the effect of a highly customized approach on our internal management systems. We have quarterly meetings to discuss what we have learned. We address risks with custom projects by only taking a 10-year measure life while most projects are really a 20-year measure life. Another way to look is there is 50 percent cost share. No one will invest the money if they think things will change. Our Evaluations team will do a study on this so we can learn more.

Capital projects will still be the bulk of the savings and we have great contractor expertise in that area. Most participants repeat with us.

It is important to assess the willingness of industry to invest in capital projects. Customers will invest in projects that bring them direct benefits.

The biggest challenges are policy barriers, which are outside, we cannot manage and we can only design around it. SB 838 created a spending limitation for sites greater than 1 aMW. We may or may not be able to do mega projects in the future.

The Business Energy Tax Credit sunset and uncertainty is a real impact for the sector. The Business Energy Tax Credit is part of the equation for a huge chunk of our savings — approximately 65 percent of the projects done in Production Efficiency also receive a Business Energy Tax Credit. In the near term, we are seeing affects from the uncertainty of the Business Energy Tax Credit sunset as participants are not sure they can get projects done in time. We are limited in answering questions on what we can do until we find out more.

There is limited eligibility for gas incentives. We cannot serve those on transport, and we don’t have the visibility of who is in fact on transport as data is limited in this area;

targeting eligible customers is tough. Every site that can be served is available on the electric side. It appears that less than half are eligible for gas incentives.

There will be transformations in the market by 2015. The attitude of industry toward energy has shifted and energy is beginning to be understood as a manageable cost. IEI recruiting was easy with 16 good candidates in the third cohort. Larger industry is ready but smaller industry may not be. We will also likely see an emergence of standards, supply chain and market pull for certification. As those standards are put in place, that will impact our programs.

In the future there will be energy management standards in place and this new ISO standard will probably come out in the spring time. We have a good track record and verified savings using these approaches already. We may also see some shift in the manufacturing sector in Oregon and are specifically interested in seeing how the growth of clean technology industries in Oregon will affect other local manufacturers who may act as their local suppliers of materials.

Current approaches to working with industry in custom and calculated tracks are effective. Recent years have been a period of innovation and we'll continue to develop SEM and balance the complexity of a highly customized customer-centered program with transparency, simplicity and efficiency of program administration.

Q. Stan Price: Is the impact attributed to uncertainties around the Business Energy Tax Credit anecdotal or do you have data that shows this?

A. Kim Crossman: We have asked about the importance in our last few evaluations and have heard back clearly that both the Energy Trust incentive and the Business Energy Tax Credit are important for projects to move forward. We also get direct feedback about the Business Energy Tax Credit. We always helped customers prepare to apply for a Business Energy Tax Credit and we help with studies, we help fill out forms and they send them in. O&M projects are at less risk due because they are not eligible for a Business Energy Tax Credit.

Q. Holly Meyer: Why haven't we done SEM in the past?

A. Kim Crossman: We didn't know how to do this. NEEA piloted CEI for five years before we got started and the offerings they developed formed the basis of what we are doing in the IEI. Also, we are hungrier – as our goals continue to grow dramatically, we have to be more creative about sources of savings. Finally, this is a natural outgrowth of the program's maturity. The PDCs are also now seen as a trusted advisor and have significant customer relationships. Most of the O&M work is addressing behavior change and it takes trusting someone to move forward with O&M changes.

Brent Barclay mentioned this is great and not easy. Bonneville would like to keep channels open, and maybe align. Maybe Bonneville and Energy Trust can work jointly on initiatives.

5. New Buildings redesign

Jessica Rose stated that the program redesign was launched with two main objectives: address a market need and respond to a significant increase in Oregon Energy Code

requirements, and address customer feedback on the perceived complexity—we want to make it easy for customers applying for simple measures that are moving quickly and offer more support for more complex projects that can drive more savings.

Redesign framework: Jessica displayed a chart to display the redesign framework comprehensively. We want the easy things to be really easy for customers to grab onto. This allows us to redirect our resources to support complex projects that can drive a significant portion of our savings pie. There are two paths: EZ and Comprehensive. EZ will be packaged for trade allies to support, with simple calculated approaches and process. Comprehensive will support modeled buildings, with early design assistance and technical assistance. What we expect: EZ is volume driven; Comprehensive is significant savings from aggressive projects. As the design team progresses into later stages of development, our opportunity ban narrows and we can see that consequently driving changes at a later stages drives up costs. We want to avoid that, as do customers. Early Design is our golden opportunity to influence the design and savings.

Q. Council: Where are you right now in this framework or along that curve, shown on slide four of your presentation?

A. Jessica: We are in the area of design development/major influence depending on the project, but we need to get in a little earlier. A big reason is the code change of a 15 percent increase this year in overall efficiency. We will see a lot of customers struggling with this at first. We have to go beyond the code and we think our opportunities are greater early on before design development where we will explore the project and can talk about many options; building orientation, more complex modeling so we want to reach further beyond code.

Q. Stan Price: How do you know if there is going to be a building project at that stage? If you are waiting for permitting process, then do you know? How do you figure out the existence of projects in the early stage?

A. Allie Robbins: This is a challenge. We often do know about projects early. We receive leads from the architects we work closely with. People want something at the table, they want a specific something to offer that they can count on as they start the design.

Q. Holly Meyer: What percent increase in efficiency levels were we looking at before the code change?

A. Allie Robbins: It varied by project. From looking at a small sample, it looks like it was at 10-11 percent.

Q. Holly Meyer: If Energy Trust was trying to get 10 percent savings, is there a better use of effort and money? Or are we obligated to have a New Buildings program?

A. Jessica: Builders need to know how to work through the code and we still need to be supporting this change and to continue the push in the market.

Diane Ferington mentioned we still need to be engaged in the market and help transform it.

Oliver Kesting commented that there is a role for the New Buildings program to help customers understand the new code change.

Five key changes in the program are to:

1. Enhance early support (address opportunity costs for support in early stage)
    a. Early support in the program means offering early design assistance, project plan reviews, project scoping and engineering support. We do some in-depth engineering review now but we are looking to expand when appropriate; we look at how much savings opportunities there are, and then we can come in and provide engineering support.
2. Improve technical assistance
    a. Our plans to improve technical assistance are limited to modeled projects. We currently have a cap but we don't set a floor for what we would offer. By providing an incentive floor we reduce the risk to the owner because they will receive an agreed-upon amount for modeling. Right now, it all depends on savings, which can fluctuate, so people are not comfortable designing and modeling because they don't always know what amount to count on. We will set a floor which they can count on and provide 50 percent of the modeling cost. We are do quality control the process so we are modeling appropriately.
3. Offer tiered incentives for "deeper savings" modeling projects
    a. We are increasing electric savings with the code increases. We will evaluate this and see how far customers are able to go beyond code. The incentives are $0.15 per kWh, and for modeled projects beating code by more than 15 percent, they increase by one cent/kWh for every percent beyond code. This keeps them moving up the ladder.
4. Increase post-construction participation (as they construct, commission and occupy the building we want them to perform as designed)
    a. Post-construction incentives require acceptance testing for controls measures and modeled projects. All other projects may opt-out for a reduced incentive. In 2011, we plan to develop two tiers of Cx for comprehensive projects.
    b. Post-occupancy incentives include continuing with ENERGY STAR.
        i. The goal of offering ENERGY STAR incentive is to motivate project owners to manage their energy after construction.
        ii. It also provides a bridge to the Existing Buildings program and a means to refer projects to Existing Buildings if the building is not earning the ENERGY STAR.
        iii. ENERGY STAR is a rating system; if they achieve 75 points out of 100 points, they get the ENERGY STAR incentive. The higher they rate, the greater the incentive.
    c. This is something to help customers meet code and help throughout the construction phase.
    d. There will be a reduced incentive of $1,000-$3,000.

5. Simplify forms

Q. Holly Meyer: What does 20,000 mean?

A. Jessica: The $30,000 cap went down to $3,000. There is not a lot of uptake in ENERGY STAR so the impacts are not significant. What we are doing is reducing the cap to $3,000. It is support to keep participants working through the post-occupancy phase, operating at the designed load. We want to reduce the risk in capturing savings where the baseline used through the Portfolio Manager tool is not very accurate.

Q. Brent Barclay: Do you ask customers to provide cost data over what the code investment would have been?

A. Jessica: We do collect isolated cost data, building parameters and attributes.

The program cap is $500,000 per project.

Q. Jim Abrahamson: How will this impact Cascade Natural Gas territory?

A. Jessica: There are quite a few opportunities on the gas side and many are straight forward and alive in the program; boilers and furnaces, for example, are still in the mix for 2011 and moving forward.

Jim hopes this idea comes back to CAC, and the end of the year will be the decision-making process.

Holly is interested is having a refresher of the New Buildings program and Jessica will follow up with both Jim and Holly.

Jessica mentioned the need for the redesign is due to a new need in the market, the beneficial and significant code change. It is going to be harder for customers to reach code and we want to work with customers more, have a seat at the table when they are developing plans and goals because this is where the greatest opportunity to impact savings potential occurs. We don't just want to be the person at the end.

Allie stated the redesign won't feel entirely new at the end. The goal is to shift our effort upfront and make the program easier to understand.

Jim mentioned the change is earlier in the planning process. You will need to bring plans or ideas early in the process. It seems like there will be a change in improving technical assistance and there are several moving parts.

Jessica explained technical assistance is the foot in the door. If they can count on us to support 50 percent of the modeling cost, we will be able to work closely with them throughout the project lifecycle to maximize savings. This redesign enhances the technical assistance that was offered before and adjusts based on the code changes. The new 2010 code is here.

We will plan additional time in the future to provide updates.

6. Reportable savings

Phil Degens explained where Energy Trust comes up with reportable savings. Typically we come up with working savings and then go out in evaluation for the realization rate to determine what are the actual savings of the installed equipment. We also adjust this with market effects, free rider rate, spillover rate (participant, non participant). We adjust for other externalities such as line losses.

We come up with the evaluation factor, which is what we expect the programs to save in the next year. It was 82 percent and it is now 71 percent. The free rider rate reduced the number. For gas it is 70 percent. For the Industry and Agriculture Sector it is 75 percent. New Buildings is in a period of market transformation and more savings will be attributed to code.

We are using a rolling average for our anticipated realization rate. There is often a year-to-year variation. Through the free rider numbers we are trying to adjust the moving average. Often times we are only talking to 50 participants to get free rider numbers. We are trying to use a moving average.

We have an overall market effects column that is used to adjust the realization factor, which leads to the evaluation factor and what the program should be saving in the following year.

Q. Stan Price: What are the criteria around when a measure is taken as free ridership?

A. Phil: We ask participants if they have a budget for the project. We ask what they would have done if the program would not have existed; would they keep the same equipment or would they not have gone forward with the project at all? From there they can decide which ones they answer. We ask them to rate it from 1-5 on a scale and ask if facilitation of the program had an effect. We ask if the study had an influence. We wait and then come up with the free rider.

Q. Stan Price: Have you benchmarked this in other areas of the country?

A. Phil: Some places are higher and some are lower. There is a large variance. Typically, 30 percent free ridership isn't going to kill a program because there are lots of factors. We look at how it's changing over time. Your program should be redesigned if the number is 80 percent.

Q: Stan Price: Have you tracked the high and low cost areas? Is there any correlation in free ridership?

A: Phil: We have not done that yet. We look at how they estimate free rider rates and each place uses different ways to calculate this. Ours versus California is slightly different so it's best to look at how ours is changing from year to year. We look how we should redesign a program or see if program changes are needed. We ask what would you have done in this program? Are there policies that already mandate you to invest in these types of technologies?

Q. Brent: Is there a time dimension on what the participant would have done?

A. Phil: It is more than a year. We don't count it as something they would have done. We don't put any value on that. If they don't know anything about any of them, we try to allow for people to be inconsistent. They would have cancelled the project or replaced certain equipment. We allow folks to answer as they will.

We did billing analysis for residential measures. We haven't received a big enough sample of electrically heated homes to include. We provided a list of changes to the deemed savings in the residential program. Duct sealing and gas water heater haven't changed much. The old numbers are from the original 2003-2004 evaluation. We are using the 2006-2007 evaluation going forward until we come up with the new numbers. We roll the old numbers in and have a moving average.

Q. Jim Abrahamson: With changes in therm savings, there is a reduction in 40 therms if you installed all measures, so we're going into a world where incentives will go down. As Energy Trust is building budgets, you need to be doing more homes to meet your goals. How is this going to work in Cascade territory? Energy Trust is not covering the entire area.

A: Phil Degens: This is a program question. Measures are moving forward and will be cost effective. We don't anticipate incentive changes in 2011.

Q: Jim Abrahamson: There may be no change in 2011 on incentives, but maybe on therm savings, we might have additional measures?

A: Phil Degens: In electric we don't have a large enough sample. Typically we have a large sample of people who installed three measures. Usually we are looking at a bundle of measures.

Part of the change is how the estimates were done before. Also we are looking at actual numbers. We are coming up with program wide averages for customers who did one measure or the whole house. It is hard to come up with good numbers with small samples sizes. We are confident in these numbers because we are looking at thousands of homes. We also are developing greater confidence in these numbers as we compute them over time.

Incentives are paid per square foot.

7. New residential measures

Water heaters
One of three new measures coming out is EF 0.67 water heaters. This is a new product just coming out on the market and has improved insulation, electronic ignition and electronically controlled flue damper to reduce heat lost.

The incentive is $100 for EF 0.67 gas storage water heaters. An additional $150 incentive is available to water heater distributors until the end of 2010, and $100 in 2011. We've been working with manufacturers for years to get this available. This already happened at the beginning of this month. Our target market is contractors. Studies show that most replacement water heaters are replaced the month after the old one breaks. This water heater will use 29 fewer therms. The big difference in the cost between the two models on average will be $250.

Marshall Johnson mentions that we want to get this in our market because water heaters are replaced in emergency situations and customers take what is on the market. We are doing what we can to get these available. We're paying based on stocking not on selling and the expectation is that this will sell.

Windows
High-performance windows are the next new measure. The U-factor measures the thermal conductance of the window. Energy Trust defines high-performance windows as a U-factor equal to or less than 0.22. High-performance windows are equivalent to US DOE R5 windows.

The high-performance windows will be a replacement window for existing single-family and manufactured homes. New single-family homes will use the Energy Performance Score.

The scope is to change the basis of the windows measure from a deemed savings amount to a savings amount dependent on the square footage of the glazing. Tier I, efficient windows, have a U-factor between 0.30 and 0.22. Tier II, high-performance windows, have a U-factor less than or equal to 0.22.

The incentive for the U-factor less than or equal to 0.22 is $3.50 per square foot. This is intended to create a market for the high-performance windows. It compares to an incentive of $2.25 per sq ft for windows with a U-factor between 0.30 and 0.22.

Intermittent ignition gas hearths
Intermittent ignition gas hearths for new and existing homes is targeting homes using fireplaces for a primary heating source. We offered an incentive for fireplaces and we are continuing with the measure. Since then, information has become available to estimate savings of hearths using intermittent pilot lights over standing pilot lights. There is a 20-year measure life, the incremental cost is $120 and the Energy Trust incentive is $100.

For questions, contact Paul Sklar.

NW Natural proposal is to combine RAC and CAC next month.

8. Meeting adjournment

The meeting adjourned at 4:20 p.m. The next meeting is October 13, 2010.