Conservation Advisory Council Meeting Notes

November 20, 2013

Attending from the Council:

Jim Abrahamson, Cascade Natural Gas
Warren Cook, Oregon Department of Energy
John Frankel, NW Natural
Wendy Gerlitz, Northwest Energy Coalition
Garrett Harris, Portland General Electric
Karen Horkitz, Northwest Energy Efficiency Alliance
Charlie Grist, NW Power and Conservation Council
Scott Inman, Oregon Remodelers Association
Andria Jacobs, City of Portland (phone)
Juliet Johnson, Oregon Public Utility Commission
Don Jones, Jr., Pacific Power
Don MacOdrum, Home Performance Guild of Oregon
Holly Meyer, NW Natural (phone)
Marshall Johnson
Susan Jowaiszas
Oliver Kesting
Spencer Moersfelder
Elaine Prause
Jessica Rose
Paul Sklar
Scott Van SwearingenPeter West

Others attending:

Jeremy Anderson, Weatherization Industries Save Energy
Dave Backen, Evergreen Consulting
Sheryl Bunn, Fluid
Bobby Cosh, Conservation Services Group
Tim Davis, Conservation Services Group
Sommer Templet, Citizens' Utility Board of Oregon
Mitt Jones, Sensible Energy Solutions
Mark Kendall, Energy Trust Board of Directors
Andrew Morphis, Fluid
Brien Sipe, Fluid

Attending from Energy Trust:

Tom Beverly
Matt Braman
Kim CrossmanFred Gordon

1. Welcome and introductions

Kim Crossman convened the meeting at 1:30 p.m. and reviewed the agenda. The agenda, notes and presentation materials are available on Energy Trust's website at www.energytrust.org/About/public-meetings/CACMeetings.aspx.

Kim: Today's topics go back to our question about the Conservation Advisory Council's role pertaining to measure development and processes. These questions are like the work we did last spring. I propose we take that up in Q1 2014. I would also like to schedule one of our deep-dive training days on measure development and incentive design. We can revisit that in February to decide if it's a good topic, or if there are others we should prioritize. Today, Peter, Oliver, Diane and I will cover sector budget themes, and we will also return to Existing Homes 2014 incentive changes.

2. 2014 Round 2 Draft Annual Budget and Action Plan

Peter West: The presentation is posted online at www.energytrust.org/library/meetings/cac/131120_CAC_Package0.pdf. We are looking at changes to the draft budget presented at the last Conservation Advisory Council meeting in October. The proposed changes are small, except in Cascade Natural Gas territory.

We left the last meeting showing an average of 4 percent growth for our electric saving goals and an 11 percent goal increase for natural gas savings. After more consideration, we propose about the same level of growth in electric savings and a reduction to a 5.5 percent increase in gas savings.

We propose to lower the savings goal in Pacific Power by 0.4 percent for 2014, primarily reflective of updated, slightly lower savings estimates for residential lighting products. The goal for PGE will drop 0.6 percent due to the same lighting adjustments and the delay of the Aclara behavioral pilot to 2015. The goal for NW Natural will increase slightly primarily due to an updated, stronger forecast for new homes. Proposed changes for Cascade Natural Gas will drop the draft goal by 11.5 percent as a result of reconsidering what can be expected in the industrial sector. Cascade Natural Gas changes were worked out with Jim Abrahamson and Alison Spector at Cascade Natural Gas.

Diane, Oliver and Kim will catch us up on some things we sped through last time and provide background to the changes.

Kim: Please ask questions or comment on our plans after each of our sectors. This is the perfect time to do it. We still want the formal feedback through the channels we presented at the last meeting, including by emailing info@energytrust.org. Diane will cover the residential sector.

Diane Ferington: New Homes and Products details are shown in the posted presentations. The plan is similar to 2013, but with more new homes in 2014. The market is rebounding and the market share is a conservative assumption.

We are looking at different approaches to savings methodologies for retail. We're collaborating with others to do market research next year and are automating generation of EPS™, our energy performance score, which brings savings in labor costs. Refrigerator recycling will move to two tiers based on a 1993 cutoff age. Lighting will be a significant push with 3.5 million bulbs. Most likely, 2014 will be the last year for refrigerator and freezer incentives, but clothes washer incentives are likely to continue. Retail strategies are closely aligned with the Northwest Energy Efficiency Alliance, NEEA, and will leverage the Western Regional Utility Network.

We will have a pilot in gas-heated homes to look at improving cost-effectiveness to the gas program portfolio.

Juliet Johnson: When someone buys an item on Amazon.com, does the incentive just come off their total? If so, aren't they just free riders who would have purchased the items anyway? Has any research been done on that?
Matt Braman: We've looked at it through the network with California and One Network utilities. One key is showing our logo so customers know we're offering the reduction in price. Buy-downs will mainly be for LEDs, but we will look at appliances later.

Juliet: Does the buy-down push people who may have been on the fence? Is that the thinking?
Matt: Yes, it's a lost opportunity if they're buying online now. They don't hear about us, and we can't book the savings.

Charlie: Are you differentiating the buy-down by product? The LED market is flooded with bad products and some good. There's a huge difference between the good and bad products. It

happened with CFLs and slowed the market down for a long time. Avoiding bad experiences should increase the penetration rate for LEDs.

Don Jones: How do you tie online purchases back to the service territories?
Matt: We use the zip code and shipping addresses to trace purchases to service territories. To Charlie's question, yes, we only incent certain high-performing LED products.

Charlie: You could look at the product mix in areas where you don't have the incentive.
Matt: With online purchases, we automatically gather great data, which opens the door for us to follow up with customers. We can see the influence of the incentives. You don't get that information at retail stores.

Warren: How do you get the savings by location?
Matt: We use a prescriptive incentive and savings determined ahead of time.

John Frankel: What is the scope and timing for the prescriptive air sealing combined with ceiling insulation pilot?
Marshall Johnson: We plan to finalize the design by the end of this year, with a goal of installations starting around April 2014. We hope to get about 200 sites prior to the fall 2014 winter heating season.

John: Would you look at electric-heated homes at the same time?
Marshall: Gas-heated homes are likely to be represented more often in the pilot, and gas measures have the greatest challenges in meeting cost-effectiveness standards. Based on housing details, we plan to identify good opportunities for a prescriptive approach, key areas we can hit for both gas and electric homes.

John: What's the timeframe, and what actions will follow from that? What assumptions created this for gas-only and not electric homes?
Marshall: The lessons we learn from the gas pilot can apply to both gas-heated and electric-heated homes, but the gas side is paramount given the cost-effectiveness challenges due to lower gas avoided costs.

Diane: We removed Aclara, which is similar to Opower, from the PGE budget. We're not doing Aclara due to IT resource bandwidth at PGE. It's very technology-heavy. Additionally, NW Natural decided not to fund the Nest pilot in 2014.

John: We chose not to participate in Nest because it was primarily electric heat with gas backup. We're not tariffed for that. It wasn't portrayed as just Nest thermostats on gas heat sources.
Charlie: If it were, would you have an appetite for that?
Peter: We offered it very broadly and heard NW Natural say no. If it's yes now, we're still interested. There isn't a big design around the Nest pilot yet. We just want to know about participation at this point.
John: Can we still discuss it after this meeting and have time to get it into the budget?
Peter: Yes. This isn't a big number, less than $100,000 for a gas portion of a pilot. It's a small change versus NW Natural's total.
John: For us, it's an issue of optics. We're trying to remedy the blank page we have for gas heating. There's nothing outside of Savings Within Reach. If it helps with that blank page, and some savings are likely to be there, we want to do it.

Peter: To clarify, gas furnace incentives aren't available outside of Savings Within Reach, but there are many other heating measures available to gas customers.

Charlie: I would be curious to measure the net effect of those things.

Diane: Puget Sound Energy is also doing something with Honeywell web-enabled thermostats and we plan to look at results from that effort.
Charlie: The Regional Technical Forum is interested, and we're curious about it.

Don Jones: Do you provide the Nest and get better savings based on the programming you put into it? Is it through Nest, or do you design it?
Marshall: There is a pathway for Nest to be installed under the advanced controls measure, which is already in place for heat pumps. Currently, there is a Nest pilot with a goal to test the savings from the control function under the most ideal installation scenario, which relies on Program Management Contractor, PMC, technical expertise to ensure optimal installation conditions. Our goal is to control when heating is provided through either the auxiliary strip heat function or the heat pump compressor, based on outdoor temperatures that are obtained through web-enabled tools (Wi-Fi). We are allowing contractors to install Nest thermostats through the current advanced controls measure so that we can obtain information around contractor installations to act as a point of comparison with units installed in the advanced controls pilot. This should help us identify whether there is a difference between contractor versus ideal installations and whether contractor education or customer behavior to set controls is a factor. It's going along with several national efforts to evaluate Nest. We're talking about 200 homes in a pilot.

Diane: Prescriptive measures for water heating will continue, plus we'll have two incentive tiers for heat pump water heaters. Ductless heat pumps will also stay at current levels.

Oliver: I'll cover each commercial program, and then get into cross-cutting activities. For Existing Buildings, we are planning to expand our presence with more representation in outlying areas through PMCs, subcontractors and trade ally contractors. We continue to focus on comprehensive solutions such as lighting design and long-term planning with customers to incorporate capital and operational savings.

> We're working with the Oregon Department of Energy on the Cool Schools offering with enhanced audits that better align with the Oregon Department of Energy's needs. There is substantial budget for Cool Schools in 2014 to account for a higher volume of projects. There will also be a focus on direct installation of products with instant-savings measures and tablet-based walkthrough surveys, supported with pre-negotiated direct installation for measures such as lighting retrofits and refrigeration. We will also look to leverage Oregon Energy Efficiency and Sustainable Technology, EEAST, financing. We will continue to work on building the business case for energy-efficiency investment through training and coordination with Northwest Energy Efficiency Alliance on tool development.
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> Multifamily will focus on comprehensive support with custom incentives and will redesign the custom track to make participation easier for customers. We will potentially offer a behavioral pilot and coordinate with water utilities. We are getting a lot of leads out of MPower. Multifamily will expand midstream buy-down efforts. We currently offer midstream incentives for refrigerators, washing machines and steam traps and are looking to expand to HVAC.

Kim: Oliver gave a great high-level view of a complex set of incentives and programs.

Don Jones: Is there any customer copay on the direct installations?
Oliver: Yes, there would be some cost for lighting and refrigeration measures.

Charlie: What's going on with LED street lighting in Pacific Power territory?
Oliver: It's complicated because of the tariff with Pacific Power.

Juliet: Is it a tariff issue or an implementation issue?
Don Jones: The OPUC approved the LED tariff for us, and there is an upfront customer contribution to it. It wasn't designed for what Oliver wants to do, but there are some fit and finish items to do.

Scott Inman: Are there weatherization programs for Existing Buildings?
Spencer Moersfelder: We have insulation, but nothing with air sealing for commercial buildings. Windows aren't cost effective for us, except in some custom projects.

Scott Swearingen: Multifamily has the same window and insulation incentives as 2013.

Scott Inman: There are some older buildings that just don't seem to be covered. I was in an old fire station last week that would be a great example.

Jeremy Anderson: Now that the Oregon Department of Energy's Small Premium Project program covers more of the costs, that knocks quite a bit off of the cost for cost-effectiveness calculations. We'd like another look at small multifamily, condos in particular. Larger multifamily standards don't work on smaller condos and duplexes. Small Premium Project changes are likely to make it more feasible to offer better incentives.

Juliet: With EEAST financing, will there be a cost to the customer?
Oliver: We're working on the program design to determine if we can leverage EEAST financing for some direct installation measures. We expect that there will be some cost to the customer.

Oliver: Continuing with New Buildings, market solutions packages are a set of standard dollar-per-square-foot incentives for a given package of measures. We currently have market solutions packages for retail, office, schools, grocery and restaurant sectors, and we are planning to add two building types in 2014. We're planning outreach through dedicated regional account managers. We recently launched the "Hey Building" marketing campaign, which targets small customers, and are offering targeted trade ally training. We plan to launch a net zero campaign to create more demand for deep efficiency projects. With House Bill 2801, there will be some opportunities for whole building incentives. We are also looking at more work with lending allies in 2014.

> We are coordinating with the American Institute of Architects, NEEA and Cascadia Green Building Council to provide support for new code development, training for the design community, code compliance and acceptance of reach codes.
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> Other commercial sector efforts include a pay-for-performance pilot to assess the demand and feasibility of longer-term contracts for capital and operational savings. We're planning to expand Strategic Energy Management, SEM, by developing additional curriculum and putting out a Request for Proposals for more technical service providers. We'll have a small commercial SEM approach and expand to more large customers. We

will leverage SEM to develop overarching strategies to address all retrofit, new construction and renewable activity.

We're planning on implementing enhanced marketing strategies, website improvements like a video library with custom success stories and case studies, commercial and multifamily newsletters, and integrated marketing campaigns in business media and digital campaigns. We will continue to use focus groups and research to better understand customer needs. We will support utilities' efforts and develop tools to assist customers and better understand their options. We'll use our customer relationship management system to identify multiple opportunities and track leads.

Wendy Gerlitz: For the folks at the OPUC who were involved in the pay-for-performance discussion, I am curious to see how that evolves.
Juliet: That will be an open, public process with comment sessions. Oliver, what are you planning with lending allies next year?
Oliver: Brian DiGiorgio will work to recruit commercial lending allies, but more has been happening on the residential side. We need to identify more lenders on the commercial side. Right now we have one leasing organization that is very active, but we want more lenders.

Garret Harris: What are you doing with SEM for smaller businesses?
Oliver: We're currently looking at chains that have multiple small locations. As the offering evolves, we may be able to create an approach for smaller customers at single sites.

Charlie: How about grocery stores?
Oliver: There is nothing specific for grocery in Existing Buildings. New Buildings does have a market solutions package specifically for grocery.

Kim: I will run through our industrial programs. Production Efficiency gets savings from capital projects, operations and maintenance, and SEM. We re-competed our Program Delivery Contractor, PDC, agreements this year. We have a shared lighting Trade Ally Network with Existing Buildings.

We rebranded our Small Industrial program as Streamlined Industrial and Agricultural. This track is not defined by the size of customers, but is more about the simplicity of streamlined projects, which can be delivered by trade allies. It's about 70/30 between custom and streamlined tracks in terms of savings and budget. We're focusing on tweaks to delivery. We now have custom PDCs serving smaller businesses. Common wisdom says it isn't cost effective to do that, but the custom approach is so effective overall that we want to try it with smaller businesses. It will take time to refine. Going forward, any industry can access the services of a custom PDC. There's one message, one program and one way all customers are served. We will also equip custom PDCs with information about streamlined measures so they can cross-sell these trade ally delivered projects while they are interacting with industries on custom measures.

We will increase the custom incentive in 2014 to counter a drop-off in industrial lighting savings over the past few years. Lighting will no longer be the cheapest thing we do, but it's still great and will remain aligned with the commercial sector.

Our lumpy program sometimes has problems meeting annual goals in a single utility territory. We may come up short in some territories, so we need to look at whether or not to leverage a bonus in 2014 to get the savings.

We'll complete our Core Improvement pilot and figure out how we bring small industries into SEM. So far, it looks like there isn't much difference between large and small industries. That may not be the distinguishing factor.

Mark: What do you hear about industrial lighting slowing down?
Kim: It wasn't technology, but the value proposition because of ending Business Energy Tax Credits. LEDs are going to be more expensive and industrial customers have very specific payback criteria. We've had to step in and retool incentives. Return on investment changed quite a bit, and we're trying to bring that back in.

Peter: Back to the overall changes. The following slides are broken down into small and larger changes, and net change. These are primarily small savings reductions, and reflect some scrubbing between the last draft and this latest one. Changes are mostly on the residential side. We will be working with NW Natural to consider an effort for early retirement of furnaces.

Juliet: Are you still maintaining window early retirement?
Diane: We'll explore that in 2014 as well. Early retirement of furnaces is currently being done within Clean Energy Works Oregon through on-bill financing. If a financing product is in place and we can design something to pass cost-effectiveness standards, we could look at expanding early retirement of furnaces to the standard program.
Fred: For windows, we're in the conceptual stage. How do you prove windows are being retired early? They last from one to 150 years. We're looking into it. With Clean Energy Works Oregon, we find that furnaces are coming out earlier than retirement age, and it looks like services and financing in combination are doing something.
Charlie: It's an example of using Clean Energy Works Oregon's experiment in financing to inform other things.

Peter: Back to the changes. NEEA has been looking for a high-efficiency clothes dryer but couldn't find one that was cost-effective. We are going to look at different specifications in 2014 that might show some savings. But in the meantime, we pulled the measure out for 2014.

There is an increase in home building, so we'll increase the number of new homes, mostly affecting NW Natural.

We are dropping the Cascade Natural Gas goal by 57 percent. It's really all about two large projects that swing results. The industrial program's pipeline for this utility is very thin and lowering the goal makes sense. The odds are low that they will come through. If these two projects materialize, they would cost about $100,000 and we have the reserve to handle them. We discussed this with Cascade Natural Gas, and looked at how we use reserves. We also adjusted the forecast for hearths. We originally expected hearths to grow more than 100 percent, but we dropped growth to 33 percent in this revised budget. That's still robust growth. Both of these changes drove goals for Cascade Natural Gas down.

The goal for Pacific Power will drop because of newly updated estimates of savings for residential lighting and water-saving devices. The goal for PGE will drop for the same reasons and due to Aclara. The goal for NW Natural increases mostly because of new homes.

The slides show the changes broken out by program and utility. Effectively, we propose the same for next year. We are likely to hit 80 percent of goal for Cascade Natural Gas this year.

The NW Natural slides show progress with and without demand-side management. There is a core program and also demand-side management. There are no changes in demand-side management. The goal is an increase from 900,000 therms in 2013, based on the pipeline and recent successes. This is still a new market and there's a lot of potential. The 2014 goal is about the same as 2013, but adding demand-side management brings an increase.

John: The water heater incentive sunsets in the fourth quarter of 2014, but you're still showing it. It ends in October.
Marshall: We're not planning to change it during the 2014 program year.

John: The 0.67 Energy Factor water heater will be mandated by Department of Energy standards at that point. Our assumption is not continuing it once that becomes code.
Marshall: We plan aggressive growth, but we can take another look.
Fred: There is usually a lag in the other direction because stock needs to be used up before it completely changes. We'll check into that.

Jim Abrahamson: We got our first look at the draft budget on October 23. We saw a large anomaly and Peter and the program managers explained it. That was great and there's no problem there. The problem is that we can't see the financial impact of all of this. We can't see what this change will do to customer collections. We'll be putting in public comments to Energy Trust before seeing the financial impact of the therm goal reductions. It's even more important to any of the larger utilities who won't see budget numbers before commenting to the board.

Juliet: Why can't Jim get the updated numbers?
Peter: We needed to reset the goals first, and then allow time to work through them on the cost side. We also have to look at other utilities and programs in this mix, and the support departments have to make changes based on our program budget changes. Support departments also need time to adjust their budgets. We identified incentive changes and estimated those for Jim, and noted that 60 percent of their budget is incentives. We can give that kind of information. The rest of the organization is a complex combination of pieces, and some costs are allocated across utilities. The full financial implications are just being finished up today. I jumped ahead and engaged Cascade Natural Gas. We were very responsive. Getting the rest of the downstream details correct takes time.
Jim: Peter was correct in saying that we both got on this right away. We just ran into a budget process wall because it's a complicated process.

Juliet: It sounds like there are two sets of numbers. Peter described one set of planned numbers, but there are other budget numbers you are looking for.
Jim: It's the optics on the situation that I'm trying to highlight.

Juliet: Is your suggestion for Energy Trust to revise their budget based on these changes?
Karen Horkitz: So are you looking at starting the process earlier next time, and having the comments follow when seeing the revised budget?
Jim: That's it exactly. Right now, my first comment may be, I haven't yet seen the budget.

3. 2014 measure and incentive changes: residential programs (continued)
Kim: We discussed the residential measures in our last meeting, and Conservation Advisory Council members had questions and comments. Staff convened to discuss and work through what we heard from you, and today we're prepared to answer most of the questions and have another round of discussion on this topic.

Marshall: We don't plan to discuss heat pump water heaters today, because that seemed to be cleared up in the last Conservation Advisory Council meeting. Also, a couple of slides were added that aren't in the handout. I will point them out as we go.

> For Savings Within Reach, we wanted to demonstrate where the trade-off was between the old and new incentive structures. We could have explained more clearly at the Trade Ally Stakeholder Group, so we included further detail today. We have to update this measure so that the gas avoided costs in Savings Within Reach are consistent with adjustments to insulation measures in 2013 in the prescriptive track. As a reminder, Savings Within Reach focuses on serving moderate-income customers and cost-effectiveness methodology for this program track is to ensure that the utility cost tests is greater than one, regardless of the societal costs. The 2013 incentive structure was calculated by average square footage at the site level, while 2014 incentives are by square foot.
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> The second slide shows the breakdown by home size and how much of the installation costs are covered by the incentive. We are looking to have a more scaled, per-unit structure for installing insulation. This was a point that we didn't quite visually show before. Essentially, we divided quantities of insulation at sites served into 10 buckets, and used those to determine percentiles and groups.

Holly Meyer: Comparing those charts, it looks like you are paying less of the total cost of the measure in every situation, except for sealing in larger homes. The point wasn't to reduce the incentive but to align it with the amount of insulation they are putting in, correct? Was the point to reduce the incentive?
Marshall: We updated avoided costs, so there was a slight decrease in the total incentive amount we could include based on an average per-square-foot basis. The incentive structure will scale based on the size of homes and will be relevant to the claimed savings by each group.

Wendy Gerlitz: I came away from the last meeting thinking that the standard prescriptive incentive might be higher than the new one. When I look at this chart, is it possible for the reverse to be true?
Scott Inman: At the last meeting, there was a maximum that was eliminated.
Marshall: We realized it was confusing to put a cap on the incentive structure and found a way to justify removing the cap based on our discussion with the Trade Ally Stakeholder Group.

Holly: This is very helpful to see. However, why do it when nothing passes anyway and we're looking at exceptions? I don't understand the timing.
Marshall: We delayed it in 2013 because of the Program Management Contractor changes. We updated the avoided costs for standard track measures for 2013 but not for Savings Within Reach.
Fred: We have exceptions for the total resource cost test, but the utility tests don't have exceptions. We had to conform to that test.

Don Jones: The round two budget included proposed goal changes, and we looked at Existing Homes. Is that where the cap should have been shown?
Marshall: There were so many other changes that balanced it out, so we didn't break it out specifically.

Don MacOdrum: The staff and Existing Homes team made a great effort to come to the stakeholder group and have a good discussion. They also made changes based on feedback from that meeting. From an industry perspective, we really appreciate it.

Jim Abrahamson: I am curious about the cause of the relative changes from 2013 to 2014?
Fred: We had to lower the average so it would pass the test, and after that it was scaled to the home.

Brien Sipe: Floor insulation would have to come to $400. We tell Savings Within Reach customers they are eligible for enhanced incentives, but the lump sum of Savings Within Reach incentives would be less than standard track incentives in many cases. How do you communicate that to customers and contractors?

Fred: Our heat pump market analysis shows that the market has been shrinking. As the recession ends, that may not continue. There are still significant market shares of heat pumps below 9.0 heating seasonal performance factor, HSPF. We seem to be transforming the market, but we're not there yet. It's similar to furnaces in some ways. There is a reason to push the 9.0 heat pumps for a while longer, and we'll examine it again soon. Almost all of the heat pumps above 9.0 go through our program, so there isn't evidence that 9.0 heat pumps are going in without us. It looks like our program is still central to the high-efficiency heat pump market.

Holly: It seems like you identified market transformation right away for gas furnaces, and dropped them from the list, but not so with heat pumps. In the Conservation Advisory Council meeting a year ago, it sounded like we were almost there.
Fred: With gas furnaces, we had multiple sources of evidence over several years before we moved. There was evidence that the market had shifted to mostly high-efficiency furnaces for about three years, so the change looked stable. We also saw that two-thirds of the energy-efficient furnaces sold did not take advantage of the program incentives—a strong indicator that the market has transformed. We aren't seeing the same thing with heat pumps yet. We'll see what we find in the next market study.

Mark Kendall: It looks like there won't be a heat pump market in three years.

Fred: The recession increased repairs and decreased new sales, along with ductless heat pumps eating into the standard heat pump market. In advance of the next piece of evidence, it wouldn't be smart to make changes now.

John: At what point does a market become un-transformed? At least anecdotally, distributors and dealers are increasing their penetration of 80 percent gas furnaces. One part is circumstances around a Department of Energy ruling. If the incentive goes away and the ruling goes away, does it create a slippage?
Fred: There has been consistent anecdotal evidence that the market is slipping since we phased out most gas furnaces, but when we do a market study and ask distributors about overall sales, we're not seeing it so far. We will still take a look.

Mark: Are you talking to Bonneville Power Administration to see how it tracks with their information? Is that just in Oregon?
Elaine Prause: It's Oregon, and we did check with Department of Energy. They are very similar.

Charlie Grist: We always have to look at all the dynamic things that are happening in the market. We always need that snapshot of the changing world.

Fred: Most of the market for heat pumps is efficient, but not super-efficient. We don't have big engagement at the higher-efficiency levels, which is why we've been interested in pushing at the higher levels. We need to build momentum at the higher tier before we can move out of the lower tier.

> With respect to the efficiency levels we analyzed, the average HSPF for heat pumps in our program for 9.0 to 9.49 is about 9.04 HSPF. When you talk about 9.5 and above, it's really at about 9.7. Actual equipment is always a little better than the minimum efficiency for a category. We're getting more of a bump in the 9.5 and above category.
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> Resistance heaters last a long time and are cheap to repair, so we assume that it's optional to do an upgrade. The choice is between making a small fix and keeping the electric forced air furnace, or making a big, upfront purchase. So we assume that the baseline efficiency, in the absence of our help, is the efficiency of the resistance heater.

Scott Inman: How much is offset by having an air conditioner when you install a heat pump?
Fred: In our climate, you see lots of fan hours, but very few air conditioning hours per year. Air conditioning doesn't build much load. We can't save enough to justify incentives for air conditioners, but we do factor in the added load as an energy-savings penalty for heat pumps.

> If people are planning to replace a failed heat pump or oil, gas or propane system, we assume that their plan is to buy a new heat pump. That's because we only pay a portion of the cost to upgrade from the market baseline heat pump to a more efficient heat pump. We don't pay any of the costs to convert from another fuel. If the baseline is a heat pump, instead of resistance heat, we aren't going to save as much. We assume they're at 8.5. There's more money for replacing resistance heat because there's more savings. We are also trying to prepare for a transition that happens faster if you build momentum at the 9.5 and higher efficiency tier.

Wendy Gerlitz: Is this incremental retrofit something you've done before?
Kim: Yes. This is a good example of it.
Fred: We look at the market logic for each measure and what they would typically do.
Marshall: If we put additional dollars on the 9.5 units, it gets us better levelized cost at the higher efficiency levels on a measure level. We're putting more money on the table to encourage a more efficient product. Penetration of 9.5 HSPF units is 21 percent in answer to Garret's question from last time. Our goal is to drive more 9.5 units. PGE and some HVAC contractors say there is new equipment coming soon at lower costs. The bottom two rows on the slide show a retrofit from changing from electric resistance heat to a heat pump. We do see ductless heat pumps taking more of this segment of the market.

Warren: Do you know the relationship between incentives and incremental costs?
Marshall: The incremental incentive is about $250 for each tier. The low tier incremental cost is $250 and I believe the higher tier is $400. Going from 8.5 to 9.5 is $400 plus the $250 increment, which is more than $650. I'll plan to confirm this level.

Scott: You could really raise the 9.5 HSPF incentive and incrementally be the same as the utility costs. You're not giving back all the savings you realize.
Fred: We don't typically pay 100 percent of the incremental costs because that can create some market problems.
Peter: The customer is getting savings out of this too, so we don't give them the whole incremental cost.

Scott: It seems like the savings would pay for the cost of the measure within a year.

Warren: Levelized costs go down, so you have to watch you aren't paying more than the incremental costs. Replacing non-electric heat is tough. We know cooling isn't at zero, but there must not be very many incidents of replacing non-electric heat. It has to add load versus what each house had previously. The instances are likely to happen when they go from non-electric to electric.

Fred: There is considerable debate about this, but we don't think we're putting enough on the table to get people to convert from oil or gas. If a customer has a heat pump, they have air conditioning.

Warren: What's the difference between air conditioning and a heat pump? We don't know if a customer was going to add air conditioning. They could also be augmenting non-electric heat with a heat pump. How does the market feel between air conditioning and heat pumps? Does the $500 incentive cause the seller to make a change?
Paul Sklar: It's being considered.

Warren: The heat pump to heat pump incentive doubled, so that's interesting to know.
Fred: To get to a 9.5 plus heat pump, you get a higher incentive, but you pay more in additional cost than we're adding to the incentive. Energy Trust is not making it cheaper to get a more expensive heat pump.
Paul: The cost quotes are about $400 between the baseline and 9.0 HSPF, and the incentive is $250. Between the baseline and 9.5 there is a $1,000 incremental cost and the incentive is $500.

Holly: If $500 is enough to incent someone, the Energy Trust incentive can be leveraged with dealer incentives, tax credits and such. In the market, it's not just that one incentive number.
Kim: It's worth mentioning, and it's why we usually try to stay at no more than 50 percent of incremental costs in our incentive designs.
Paul: We look at a comparison between two heat pump models and subtract tax credits. The costs I cited above were minus tax credits. Elaine will explain removing measures, and I'll discuss trends we've seen in our data.

Elaine: We took away a lot of comments from the discussion at the last Conservation Advisory Council meeting about removing both gas and electric incentives. We decided to step back and look at the context and background within the OPUC decision-making process.

> A year ago, we filed our exceptions, which were largely residential weatherization measures. We got a two-year exception. We expanded things to specific measures and more commercial programs. That led to a more general decision to take the next year and think through our measures and programs to come up with a plan to submit in July 2014. We are actively reviewing gas measures. If they aren't cost effective, we will recommend removing them across the board. We realize there are some exceptions for some measures.

Wendy: When you say reviewing, can you say how reworking is part of that review?
Elaine: The slides show the list of measures in the first exception. Testing a change to the ceiling insulation R-Value requirement is an example of reworking things. We recommend keeping it, but modifying the measure.

Wendy: You're not looking at broader policy issues, like how you look at avoided costs or how you quantify environmental benefits, correct?
Elaine: Those will likely come up in the spring. In the meantime, we operate under the current rules and exceptions provided by the OPUC

Mark: Are we going to look at non-energy benefits?
Juliet: The group as a whole will probably recommend something to the commission, and they should look at non-energy benefits.

Don Jones: This is not looking forward and using what may be an outcome of the July 2014 process. You are working under the current rules, right?
Elaine: We are looking at the current protocols and what we can go forward with, but we'll also look at "what if" scenarios in the spring.
Juliet: Up until June, it's under the existing rules. From July onward, it will be a discussion of now versus how it can shift.

Fred: The OPUC has asked us to eliminate measures that are well below the cost-effectiveness threshold now and do not have a good prospect of becoming cost-effective under any foreseeable set of guidelines. We're looking at measures that are way outside the possibility of becoming cost-effective, even with new rules.

Don Jones: Then what I said is incorrect. It looks like there is some consideration for what might be included in a new paradigm?
Fred: We're looking at things that aren't likely to work, even under a new paradigm.

Elaine: The slides show the measures and adjustments. The yellow highlights show that air sealing savings went up, but costs were three times what we assumed they would be. The savings increase wasn't enough to cover the lower costs, let alone increased costs. On the gas side, air sealing wasn't cost-effective. Air sealing just made it on the electric side.

John: Was there any investigation about what caused that cost jump?
Elaine: Yes, we looked at that. We think we underestimated the average air sealing costs initially. We don't have evidence of significant non-energy benefits, and we don't see influence toward cost improvements. We also didn't see exceptions to be consistent with other programs. With every dollar spent, we're only seeing 17 cents of benefits. We need to make up 83 cents somewhere else.

Holly: I hear you and that seems prudent. If something is removed from cost-effectiveness, why do you have to make it up somewhere else?
Marshall: We take the cost of everything in the portfolio, cost to customers, Energy Trust administrative costs and all other costs, and compare those against the savings we claim. We need to bring costs down or increase savings. Our goal would be a ratio of at least one.

Holly: You are claiming an exception, but there's still a desire to make up the 83 cents somewhere else. At the whole program level, does it still have to be cost-effective despite the exception?
Elaine: Our performance measures do require us to be cost-effective on a program level. This docket does encourage us to get our measures to be cost-effective or have a justification. We don't see either with this measure. Our goal is to have an effective program. We really do need to make it up somewhere else.

Holly: If it's in UM 551, it's gospel. But otherwise it's an added commandment, correct?

Fred: If a measure is performing that poorly, you have to leverage something huge to make up for it. This one doesn't seem to fit that bill.

Elaine: We think adding air sealing with attic insulation will preserve things and still get savings.

Marshall: The average project costs from 2009 to 2013 are an average cost in the program. There are three tracks: Home Performance with ENERGY STAR® Track, which includes both Clean Energy Works Oregon and regular Home Performance, Standard Track and Savings Within Reach Track. Clean Energy Works Portland caused a shift in volume toward Home Performance methodology, including air sealing. One high volume contractor was installing air sealing for a very small amount, and we had to pull them out as an outlier. I believe contractors are doing good work, and costs are consistent with what we see. Contractors are following best practices, but the trend is still that prices are increasing.

John: But are prices increasing by 300 percent?
Marshall: Yes, 300 percent from our assumed averages.

Scott Inman: Savings Within Reach is way closer? How can they do it for half the cost of other program tracks?
Charlie: Is it just a lot of labor to do it correctly?
Marshall: Home Performance contractors do a thorough job that's greater than our requirements.

John: They pay a higher wage, correct?
Marshall: Some do, like those in Clean Energy Works Oregon.
Jim: They also point to high quality and best practices.

Warren: Are there big differences between the three tracks? Are savings lower in standard and Savings Within Reach tracks?
Marshall: We have some challenges getting those out separately. Home Performance projects generally include four or more measures together.

Jim: We can see with the low-income program for Cascade Natural Gas that there are substantial costs.

Wendy: How would on-bill/EEAST financing increase the cost?
John: Customers can afford to do more thorough work by using on-bill financing.
Marshall: Yes, contractors also pay a higher wage or prevailing wage.

Warren: There are also measures attached to this one, and maybe it changes if we can pull those out.

Juliet: It looks like costs could be more or less if we do pull these things out.

Charlie: It's the size of the overall project.

Mitt Jones: The data efficacy of air sealing is based on 2010 or 2011 data. A lot of us have become better at air sealing since the data were taken. The previous requirement was 300 CFM reduction to get an incentive. A lot of contractors were doing the bare minimum to get there, which is much less than we do now. Air sealing is a cornerstone of Home Performance and a critical measure according to building science. We think there have been massive

improvements, and wonder why we can't wait until we see what happens this summer with the OPUC before throwing out a key measure for companies like mine?
Paul: We will try to get to newer data as soon as possible.
Fred: We are getting to more recent data, but we still need 12 months of post data to get there.
Paul: Costs can go up faster than savings will. Cost-effectiveness probably won't improve with new data.
Marshall: We don't see a linear correlation between savings and costs.

Holly: Air sealing is still passing the utility cost tests, it's a key measure and customers want it. Why can't we keep it? It's part of a package. It's needed to be consistent with other programs. There are plenty of reasons to keep it. If it's the right thing to do, we should keep it. It feels wrong to end it with all those compelling reasons to keep it.

Charlie: Is there a way to test it faster than billing analysis? Waiting a long time is going to be a problem. I encourage you to think about a quicker research strategy. Waiting three years for post-billing analysis to get one piece is a problem.
Peter: You started at a 0.3 benefit-cost ratio, and it dropped to 0.17. You have a trend of increasing costs. No matter what, you have to find something that reflects significantly higher savings. It can't be an average measure.
Charlie: I'm asking you to find a better way to research it.

Warren: The contractors are improving a lot, and maybe the costs are able to come down quite quickly.

Don MacOdrum: That really is the pilot design. There are suggestions that Mitt has given. They would take some effort to figure out, but they could be a rework. Would that fit into the rework category?

Marshall: How much time and energy can we spend on this measure when our entire portfolio is sinking? We might want to focus on areas where we can see immediate improvement. Given the small percentage of portfolio savings for Existing Homes only, it's a big consideration.

Scott Inman: Air sealing is a big part of trade ally businesses, so even though it means a lot to Energy Trust staff, it means even more to people who developed their businesses around these measures and Energy Trust incentives. We were unanimous that we didn't want this measure to go away during the stakeholder group meeting.

Peter: We should look for a measure that will reach the higher CFM, for example, and come back to take a look at that. We're caught in a hard spot. The law says we need to deliver cost-effective savings. It sounds like coming back with some description of how we can do that will help.

Holly: The trade allies want this, the utility ratepayer dollars are better off with it, customers want it, it's a cornerstone of the programs and there's a regulatory path around it. The total resource cost test is an abstract concept, but the benefits of air sealing are real. I'm not arguing for a pilot, although it would be fine to do one. I would like to ask for a poll of the Conservation Advisory Council members and what they think about this.

Peter: It is important to note the payback to the customer is 37 years for air sealing at these costs, and we estimate it has a measure life of 20 years.

Kim: You have stated your thoughts clearly, Holly. We'll consider your comments and come back. We do have a framework within which we operate, and we are working to balance that. Although there are ongoing discussions about cost-effectiveness in process at the OPUC, I haven't heard a commitment to not take away any measures during these discussions. We are glad to hear from you. We originally advised eliminating both electric and gas air sealing measures because in the past we were advised by Conservation Advisory Council and trade allies to have consistency between gas and electric measures. But in going back to the trade allies, they said it would be okay to keep the electric measure if we eliminated gas. This is a change from previous guidance we've received from stakeholders, and we changed the proposal we brought to you today based on that feedback.

[Note: The presentation slides show changes for the measure on the electric side that would allow it to be retained, as requested by Conservation Advisory Council members.]

Wendy: I appreciate that you got our feedback and are trying a different approach. What you're hearing is frustration because there's an open docket at the OPUC, and there seem to be a lot of benefits in Home Performance that are broader than energy. Everyone is trying to grapple with that. The members here may be expressing that it seems hard and premature to get rid of a cornerstone measure. It causes me some concern to do this right now. Keeping the electric incentive and the pilot both sound promising.

Charlie: I would not agree with Holly about the total resource cost test, but maybe you put it to the industry about how to get a five-fold change. If that can't be produced in a reasonable way, it has to be cut. There's a line in the sand for every measure, and sometimes you'll fall short. What's the burden of going forward? Maybe you can't design that. Contractors have to do it.

Peter: Maybe we engage the stakeholder group, or broaden it, and see what they can do. It's tough when a measure is not performing, is big to a segment and isn't carrying other things. We want to engage with trade allies to look at what's possible. We're not seeing the exception route, but if someone can look at UM 551 and see that route, tell us. I do see a route to come back and engage.

Don Jones: Charlie summed it up well. I want to echo his previous comment to evaluate more current data in an accelerated way. It is the most likely way to improve the ratio. Trying to accelerate that to reflect elevated performance could conceivably help.

Charlie: The Regional Technical Forum is in the business of looking at research design. We have some design experts who can weigh in. It doesn't guarantee anything, but gives you a second set of eyes.

Holly: Stepping back and getting into details makes sense, but the aggregate message to the market is that we're making electric look more efficient with equipment incentives and air sealing. Finding that consistency regardless of measure is important. The market message is of concern.

Warren: We don't get to explain the message often. It would be tough to explain that to the customer. It's okay to seal up your house, unless it's gas heated. We've trained homeowners for 30 years that it's good to seal up their homes. If we pull the measures apart and look at them separately, we are undoing a lot of work.

Don Jones: I appreciate the challenges. Peter's point is that you need a trajectory to get a quantum leap on the thing, but we don't have everything in place. You do have a set of tools

that you can use, like doing a pilot. You have a shop to run across multiple utilities. I've been in your seat before, looking at what can you do. If it doesn't improve, you have to move on to something else.

Garret Harris: A lot of things come into play. I understand there's cost-effectiveness and also contractors. The pilot is the right move, but I also understand there are contractor business issues.

Jim: I'm getting to the savings number itself. The annual savings is 30 therms. Why are the electric savings so much more?
Paul: We get far fewer homes that have electric space heat. We haven't gotten a large enough sample of them.

Jim: So it could be high, in which case the cost-effectiveness of electric also goes down.

Don Jones: It brings us all down to the bottom, the same rock.

Jim: The primary difference between cost-effectiveness for gas and electric air sealing measures are the savings.

Warren: Even if we significantly increase the savings, it's not going to fix it.

Kim: We went very deep on this today, and we thank everyone for helping us consider this carefully.

4. Meeting Adjournment
Kim thanked the council members for their participation and adjourned the meeting at 4:05 p.m. The next full council meeting is February 5, 2014.