Energy Trust Board of Directors Annual Meeting

February 26, 2014

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126th Board Meeting—Annual Meeting

Wednesday, February 26, 2014
421 SW Oak Street, Suite 300
Portland, Oregon

	Agenda	Tab	Purpose
12:15pm	**Executive Session**—working lunch in Solar Conference Room *The board will meet in Executive Session pursuant to bylaws section 3.19.2 to discuss participation in negotiations to settle a dispute.* ***The Executive Session is not open to the public.***		
1:00pm	**Break**		
1:15pm	**126th Board Meeting—Call to Order** *(John Reynolds)* • Approve agenda **General Public Comment** *The president may defer specific public comment to the appropriate agenda topic.*		
1:20pm	**Consent Agenda** *The consent agenda may be approved by a single motion, second and vote of the board. Any item on the consent agenda will be moved to the regular agenda upon the request from any member of the board.* • December 13 Board meeting minutes • Corporate Authorization (bank signing authority)—R695	**1**	*Action*
1:25pm	**Nominating Committee** *(Alan Meyer)* • Election to new terms of office—R690 • Election of officers—R691 • Election of Melissa Cribbins to the Energy Trust Board—R692 • Election of Susan Brodahl to the Energy Trust Board—R693	**2**	*Action*
1:45pm	**President's Report** *(John Reynolds)* • Committee Assignments—R694	**3**	*Action*
2:00pm	**Committee Reports** • Compensation Committee *(Dan Enloe)* ○ Adopt new Supplemental Executive Retirement Plan plan—R696	**4**	*Action*
	• Evaluation Committee *(Debbie Kitchin)*	**5**	*Information*
	• Finance Committee *(Dan Enloe)*	**6**	*Information*
	• Policy Committee *(Alan Meyer)*	**7**	*Information*
	○ Add and adopt Board of Directors Corporate Governance Guidelines to board policies—R697	**7**	*Action*
	• Strategic Planning Committee *(Rick Applegate)*	**8**	*Information*
3:15pm	**Break**		
3:30pm	**Staff Report** • Highlights ○ Preliminary year-end results • 2014 Legislation update *(Debbie Menashe)* • Integrated Solutions Implementation quarterly update *(Scott Clark)*	**9**	*Information*
5:00pm	**Adjourn**		

The next meeting of the Energy Trust Board of Directors will be held
Wednesday, April 2, 2014 at 12:15pm
at Energy Trust of Oregon, 421 SW Oak Street, Suite 300, Portland

Table of Contents

Board Meeting Minutes—125th Meeting

December 13, 2013

Board members present: Rick Applegate, Ken Canon, Dan Enloe, Roger Hamilton, Mark Kendall, Jeff King, Debbie Kitchin, Alan Meyer, Kenneth Mitchell-Phillips, John Reynolds, Anne Root, Dave Slavensky, Lisa Schwartz (ODOE special advisor)

Board members absent: Julie Brandis, John Savage (OPUC *ex officio*)

Staff attending: Margie Harris, Ana Morel, Hannah Hacker, Debbie Menashe, Amber Cole, Steve Lacey, Peter West, Courtney Wilton, Fred Gordon, Scott Clark, Diane Ferington, Jackie Cameron, Thad Roth, Kim Crossman, Jed Jorgenson, Betsy Kauffman, Mark Wyman, Matt Braman, Diana Rockholm, Sarah Castor, Sue Fletcher, Susan Badger Jones, Scott Swearingen, Jessica Rose, Chris Dearth, Dave Moldal, Brian DiGiorgio, Elaine Prause

Others attending: Juliet Johnson (OPUC), Jim Abrahamson (Cascade Natural Gas), John Charles (Cascade Policy Institute), Christina Cabrales (Conservation Services Group), Lauren Shapton (Portland General Electric), Karen Ward (Children's Developmental Health Services & Hearing Services), Don Jones, Jr. (Pacific Power), Nick Josten (Warm Springs Hydro), Dennis Dougherty (Warm Springs Hydro), Nate Cullen (Clean Water Services), Randy Naef (Clean Water Services), Bruce Cordon (Clean Water Services), Lynne Chicoine (Clean Water Services), Jerry Bryan (Farmers Irrigation District)

Business Meeting

President John Reynolds called the meeting to order at 12:15 p.m.

General Public Comments

There were no public comments.

Consent Agenda

The consent agenda may be approved by a single motion, second and vote of the board. Any item on the consent agenda will be moved to the regular agenda upon the request from any member of the board.

MOTION: Approve consent agenda

Consent agenda includes:
1) November 6 board meeting minutes

Moved by: Debbie		Seconded by: Ken
Vote:	In favor: 11	Abstained: 0
	Opposed:0	

Board Appointments

Appointment of Karen Ward to the Audit Committee

Ken Canon introduced Resolution 688. One of responsibilities of the Audit Committee is to include perspective of an outside Certified Public Accountant familiar with nonprofits. The former outside

expert and advisor to the committee recently resigned after two years of service. Courtney Wilton worked with several colleagues to identify candidates and Karen Ward was selected. Karen is executive director of Children's Developmental Health Services & Hearing Services. Ken directed the board to the board packet to see a listing of her experience. The Audit Committee recommends she be added to the committee.

Karen: I worked with Deloitte LLP for 22 years and have background in audit services and risk assessment. I have worked with a wide variety of industries, including utilities. I recently moved into the nonprofit sector at Children's Developmental Health Services & Hearing Services for the last two years, which just merged with Albertina Kerr. I am excited to serve on the Audit Committee and to work with all of you.

RESOLUTION 688
APPOINTING KAREN WARD TO
THE ENERGY TRUST BOARD AUDIT COMMITTEE

WHEREAS:

1. **The charter of the Audit Committee of the Energy Trust Board of Directors permits the inclusion of not more than two members who are outside of the board. Shirley Cyr previously served as an outside member of the Audit Committee, but resigned her position effective August 29, 2013.**
2. **The board Audit Committee would like to include an outside member, has reviewed candidates for an outside seat, and nominates Karen Ward, Executive Director of Children's Developmental Health Services & Hearing Services, effective immediately.**

It is therefore RESOLVED:

That the Energy Trust of Oregon, Inc., Board of Directors appoints Karen Ward to the Energy Trust Board of Directors Audit Committee.

Moved by: Ken Canon		Seconded by: Alan Meyer
Vote:	In favor: 11	Abstained: 0
	Opposed: 0	

John Reynolds and the board welcomed Karen to the Audit Committee.

Election of Kenneth Mitchell-Phillips to the Board

Alan Meyer introduced the resolution. For background, there is currently one resignation, Anne Donnelly, and Julie Brandis recently announced she will not be seeking a new term once it ends in February 2014. There is one candidate for the board to consider today to fill the spot left vacant by Anne. The Board Nominating Committee recommends Kenneth Mitchell-Phillips to a three-year term on the board. Kenneth is an attorney and was most recently general counsel at NxSystems, Inc. in Portland. He has worked at Davis Wright Tremaine, LLP as an attorney. He has served on numerous boards, including the Oregon State Bar Board of Governors, the Oregon Ballet Theatre and the Portland Schools Foundation. He teaches classes in law, real estate and employment law. Though

Kenneth does not have specific energy background, he has good experience on boards and is an attorney.

RESOLUTION 687
ELECTING KENNETH MITCHELL-PHILLIPS TO
THE ENERGY TRUST BOARD OF DIRECTORS

WHEREAS:

3. **Anne Donnelly was elected to the board for a term beginning February 2013 and ending February 2016. Director Donnelly resigned her position on the board effective September 29, 2013 due to scheduling conflicts, and her position on the board has remained open and unfilled since that time.**
4. **The board nominating committee has reviewed candidates for the open board seat and nominates Kenneth Mitchell-Phillips, attorney and General Counsel, Corporate Secretary, and VP of Human Resources for NxSystems, Inc. in Portland, Oregon effective December 2013.**

It is therefore RESOLVED:

That the Energy Trust of Oregon, Inc., Board of Directors elects Kenneth Mitchell-Phillips to the Energy Trust Board of Directors to a three-year term, subject to all requirements of the Bylaws of Energy Trust.

Moved by: Alan Meyer Seconded by: Ken Canon

Vote: In favor: 11 Abstained: 0

Opposed: 0

Kenneth: Thank you for having me on the board. I'm excited to be here.

President's Report

Board member, Ken Canon presented his recent experience installing a solar electric system at his home property.

Ken showed an aerial image of his property, which is bordered by the Bureau of Land Management on the west and north side, and is also home to two spotted owls. What is unique is that there is an area where his power is metered by Pacific Power through a step down transformer, 120 kilovolt line, and that is the end of Pacific Power's ownership. Ken owns all the line and transformers from there to the house and outbuildings. The entire system, including well system, is structured to withstand potential forest fires. There are numerous sprinklers and large-size faucets throughout the property, including on the roof of the residence. Ken pointed out a potential ground-mounted solar system installation location, devoid of vegetation and near the house. He prepared the location for installation and installed a solar electric system, including an Energy Trust required fence.

Ken has a summer-peaking situation. He consumes about 22,000 kWh a year at the property. The total installation cost was $33,000, and he received an Oregon Residential Energy Tax Credit for $6,000, an Energy Trust incentive for $4,770 and a federal tax credit of $8,500. His out of pocket cost

was $13,767. Looking at usage and an average estimate of 8,000 kWh generated per year, he estimates payback of 11 to 12 years.

Ken: To us, it's a valuable addition to the property; it's like prepaying your power bill for a while. It would have been most cost effective to do a 3-kW system but we went above.

Ken showed a real-time screen shot of what each panel is generating, on www.enlighten.enphasenergy.com, called Enlighten Manager. Ken clarified the system is net metered and does not have battery storage. He went with a ground-mount system because of the angle of the house roof and the potential for paper wasp nests beneath the system. The panels are from SolarWorld and are an Oregon-made product.

Margie: Can you comment on your experience with the installation process and the program?
Ken: We initially thought of doing this earlier, but we don't have many installers in our area. New Castle Solar installed it. The process with Energy Trust worked well, and the inspection by an Energy Trust inspector went well.

Final Proposed 2014-2015 Action Plan & 2014 Budget

Margie Harris presented on the final proposed 2014 annual budget and 2014-2015 action plan, available in full detail in the "budget binder" provided to all board members and posted on the Energy Trust website. Margie mentioned the process takes about six months from its start in the summer when staff presented budget concepts to each utility through to this final proposed budget and action plan presentation. Today's presentation includes a summary of outreach conducted and comments received, information on any changes made and, a staff recommendation that the board adopt the final proposed budget.

Since the November board meeting, staff has taken the budget and action plan "on the road". After the summer meetings with the utilities, staff met again with the utilities with tailored presentations, previewed the budget with the Oregon Public Utility Commission staff, and conducted two customer association meetings, which attracted organizations such as BOMA and Oregon Home Builders Association. For the first time, Energy Trust offered a webinar, and attendees represented a broad audience. Staff presented again to the Renewable Energy Advisory Council and Conservation Advisory Council, and to the OPUC commissioners at a public hearing.

Staff took all comments received and summarized responses to those comments, available in the budget binder. Also included in the binder are actual written submissions if available; otherwise, they are responses to verbal comments. There was no one theme this year, beyond feedback around the Existing Homes air sealing measure modification.

Feedback particularly from the OPUC was support for the budget and action plan as proposed. The OPUC commissioners reviewed Juliet Johnson's detailed staff memo to the OPUC at the public hearing in November. Juliet's memo started by acknowledging Energy Trust's response to the OPUC's requests last year, which included keeping administrative costs low, changing how goals are characterized and reserve accounts structured, communicating quarterly on changes to computer system upgrades, deep retrofit initiatives, lender allies and coordination of grant opportunities. For comments on the 2014 budget, the OPUC recommended limiting carryover to less than 10 percent for all utilities, and this budget does envision spending down reserves. Energy Trust will monitor how that

translates into a percentage for each utility. The OPUC supported Energy Trust's request for 5.5 FTE, and staff will incorporate questions about staffing, the organization's approach to staffing and Energy Trust's structure and size into the Management Review, which will occur in 2014. Margie indicated we are working to find the right balance with staffing, particularly as Energy Trust projects to level off on savings acquired compared to aggressive growth over the last five years. Energy Trust will also examine with the OPUC staff how staffing levels are measured. Energy Trust will work with OPUC to document when changes are made in staff roles or responsibilities. Energy Trust will continue communications work with the OPUC and with many other stakeholders related to cost-effectiveness, and will update the budget and action plan once an evaluation is complete on electric avoided costs.

Margie described additional information on expenditures and staffing. This is an area of the budget where comments were directed, including board comments from November.

Margie reviewed charts on the final proposed budget. Of the $176.2 million final draft budget, the single largest investment is for incentives at $101 million, or about 60 percent of the total budget. There is growth in incentives, especially evident for Existing Buildings, Production Efficiency and Home Products. This is where programs are trying to address the gap left by the Oregon Business Energy Tax Credit and low energy prices. Programs are attempting to make up a portion of that gap, not all of it.

The budget also allocates $50.9 million for program delivery, or 30 percent of the total. This reflects changes in the types of projects, and growth in volume of activity. Projects are smaller and yield lower savings yet there are more transactions overall. Energy Trust is experiencing a conundrum between lower savings per transaction while the effort to capture those savings may result in higher costs.

In the budget, internal costs are $12.8 million, which is mainly outsourcing for professional services like in Planning & Evaluation hiring evaluators, the annual financial audit, some media buys, some creative services and marketing, and also rent, insurance, software licenses, conferences and training, and the Management Review. The remaining $11.6 million is for salaries and benefits for 100 staff. Margie mentioned this has taken 12 years to get to this point. We have grown steadily and slowly in that time period.

At the last board meeting, Ken asked about the breakdown of incentives and categories by fuel and utility. That detail is under the Budget Detail tab in the budget binder. A few highlights include electric efficiency incentives of $71.7 million and electric program delivery of $36.6 million. This is a total of $108 million compared to $95 million from the prior year, up by about 12 percent. On the gas side, there is $15.8 million in incentives, $6.8 million for program delivery, and a total of $22.6 million compared to $20.8 million in the prior year, an increase of 8 percent. On the renewables side, incentives are up 8.8 percent to $13.5 million and program delivery is around $138,000, and the total is down 35 percent from $21 million in the prior year to $13.6 million.

Alan acknowledged Margie for incorporating answers to previous questions.

Debbie: Salaries and benefits are for Energy Trust staff. Does that include Production Efficiency staff?
Margie: Production Efficiency staff is under salaries and benefits instead of under program delivery.
Debbie: I recommend you move Production Efficiency to program delivery. One of the issues is if you pull a program in-house, like this one, for strategic reasons, that shouldn't be a penalty for Energy

Trust. When you're running a business, you're making trade-offs. Especially as we start to discuss staffing next year.
Margie: The same issue would be true on Renewables as we have in-house staff, and some on commercial. We will look at this again and represent it differently in the future.
Ken: You could literally have a note saying it includes in-house program delivery.
Dave: And a note should be made to your baseline for over-time comparison.
Roger: If you were to pull out traditional administrative costs, where would that be?
Margie: We'll get to that shortly.

Margie showed a chart comparing current year 2013 budget to the final proposed 2014 budget and noted what's changing, in response to a question from Alan at the last meeting. Changes are not significant. Energy Trust did increase incentives by 2.85 percent and program delivery went up 6.8 percent due to an increase in volume and transaction costs. Even at those increases, Energy Trust is still seeing highly competitive prices and is within cost metrics for the OPUC. Internal costs did go down, in response to feedback from the board and adjustments include changes in the IT group. There is some increase on staffing costs, and the percentage is roughly similar to the draft.

Margie showed graphs of staffing costs since 2005. Energy Trust has a performance measure with the OPUC that program and administrative costs are less than 9 percent of annual revenue. Typically Energy Trust budgets 6 percent, while the actual percentage is usually less than budgeted, coming in slightly over 5%.

Ken: For support and administrative costs, how does that relate to the pie chart you just showed?
Courtney: Staff costs in this bar chart don't include program staff costs, just administrative staff costs, plus non-staff support costs.
Margie: The definition is in the financial glossary and is submitted in the every-other year public purpose charge report to the Oregon Legislature.

Margie said Energy Trust also monitors staffing costs as a percentage of total expenditures and showed a bar chart on it.

Margie described Energy Trust's approach to staffing, in response to questions from Debbie, the OPUC and PGE in the last month. Energy Trust uses a competitive Program Management Contractor delivery model. From a staffing perspective, when developing work plans with staff, every year management revisits and refocuses efforts for each individual staff member. The process identifies priorities and aligns staff work plans with the action plan and strategic plan. These work plans and priorities are revisited at mid-year and adjusted for changing focus or priorities. Whenever there is a vacancy, the job description is reviewed for any potential changes that can or should be made to the roles and functions the position fulfills. This is all done on an annual basis and before any position is requested to be added during the annual budgeting process.

Margie reviewed details of the final proposed 2014 annual budget and 2014-2015 action plan. Programs are adapting to a changing environment, which is always true of the energy efficiency and renewable energy field. On the surface, budget dollar amounts look consistent with 2013, yet below this water line is a different story. There is the loss of the Business Energy Tax Credit, the low cost of energy, challenges related to cost effectiveness, higher volume projects yielding lower savings and higher transaction costs, and new tactics needed to reach more and different customers. This

increases the complexity to deliver programs and a need to diversify what is offered and how customers are reached.

The overall budget is largely similar to the last presentation. There is growth in savings of 8 and 9 percent for gas and electric, revenue down 1.4 percent stemming from a reduction in NW Natural rates and, planned expenses up 3.5 percent instead of 5.1 percent as in the earlier draft. Planned expenses now reflect $1 million removed from the internal cost category within the Planning & Evaluation and IT groups. Increases in incentives and program delivery account for 86 percent of the total increase, and this portion has not changed from the two versions of the draft. Energy Trust will draw down reserves and expects to make up the difference between under collection on the revenue side and increased expenditures. Levelized costs are remaining stable and competitive. The renewable energy budget is comparable and, there has been generation shifted from 2013 to 2014. Administrative and program support costs are flat at 6 percent of projected revenue and staff expects to come in closer to 5 percent.

Margie showed a chart of electric savings increasing 8 percent, gas savings up 9 percent and generation increased from two solar capacity projects, an Oregon Institute of Technology geothermal project and a biopower project.

Margie mentioned 2013 is projected to end with Energy Trust exceeding stretch goal for PGE and NW Natural, coming close to stretch goal for Pacific Power and coming close to conservative goal for Cascade Natural Gas. She is pleased with the results, and mentioned there is still activity that will come in this month. The Renewable Energy sector is expected to generate 2.6 aMW.

Margie came back to the budget presentation and showed charts on revenues for 2014 of $163 million. The total is down $2.3 million. Revenue from PGE and Pacific Power are essentially the same, and Cascade Natural Gas is down. There are not a lot of changes on the revenue side.

Expenditures are slightly changed. Renewables is up $400,000, energy efficiency is down $3.3 million and overall budgeted expenditures are down $3 million. As mentioned, this led to a change from the draft budget showing a 5.1 percent increase to the final proposed budget showing a 3.5 percent increase.

Margie clarified revenue is down due to NW Natural having a rate decrease. This supports the OPUC, utility and Energy Trust desire for rate stability. There are no planned increases for 2014 or 2015 at this point. Instead, the strategy is to draw down current reserves.

From the draft to the final proposed budget, expenditures went down 1.6 percent, with a slight reduction in incentives and staff costs, $1 million removed from Planning & Evaluation and a reduction of $400,000 from IT. This demonstrated for Margie opportunities to work with staff to budget differently in the future, and look for places in the budget where staff may be overly optimistic in what can be completed in any one year.

Net change to savings by utility include PGE down 0.6 percent, Pacific Power down 0.4 percent, NW Natural Oregon up 0.4 percent due to improved forecasting for New Homes and, Cascade Natural Gas down 11.5 percent. Changes in Cascade projected savings reflect different growth assumptions for gas hearths and more realistic projections for two industrial projects that are in the pipeline but can

be paid for by using the Cascade Natural Gas reserves if they do complete. This will be the agreed upon preferred approach for the future, given the large swings industrial projects can have on Cascade's relatively smaller budget.

Electric savings by program have not changed significantly from the 2013 forecast to the 2014 final proposed budget. Overall, programs are still delivering very inexpensive power at an average cost of 2.9 cents levelized, well within the cost cap of 3.9 cents levelized set by the OPUC and lower than the avoided cost assumption of 6-9 cents per kWh. On the gas side, most programs are growing in savings, the majority in Existing Homes, Production Efficiency and New Homes & Products. Margie pointed out the NEEA gas pilot and an upcoming strategy session with NW Natural. Overall levelized costs are 40 cents per therm, which is within the cost cap of 57 cents per therm and below the avoided cost of 49-54 cents per therm.

Dan: What's a real therm of gas cost for residential?
Jim Abrahamson: For Cascade Natural Gas, it's around 80 cents per therm retail.

Margie said renewable energy generation shows Solar increasing and Other Renewables decreasing. Total generation is up from 2.65 aMW in the 2013 forecast to 4.49 aMW in the 2014 final proposed budget, which helps levelized cost to go down from 5.7 cents per kWh to 3.5 cents per kWh.

Alan: Can you explain why Solar isn't more expensive, as it was during the last presentation?
Thad Roth: What is driving this is generation from two Pacific Power solar capacity standard projects coming online in 2014, projects you approved at the November meeting.

Margie summarized staffing requests of 5.5 FTE. Two FTE are conversions from existing contractors, three FTE are new and include the Senior Stakeholder & Community Relations Manager, Southern Oregon Outreach Manager and Senior Project Manager. The 0.5 FTE is a current web developer proposed to move from part-time to full-time. These have the support of the OPUC.

Mark: Is this going into marketing and outreach?
Margie: Two of the three new FTE are, and two FTE are currently resourced by using contractors.
Mark: So this is aligning with staffing costs within your budget?
Margie: Yes.

Margie said PGE commented on why Energy Trust does not plan to work with the utilities and program management contractors (PMCs) to perform some of the marketing and outreach functions that would be part of the new staffing positions. Margie commented it's really about how Energy Trust divides up roles and responsibilities for staff versus contractors. Staff sees the whole of marketing and outreach activities across the organization, where PMCs focus on delivery for their specific program. Also the relationships that would be formed through these positions make more sense to have through staff versus PMC staff or the utilities, especially with efforts that span across the entire organization. Those relationships should be built and maintained in-house. Some of these positions will, however, coordinate and work closely with staff at the utilities, as we do now.

Margie recapped the benefits of the final proposed budget, including power at 3 cents per kWh, natural gas annual therms at 40 cents, clean energy generated, $425 million in future predicted bill savings, energy improvements in 120,000 homes, continued high customer satisfaction, more

visibility, more access, and more diversification. She mentioned that when staff communicates about these benefits in different settings, they will include total expenditures by Energy Trust, carbon benefits, behavior change and technology development to address comments from the board in November.

Ken: For the $425 million in future bill savings, what time period is that?
Margie: It's different for different customers and depends on the life of the measures installed.

Alan: I move adoption and want to ensure Kenneth knows there is no pressure to vote given he was just appointed to the board.

Anne: As you develop marketing in Southern Oregon, I encourage you to benchmark how incentives are distributed across the state so you can see growth in areas as you implement some of these new programs. You could do so by population and by regional locations.
Margie: We do want to do this, statewide and by regions, to have a baseline. Fred has an intern working on census data to develop that baseline.

Dan: Thank you staff and Margie for well done outreach work, listening to critics, responding and adjusting. It's good we're paying attention to that feedback.

John R welcomed public comments.

Lauren Shapton: PGE regards Energy Trust as a partner. We do not always see things the same way, and we do not expect that to happen all the time. PGE is not a "critic" of Energy Trust.

Jim Abrahamson: With Cascade Natural Gas being only 1 percent of the total Energy Trust budget, one or two projects delaying can have a tremendous impact on how we turn out for the year. Now the OPUC is putting additional pressure on Energy Trust to come in with carryover less than 10 percent. For Cascade Natural Gas, that will be extremely difficult to do, because things change, a couple of projects here or there. We also don't have the deferral account anymore and can't do real-time adjustments on rate of revenue given to Energy Trust, especially at year end when delays in projects are made apparent.
Roger: The 10 percent rule in aggregate may make sense because that institutionally is an Energy Trust target.
Jim: Good point, but at the same time we are all guardians of ratepayer funds so the individual look is still critical so we are not over or under collecting.
Roger: Maybe we could talk through the length of time for the 10 percent carryover, instead of annual, maybe it's two years.
Margie: Also, in May, the board approved a reserve policy that is based on the needs of each utility.
Juliet: This is a similar item that came up at the OPUC public hearing, Mr. Charles from Cascade Policy Institute also brought this up at that meeting saying that as savings are harder to acquire, Energy Trust may be forced to spend more money. 10 percent is a general guideline; we want to keep ratepayer dollars moving and create incentive for Energy Trust to develop projections as tight as possible. I don't think this will be something the commissioners or staff will be rigid about as we recognize these complexities. Input on this issue is well received.

Jim: In regards to timing for comments on the budget, Cascade Natural Gas had a substantial change in achievable savings in 2013, but didn't get a chance to look at that until October. Once we saw it, we had a chance to compare to 2014 and noticed a disconnect. Energy Trust staff and Cascade Natural Gas were able to fix it, but we weren't able to look at total impact financially before the public comment period closed.
Margie: This had to do with how we prepare the budget for the organization as a whole before diving into details by utility. In this case, the comment period ended before Jim could see the full impact of changes for Cascade and before the final proposed budget was sent out. We will examine the timing for next year.
Courtney: Also, overhead rate changes very little from stage to stage and in the future we may be able to give closer estimate earlier.

No further public comment received.

RESOLUTION 685
ADOPTION OF 2014 BUDGET AND PROJECTION FOR 2015

BE IT RESOLVED: That the Energy Trust of Oregon, Inc., Board of Directors approves the 2014 budget and 2015 projection as presented in the board packet.

Moved by: Alan Meyer Seconded by: Ken Canon

Vote: In favor: 11 Abstained: 1, Kenneth Mitchell-Phillips

Opposed: 0

RESOLUTION 686
ADOPTING 2014-2015 ACTION PLAN

BE IT RESOLVED: That Energy Trust of Oregon, Inc. Board of Directors approves the two-year 2014-2015 Action Plan as presented in the board packet.

Moved by: Ken Canon Seconded by: Anne Root

Vote: In favor: 11 Abstained: 1, Kenneth Mitchell-Phillips

Opposed: 0

The board took a break from 1:50 p.m. to 2:05 p.m.

Energy Programs

Warm Springs Dam Hydro Project—R682 (Revised)
Jed Jorgenson presented on the resolution. Betsy Kauffman introduced herself as managing the Other Renewables program at Energy Trust and mentioned that Jed works on hydropower and geothermal projects. Two representatives of the Warm Springs Hydro participated by phone, Nick Josten and Dennis Dougherty.

Jed started with the revised resolution. There was a minor design change required by the Bureau of Reclamation that causes a minor amount head loss, and this translates into less than 1 percent difference in generation. The change does not impact the Energy Trust incentive or Renewable Energy Certificate (REC) allocation. There is more detail than in the past in the briefing documents, which was recommended by the Policy Committee. Staff is looking for feedback on the level of detail the board seeks for these types of projects. There will be two hydropower projects presented today and they both came out of a competitive solicitation launched in August and led to these two hydropower projects and one biopower project. The biopower project did not meet funding criteria and did not move forward in the process.

The two hydropower projects are on irrigation infrastructure, which is a target area for Energy Trust's investment in hydro. Energy Trust has ten other projects operating, one nearly online and three in the pipeline for a total of 5.9 megawatts of capacity and 2.7 average megawatts of generation.

Jed reviewed the project evaluation process. The renewables staff received the applications, created a detailed internal review memo, had staff from around the organization review the projects, and contracted with Steve Anderson from Evergreen Energy, an independent contractor, to review the project. Once the projects had internal support, staff took the projects to the Renewable Energy Advisory Council (RAC) for feedback and is now at the board to request authorization for the incentives because they are greater than $500,000.

Jed showed a list of criteria against which each project was reviewed.

Jed described the project which is located at Warm Springs Reservoir in Eastern Oregon. The project would install a 2.7 megawatt turbine and generator at the base of the dam, and the energy moved along 2.2 miles of line to interconnect with Harney Electric Co-op. Then the power is wheeled through Bonneville Power Administration to Pacific Power. The dam is 106 feet high, 470 feet crest length, and owned by Warm Springs Irrigation District and Bureau of Reclamation. Water is released based on the needs of irrigators downstream.

Jed described where the turbine and generator would be installed at the dam. Irrigation water drives the project. The hydro unit will generate energy based on the irrigation needs going through the system. This is the first time Energy Trust has supported a project at an existing dam. There are about 82,000 unpowered dams in the U.S. and they present a good opportunity but they have long permitting timelines ranging from five to seven years. This dam is no different. The project started in 2009, and the lengthy timeline is the main reason Energy Trust doesn't see these types of projects. There is also a great deal of environmental scrutiny. There is no reason Energy Trust can't participate but these are some of the reasons there hasn't been such a project in the past.

Site control is through an agreement with the irrigation district that allows them to construct the project in exchange for lease payment based on percent of gross revenue of the project. The development team is Warm Springs Hydro LLC, a special purpose entity for this project. Members are experienced, and own four projects as an LLC. Energy Trust has worked with them on the CDrop project at the Klamath Irrigation District that came online in 2012. That system received a $490,000 incentive and has performed as expected so far.

For the Warm Springs Dam project, the resource is the Malheur River, a source of risk and opportunity. The challenge is that it is a dam using water for irrigation purposes. All rivers are subject to climate conditions around them, especially drought. There is a lot of data on those impacts over time for this site. Jed showed 20-year estimated generation using data from 1992-2012 based on flows available. Staff expects to see varied generation over the years; on average, over 20 years, approximately 600,000 MWh per year in generation. In any one year, this project won't get that. Water will be available but is variable.

Warm Springs will install a Kaplan turbine, which can efficiently handle a wide range of flows. At this point, a Federal Energy Regulatory Commission license is the main permitting needed, and the project owners expect to get that in the first quarter of 2014. The Federal Energy Regulatory Commission (FERC) license includes a tremendous amount of outreach with public and state natural resource agencies. There is no controversy surrounding the project from the resource community or local community. Staff expects the license to be provided. Other benefits of the project are downstream, developers will rebuild an irrigation diversion and there will be stocking of the reservoir, which is a recreational benefit.

Rick: Are there other un-screened irrigation diversions?
Jed: I don't know the answer but in this case, the diversion is causing turbidity problems for fish.
Nick Josten: Upstream from the reservoir, there is much improved fish habitat compared to the project area, which is fairly degraded. In that location, Oregon Fish and Wildlife is focusing efforts to improve conditions. That's where we're proposing to help them with a significant mitigation problem upstream. From the reservoir downstream, water goes from Malheur through Vale. I'm not sure about screening down there.
Dennis Dougherty: There are no screened diversions downstream from the reservoir.

Ken: Is there a minimum screen flow below the dam?
Jed: To my knowledge, in winter time this is a section that is de-watered.

Roger: If required to do mitigation, the hydro project itself is not creating impact but the dam is. What is the impact you are mitigating?
Jed: Oregon Fish and Wildlife has authority to require screening during these reviews.

Roger: When the Policy Committee looked at this, we asked the same question about fish and anything down the road that would impair. Historical flows will most likely not be what is realized given droughts and more intense droughts.
Jed: That is a valid concern and why we looked at only the last 20 years of flow data instead of any data prior to that.

Rick: I am interested if we are funding projects that have fish benefit, thus my question. In this case, according to Oregon Fish and Wildlife, mitigation work would be beneficial. But if there are a number of un-screened diversions, that could negate that benefit from the one that will be updated.
Jed: Over the long-term, the hope is funds from the project will be reinvested in the system.

Anne: Is there any future risk of the project being scrutinized from Energy Trust's perspective of not recouping investment?
Jed: Water rights on this system will keep the project operating.

Jed mentioned with the interconnection with Harney Electric Co-op, the utility will forego wheeling fees in exchange for the option on the project in the future. This is a progressive viewpoint staff has not seen before.

Mark: What impact did that have on the Pacific Power contract?
Jed: Pacific Power is just buying the project as an off-system qualifying facility; it looks like a reduction in cost to the project and does not change the power purchase agreement.

Financing is through the LLC working with Farm Credit Services, which was also used on the CDrop project. Farm Credit Services says it can secure the loan with personal assets. This means that for a year when revenue is low and won't cover the debt, the LLC can cover the debt with personal assets. The fact that Farm Credit Services is assured the LLC can cover the debt makes staff comfortable. The project does not have an Oregon Business Energy Tax Credit. The above-market cost is $1 million over 20 years with a 12 percent discount rate, which is at the high end of the range for a discount rate. There will be $3.6 million revenue in net present value and $4.2 million in project cost. Staff proposed a $740,000 incentive distributed in three equal payments, the first on commercial operation and the next two at the end of the next two irrigation seasons pending performance milestones. Energy Trust is asking for 82,000 RECs, which is equal to 66 percent of the expected generation over 20 years and is about $9 per REC. The project costs just over $1 million per aMW. Compared to other projects, Warm Springs is on the low end.

Jed said this is a strong project with a strong development team. The independent review by Steve Anderson came to the same conclusion.

Alan: I appreciate the additional detail, especially on discount rate, in the briefing paper.

Ken: On page three, long-term, is Harney Electric Co-op interested in the project after the 20-year period ends? Do we have a prior project where we provided incentives and the project was sold to a public utility?
Jed: We have supported other off-site qualifying facilities. After our agreement ends, the project has a decision on where it wants to sell power. At present, we have projects wanting to sell to utilities that they were funded by based on the power prices that are available, but we do not know how that could play out in the future.
Ken: Is that an assumption that they will want to sell to Pacific Power for 20 years?
Jed: Yes, the power purchase agreement requires sale for 20 years.
Betsy: The phrase long term references post 20 years.

Dan: To improve your portfolio, CAD technology for turbine design has improved greatly. For existing turbines, you may have a program to just incentivize people to change their blades.
Jed: That is certainly occurring, those change outs. For the most part, they are well beyond where we can play in terms of our funding.

John R said he was struck by the good will effort of Harney Electric Co-op to wheel power for free.

Lisa: Are there ideas in the future on how to address the wheeling cost issue?

Jed: We are about to start work with Farmers Irrigation District to identify opportunities out there. Part of the process includes working with the local utility for projects out of our service territory to assess comfort level. We have seen change over time with some of these utilities being more open to supporting project development as they learn more about how a project can benefit their system.

Anne pointed out a needed correction on page four of the resolution, which should say "third" payment instead of two "second" payments.

Dennis and Nick thanked the board for its consideration.

RESOLUTION 682
APPROVING FUNDS FOR THE WARM SPRINGS DAM
HYDROELECTRIC GENERATION PROJECT

WHEREAS:

1. **Warm Springs Hydro LLC proposes to add hydroelectric power production to the existing Warm Springs Dam by installing an intake, penstock, powerhouse, 2.7 MW turbine, generator and associated interconnection equipment, resulting in 6,165 MWh of generation annually, on average.**
2. **Staff and an independent contractor reviewed the project design and costs and found them to be standard and reasonable for what is proposed.**
3. **The project's costs are $1,022,235 above market over a 20 year period on a present value basis.**
4. **Staff proposes an incentive of $740,000 to be paidin three equal payments. The first payment would be made upon the project commencing commercial operation. The second payment would be made upon the end of the first irrigation season if the project meets generation performance milestones. The ~~second~~ third payment would be made upon the end of the second irrigation season if the project meets generation performance milestones.**
5. **At $1.05 million per average megawatt (aMW) the incentive is well below the target range of the 2013 Other Renewables budget of $7.5 to $14.1 million/aMW.**

It is therefore RESOLVED, that the board of directors of Energy Trust of Oregon, Inc. authorizes:

1. **Payment of up to $740,000 to be made in three payments to Warm Springs Hydro LLC to offset the above-market costs of adding hydroelectric power production to Warm Springs Dam.**
2. **Energy Trust to take ownership of 82,000 RECs produced by the project; and**
3. **The executive director to enter into a contract(s) consistent with this resolution.**

Moved by: Dan Enloe Seconded by: Roger Hamilton

Vote: In favor: 11 Abstained: 1, Kenneth Mitchell-Phillips

Opposed: 0

Clean Water Services Biogas—R683

Dave Moldal presented on the resolution, a project in PGE territory at Clean Water Services. Three representatives of Clean Water Services participated by phone, Nate Cullen the director of wastewater treatment, Randy Naef the principal engineer, and Bruce Cordon the business planner. Early this year, Clean Water Services submitted an application for a brown grease co-generation project at its wastewater treatment plant.

Energy Trust has a strong legacy in supporting biopower projects, including co-generation projects that produce both heat and energy. Energy Trust has provided $1.34 million in incentives for four projects at Gresham, Medford, Pendleton and Portland. This has led to 3 MW of installed capacity, producing over 20,000 MWh annually.

The Durham Advance wastewater treatment plant is located in Tigard, and it treats wastewater for Beaverton, Tigard, Sherwood, Tualatin, and other smaller towns. It is the fifth largest wastewater treatment plant in terms of the volume of wastewater treated. Currently, 175,000 people live within the Durham Advance wastewater treatment plant territory and the population is expected to grow.

Support for this project presents an excellent strategic opportunity for Energy Trust. The facility is owned by a municipality, and the plant operates continuously. A 2009 analysis quantified adding brown grease to increase energy, and a 2011 grease supply study, which received Energy Trust project development assistance, estimated the volume of brown grease in Washington County alone to be more than sufficient.

The project will generate biogas from anaerobic digestion. It is owned and operated by Clean Water Services. Capital costs of $17.6 million includes digester reconfiguration and gas storage, a brown grease receiving and processing station and a gas cleaning system. The new co-generation facility would include two co-generation engines replacing a system currently at the end of this useful life, and the two engines will have a combined capacity of 1,696 kW. The project is expected to reach commercial operation by January 2015.

The Durham facility has operated as a wastewater treatment plant since 1974, and has had a co-generation system since 1993.The 500 kW engine is operating and nearing the end of life. A 2008 facilities plan recommended a new co-generation facility with increased capacity to use excess biogas. Today, anaerobic digestion of wastewater solids alone produces two-thirds of the biogas needed to run the proposed 1,700 kW engine. This is a project strength. Durham will produce the remaining biogas necessary by co-digesting wastewater solids with brown grease; fats, oils and greases (FOG); and other wastes. There is increased complexity for the project owner, especially in gas cleaning.

Energy generation and financial viability are dependent on securing adequate co-digestable liquids, including FOG and food processing waste. A 2010 analysis showed 23,000 gallons per day of FOG in Washington County alone. There is more available that wasn't included in the study, especially as population increases.

Brown grease is a material that is typically scraped off plates and flushed down the drain. It's not yellow grease like from fryers. Waste haulers pump brown grease out of the sewer system. Waste water treatment plants have an interest in diverting this material, because it is a major maintenance

cost. It causes clogs and costly repairs when if flushed into the sewer system. Clean Water Services' source controlled program manages the discharge of brown grease from food service establishments and other commercial food processors. As such, the brown grease from these businesses is expected to increase steadily as enforcement activities and regulations increase. Further, given projected population growth within the service territory, there is projected to be sufficient biogas from the anaerobic digestion of municipal wastewater solids alone to fuel these engines at full output by 2025. In summary, given Durham's feedstock analysis, their location to a major transportation corridor, other sources of high-strength organic waste in the region and increasing flows of waste water into the treatment plant, the Renewables staff concluded that adequate supplies of digestible materials are available for sufficient biogas production to fuel both engines.

Ken: What is being done with the 23,000 gallons of FOG today?
Dave: It's moving around the region. A lot of it is not being used.

John R: How secure is the FOG supply?
Dave: If they follow Gresham's lead, Gresham has been able to secure ample feedstock through three-year feedstock agreements with haulers.
Betsy: It's important to note they don't need all of that to meet generation expectations. Plus with projected population growth, the reliance on FOG will be less and less over time.

Roger: What is the length of contracts JC Biomethane uses?
Thad: Contract length varies by supplier and JC Biomethane is using a different waste stream, organics out of municipal waste stream, not high-density liquids as in this case. There are a number of studies on grease trap waste in the Portland Metro area. There is a range of production of that material, anywhere from 15,000 to 40,000 gallons per day. Staff has high confidence in the supply this project needs based on analyses conducted. Also, we are confident we are not encouraging competition for the material among projects we have already incented.

Jeff: What is probability that with yellow grease having high market value that processes won't be developed to extract value out of brown grease, so instead of tipping fees you're paying them?
Thad: We have modeled the tipping fee rather conservatively. We are making the assumption that the value of brown grease will go down over time.

Dave: Durham's energy goal is to generate as much power as possible to reduce the power purchased from PGE. Through a technical analysis, Durham needs 15,000 gallons of brown grease a day. The system is expected to generate 12,366 MWh per year, with a net capacity factor of 83 percent. Some generation from the co-generation system will offset 60 percent of Durham's load. Risk on the project is not in securing feedstock, and studies show sufficient supply.

Dave continued. The project is well along its development timeline. The general contractor has been selected and has the construction bid. An RFP is going out for brown grease and co-digestible feedstock contracts next year and they should be secured by the middle of 2014. The project is analyzed on a 25-year term, consistent with their financing. Energy generation will offset the retail power rate of about $0.75 million. Capacity of 2.5 MW exceeds net metering requirements of the OPUC, but the project secured an interconnection agreement with PGE to stay on their current rate schedule.

Brown grease tipping fees are for about 15,000 gallons per day for 25 years, receiving $330,000 per year. Operations and maintenance costs are consistent with what was used on other, similar projects. The total project cost is $17.6 million. The project has an Oregon Department of Energy combined heat and power (CHP) tax credit of $2.85 million path through. Revenues are $15.6 million with 8 percent rate of return, which is consistent with other biopower projects. Costs are $20.1 million. This is proven biopower technology with similar systems operating in Oregon. Costs are similar to what are observed there. The above-market cost is $4.5 million.

Dave: Why a 20-year term for the Warm Springs project and 25 years for this one?
Dave: This one is based on the term of the projects revenue bonds.
Thad: To come up with a term length, we typically use a 20-year term, which is a reflection of the life of the asset. In this case, because the debt term is longer than 20 years, we decided to use a 25-year term. We have done this in the past. The equipment should last 20-25 years, and we have incorporated equipment overhauls.

Roger: The combined heat and power tax credit applies to the use of heat in the building. Is there any excess heat?
Dave: This project will most likely have excess heat capacity.
Thad: We know there are conversations with nearby hosts for this heat, potentially a swimming pool nearby.
Randy: As part of the project, we are extending hot water return in a few of buildings to take advantage of all waste heat that will be generated.

Mark: Will any heat go to the digester?
Randy: Yes, heat will first be used for the digester system and then the building.

Dan: You are taking old equipment out of service after 20 years but forecast the project at 25 years?
Randy: The gas cleaning system improves the life of the system.

Alan: With Warm Springs we get our renewable energy certificates (RECs) first, this one doesn't say. It might be something that would be desirable for us.
Thad: We get RECs as they are produced. Who they go to will be part of the contract negotiation. Most projects like to deliver RECs to Energy Trust first so that after a certain point they don't have to manage that.

Dave: For the replacement, in the financials, we are covering total costs but it seems like some costs shouldn't be included as they'll be replaced anyway.
Thad: This is the approach we've taken with engine replacements in the past because technically they can flare the gas as a viable option and we don't want that to happen so we fund the full cost, not the incremental cost.

Dave: How are the other projects we funded at wastewater treatment plants performing?
Thad: They are some of our best performers.
Dave: They are performing at 85 percent capacity factor.

It was confirmed this project generation is not intermittent generation.

Dave said the incentive of $3 million will be paid in three installments, $1 million upon commissioning and the final two based on meeting generation thresholds. This payment structure will help in terms of one main risk of the project, which is a potentially insufficient co-digestible material volume. The incentive falls within range of past projects.

RESOLUTION 683
APPROVING FUNDS FOR THE CLEAN WATER SERVICES–
DURHAM COGENERATION AND BROWN GREASE RECEIVING FACILITIES PROJECT

WHEREAS:

6. **Clean Water Services proposes to install cogeneration power production at the existing Durham Advanced Wastewater Treatment Plant by installing two 848 kW cogeneration engines, a biogas cleaning facility, a brown grease storage and processing facility, modifications to associated hot water piping and electrical systems, and gas storage in an existing digester, resulting in 12,366 MWh of generation annually, on average.**
7. **Staff and an independent contractor reviewed the project design and costs, and found them to be standard and reasonable for what is proposed.**
8. **The project's costs are $4,524,036 above market over a 25-year period on a present value basis.**
9. **Staff proposes an incentive of $3,000,000 to be paidin three equal payments. The first payment would be made upon commercial operation. The second payment would be after 12 months, pending the project meeting generation performance milestones. The third payment would be not sooner than 12 months after the second, also pending meeting performance milestones.**

It is therefore RESOLVED, that the board of directors of Energy Trust of Oregon, Inc. authorizes:

4. **Payment of up to $3,000,000 to be made in three payments to Clean Water Services to offset the above-market costs of installing a cogeneration system and brown grease receiving and processing facilities at the Durham Advanced Wastewater Treatment Plant.**
5. **Energy Trust to take ownership of 200,948RECs produced by the project; and**
6. **The executive director to enter into a contract(s) consistent with this resolution.**

Moved by: Mark Kendall Seconded by: Dan Enloe

Vote: In favor: 11 Abstained: 1, Kenneth Mitchell-Phillips

Opposed: 0

Farmers Irrigation District Plant Two Hydro Upgrade—R684

Jed Jorgenson presented on the resolution and introduced Jerry Bryan, special projects manager at Farmers Irrigation District, which is located outside Hood River. Jed showed a map of the site location. Farmers Irrigation District has two existing hydropower plants running since the mid-1980s. Energy Trust has worked with Farmers Irrigation District in the past. The district has pressurized its canals, taken farmers off individual pumps to save electricity and also put more water through turbines as it's not seeped through the ground. Farmers Irrigation District is part of the recent Farmers

Conservation Alliance study the board heard of at the last meeting, and is one of the most progressive districts in the nation to become more water conservative and moving forward with environmental benefits.

A past project example is the low line canal piping project completed in 2012 at a site that was subject to destabilizing environmental events. The project was to install a pipe in that area to no longer be subject to those extreme events. With this project, the district never has to ration water to users during those events and exceeded generation at plant 3 by a factor of four, a big success.

Mark: Primarily because of percolation and evaporation losses?
Jed: That plus the ability to handle major rain events they couldn't handle in the past. Previously such an event would have shut things down as slopes become destabilized and now the district can shuttle that water through the pipe.

Jed said this project is removing existing 1 and 2 MW Francis turbines, generators and controls and upgrading with a single 3 MW Gilkes Turgo turbine, generator and control from the United Kingdom. This is not the end of life for these turbines. These turbines are susceptible to cavitation, the formation of air bubbles that produce shockwaves when they collapse that then create metal fatigue on the turbine, and sediment loads. The Gilkes Turgo turbine is expected to solve this problem and increase generation because it's more efficient.

John R: Is there any salvage value?
Jed: Farmers Irrigation District thinks $100,000.

This is a first for Energy Trust, a hydro turbine replacement. The project was evaluated with similar hydro replacement situations where the equipment was at mid-life. Staff looked at total project cost but only additional generation above the baseline and including the upside benefit of reduced operations and maintenance the district expects to achieve with the turbine switch out.

Farmers Irrigation District owns the facility and is experienced in operating. The resource is well known; Farmers Irrigation District has monitoring equipment throughout the district and is good at knowing how much water is moving where. Jed compared the Francis turbine technology with the improved Gilkes Turgo turbine and described how the Gilkes Turgo is more efficient and can extract more energy.

Jerry provided background on why the Francis turbine was initially purchased in the 1980s and mentioned the Gilkes Turgo was not available in North America at the time.

Jed said no permitting is needed, Farmers Irrigation District conducted outreach and no one needed an update. Pacific Power was notified of the expected increase in generation that can happen and Pacific Power is okay with it. The power purchase agreement is in place for the next 10 years, and for the second 10 years, staff used a proxy for what those rates may be. New revenue will be $130,000, $62,000 in reduced operations and maintenance costs on an annual basis, and capital costs of $4.3 million. The district is financing with Special Districts Financing. There are no other incentives or grants. Over 20 years, with an 8 percent discount rate, the revenue will be $2.3 million, costs of $3.9 million, and above-market cost of $1.59 million. The project will receive an $825,000 incentive distributed on two payments, one upon commercial operation and the other at the end of the first

operating season with the performance milestone met. There are 29,000 RECs, a little more than usual but staff is doing so to keep the overall program beneath the REC cost in the OPUC metric.

Alan: This is for 75 percent of RECs from additional generation within five years but this is a 20-year project?
Jed: We are only looking at added generation. The total output from both Farmers Irrigation District plants is more than 30,000 MWh annually, we have a big REC pool to draw on to repay the RECs. It's essentially an advance and one way to reduce risks on this project.

Ken: Are pumps owned by patrons or Farmers Irrigation District?
Jed: Patrons.
Ken: And all are Pacific Power territory?
Jerry: I believe all are.

Rick: This is an irrigation district that has a very long history of innovating work with fish screening.

Mark: Please explain the difference between the discount rates for the two hydro projects.
Jed: Yes, Warm Springs is at 12 percent and this at 8 percent. This project is municipally owned, which can take a longer-view. This one is also not as much risk. Warm Springs is privately owned and typically at 10-12 percent is what's necessary to attract private capital. Warm Springs is also securing the loan with its own assets, which we felt necessitated a higher discount rate.

RESOLUTION 684
APPROVING FUNDS FOR THE FARMERS IRRIGATION DISTRICT
PLANT TWO HYDROELECTRIC GENERATION PROJECT

WHEREAS:

10. **The Farmers Irrigation District proposes to install an upgraded turbine, generator, and associated control equipment in its Plant Two powerhouse to increase generation by 1,953 MWh annually, a 12% increase.**
11. **Staff and an independent contractor reviewed the project design and costs, and found them to be standard and reasonable for what is proposed.**
12. **The project's costs are $1.594 million above-market over a 20 year period on a present value basis.**
13. **Staff proposes an incentive of $825,000 to be paid in two equal payments. The first payment would be made upon the project re-commencing operations. The second payment would be made upon the first anniversary of the project re-commencing operations if the project meets generation performance milestones.**
14. **At $3.7 million per average megawatt (aMW) the incentive is well below the target range of the 2013 Other Renewables budget goal of $7.5 to $14.1 million/aMW**.

It is therefore RESOLVED, that the board of directors of Energy Trust of Oregon, Inc. authorizes:

7. **Payment of up to $825,000 to be made in two payments to Farmers Irrigation District to offset the above-market costs of the turbine upgrade at the Plant Two hydroelectric facility;**

8. Energy Trust to take ownership of 29,295 RECs produced by Farmers Irrigation District; and

9. The executive director to enter into a contract(s) consistent with this resolution.

Moved by: Rick Applegate Seconded by: Dave Slavensky

Vote: In favor: 11 Abstained: 1, Kenneth Mitchell-Phillips

Opposed: 0

The board took a break from 3:40 p.m. to 3:50 p.m.

Committee Reports

Evaluation Committee, Debbie Kitchin

At the last meeting, the committee reviewed a process evaluation for the New Buildings program. Many recommendations from the report were taken up by the program. Typically, a process evaluation is looking at how a program is performing and how it can be improved.

For the committee meeting this morning, notes will be in the February packet. One agenda item was the review of costs and savings for different tracks within the Existing Homes program: Clean Energy Works Oregon (CEWO) Track, Home Performance Track, Savings Within Reach Track and Standard Track. There was participation by the two outside experts on the committee, plus CEWO's executive director was in attendance, which is one of the tracks covered in the report. The outcome is staff will work with CEWO in the coming weeks to get CEWO's comments. Plus, staff is waiting to hear back from an outside expert reviewing the cost analysis. Then the report will be finalized in mid to late January.

The committee also reviewed an impact evaluation from the Production Efficiency program from 2009, 2010 and 2011. Impact evaluations evaluate actual savings compared to expected savings. Many elements of the program are coming in close to 100 percent realization rates, or the expected results.

The next meeting is at the end of January 2014.

Dave: A timeline of evaluations completed in the past would be helpful to see what's coming through and what's next in the cycle.

Finance Committee, Dan Enloe

October financials are in the packet. This year is at risk of coming in low on savings, but Energy Trust was in a similar position last year and came in high. For this year, we budgeted $85.7 million in incentives for efficiency, forecasted we'd be at $74.1 million and we're only at $39.2 million. Existing Buildings has only spent one-half of its incentives.

Dave: Is there a way to incentivize projects to get done earlier or throughout the year?
Margie: We have done that in the past. We have provided bonuses for commercial programs and Production Efficiency to get projects done in a timely fashion.
Dave: Getting that many projects done in such a short time increases work load and may contribute to errors.

Margie: This is an longstanding issue and part of an annual budget cycle.

Nominating Committee, Alan Meyer
We now have one opening and several board members terms are ending soon. A survey went out to all board members. Instead of just geographic representation, the committee is looking at skills of the current board and where there are gaps. That, in addition to geographic representation, will be the approach used when searching for board members.

Policy Committee, Roger Hamilton
The last meeting covered the three renewable energy projects just seen today. The committee also talked about savings and costs within the Existing Homes tracks, like the Evaluation Committee.

Debbie Menashe recommended a couple of changes to the way Energy Trust presents issues and documents. The proposal is to have more detailed project briefing papers to aid board member comprehension, and board minutes will be trimmed down to summarize discussion.

The Strategic Planning Committee has been meeting and the next board meeting will be a good time to bring the rest of the board up-to-date. The committee is looking at a number of issues, like cost-effectiveness.

Adjourn

The meeting adjourned at 4:15 p.m.

The next regular meeting of the Energy Trust Board of Directors will be held Wednesday, February 26, 2014, at 12:15 p.m. at Energy Trust of Oregon, Inc., 421SW Oak Street, Suite 300, Portland, Oregon.

_____
Alan Meyer, Secretary

Board Decision
Corporate Authorization (Bank Signing Authority)

February 26, 2014

RESOLUTION 695

AUTHORIZING APPROVED BANK SIGNERS

WHEREAS:

1. **Umpqua Bank and Bank of the Cascades provide general banking services to Energy Trust (collectively, the "Banks").**
2. **Section 7.3 of the Energy Trust bylaws requires that the board of directors authorize officers or agents to sign checks, drafts, or other orders for the payment of money, notes and other evidences of indebtedness ("authorized bank signers") by way of resolution from time to time.**
3. **Effective February 26, 2014 John Reynolds' term expired as Board President.**
4. **Effective February 26, 2014 Debbie Kitchin is elected Board President.**

It is therefore RESOLVED that,

1. **John Reynolds is to be removed from the list of authorized bank signers for the Banks.**

2. **Debbie Kitchin is to be added to the list of authorized bank signers for the Banks.**

3. **The resulting list of authorized bank signers for the Banks is as follows:**

    a. **Debbie Kitchin, Board President**
    b. **Dan Enloe, Board Treasurer**
    c. **Margie Harris, Executive Director**
    d. **Courtney Wilton, Chief Financial Officer**
    e. **Peter West, Director of Programs**
    f. **Steve Lacey, Director of Operations**
    g. **Debbie Goldberg Menashe, General Counsel**

4. **The Executive Director is authorized to execute all required documentation to implement this resolution.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Terms of Office

February 26, 2014

RESOLUTION 690
ELECTING KEN CANON, DAN ENLOE, AND ROGER HAMILTON
TO NEW TERMS ON THE ENERGY TRUST BOARD OF DIRECTORS

WHEREAS:

1. **The terms of incumbent board members Ken Canon, Dan Enloe, and Roger Hamilton expire in 2014.**
2. **The board nominating committee has recommended that these members' terms be renewed.**

It is therefore RESOLVED:

1. **That the Energy Trust of Oregon, Inc., Board of Directors elects Ken Canon, Dan Enloe, and Roger Hamilton, incumbent board members, to new terms of office that end in 2017.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Election of Officers

February 26, 2014

RESOLUTION 691
ELECTING OFFICERS OF
ENERGY TRUST OF OREGON, INC.

WHEREAS:

1. **Officers of the Energy Trust of Oregon, Inc. (other than the Executive Director and Chief Financial Officer) are elected each year by the Board of Directors at the board's annual meeting.**
2. **The Board of Directors nominating committee has nominated the following directors to renew their terms as officers:**
   - **Alan Meyer, Secretary**
   - **Dan Enloe, Treasurer**
3. **As John Reynolds has decided not to seek another term as President, the nominating committee has nominated Debbie Kitchin for election to the office of President and Ken Canon for election to the office of Vice President.**
4. **The Board of Directors wishes to thank John Reynolds for his tireless service as President since 2008 and as a Board Officer since 2005.**

It is therefore RESOLVED that the Board of Directors hereby elects the following as officers of Energy Trust of Oregon, Inc., for 2014:

- **Debbie Kitchin, President**
- **Ken Canon, Vice President**
- **Alan Meyer, Secretary**
- **Dan Enloe, Treasurer**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Electing Melissa Cribbins to Energy Trust Board

February 26, 2014

Summary

Elect Melissa Cribbins to the board seat vacated by Julie Brandis.

Background

- Julie Brandis has announced that she does not wish to renew her term on the Energy Trust board, which expires this month.
- The board nominating committee, having reviewed candidates, nominates Melissa Cribbins. Ms. Cribbins is an attorney, currently serving as Coos County Commissioner. Prior to this, she served as attorney for the Coquille Indian Tribe, Judicial Clerk in the Oregon Circuit Court, Law Clerk in the Washington State Court of Appeals, and Water Quality Manager for the City of Spokane.
- Ms. Cribbins volunteers her time as Chair of the Coos Bay-North Bend Water Board; is an American Leadership Fellow (Class 27); is a Ford Leadership Community Ambassador Trainer; and serves on the Bay Area Chamber of Commerce Board. Ms. Cribbins was formerly MCLE Committee Chair for the Oregon State Bar.

Recommendation

Adopt the resolution below.

RESOLUTION 692
ELECTING MELISSA CRIBBINS TO
THE ENERGY TRUST BOARD OF DIRECTORS

WHEREAS:

1. **Julie Brandis will not be renewing her term on the Energy Trust board.**
2. **The board nominating committee has reviewed candidates for the open board seat and nominates Melissa Cribbins, attorney and Coos County Commissioner in Coos Bay, Oregon effective February 2014.**

It is therefore RESOLVED:

That the Energy Trust of Oregon, Inc., Board of Directors elects Melissa Cribbins to the Energy Trust Board of Directors to a three-year term, subject to all requirements of the Bylaws of Energy Trust.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Electing Susan Brodahl to Energy Trust Board

February 26, 2014

Summary

Elect Susan Brodahl to the board seat vacated by Jeff King.

Background

- Jeff King has announced that he does not wish to renew his term on the Energy Trust board, which expires this month.
- The board nominating committee, having reviewed candidates, nominates Susan Brodahl. Ms. Brodahl is Vice President and an owner of Heffernan Insurance Brokers. Previously, she has worked at Saif Corporation, as an insurance regulator for the California Worker's Compensation Insurance Rating Bureau, in the alternative risk division of Marsh, and the construction division of Willis. Ms. Brodahl works with clients in the energy, technology, and construction sectors.
- Ms. Brodahl is a frequent speaker at regional and national conventions, as well as published in various trade and mainstream journals. She has been awarded the Lifetime Achievement Award from the Painting and Decorating Contractors of America.

Recommendation

Adopt the resolution below.

RESOLUTION 693
ELECTING SUSAN BRODAHL TO
THE ENERGY TRUST BOARD OF DIRECTORS

WHEREAS:

1. **Jeff King will not be renewing his term on the Energy Trust board.**
2. **The board nominating committee has reviewed candidates for the open board seat and nominates Susan Brodahl, Vice President of Heffernan Insurance Brokers in Portland, Oregon effective February 2014.**

It is therefore RESOLVED:

That the Energy Trust of Oregon, Inc., Board of Directors elects Susan Brodahl to the Energy Trust Board of Directors to a three-year term, subject to all requirements of the Bylaws of Energy Trust.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Committee Assignments

February 26, 2014

RESOLUTION 694
BOARD COMMITTEE APPOINTMENTS

WHEREAS:

1. **The Energy Trust of Oregon, Inc. Board of Directors is authorized to appoint by resolution committees to carry out the Board's business.**
2. **The Board President has nominated new directors to serve on the following committees.**

It is therefore RESOLVED:

1. **This resolution supersedes Resolution 663, adopted by the board at its April 3, 2013, meeting.**
2. **That the Board of Directors hereby appoints the following directors to the following committees for terms that will continue until a subsequent resolution changing committee appointments is adopted:**

Audit Committee
Ken Canon, Chair
Melissa Cribbins
Mark Kendall
Dave Slavensky
Karen Ward, outside expert
Debbie Kitchin (*ex officio*)
Board Nominating Committee
John Reynolds, Chair
Rick Applegate
Roger Hamilton
Alan Meyer
Anne Root
John Savage, OPUC (*ex officio*)
Debbie Kitchin (*ex officio*)
Compensation Committee *(formerly 401(k) Committee)*
Dan Enloe, Chair
Melissa Cribbins
Mark Kendall
Kenneth Mitchell-Phillips
Dave Slavensky
Debbie Kitchin (*ex officio*)

Executive Director Review Committee
Roger Hamilton, Chair
Melissa Cribbins
Kenneth Mitchell-Phillips
John Reynolds
Debbie Kitchin (*ex officio*)
Finance Committee
Dan Enloe, Chair
Susan Brodahl
Anne Root
Dave Slavensky
Debbie Kitchin (*ex officio*)
Policy Committee
Roger Hamilton, Chair
Rick Applegate
Ken Canon
Alan Meyer
John Reynolds
Debbie Kitchin (*ex officio*)
Program Evaluation Committee
Alan Meyer, Chair
Susan Brodahl
Mark Kendall
Kenneth Mitchell-Phillips
Anne Root
Tom Eckman, NWPCC, expert outside reviewer
Ken Keating, expert outside reviewer
Debbie Kitchin (*ex officio*)
Strategic Planning Committee
Rick Applegate, Chair
Susan Brodahl
Ken Canon
Mark Kendall
John Reynolds
Lisa Schwartz, ODOE
John Savage, OPUC
Debbie Kitchin (*ex officio*)

3. The executive director, general counsel, or chief financial officer are authorized to sign routine 401(k) administrative documents on behalf of the board, or other documents if authorized by the Compensation Committee.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Board Decision
Supplemental Executive Retirement Plan (SERP)

February 26, 2014

RESOLUTION 696
ADOPTING A NEW SUPPLEMENTAL RETIREMENT PLAN (SERP)

1. **With regard to the Energy Trust of Oregon, Inc., Supplemental Executive Retirement Plan (the SERP), it is hereby RESOLVED:**
   - **A. No participant-elected deferrals or employer contributions shall be made to the SERP after March 1, 2014.**
   - **B. No employee shall become an active participant in the SERP after March 1, 2014.**
   - **C. Amounts deferred under the SERP before March 1, 2014, shall continue to be held and invested until they are distributed in accordance with the SERP document. When all accounts have been fully distributed, the SERP shall automatically terminate.**
   - **D. The SERP document, as amended and restated effective March 1, 2014, is hereby approved and adopted. The chair of the Energy Trust Compensation Committee is authorized and directed to execute the restated SERP document on behalf of Energy Trust.**
2. **With regard to the Energy Trust of Oregon, Inc., Supplemental Executive Retirement Plan #2 (the SERP #2), an eligible deferred compensation plan under §457(b) of the Internal Revenue Code (the 457(b) Plan), it is hereby RESOLVED:**
   - **A. The SERP #2 is adopted effective March 1, 2014. The SERP #2 document is hereby approved and adopted, and the chair of Energy Trust's Compensation Committee is authorized and directed to execute the SERP #2 document on behalf of Energy Trust and to take any additional actions that are necessary or appropriate to implement the SERP #2.**
   - **B. All employees who were active participants in the SERP as of March 1, 2014, shall automatically become active participants in the SERP #2 effective March 1, 2014.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Evaluation Committee Meeting

December 13, 2013 9:00 am-12:00 pm

Attendees

Evaluation Committee Members
John Reynolds, Board President
Debbie Kitchin, Board Member – Committee Chair
Alan Meyer, Board Member
Mark Kendall, Board Member
Dave Slavensky, Board Member
Ken Keating, Expert Outside Reviewer
Tom Eckman, Expert Outside Reviewer

Energy Trust Staff
Margie Harris, Executive Director
Steve Lacey, Director of Operations
Fred Gordon, Director of Planning and Evaluation
Phil Degens, Evaluation Manager
Sarah Castor, Sr. Evaluation Project Manager
Dan Rubado, Evaluation Project Manager
Erika Kociolek, Evaluation Project Manager
Spencer Haley, Data Analyst
Belinda Judelman, Evaluation Intern
Elaine Prause, Sr. Manager of Planning
Ted Light, Sr. Planning Project Manager
Diane Ferington, Residential Sector Lead
Marshall Johnson, Program Manager – Existing Homes
Amber Cole, Director of Communications and Customer Service
Sue Fletcher, Sr. Manager Communications and Customer Service

Other Attendees
Juliet Johnson, Oregon Public Utilities Commission
Derek Smith, Clean Energy Works Oregon
Scot Davidson, Clean Energy Works Oregon
Lauren Gage, Bonneville Power Administration (phone)
Gary Cullen, Navigant Consulting
Wayne Leonard, Navigant Consulting

1. Analysis of Existing Homes Program Tracks

Presented by Ted Light and Phil Degens

Savings Analysis

Background: Phil began by providing background on Energy Trust's analyses of monthly energy use data. To analyze energy consumption, we used utility monthly records of energy use. This type of analysis has been performed internally at Energy Trust, with review by independent third party experts, since 2010.This has led to more consistent results than we would get if we used various consultants who have different ways of cleaning and analyzing data, and the ability to standardize data cleaning, analysis, and reporting. It also allows Energy Trust to tap

independent expert time to review and comment on our methods and results, rather than paying for expert time to clean and manage data every time we need analyses performed.

The third party experts we engaged to review these energy consumption analyses are Scott Pigg and Michael Blasnik. Michael Blasnik has not yet had a chance to provide input on this evaluation, but we did receive comments from Scott Pigg.

The goal is to get our energy consumption analyses on a regular annual schedule. At this point, we have annualized and weather-normalized electric and gas consumption for 2008-2012 for all of the gas and electric utility accounts we have received. Debbie asked if these data are the result of the new data sharing agreements. Phil responded that this data came to us prior to the agreements taking effect. With the data sharing agreements, we have better and more consistent data that we anticipate being able to use in more ways.

Fred provided some background on the evaluation and today's presentation. He said Clean Energy Works Oregon (CEWO) utilizes Energy Trust incentives and delivers savings to Energy Trust. Its mission includes other objectives that are outside Energy Trust's scope as a utility program delivery agent. The goal of this evaluation is not to evaluate CEWO exclusively. This is an impact evaluation focused on the energy savings and cost aspects of our Existing Homes program, including the CEWO track, Home Performance track, and standard track. It does not examine the benefits CEWO provides beyond savings. We do not purport to provide a complete picture of CEWO results, just those aspects related to Energy Trust's program purposes.

Phil resumed his presentation on the evaluation. In the first quarter of 2014, we will have billing data through 2013, and will be able to look at results for program year 2012 (pre-participation year of 2011 and post-participation year of 2013). Weather normalization allows us to get savings for a typical weather year. For each account, we run a small regression to calculate average daily consumption as a function of heating degree days (HDD). We then estimate normalized annual consumption (NAC) for each account. Raw annual consumption is also calculated for each account. To compare consumption pre- and post- participation, we subtract consumption in the post-year from consumption in the pre-year. For example, the change in consumption for 2010 (DNAC 2010) would be equal to NAC 2009 – NAC 2011. Savings are estimated by adjusting the participant group changes with a comparison group, to take into account non-programmatic trends: i.e. savings = $DNC_{participant} - DNC_{comparison}$.

CEWP and CEWO: Energy Trust helped launch Clean Energy Works Portland (CEWP) in 2009 as a pilot to provide access to financing with on-bill repayment, allowing homeowners without upfront capital to do more comprehensive weatherization projects. CEWO was formed in 2010 as a separate organization to offer those services on an ongoing basis. Currently, over 4,300 households have availed themselves of Energy Trust incentives through CEWP and CEWO services. Fred noted that these numbers are from projects entered into Energy Trust's database as completed and paid. Steve added that we initially did a process evaluation, which we were required through Energy Efficiency and Sustainable Technology (EEAST) legislation to deliver in mid-October 2010, and then subsequently completed another process evaluation in September 2012. These evaluations are companions to this impact evaluation.

2010/2011 Energy Consumption Analysis: In 2010 and 2011, over 1,400 residential households in Energy Trust service territory received CEWO services. Nearly 85% of gas accounts that received CEWO services had gas weatherization measures installed (envelope and HVAC). Between 20 and 26% of electric accounts that received CEWO services had electric weatherization measures installed. Many of the other electric accounts have gas or other

nonelectric heat. Most of the projected savings came from these weatherization measures. Since 2011, Energy Trust and CEWO have moved from a modeled savings approach to using deemed savings to report results. Modeled savings can be very optimistic about what savings look like.

Comparison Groups: We created two comparison groups: non-participants from the general population and future participants (often believed to be more comparable to participants and reduce issues with self-selection bias). Using non-participants has the benefit of large samples in each year of analysis and for almost any climate zone. Stratified samples (by energy consumption) are drawn for each group to ensure that the distribution of energy consumption resembles that of program participants. In the case of future participants, Scott Pigg recommended we use weights to balance the future participant group rather than drop cases in overpopulated strata (so that we did not whittle down an already small sample).

Data Screens: Data screens were used to remove homes with clear data issues. For sites with gas measures, sample attrition was due to incomplete billing data (3-9%), participation in other energy efficiency programs in the pre-/post-participation years (17-19%), and no gas weatherization measures installed (9-10%). Based on suggestions from Scott Pigg, we included participants that participated in an electric measure or did a small measure in the pre- or post-participation year. If participants installed measures with savings of less than 30 therms or 300 kWh in the pre- or post-year, they were included. In the case of sites with electric measures, sample attrition was due to incomplete billing data (6-9%), participation in other energy efficiency programs in the pre-/post-participation years (21-27%), and no electric space heat measures installed (53-59%). In the case of electric, large numbers of sites did not install electric space heat measures, so we analyzed them separately.

Data Screens for Gas and Electric Participants: The tables below show the effects of the data screens on energy consumption. For gas, screens do not appear to change the mean energy consumption or even the change in consumption by very much. Mark asked why the numbers in the final column were higher. Phil responded that the screens remove sites with low savings, so we would expect them to be higher. For electric, it is clear we want to institute those screens. There are a small number of sites included in the end, and their energy consumption is different than that of the population that was removed. Tom asked if there was a screen for sites that didn't save much. Phil responded that sites were screened out if they had less than 1,000 kWh savings or 300 therm savings in weatherization measures. Alan asked for clarification on the way screening was done: did it remove the top 5% and bottom 5% in each class, or the top 5% and bottom 5% of the whole group. Phil responded that for the final dataset, we ruled out the top and bottom 2% of consumption for the whole group to get rid of outliers. This was done on Scott Pigg's recommendation. He recommended reducing the number of screens.

Gas Participants

Year	Dataset	Raw annual pre consumption	Raw annual post consumption	Change in raw consumption	S.E. of change in consumption	Sites	Expected annual savings
2010	All usable data	709	515	194	9	343	372
	Some screens	713	518	195	10	284	386
	Final	716	493	223	10	240	436
2011	All usable data	588	451	138	7	580	347
	Some screens	580	439	141	8	464	362
	Final	578	424	154	9	391	399

Electric Participants

Year	Dataset	Raw annual pre consumption	Raw annual post consumption	Change in raw consumption	S.E. of change in consumption	Sites	Expected annual savings
2010	All usable data	9,820	9,425	395	144	349	2,324
	Some screens	9,596	9,164	432	163	273	2,318
	Final	14,331	11,995	2,335	303	48	9,140
2011	All usable data	9,545	9,392	153	156	386	2,066
	Some screens	9,219	9,009	210	181	276	1,621
	Final	15,448	13,709	1,740	640	36	6,211

Gas Participants: Looking at participants and comparison groups, in 2010, participants used 100 more therms than participants in the following year. Diane commented that this was a function of the program design – participants had to be in the top quartile of consumption to be eligible under Clean Energy Works Portland, which was the program operating in 2010. Phil noted that when you look at savings, we subtracted the change in consumption for comparison groups from the change in consumption for participants. Since the relative merits of the two comparison groups are debatable (there are valid reasons for using each) we selected the midpoint between the two as the savings estimate. The realization rate is 46% in 2010 and 43% in 2011 (normalized consumption). Looking at raw annual consumption, results are very similar. There were significant savings – 30% of consumption – but modeled energy savings were high so the realization rate is relatively low. Fred added that the issues seen here with modeled savings are identical to what we experienced in the Home Performance program.

The table below shows gas savings by quintile. We see that for lower consumers of energy, the savings are lower – there is less opportunity to save compared to higher consumers who have a greater opportunity to save. This suggests there is benefit, from a savings perspective, in the program targeting sites that consume relatively high amounts of energy.

Gas Participants

Year	Group	Average pre-participation consumption (NAC)	Average participant change in consumption (DNAC)	S.E.	Net savings by quintile (comparison groups' midpoint)	Sites
2010	Lowest Quintile	339	128	11	135	48
	2	490	179	14	167	48
	3	611	238	16	193	48
	4	769	293	17	231	48
	Highest Quintile	1,042	391	24	287	48
	Sample Mean	650	246	9	202	240
2011	Lowest Quintile	292	34	15	65	78
	2	437	100	13	130	78
	3	547	133	19	183	79
	4	672	199	13	210	78
	Highest Quintile	884	265	22	279	78
	Sample Mean	566	146	8	173	391

Electric Participants: Looking at electric consumption, the change in consumption was about 2,500 kWh. The average savings was 1,600 kWh in 2010 and 1,800 kWh in 2011. Alan noted that the table in the printed draft report distributed prior to the meeting was incorrect. Phil noted that these savings are about 12% of consumption. The majority of consumption is baseload, so weatherization measures save about 25% of electricity used for heating. It is a challenge to have large savings for electrically-heated homes. Tom asked about the mix of urban and rural sites. Phil confirmed that these are all Willamette Valley; only one home was screened out due to being in a different climate zone. Derek noted that CEWO expanded into rural areas in 2012. Dave asked about what is included in baseload. Phil clarified that it is things like stoves and lighting. He noted that except for the highest quintile in 2010 (which may be due to the small sample size) it seems to be the case that higher users save more.

Baseload Analysis: We also looked at baseload for folks that had not installed any weatherization measures to see if there were significant changes in their savings. The point estimate of savings was modest in 2010 (not statistically different from zero) and in 2011, savings were a bit higher, around 406 kWh of savings. Phil added that the savings are marginal and this is just one program; we have a lot of other participants that installed these measures and we will put them into one large regression to see what the savings are to bump up sample size. Many homes installed bundles of measures, for example, ceiling insulation plus air sealing, so it is necessary to do this – we can't look at customers that only installed ceiling insulation.

Summary: In summary, the gas savings as a proportion of gas use were substantial. Modeled savings do not provide a good estimate of expected savings. Results indicate the program is obtaining greater savings from households with greater consumption. For electric homes, the

modest level of savings could be due to the already efficient level of homes (13,000-15,000 annual kWh on average).

Mark asked about the heating type and how that affects these results. Phil responded that we currently don't have that in the model, but we can add it in later. Moving forward, we will get comments from Michael Blasnik and hope that this committee can provide feedback on the report, the analysis, and whether more detail is needed. The goal is to do additional evaluations like this for other measures using a similar approach, similar methods, and a consistent report format. Dave asked if there is value in looking at the age of homes. Phil responded that yes, we are interested in age because homes of a certain age have a greater propensity to be weatherized or have less insulation. Dan commented that using Census data, whether a home is weatherized or not has less to do with home age and more to do with a combination of age and value, which is a proxy for household income. Fred added that we are thinking about home age as a criterion for air sealing. Phil ended by saying that many homes installed bundles of measures, for example, ceiling insulation plus air sealing, and that makes it difficult to discern savings from individual measures. That is easier with a larger sample from all program tracks.

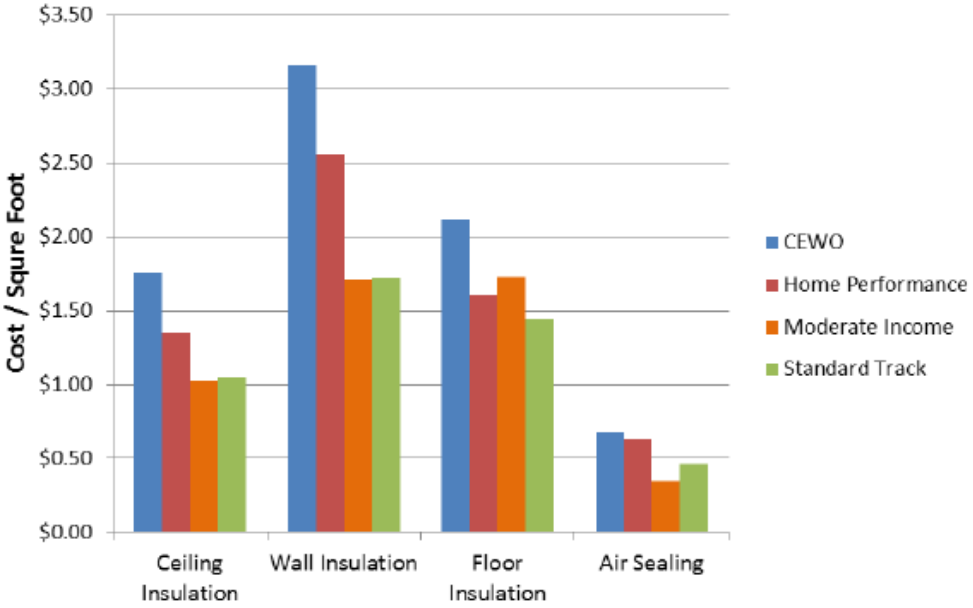
Cost Analysis

Background: Fred introduced the cost analysis. We took measure cost data out of FastTrack and summarized it. We are showing differences, but don't have the data to say "why" - this report covers the cost differences only and doesn't attempt to explain why the differences exist.

Methodology: Ted started by summarizing the approach to the cost comparison between Existing Homes program tracks. We pulled individual measure data and cost by track. The four tracks are the standard track, Savings Within Reach (moderate income track), Home Performance (exclusive of CEWO), and CEWO. Data is from 2010 – October 15, 2013 for trends over time. For comparisons between tracks, we use the most recent 12 months of data. We normalized costs to home or project size. For insulation, we calculated cost per square foot of insulation, and for air sealing, we normalized by home size. We removed the highest and lowest 5% of all values in terms of cost, size, and cost per square foot across all tracks. Alan expressed concern that if you do this as one group, as opposed to within tracks, you don't know which track the removed values are coming from. Ted said that CEWO and Home Performance had most of the highest values that were removed; the standard track and Savings Within Reach had more of the lower values that were removed. Ken commented that this means there is a downward bias for the most expensive tracks. Fred commented that we did this screening primarily to get rid of data entry errors. Tom commented that we should truncate the sample within tracks. Data entry errors should be randomly distributed across tracks.

Ted showed the chart below – a summary of average costs (per square foot of insulation or home size) by track and by weatherization measure (ceiling insulation, wall insulation, floor insulation, and air sealing). We can see there is a higher cost associated with the Home Performance and CEWO tracks.

Average Costs By Track and By Weatherization Measure



Tom noted that if possible, we should normalize the average costs per square foot to the added R-value if that data exists. Marshall confirmed that it does. Tom added that this would take care of the "added increments" question. So the axis would be cost per square foot per added R-value. Fred responded that our objective was to look at cost per added unit of energy savings. It might make more sense to break into 2-3 groups by added R-value to compare. Tom noted that there is a fixed and variable cost for each job, and if there is more R-value to add, it covers fixed costs such as contractor drive time. Alan asked if this is invoice cost. Debbie responded that it is what contractors are charging; the invoice includes all costs. Energy Trust incentives are the same across tracks. Marshall clarified that in the standard track, homeowners do 1.5 measures on average, and we pay approximately $250 in incentives, whereas in the CEWO and Home Performance tracks, they do approximately 4 measures and the incentives are higher ($900-1200 on average), but savings are also higher.

Scot Davidson of CEWO commented that there are a number of things not fully represented in this cost analysis. CEWO costs compared with Home Performance and measure by measure installations are not the same. Federal dollars and requirements, for example, are not represented here. Home Performance was created by the US Environmental Protection Agency and the US Department of Energy to address efficiency, safety, and comfort. This can be seen embodied in costs, which includes items like sealing around chimneys and combustion testing. Also as an EEAST pilot, there are High Road wage standard requirements, and costs are embodied there.

Margie asked if the High Road wage standards are reflected on invoices. Derek responded yes.

Mark asked if we have the information to know the differential between materials and labor costs across the different program tracks and asked if there is an assumption that the federal grant affects the project costs. Marshall said we don't have that information, and also noted in 2010 data (from the pilot era), we saw homes that had deferred maintenance issues, such as oil tank decommissioning and other non-energy related costs, which could have been blended

across measure costs. As the program was set up, 80% of costs had to be energy-related for financing, and 20% could be non-energy related.

Mark asked what the drivers are in cost differences between Home Performance and CEWO. Derek said CEWO is proud to have brought benefits of wage standards to the sector, working under contract with Energy Trust in accordance with the EEAST law. Federal reporting burdens are included here, too, as CEWO is an ARRA funded program. There are IT embedded costs for on-bill. We know that contractors put non-energy costs into energy measure costs routinely because of the parameter of being allowed to put 20% non-energy costs on the utility bill for on-bill financing.

Alan said Energy Trust incentives should be the same for customers in all tracks, regardless of the costs and cost tests that may apply. Customers should be able to decide how they want to save energy and may make different choices about cost for any number of reasons.

Ted moved to talking about reasons why savings are potentially different in the CEWO and Home Performance tracks than in the standard track: higher measure quality standards; more training; more comprehensive treatment (and associated interactive effects); home size and/or other features; and measures installed but not provided an incentive. The latter case is more likely for CEWO projects because there are some measures CEWO supports that Energy Trust does not offer an incentive on or claim savings for. Savings analysis for the CEWO and Home Performance tracks are not directly comparable to the standard track since the mix of measures differs between tracks, and because CEWO and Home Performance sites often install multiple measures at one time.

Methodology: For homes in the CEWO sample for gas, Ted pulled measures installed during 2010 and 2011 and quantified the type and number of measures included in the billing analysis sample. Then, the deemed savings rates were applied to those totals across the sample, and we compared average savings based on billing analysis and deemed savings. For example, if we have a given home that saved 200 therms according to billing analysis results, and they installed ceiling and wall insulation and performed air sealing, the deemed savings estimate would be 276 therms. Basically, this analysis builds up on a measure basis what we think homes could be saving. The top row of the chart below shows billing analysis savings and the bottom row is this deemed approach.

Comparison of Gas Savings Per Home

Gas savings per home comparison (therms)	2010	2011
CEWO Billing Analysis Savings per home	202	173
CEWO Savings Based on CEWO measures x Standard Track Evaluated Savings/Measure	226	275

Notes: Results have been updated since initial material was sent due to change in billing analysis sample after third party review. Both savings estimates based on normalized annual consumption.

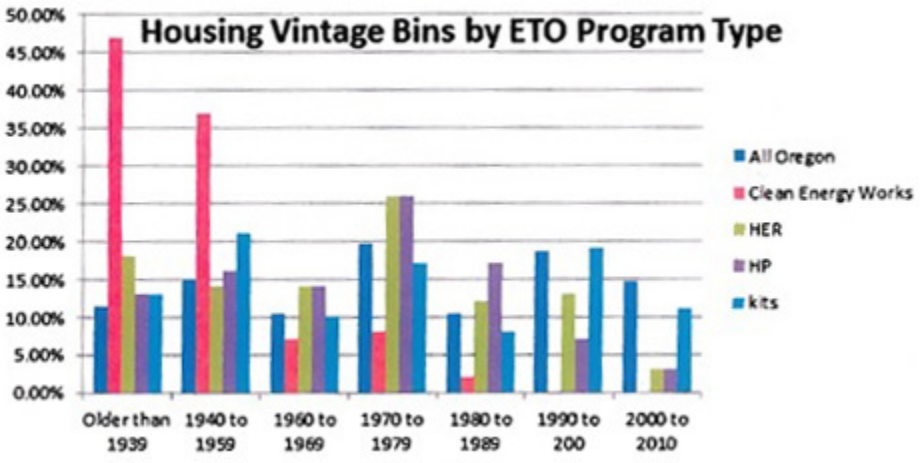
In 2010, savings are in the same ballpark, but in 2011, there is a difference between results of billing analysis and deemed savings buildup. Data does not say why, although we can observe

some differences and possible reasons: in 2011, more furnaces and windows were installed, and in 2010, homes in CEWP were screened for high usage. There may be other differences in home size or character. Overall, there is no evidence from this analysis that CEWO projects save more per measure than the standard track. We did this for Home Performance and got the same result.

Alan asked why we might expect CEWO to save more. Fred said there are higher quality standards that we hope are more persistent, and the contractors are using higher quality materials and practices. Ken responded that there are reasons we could expect savings to be lower too – contractors might be proposing more measures with marginal savings, and there could be more interactive effects. Marshall commented that windows were not allowed in 2010.

Derek noted that CEWO is a key player in the Home Performance market in the Northwest, and has over 90% customer satisfaction. The goals are job creation, comfort, health safety, in addition to energy savings. CEWO is driving 90% of Oregon Home Performance volume, the bulk of which is in Energy Trust service territory. CEWO is seeking funding in the upcoming (February) legislative session to continue this work. CEWO projects install 4.1 measures per home on average, which is more than any other track, and this is done with the administrative costs covered by public investment. CEWO is an asset for Oregon ratepayers because public funds cover CEWO's administrative costs. CEWO was selected by the City of Seattle to take their federal Department of Energy funded Home Performance program to the next level. We know that Home Performance has a general contracting focus which can add extra costs, but this service is of value to the customer – it is why they choose Home Performance and don't arrange for subcontractors. We know that federal reporting and IT burdens impact invoice prices. CEWO has a list of requested changes to this report, and will ask for additional to time to analyze this. CEWO does not disagree with the overall findings – this is a national issue affecting Home Performance overall, not just CEWO. CEWO feels they are uniquely penetrating a segment of building stock (CEWO provided the graph below, which is based on Energy Trust data) which is older homes that Energy Trust doesn't reach as well as CEWO can. One of key questions this report was intending to inform relates to a challenge the Existing Homes program is having, how to reach more new customers.

Housing Vintage by Program*



*Note: "HER" in the graph above stands for Home Energy Review and is an entry point to Energy Trust's standard track.

Derek also said that CEWO invests marketing dollars to generate leads and CEWO hands off a portion of leads to Energy Trust which go through the standard track and provide value to Energy Trust. We are concerned that additional analysis is needed for this summary report.

Mark asked for what kind of analysis CEWO is requesting. Derek responded that CEWO does not have the technical depth to evaluate the information in these reports and wants to have someone review the methodology. Alan noted that in the report, it shows the cost is higher, and that it doesn't surprise him. The question is, are ratepayers and Energy Trust getting our dollar's worth of value on this.

Dave asked if we reach more homes by having multiple program tracks, and might it be worth having these multiple program tracks even at increased cost? Derek responded that a value of having the CEWO track is that CEWO brings connections to government support and growing capabilities to use public data and merge it with utility (Energy Trust) data.

Debbie asked about the High Road requirements on contractors, and influence on costs. Margie responded that contractors do overlap between Home Performance and CEWO. Fred added that we know the average difference between the two tracks, and that both are higher than the standard track. We have not compared data on costs between CEWO and Home Performance tracks for the same contractors. We are sticking to the "what," not the "why." We typically publish a staff response memo with our evaluations – some of the "why" probably belongs there if we can confidently discern. Debbie noted that the Total Resource Cost (TRC) does matter. Having the TRC test as the standard for what we fund in terms of energy efficiency is unassailable – it is the gold standard.

Marshall noted that Home Performance is unique. Energy Trust invested to get the industry established, and EPA and now DOE look to the market, including the Home Performance Guild and CEWO, to carry Home Performance. From a ratepayer investment perspective, we are administering the program the same way as we are for the standard track--processing incentives, responding to inquiries, and leveraging CEWO and the Guild. We are working with market actors, but not driving the Home Performance market, which is an important caveat.

Ken noted that California is wrestling with the same problem – the California [public utility] commission is trying to transform Home Performance to a market transformation approach. Projects can be sold whether there is an incentive or not, but it is easier with incentives.

Debbie commented that the incentive is a third party verification of its value. Offering an incentive from the utility cost perspective signifies good investment. Juliet asked how California is handling cost-effectiveness with a market transformation approach – do they take the training and spread it out over more jobs? Ken said incremental costs remain the same; TRC has to be brought down by more competition and jobs. Ken said he is part of the team evaluating the ARRA program, which had similar goals to make local markets self-sustaining after ARRA went away.

Steve noted that we are signaling to consumers that weatherization is a good thing. Consumers can do this through the standard track, and there are other paths that people choose for reasons beyond putting a standard measure in. We can't provide a clear rationale for why consumers are choosing other things, but the overall message is weatherization is a good thing and there are choices on how to get it done. Fred noted that we are starting to put energy payback information in front of customers in 2014. If a customer moves ahead with a project,

even though it has a long payback, it is an indicator that there are other values at play. Derek noted that consumers are making these choices and it is not energy efficiency driving their decision.

Margie asked if Juliet could summarize the cost-effectiveness docket and how this discussion plays into that. Juliet said that Energy Trust asked for exceptions for gas weatherization measures. Energy Trust is compiling a list of gas measures near or under a benefit-cost ratio (BCR) of 1 by July 1, 2014 and the Commission will consider the big picture and implications by October 2014. It is to be determined what happens between now and July – it is not just about numbers, but also about other ways of looking at cost-effectiveness. The Commission has a flexible policy around cost-effectiveness. We include measures that are not cost-effective but for which we know there are large non-energy benefits that are difficult to quantify, in cases of market transformation, and for pilots. There will be meetings with stakeholders leading up to that October decision.

Margie asked how the Evaluation Committee would like to entertain Derek's request to hold off on posting these documents. Debbie asked for clarification about the process of finalizing the documents and releasing them, and how much time CEWO needs to thoroughly review the documents. Steve responded that Michael Blasnik still needs to review; Phil added that would happen sometime in January 2014. Derek said CEWO needs to find an evaluation contractor and there is no timeline for that, but they don't want to introduce delay. They will work to do this quickly. Alan expressed concern about the delay of information that may help those engaged in this discussion. Fred suggested that Derek and Scot could talk with the two independent reviewers engaged by Energy Trust to get answers to their questions.

Juliet proposed that the evaluation report could better convey the costs and benefits involved. Fred commented that is typically done in the process evaluations, which are already complete and online for the Existing Homes program and for CEWO. Additional information and explanation can be in the staff response memo, which is published with the evaluation. Fred expressed concern that there needs to be a clean line between what the data show and context. We should isolate analysis and conclusions and provide context.

Margie commented that we can have a small group work through what context can be added to this report, with input from CEWO. Tom suggested that you can say, upfront in the paper, that these have different delivery mechanisms, target audiences, and that you expect costs to be different as a result. Ken commented that we should make sure conclusions are data-based – don't treat the context as the conclusion. Fred noted we should distinguish the findings from the context, referencing published documents and making it clear the analysis doesn't speak to causes.

Debbie summarized that staff will work with CEWO to put context into the document. We will get comments from Michael Blasnik and put CEWO in touch with an independent reviewer.

Dave commented that studies are sometimes defined out of a need to do something different. Does anything need to change? Steve commented that impact evaluations like this one are designed to provide us with information about savings realization rates. Fred commented that process evaluations are typically the continuous improvement documents.

Marshall commented that from a regulatory standpoint, we are regulated based on individual measures being cost-effective. If we are looking forward as to how this information should be included in future policy or program considerations, we should consider the difficulty of isolating

the savings from measures included in a whole house treatment approach. Juliet commented that the practice of spreading costs across measures creates problems and complicates the story. It would be great if there was some way that could change, or if we could look at the impact of that.

2. 2009-2011 Production Efficiency Impact Evaluation

Presented by Phil Degens

Background: This evaluation covered the 2009-2011 program years. Navigant was the evaluation contractor.

The table below summarizes program activity from 2009-2011. Lighting is one of the larger measure categories. Over the past couple of years, Strategic Energy Management (SEM) has become a larger part of overall electric and therm savings. Therm savings have grown considerably over the years, and behavioral measures have been growing over this time as well.

Summary of 2009-2011 Program Activity

Measure Category	Number	Ex Ante Total kWh	Ex Ante Total Therms	% of kWh Total	% of Therm Total
O & M - Custom	101	35,249,386	49,366	10%	2%
Strategic Energy Mgmt	45	57,088,856	163,394	16%	7%
Lighting	5,845	102,818,497	0	28%	0%
Process	118	59,238,215	534,725	16%	23%
Motor	702	3,270,720	0	1%	0%
Compressed Air	292	41,669,753	0	11%	0%
Custom Air Abatement	20	6,955,864	93,994	2%	4%
Refrigeration	61	16,630,978	0	5%	0%
Insulation	33	796,871	121,960	0%	5%
Tune-up	40	391,250	66,545	0%	3%
HVAC	100	8,281,643	453,340	2%	20%
Custom Pump	226	25,959,208	1,578	7%	0%
Irrigation	844	3,314,195	0	1%	0%
Miscellaneous	45	6,640,893	193,268	2%	8%
Boiler	11	0	287,522	0%	12%
Greenhouse	23	0	341,194	0%	15%
Total	8,506	368,306,329	2,306,886	100%	100%

This study included 137 site visits representing 52% of electric savings and 73% of gas savings which resulted in precision of +/-10% with 90% confidence. Site visits included end use metering, spot metering, visual inspection, billing analysis, and logging hours of operation. Behavioral measures also included interviews to determine: participant challenges and savings goals, economic and production baselines, current production status, participant long term energy efficiency plans and strategies, and the status of energy teams.

Complicating factors were the large number of site visits; SEM and custom Operations and Maintenance (O&M) measures were included but are very different from other measures analyzed; many sites did multiple projects over the time period or installed multiple measures; and some measures had short lifetimes. The evaluation was also complicated by economic conditions which changed dramatically over this time period, going from recession to recovery. A major learning was to not evaluate three program years of such a large, complex program in one project.

Evaluation Challenges: We encountered some evaluation issues in the course of this study, including:

- Plant Closures: Are these part of the realization rate or part of the average measure life? The program already incorporates plant closures into their assumed measure lifetime. The adjusted realization rates in the evaluation report were calculated to reflect this. If closures are included in the realization rate, then we would be penalizing the program savings twice, since they are already included in measure lifetime.
- Greenhouse Gas Savings: Were deemed unreliable and insufficient data were available to calculate realization rates for the evaluation. This is similar to past evaluations of center pivot irrigation measures. Many greenhouses are large complexes operated from a central facility and different plants are rotated in and out that have different requirements.

Ken said there is a long history of evaluating greenhouses in San Diego, but there are consistent plants and temperatures there. Kim said there is a prescriptive curtain measure that is simple, but many of the hydronic heating measures were difficult to analyze because the plants were always changing.

Some additional evaluation issues included:

- SEM and Custom O&M Projects: Were included but difficult to analyze. These will be evaluated separately in the future. How SEM interacts with capital improvements is something we would also like to look at. It is much easier to do more focused evaluations rather than include them in a larger evaluation.
- Complexity: Many sites did multiple projects and many measures over several years, including combinations of O&M and capital measures, and this made it very difficult to analyze these sites.

Overall Results: Savings were evaluated for these three years simultaneously at the number of sites indicated in the table below. However, many sites are repeat participants, especially on the electric side, so there was overlap between the sites across years. The program savings realization rate was lower for electricity in 2009, but in 2010 and 2011 the program did quite well. Gas efficiency offerings started in 2008 and Energy Trust had not previously evaluated these measures. We didn't know if the program was able to estimate the savings well for gas measures. Other than greenhouses, the program did a pretty good job of evaluating these savings, with an overall savings realization rate of 97%. The program realization rate has been very stable over time for electric, with the exception of a dip in 2009. The economy was in flux in 2009 and there was a large wastewater treatment plant project that failed and had no savings at all. The electric realization rate has been over 100% since then.

2009-2011 Production Efficiency Program Realization Rates

Year	Fuel	Sites	Sample Savings	Sample Estimated Savings	Unadjusted Realization Rate	Adjusted Realization Rate
2009	Electric	65	43,931,663	34,122,767	77.5%	77.7%
2010	Electric	132	75,456,770	76,745,834	98.3%	101.7%
2011	Electric	127	68,837,272	70,333,615	98.9%	102.2%
2009	Gas	8	78,581	87,304	68.2%	111.1%
2010	Gas	17	411,018	377,686	84.4%	91.9%
2011	Gas	38	912,343	895,604	96.7%	98.2%

Results for Measure Groups: All measure categories (shown in the table below) are doing pretty well on an overall basis. We were slightly worried about SEM, because it is relatively new and humans are involved in the savings calculations, but it resulted in higher than expected savings.

2009-2011 Realization Rates By Measure Groups

	Electric Savings (kWh)			
Measure Category	Unique Sites	Ex Ante	Ex Post	Realization Rate
O & M - Custom	28	22,556,478	19,694,620	87.3%
Strategic Energy Mgmt	18	39,174,249	41,742,039	106.6%
Lighting	62	36,826,414	38,525,350	104.6%
Process	23	41,643,322	37,003,987	88.9%
Motor	23	1,460,548	1,437,483	98.4%
Compressed Air	34	10,094,116	10,243,151	101.5%
Custom Air Abatement	5	4,135,601	3,663,693	88.6%
Refrigeration	10	8,207,391	6,313,170	76.9%
Insulation	5	267,437	251,096	93.9%
Tune-up	7	302,182	302,182	100.0%
HVAC	10	1,928,533	1,978,865	102.6%
Custom Pump	13	17,319,701	17,648,742	101.9%
Irrigation	9	1,017,440	1,011,320	99.4%
Miscellaneous	6	3,292,293	1,386,519	42.1%
Total (Unique Electric Sites)	115	188,225,705	181,202,216	96.3%

	Gas Savings (Therms)			
Measure Category	**Sites**	**Ex Ante**	**Ex Post**	**Realization Rate**
O & M - Custom	5	28,767	27,251	94.7%
Strategic Energy Mgmt	2	28,394	28,020	98.7%
Process	7	417,860	363,938	87.1%
Boiler	6	228,802	263,722	115.3%
Insulation	7	73,340	80,854	110.2%
Tune-up	6	52,942	52,942	100.0%
HVAC	3	28,712	28,655	99.8%
Greenhouse-HVAC	0	0	0	-
Greenhouse-Other	9	270,190	268,354	99.3%
Miscellaneous	5	274,771	246,857	89.8%
Total (Unique Gas Sites)	50	1,403,778	1,360,593	96.9%

Steve asked why small industrial, which has a lot of prescriptive measures, had such a high realization rate. Phil said that this track includes many compressed air projects that had higher than expected savings. Ken said you have to read the appendix to know if the assumptions and decisions made by the evaluators are reasonable. That's where the rubber meets the road on how the analysis was done and how the savings were quantified. But these are very high gross savings realization rates compared to other programs around the country. If you don't know the operating parameters when you estimate savings, then you will get bad results, which is what happens in other places with very low realization rates. Kim said many measures and most of the program's savings come from custom projects and custom analysis is done with each of these. So, engineers are looking at energy usage and savings pre- and post-project and getting good annual savings estimates. Phil added that the evaluation did not do much analysis with prescriptive measures that were found on sites.

There were often many measures installed at sites. The measure analysis shows that the program does a lot of different measures and in general, estimates the savings very accurately. There is a huge list of different industries that the program serves as well. The program is doing a good job of diversifying its portfolio; they are not just focused on one plant or one industry.

For the adjusted realization rates, we removed greenhouses and their impact on the overall program realization rates. When you read the site visit summaries (in the appendix) one can understand what the engineers actually looked at with each site and why there were deviations and exceptions in each category.

Compressed Air: 102% realization rate. Different loads and operating hours than originally estimated created large variations in savings. Controls tended to reduce savings from other compressed air measures. Compressor curves had an impact on savings realization.

Custom Air Abatement: 89% realization rate. Reasons for variance included reduced loads and operating hours and system removal. When customers are talking to the program, they don't necessarily know how things are going to change in the future.

Custom Pumps: 102% realization rate. Major reasons for variance included operational changes and system removal or shut off. In the Existing Buildings program, controls seemed to be an issue for custom pumps, but not so much here, although they still may have an impact.

HVAC: 98% realization rate. Major reasons for variance were operational changes.

Custom O&M: 87% realization rate. Variance was due to interaction with other measures, changing power per cubic feet per minute (CFM), and changes in operating hours. Lots of measures are implemented in O&M projects, so the chances of interactions between measures or between projects over several years are high. It is impossible to tell what the impacts of some of these types of interactions will be ahead of time.

Lighting: 105% realization rate. Variance was due to operational changes, differences in fixture numbers between claimed and installed, and control calculations. Control savings are based on average reductions in hours of operation that may underestimate savings in some applications. Last time a study was done, installing controls sometimes realized as much as 95% savings because lights were turned off most of the time in some areas.

Process: 89% realization rate. Major reasons for variance were changes in loads and fully loaded variable frequency drives (VFDs). Ken commented that VFD savings are inherently difficult to predict and the drives use more energy than constant speed motors when fully loaded.

Refrigeration: 77% realization rate. Variance was due to changes in load. Controls and set points may be changed by operators and reduce savings.

Strategic Energy Management: 107% realization rate. This evaluation did not look at gas savings for SEM because there wasn't much in the first three years, but that will change in the future. Variation was due to interactive effects and modified production schedules. Also, changes continue to accrue over time as more measures are implemented or more changes are made. The majority of SEM projects demonstrated persistence of savings. SEM also showed high customer satisfaction. A majority of participants maintained their energy teams and expected to undertake additional energy savings. SEM recommendations included:

- Ensure projected SEM savings account for interactive measure savings,
- Ensure that knowledge transfer and succession planning are emphasized so that savings persist in the event of staff turnover,
- Have participants provide monitoring, tracking, and reporting (MT&R) data to the program on a regular basis,
- Ensure high-level management support for SEM and mixed involvement in the energy team from different parts of the company,
- Calculate "as installed" savings using the same production levels at the time of SEM implementation, and ,
- Continue SEM as a component of the PE program.

The program is currently looking too see if they can do a bulk purchase of 15-minute usage data from the utilities that they could use in the future for MT&R models. There is still an open question about whether customers will continue to use the models over time, though. It seems to depend on the customer and what their data tracking tools look like.

For SEM, capital projects are currently subtracted out of the calculated site savings during the SEM engagement to quantify the O&M savings associated with SEM. This assumes a 100% realization rate for capital measures. This could be biasing the SEM savings estimates because the capital measures could be doing much better or worse than a 100% realization rate. Alan asked when you do Industrial Energy Improvement (IEI) and it uncovers capital projects, are they included in the SEM savings totals here? Kim answered no, it is only the non-capital savings that are captured in SEM. Steve asked if there has been an analysis of SEM engagement levels against corporate profitability. Kim said that success with SEM and the realized savings depends more on the business culture. Those who have lots of engagement tend to do better.

SEM and O&M Evaluation Issues: We are currently trying to figure out how best to evaluate measures with short measure lifetimes. For SEM, should we do verification on an annual basis with a small number of sites? Is it a three year measure or is it longer? What are the best indicators that SEM is persisting? We are also trying to determine how best to evaluate savings from industrial behavior-based measures. For IEI, savings are based on the first 3-6 months of actual savings. This method is better than a lot of estimates for other measures because it includes actual monitoring and verification of the savings.

Alan asked if we have a mechanism to look at how long these things persist. Phil said that he would like to do that and it is something that we are looking at but want to discuss. Phil would prefer to move ahead that way and conduct studies to determine the persistence. Alan said that since this is a new program and it is bringing a lot of savings, we should look at persistence and measure life. Kim said that the current three year measure life causes cost-effectiveness to be more marginal with smaller projects. We really need to assess the measure life to know if it is accurate and if we can work with smaller sites. Phil said that assuming capital measures have 100% realization rates means we might be shortchanging SEM measures. Steve said that when you go to a small organization, one person leaving has a bigger impact and that you might see a shorter measure life at smaller organizations. Kim said that during the IEI pilot we did 2.5 years of follow-up and saw good persistence. Ken said it is an empirical question and he would like to know where three years came from. Debbie wants to know if the first companies that did SEM that were early adopters are different from SEM participants now. She felt that this might cause the persistence of SEM to change over time. Steve said that the economy has changed since this initiative started and that could impact persistence as well. Phil said that we would evaluate SEM persistence and do a separate evaluation for SEM next year. We plan to look at the survival rate of SEM measures and how different types of activities persist over time.

Recommendations:

- The program needs to include detailed calculation spreadsheets with all files.
- Work with participants on compressed air leak detection studies to ensure continued efficient leak detection program implementation. Kim noted that the program also has a new prescriptive air leak measure coming out. Energy Trust wants to look at fixed air leaks and see what happens to them over time. Kim asked if she could have Ken's opinion on air leaks. She explained that with compressed air, if you want to have a well-run system, you need a regular leak detection program. However, as an energy analyst, if you fix a set of leaks, and then new leaks appear later, it shouldn't void the savings from past leaks. Kim would like more information on this. Leak programs are a best practice, but if the program isn't maintained, then will the savings go away? Ken responded that since fixing leaks puts more pressure on the system, it will cause new leaks to appear over time, so that you need to keep sweeping. Since those new leaks may not have appeared if you hadn't fixed the old ones, disbanding a leak detection

program means that the savings will disappear over time. However, this is not the case if the compressor uses a VFD system. Kim asked if we are holding O&M to a higher standard than technical, capital measures in cases like this.
- Need to improve greenhouse savings estimates.
- VFDs should have better customer screening so that they are not installed in places where they will become fully loaded in the future.

Energy Trust Take: We should utilize the adjusted realization rates from this evaluation as the program realization rates. These exclude plant closures and greenhouse project savings estimates. The program is doing a good job of generating and estimating gas and electric savings. SEM and O&M appear to generate high levels of savings but we need better methods to evaluate them and assess their persistence over time. Energy Trust evaluation staff will start the 2012 PE impact evaluation in Q1 2014 and subsequent evaluations will be conducted annually. We will develop SEM evaluation methods and use these in separate evaluations of these initiatives.

Mark commented that this was an outstanding report. He doesn't know how much groundbreaking information there was, but the fidelity of site analyses seemed good and he was impressed. Mark has worked with industrial customers and knows how complex the data can be. Navigant did good quality control on collecting and evaluating data. Gary from Navigant said a lot of time went into that.

Kim said that she wanted to take a moment to acknowledge Ray Hawksley, the program's engineering manager. Ray is a meticulous person who reviews all of the technical studies. He hires everyone that does the analysis and that looks at the savings estimates and he is the reason why the program realization rates are so good.

Wrap-Up & Next Steps

The committee agreed to meet on January 31, from 12 – 3 pm. We will cover the 2011 New Buildings Impact evaluation, which we weren't able to get to today, the 2013 Residential Awareness Survey, and any other walk-on items.

2013 Report on Energy Savings and Measure Costs of Existing Homes program tracks: Standard, Home Performance, and Clean Energy Works Oregon

Completed by Energy Trust Planning & Evaluation Group. Contributing analyses and findings reviewed by multiple independent evaluation experts as noted.

February 14, 2014

PURPOSE & INTRODUCTION

The purpose of this report is to provide Energy Trust of Oregon and program stakeholders a comparison of the savings and invoiced costs for three tracks within Energy Trust's Existing Homes program.

This report focuses on the three Existing Homes program tracks that provide the majority of energy savings from single-family homes.

1. Standard—stand-alone measures installed by Energy Trust trade ally contractors.
2. Home Performance—a whole-home energy-savings approach performed by Energy Trust Home Performance with ENERGY STAR trade ally contractors.
3. Clean Energy Works Oregon (CEWO)—a whole-home energy-savings approach performed by Energy Trust Home Performance trade ally contractors within CEWO's delivery model.

All three tracks receive the same cash incentives from Energy Trust for installation of qualifying measures. However, the type of energy study provided, the sales approach used, the way energy-efficiency choices are presented to the customer, the actual services provided, financing options available, and project verification services applied differ across the three tracks.

This report is informed by three analyses completed by Energy Trust and reviewed by multiple independent evaluation experts: an energy consumption analysis of utility billing data to identify savings resulting from CEWO in 2010 and 2011, a comparative analysis of savings from CEWO and the Existing Homes Standard Track, and a comparative analysis of measure costs in four Existing Homes program tracks, including CEWO, Home Performance and the Standard Track.[1] It is also informed by previous findings from evaluations of Energy Trust's Existing Homes program tracks.

This report is intended to improve our understanding of the measure costs and savings performance of each track at a time when the Existing Homes program is experiencing an array of conflicting pressures, including how to:

- Reach more customers

[1] See following documents for details on analyses and findings:
Clean Energy Works Oregon Energy Consumption Analysis, 2010-2011, February 11, 2014
Comparative Analysis of Measure Costs for Existing Homes Program Tracks, February 14, 2014
Comparative Analysis of Savings for Existing Homes Program: CEWO and Standard Tracks, February 14, 2014

- Achieve more savings in each home
- Support weatherization-based economic development and community "high road" goals embodied in CEWO's mission
- Achieve lower-cost savings to meet the mandate for cost-effective savings, made more challenging by current low gas costs

Throughout this report, the term "cost" refers to the amount paid by the customer to a contractor for the energy-efficiency measures installed in the home.

The cost and savings for the Standard Track have been extensively analyzed, and the results have led to:

- A conclusion that the gas portion of the Existing Homes program does not pass the Total Resource Cost (TRC) test used to determine cost-effectiveness under current analysis procedures.
- An exception from the Oregon Public Utility Commission (OPUC) to re-examine how cost-effectiveness is calculated, and to continue work to reduce program costs.

Energy Trust will present the OPUC with a proposal to reconsider cost-effectiveness methods in July 2014, and the OPUC will provide guidance through a public docket in fall 2014. Issues under discussion include how to consider such factors as comfort and related benefits to customers, the volatility of natural gas prices, discount rates used in the analysis, and whether to consider additional economic benefits to Oregon.

BACKGROUND

Since 2003, Energy Trust has provided eligible residential customers with information, services, cash incentives and referrals to qualified trade ally contractors to support energy-efficiency upgrades in single-family homes through the Standard Track. In 2006, Energy Trust added a Home Performance with ENERGY STAR Track. In 2009, Energy Trust further expanded support for the Home Performance approach through the Clean Energy Works Portland (CEWP) pilot, and later through Clean Energy Works Oregon (CEWO). Each track is described in more detail below.

a. Standard Track

Through the Standard Track of its Existing Homes program, Energy Trust supports customers completing individual energy-saving measures, whether one at a time over a span of years, or in quick succession as part of a more intensive home improvement project. Energy Trust assists eligible customers taking this measure-by-measure approach in several ways. Customers may request an in-home or phone-based "Home Energy Review" consultation with an Energy Trust energy advisor, or access an online Home Energy Profile tool for a web-based interaction. These services help customers identify and prioritize energy-saving opportunities in their homes, identify incentives available for qualifying measures, and encourage customers to connect directly with a contractor to acquire a bid for the work.

Contractors completing work in Energy Trust's Standard Track respond to consumer preference, bidding on and installing the energy-savings measure or measures requested. These contractors establish their own pricing and business practices. Energy Trust relies on

the existing contractor market, sets installation standards and provides quality assurance. Energy Trust also encourages contractors to assist customers with incentive application paperwork and offers various tools and resources to facilitate the customer's selection of a contractor.

b. Home Performance Track

Home Performance with ENERGY STAR (Home Performance) helps homeowners improve the efficiency and comfort of their homes using a comprehensive, whole-house approach, while helping to protect the environment. Since 2006, Energy Trust has served as the Oregon sponsor of Home Performance with ENERGY STAR, a U.S. Department of Energy/Environmental Protection Agency joint program, and has helped develop the contractor network and market for these services in Oregon.

Home Performance contractors are specially trained and certified through the Building Performance Institute (BPI), and use diagnostic equipment to test and evaluate components of the home's interior and exterior. Energy Trust provided early development support for Home Performance including investment in contractor trainings, certification and diagnostic equipment purchase. Information gathered through home testing helps a Home Performance contractor observe how the different components of the house work together to deliver energy efficiency, comfort, safety and indoor air quality. This approach encourages national technical best practices, assists in the marketing of weatherization and equipment upgrades, and may result in the delivery of services that extend beyond energy savings.

Similar to the Standard Track, Energy Trust provides cash incentives and contractor referrals to customers, and supports the Home Performance market through quality assurance and expectations for high-quality installations practices. As the Home Performance with ENERGY STAR local sponsor, Energy Trust submits quarterly reports to the U.S. Department of Energy on activity in our service territory.

c. Clean Energy Works Oregon Track

Awareness and availability of Home Performance services has grown in Oregon over time, including through the formation of CEWO, an independent nonprofit that delivers energy savings to Energy Trust through Home Performance contractors. CEWO was established in 2010 to continue a pilot program jointly developed in 2009 by the City of Portland and Energy Trust. The pilot, Clean Energy Works Portland (CEWP), fulfilled a state mandate established through Oregon legislation passed in 2009 known as the Energy Efficiency and Sustainable Technology Act (EEAST). Part of the Act was intended to demonstrate financing and loan repayment via the utility bill for residential energy-efficiency projects. The availability of on-bill repayment removed a barrier for some customers who are unable or do not prefer to pay total project costs upfront.

Federal grants through the American Recovery and Reinvestment Act (ARRA) provided funding for the CEWP pilot, and subsequently for CEWO. As an ARRA recipient, CEWO meets goals for job growth and retention, and adheres to federal reporting requirements. All projects submitted by CEWO also adhere to High Road Standards, originally established for CEWP by a number of parties including the City of Portland and Energy Trust. Such standards aim to provide employment opportunity for disadvantaged workers. They also establish wage standards for contractors to comply with Oregon's EEAST law.

Energy Trust provides its standard cash incentives for eligible energy-efficiency measures installed through CEWO Track projects. These incentives are provided directly to CEWO, which applies them as part of the customer financing packages it offers to participants.

Nationally, the cost per energy-saving measure delivered through Home Performance has been higher than the cost per savings through standard energy-efficiency program tracks that support a measure-by-measure approach. This has also been the case in Oregon with Energy Trust's Home Performance Track and CEWO Track. There are many reasons that may contribute to these cost differences, including: the broader scope of Home Performance projects, difficulty segmenting the energy measure costs and distinguishing them from costs of other services in contractor invoicing, the quality level to which the work is performed based on consumer preference, the wage requirements of EEAST and the added administrative burden for contractors to meet ARRA reporting requirements.

The growth of the Home Performance industry in Oregon has resulted in an increase of the number of whole-home weatherization projects. It has generated job growth and opportunities for businesses. Nevertheless, the higher invoiced cost per energy-saving measure, coupled with more difficult-to-measure benefits, creates a challenge for Energy Trust to show how it meets the mandate for cost-effective savings. The issue of cost-effectiveness and how benefits are valued in cost-effectiveness tests is a national issue, and is exacerbated by the current lower costs of energy, especially natural gas. Energy Trust has been working with contractors and stakeholders to review the savings and costs of its Existing Homes program tracks to identify where program offers can be maintained, given challenges with cost-effectiveness.

KEY FINDINGS

Energy Trust Existing Homes Standard Track, Home Performance Track and CEWO Track appear to save approximately the same amount of energy per measure.[2] Average costs per measure are significantly higher in the Home Performance and CEWO Tracks.[3]

As these differences among tracks are observed, it should be noted that the Home Performance Track and CEWO Track market benefits in addition to energy cost savings for the consumer, and in the case of the CEWO Track, to provide additional social and economic benefits to Oregon that are not currently included in the TRC test. Weatherization projects can provide consumer benefits such as comfort and reduction of noise from outside, and yield positive impacts for the region's economy and for the environment. There are also preferences for different types of contractor services among consumers. As part of its High Road standards and benefits, and in alignment with the EEAST law, CEWO also requires that contractors meet wage rates higher than is typical of the industry. While these considerations are important in the overall discussion of weatherization programs, they are beyond the scope of this report.

METHODOLOGY

[2] See *Comparative Analysis of Savings for Existing Homes Program: CEWO and Standard Tracks*

[3] See *Comparative Analysis of Measure Costs for Existing Homes Program Tracks.* Weatherization measures analyzed: ceiling insulation, wall insulation, floor insulation and air sealing.

This report draws on new analyses of the CEWO Track and previous evaluations of the Home Performance Track and Standard Track. In the evaluations cited in this analysis, energy savings estimates from program evaluations were developed using best practices based on statistical analysis of utility energy consumption data for homes. This billing analysis is the most reliable method for this type of program.

Energy Trust has utilized billing analysis, with independent review by national experts, to determine the savings impact of the Existing Homes program since its inception. Three years ago, Energy Trust began performing billing analysis for the Existing Homes program using its in-house evaluation staff instead of contracted evaluators, engaging additional independent national experts to review the evaluation design and findings. Transitioning to in-house analysis allowed Energy Trust to reduce costs for the intensive data cleaning required, while increasing the consistency of approach for data cleaning, outlier elimination, and analysis across years and program tracks. It also allowed Energy Trust to make evaluations more transparent by performing more extensive sensitivity analyses with alternative methods. To further assure continued impartiality of findings, the Energy Trust Board of Directors' Evaluation Committee engages two independent evaluation experts to review evaluations and present comments to the committee.

In alignment with this approach, the analytic methods and results cited in the report were reviewed by multiple independent experts in billing analysis and energy-efficiency cost and savings evaluation.[4] They provided comments and questions that helped refine the methodology translating to the analysis and final report. While the results form a solid basis for estimating overall savings, the available data and methods are only suitable to identify large differences in savings between the distinctive program tracks.

This report analyzes energy savings and the total installed cost of efficiency measures, including the cost of the equipment (insulation, air sealing) and installation as invoiced independently by the contractor. This is the appropriate cost for consideration in the TRC test. The TRC is the primary investment test recognized by the OPUC, and total cost of energy-efficiency measures is critical to determining whether Energy Trust is permitted, under OPUC rules, to invest ratepayer dollars. Cost data comes from the only available source: contractor invoices. This data source does present some complexities:

- Contractors, by their own account, allocate costs to different measures based on how they think they can best sell a job. Consistent trends across measures are likely to be more meaningful.
- Contractors are also known to bundle costs of some services that are not related to energy efficiency into their reported costs for measures. This may overstate costs for efficiency measures.
- Home Performance contractors delivering Home Performance Track and CEWO Track services in particular employ a "whole home" sales approach where measure costs are sold as a package, and the distinction between costs for different measures may be blurred.

[4] Independent reviewers for *Clean Energy Works Oregon Energy Consumption Analysis, 2010-2011*: Ken Keating, consultant; Tom Eckman, Conservation Resources Manager, Northwest Power and Conservation Council; Scott Pigg, Principal Researcher, Energy Center of Wisconsin; and Michael Blasnik, Principal, M Blasnik & Associates. Independent reviewers for *Comparative Analysis of Measure Costs for Existing Homes Program Tracks*: Ken Keating and Tom Eckman. Independent reviewers for *Comparative Analysis of Savings for Existing Homes Program: CEWO and Standard Tracks*: Ken Keating, Tom Eckman and Scott Pigg.

- By design, measures installed via Home Performance include additional services and approaches desired by customers. This makes the direct comparison to single measures more difficult.

The degree to which these factors explain the considerable cost differences between tracks shown in this report is beyond the scope of the report.

SUMMARY OF COMPARATIVE ANALYSES

Savings Comparison

One of the aspirations for the Home Performance Track and CEWO Track is that through the extensive training and higher standards that come with Building Performance Institute certification, and are embodied in these tracks, savings per measure would be higher.

A comparative analysis of savings between CEWO and the Standard Track was performed using savings data from the 2010-2011 CEWO evaluation and a prior 2008-2009[5] evaluation of the Standard Track, the most recent impact evaluation of that track.[6] The estimated savings per measure from this comparative analysis showed savings are about the same between the two tracks in 2010 and considerably lower for CEWO in 2011. The evaluation does not provide clear reasons for these differences.

This conclusion is consistent with a prior Energy Trust comparison of Home Performance Track and Standard Track savings, which showed no clear pattern of differences in savings between the tracks. Since Home Performance and CEWO tracks both employ Home Performance contractors and procedures, it is not surprising that they have similar outcomes.

Cost Comparison

Average costs per measure, as reported by installation contractors, were analyzed for the Standard, Home Performance and CEWO tracks. Costs were calculated for this analysis per square foot of the home or insulation amount, as appropriate to each measure. Costs from the most recent 12 months (up to October 15, 2013) were analyzed for the comparison. Cost data for projects over a larger timespan, including the period of the CEWO savings impact evaluation (2010-2011), was used to look for trends over time. This analysis was done using participants from each of the Existing Homes tracks compared in this report, with the 5 percent highest and lowest outliers for several variables removed from each track.

The following conclusions were made:

- Reported measure costs are lowest in the Standard Track, as compared to the Home Performance and CEWO Tracks.
- Reported measure costs for the Home Performance Track are significantly higher than those in the Standard Track.

[5] http://energytrust.org/library/reports/2009_HES_gas_impact_eval.pdf
http://energytrust.org/library/reports/2008_residential_gas_impact_eval.pdf

[6] Staff believes that the cross-year comparison is appropriate for these reasons: (1) Standard Track savings have been fairly stable in recent years, and (2) results of both evaluations are adjusted for weather and changes in use among nonparticipants, so influences of factors from the particular year have been minimized. However, given the complexity of consumer energy use, comparisons would only be useful in showing significant differences in savings per measure between tracks (e.g., more than 20 percent).

- Reported CEWO Track measure costs are also significantly higher than the Standard Track.
- Costs per measure for the CEWO Track were higher than the Home Performance Track.
- Costs trends were examined for the CEWO Track and found to be fairly stable over the 2010-2013 period.
- The average cost per square foot varies the least between individual homes in the Standard Track, and varies the most for individual homes in the CEWO Track.

Energy Trust will continue to evaluate the process and savings impact of the Existing Homes program on an ongoing basis, and will continue to publish evaluation findings on its web site at www.energytrust.org/about/policy-and-reports.

MEMO

Date: 2-14-2014
To: Board of Directors
From: Phil Degens, Evaluation manager
Marshall Johnson, Residential Program Manager
Subject: 2013 Report on Energy Savings and Measure Costs of Existing Homes program tracks: Standard, Home Performance, and Clean Energy Works Oregon

The 2013 report updates and helps refine the gas savings estimates for Clean Energy Works Oregon (CEWO) which delivers savings as part of the Existing Homes program. In addition, the report provides the program with comparative information regarding savings and measure costs in the three Existing Homes program tracks that provide the majority of energy savings from single-family homes: the Standard Track, the Home Performance with ENERGY STAR Track, and the Clean Energy Works Oregon Track.

This report is released at a time when the Existing Homes program is assessing strategies to achieve lower-cost savings to meet our mandate for cost-effective savings, while balancing support for approaches that deliver a range of benefits to motivate customers to complete energy-efficiency projects in their homes.

The Existing Homes program will:

- Incorporate the CEWO savings estimates into our reporting on Existing Homes program savings.
- Continue to coordinate with CEWO to aggregate incentives and report energy savings for eligible measures according to our Home Performance with ENERGY STAR project requirements and incentive levels.
- Continue to work with Home Performance contractors to acquire and report energy savings by providing cash incentives for eligible measures.
- Continue efforts to reduce costs for energy efficiency in existing homes, including efforts to reduce measure costs by providing customers with information about average installed costs and corresponding energy savings and related benefits.

Energy Trust staff look forward to additional guidance as part of the Oregon Public Utility Commission process to explore gas cost-effectiveness in their docket in 2014.

Report by **SBW CONSULTING, INC.**

Report No. **1302**

FINAL REPORT

IMPACT EVALUATION OF THE EXISTING BUILDINGS PROGRAM

PROGRAM YEARS 2010-2011

Submitted to
ENERGY TRUST OF OREGON
851 SW SIXTH AVE, SUITE 1200
PORTLAND, OREGON 97204

Submitted by
SBW CONSULTING, INC.
2820 Northup Way, Suite 230
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Portland, OR 97205

October 31, 2013

sbw
ENERGY + WATER + EFFICIENCY

TABLE OF CONTENTS

TABLES

EXECUTIVE SUMMARY

Introduction

Energy Trust of Oregon (Energy Trust) began operating the existing commercial building retrofit program in early 2003. The program provides technical assistance and financial incentives to commercial and institutional customers who install qualifying efficiency improvements that save electricity or natural gas. It is open to all commercial customers that pay the public purpose charge. The program is market-driven and builds on existing market relationships, which is consistent with best practices among resource acquisition and market transformation efforts. It is administered by a third party Program Management Contractor for the Energy Trust.

SBW Consulting, Inc. (SBW) conducted this evaluation to assess the gross impacts of the commercial retrofit program for the 2010-2011 program years. It included a review of the expected savings estimates prepared by the program and a re-estimation of realized annual savings for a representative sample of program participants. The realized savings were based on on-site data collection and a re-application of the program algorithms under as-built and operated conditions. Results from the sampled cases were extrapolated to the entire program population for each program year.

Objectives

Specific objectives include the following:

- **Verify installations**. Confirm through field inspection that the sampled measures were installed and operational. Also verify the hours of operation and other conditions that affected the expected savings from the program-installed measures;
- **Review program measure-specific energy savings methods**. Critique energy savings algorithms used by the program to calculate savings for custom measures;
- **Calculate project-specific gross savings**. Calculate project-specific gross savings (kWh and therms) impacts for a sample of projects for the 2010 and 2011 program years using best practice evaluation methods. Also calculate project-specific realization rates for kWh and therms. Calculate project-specific gross demand savings for each sampled project; however, the kW savings estimate is of secondary concern.
- **Calculate program level gross savings**. Estimate an overall gross energy savings realization rate for the program and estimate program level gross savings (kWh and therms) for the 2010-2011 program years.
- **Recommend program improvements**. Recommend changes in the gross savings calculation methods or other program processes that will enhance future realization rates and program cost effectiveness.

Program Accomplishments

Error! Reference source not found.E-1 summarizes the expected kWh and therm savings, as claimed by the Energy Trust Existing Buildings Program in 2010-2011. In total, the program

incentivized nearly 34,000 measures at almost 6,600 sites during the two-year cycle, accounting for an expected 242 million kWh and 4.1 million therms in annual energy savings. The table also compares the 2010-2011 claims with those from the previous cycle (2006-2007 and 2008-2009), showing the significant increase in measures completed and savings achieved in the most recent cycle.

Table E-1: Expected Savings for 2010-11 Existing Buildings Program

Program year	Number of sites	Number of measures	Expected program kWh savings	Expected program therm savings
Previous evaluation cycle				
2006	1,611	3,446	31,326,511	985,727
2007	1,463	3,667	26,531,894	526,998
Total	**3,074**	**7,113**	**57,858,405**	**1,512,725**
2008	1,506	3,839	42,397,819	1,180,882
2009	1,960	7,781	74,503,452	1,083,537
Total	**3,466**	**11,620**	**116,901,271**	**2,264,419**
Current evaluation cycle				
2010	2,810	12,605	104,674,358	1,832,026
2011	3,773	21,110	136,791,255	2,246,637
Total	**6,583**	**33,715**	**241,465,613**	**4,078,663**

Methodology

This evaluation employed standard energy program impact evaluation methods to provide the best available estimate of the total program energy impacts.

Kickoff Meeting - This task included the review of program data and the collection of information necessary to finalize the evaluation work plan. Information was collected through a kickoff meeting and a series of discussions with the Energy Trust relevant to the study methodology.

Sample Design - We analyzed the Energy Trust program database to determine the distribution of sites by savings in each program year and then implemented the sample based upon sampling decisions made by the Energy Trust. Two separate samples were selected for the 2010 and 2011 program years. For each year, one sample was selected from the list of sites that had non-zero electric savings and the other was selected from those sites with non-zero gas savings. A total of 120 cases were selected across the four selected samples.

Site Data Collection - This task included the collection of measure-specific information needed to support the analysis of gross realized savings from the program, as specified in the workplan. This task also included the determination of analysis methods and recruitment of the sampled sites. A site visit was performed for all sampled measures to collect measure performance data.

We developed a project evaluation database that was used to assemble and perform quality control checks on all data needed to conduct the program-level impact evaluation. The database was created in Excel and was formulated to be consistent with all Energy Trust data formatting and content requirements.

Project-level Gross Savings Analysis - This task included the analysis of gross realized savings for the sampled measures, using the measure-specific data collection and analysis methods developed in Task 3. Gross realization rates were computed for each measure.

Program-level Gross Savings Analysis - Program level gross results for the two-year period were estimated by extrapolating the gross savings (kWh and therms) from each measure, using methods specified in the workplan.

Study Findings

A separate engineering analysis of gross savings (kWh and therms) was performed for each measure designated for inspection using the measure-specific data that was collected during the site visits. Realization rates were computed for each sampled measure using the realized kWh/therm savings results and the annual savings estimated by the program as follows:

Realization Rate = realized annual energy savings / expected annual energy savings

The expected savings values were taken from the Energy Trust tracking database. If the realized energy savings equaled the expected energy savings, then the realization rate equaled unity (1.0).

Figure E-1 below summarizes the realization rates for the 310 sampled and inspected measures, in the form of a distribution graph sorted from lowest to highest realization rates for electric and gas measures, as well as all measures combined. Measure realization rates ranged from a low of zero to a high of nearly two. This figure reveals that over half of these measures had realization rates at or very near one. About 8 percent of the measures yielded little or no savings; three percent had no savings, while another 5 percent realized less than half of their expected savings. These low savers were a mixture of gas and electric measures. Low savers represented 8 percent of the electric measures and 10 percent of the gas measures. Of the 9 measures that had no savings, the primary reasons were that the measures had not been installed (or were installed incorrectly) in the first place or were removed after installation, or that the facility was vacant at the time of inspection. Table E-2 shows these nine measures along with measures that were incorrectly installed. A small number of electric measures (3 percent) had savings 50% or more than expected. Unusually high realization rates were typically caused by overly conservative estimates of expected savings by the program.

Table E-2: Measures by Installation Status

Installation Status	Number of Measures
Not Installed	7
Installed Incorrectly	14
Removed	1
Vacant	1

The results from the individual sample points were extrapolated to two-year (2010-11) program totals. Program extrapolations were made for gross realized savings in both two fuel groups (electric and gas) for each program year. For the 2010 program year, the program-level realization rates were estimated to be 1.07 and 0.86 for kWh and therms, respectively. For the 2011 program year, the realization rates were estimated to be 0.91 and 1.01 for kWh and therms, respectively. The 2-year realization rates were 0.98 for kWh and 0.94 for therms. These represent a significant improvement from the previous evaluation cycle. One measure involved a vacant building in which the equipment had been removed. The measure belonged to the therm 2010 sample frame. If the measure had still been operational, the realization rate for this frame would have changed from 0.86 to 0.88.

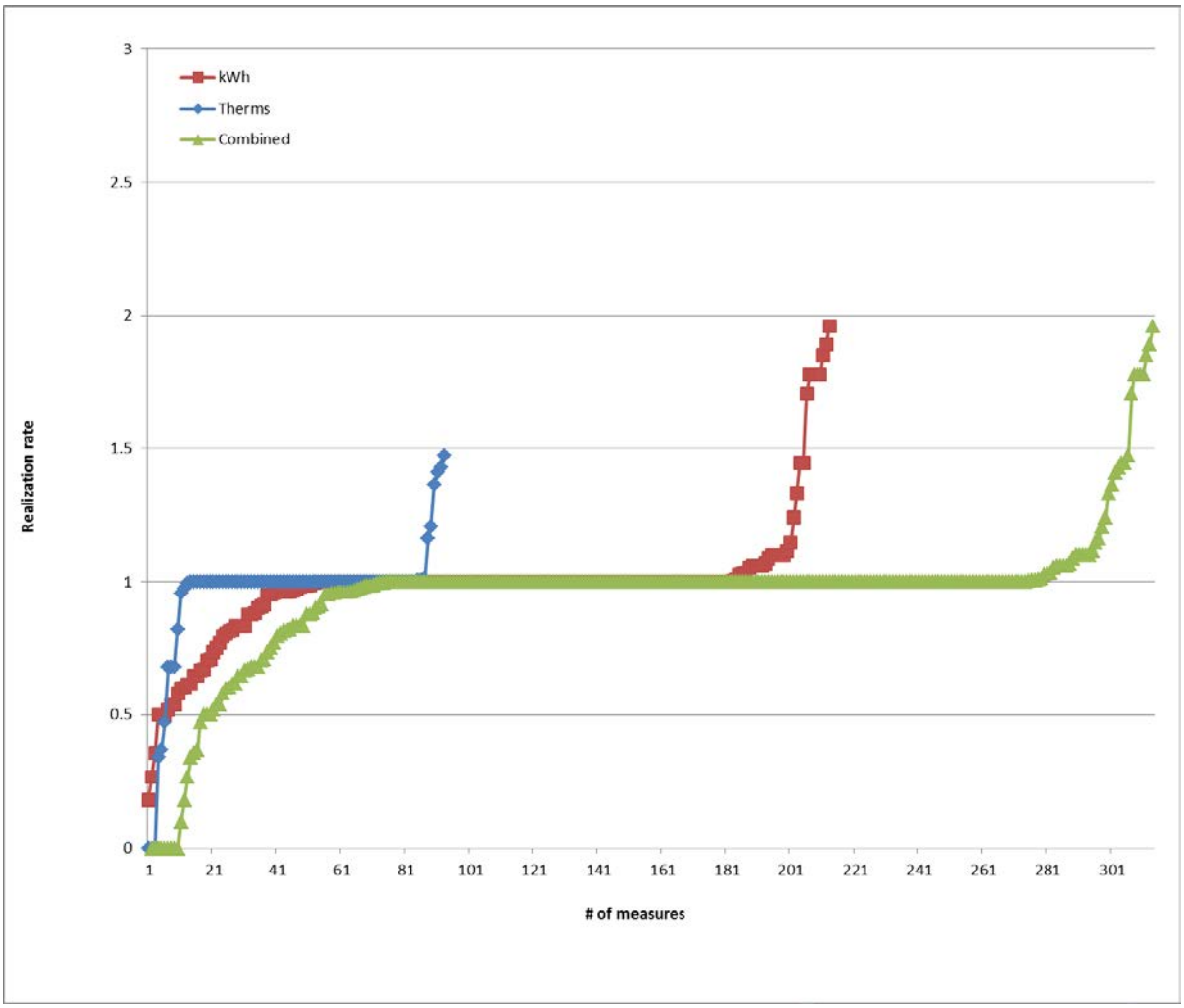

Figure E-1: Distribution of Measure Realization Rates.

Conclusions

From the results of the impact evaluation of gross realized savings for the 2010-11 program years, the following key conclusions were drawn.

1. **Installation Verification** – The evaluation verified through field inspection that 97 percent of the sampled and assessed measures were either fully or partly installed and operational. When they occurred, partial installations and variations from the expected measure operation (differing schedules, set points, etc.) accounted for many of the differences between expected and evaluated savings. Oftentimes, the timing of when discrepancies occurred (eg. when a particular set point had been changed, etc.) and reasons for the discrepancies we encountered (eg. why did a particular set point vary from the original design, etc.) were unclear.
2. **Gross savings realized** – Significant gross energy savings were found for both fuel types in each program year. Unweighted measure-level results show a range in realization rates from zero to nearly two. Domain-level results for the electric and gas fuel types indicate that realized savings were less than expected savings for both fuel types in both program years. The electric realization rate was estimated to be 0.99 across the two program years. The therm realization rate was estimated to be 0.94 for the two-year period. These results represent a significant improvement from the previous evaluation cycle. Table E-3 shows the confidence level and relative precision for each sample frame.

Table E-3: Sample Frame Confidence Level and Relative Precision

Sample Frame	Confidence Level	Relative precision
kWh2010	90%	11%
kWh2011	90%	8%
Therms2010	90%	9%
Therms2011	90%	3%

3. **Major reasons for differences between the expected and realized savings –** The realized and expected gross savings differed for a variety of reasons. In most cases the differences tended to reduce savings. The most common reasons for reduced savings were lower operating hours and “Other”. The “Other” category included situations such as measures not actually being installed, vacant buildings, inappropriate algorithms, or questionable algorithm inputs.
4. **Algorithm review –** In many instances, custom algorithms could not be reviewed due to a lack of documentation. When they could be reviewed, the custom algorithms were generally found to be reasonable. Custom algorithm types included eQUEST models, TRACE 700 models, and MS Excel spreadsheet calculation models. Typically, these custom algorithms were applied to complex HVAC measures such as controls or central plant equipment

replacement measures. Some general recommendations were made for reviewed algorithms where improvements were appropriate.

5. **Project documentation –** Major improvements were made by the Project Management Contractor, since the last evaluation cycle, in providing the evaluation with complete and accurate documentation of the sampled projects. However, additional improvements can still be made for future evaluations. These include providing electronic copies of all calculations, and ensuring that provided documentation versions matches the reported savings values.

Recommendations

Findings from this evaluation led to the following recommendations:

1. **Feedback to Energy Trust savings estimates**. Energy Trust estimates of expected savings have the disadvantage of having to predict the future performance of a measure before it is installed. The evaluation has the advantage of estimating realized savings for a measure under as-built and operated conditions. Because of these different perspectives, differences between expected and realized savings are unavoidable. The evaluation was able to gauge measure conditions at a single point in time, but further in-depth study of measures in the evaluation sample, where significant differences in the estimates were found, can improve the ability of Energy Trust to predict savings and/or ensure good performance for future measures. It is recommended that Energy Trust carefully study these cases, such as by revisiting sites and speaking with customers and vendors to understand better the reasons why certain measures performed poorly. Information from such customer follow-up might lead to improved procedures for inspection, quality control, and training, which in turn may increase realization rates in future evaluations.

2. **Project documentation**. The value and cost-effectiveness of the evaluation was very dependent upon access to accurate and complete program documentation for each sampled project. Documentation should be provided to the evaluator in sufficient detail for an independent third party to understand expected measure performance. It should include the information and tools necessary to understand the algorithm that was used to calculate the expected savings, in an electronic format necessary to reproduce the savings estimate.

   Adequate documentation was provided for most sampled projects. The completeness and accuracy of the documentation was an improvement from the previous evaluation cycle. However, there were a number of cases where sufficient documentation was not provided. This was especially true for non-lighting projects where the expected savings were calculated with an hourly simulation or proprietary software. Compensating for this lack of documentation significantly increased the cost of the evaluation. It is recommended that Energy Trust improve the completeness of the project documentation in future program years so that the evaluations can be supplied with the information and tools necessary to cost-effectively complete the evaluation scope specified by Energy Trust. This includes items such as measure performance specifications, documentation of assumptions made and calibration methods used during the analysis of expected savings, and backup information related to the calculations made.

All spreadsheet calculation tools should be provided in Excel format (not pdf) so that the equations can be understood and the savings estimates can easily be reproduced. When hourly simulations tools are used, documentation should include the final as-built energy modeling files, in electronic format, that are needed to reproduce the expected savings analysis. It is also recommended that the use of proprietary software be minimized.

The most expeditious way to provide program files to future evaluators would be to store all pertinent files for a given site in a well-documented electronic folder, which could be passed on in its entirety should that site be sampled in the evaluation.

When the folder is first received from the ATAC, it should be thoroughly checked to ensure that all necessary material is included and that the versions of the supplied documentation match exactly the reported savings values in the database. This check should be completed for every site.

3. **Measure interactive effects**. For interior lighting measures, the expected savings did not capture interactions with the HVAC system, when they were relevant. It is recommended that the expected savings methodologies be upgraded to capture interactive effects where they are significant.
4. **Program Communications**. Some customers did complain about the number of times they had previously been asked to allow sites visits as part of other aspects of program implementation. It is recommended that the program communicate clearly that evaluations are happening (in some cases multiple evaluations at the same site) and required to improve the programs as well as support ongoing funding.

MEMO

Date: January 9, 2014
To: Board of Directors
From: Phil Degens, Evaluation Manager
Spencer Moersfelder, Existing Buildings Program Manager
Subject: Staff Response to the 2010 and 2011 Existing Buildings Impact Evaluation Report

The 2010-2011 impact evaluation report shows that the Existing Buildings program improved its realization rates for both electric and gas savings in the years 2010 and 2011 relative to previous evaluations. At the same time, the program significantly increased the level of savings and the number of customers served. The program also did a good job of providing these services to a wide array of commercial buildings. The evaluators found the program was effectively implemented as site visits found that in almost all cases the project measures had been installed.

The program also made strides towards gathering and storing project data consistently and electronically. All of the files were successfully transferred electronically to the evaluators via Energy Trust's secure file transfer protocol (SFTP) site and required minimal Energy Trust resources to carry out. There was still an issue with obtaining complete simulation models for a few projects. However, this issue was much less prevalent than in earlier years and the program now requires that all simulation models be provided to the Program Management Contractor (PMC) before an incentive is paid.

It is worth noting that the program changed its PMC at the beginning of 2013. The program achievements that are presented in the report are due to the successful program implementation of the prior PMC. It is anticipated that the current PMC will integrate appropriate learnings from this report so as to continue the program's successful implementation.

Additionally, Energy Trust evaluation staff plans on evaluating savings for one program year (in lieu of two or more years) at a time. This will ensure that that the program receives more frequent and faster delivery of evaluation results and this timely information and feedback will in turn improve program delivery.

2011 New Buildings Program Impact Evaluation

October 29, 2013

Energy Trust of Oregon
421 SW Oak Street, Suite 300
Portland, OR 97204

The Cadmus Group, Inc.
An Employee-Owned Company • www.cadmusgroup.com

Executive Summary

Energy Trust of Oregon retained Cadmus to complete an impact evaluation of the 2011 New Buildings Program, a comprehensive effort to assist owners of newly constructed or substantially renovated commercial and industrial buildings to achieve energy savings through three different tracks: Standard, Custom, and LEED. These tracks are described as follows:

- The Standard Track supports prescriptive equipment measures, such as lighting, motors, HVAC, and others, through deemed savings.
- The Custom Track provides incentives to reduce a building's energy use below a minimally code-compliant value. Measures usually involve more complex energy savings analysis than do prescriptive measures.
- LEED Track projects receive incentives for achieving energy savings as part of certification by the U.S. Green Building Council.

A third-party program management contractor, Portland Energy Conservation, Inc. (PECI), implemented the 2011 New Buildings Program.

The 2011 study, conducted by Cadmus, evaluated projects permitted under both the 2007 Oregon Structural Specialty Code and the recently-adopted 2010 Oregon Energy Efficiency Specialty Code (OEESC). The 2010 code exceeded energy savings requirements for the 2007 code and required PECI to develop new calculation methods for deemed savings measures (such as economizers).

For the 2011 evaluation, Cadmus sampled 40 projects, matching the evaluation quantity requested by Energy Trust. The sample included 16 of the largest savings projects (all with reported savings greater than 2,000 MMBtu[1]) and a random sample of 24 smaller projects. As shown in Table 1, the final sample represented 71% of the program's total reported, combined savings.

Table 1. 2011 Program and Sample Total Quantities and Reported Savings

	Total Projects	Total Measures	Reported Savings		
			Electricity (kWh)	Gas (therms)	Combined Energy (MMBtu)
Program Total	291	1,235	39,980,570	788,302	215,244
Sample Total	40	228	30,167,347	506,823	153,613

Cadmus evaluated the program through site visits and reviews of engineering calculations and building simulation models. During site visits, we validated the proper installation and functioning of equipment

[1] Btu stands for British thermal units. MMBtu is used throughout this report to represent million Btu.

for which incentives were provided and recorded operational characteristics data to support our engineering analysis. We evaluated the Standard Track measures primarily using industry-standard algorithms. We analyzed measures installed in the Custom Track through algorithms, detailed calculation spreadsheet reviews, simulation modeling, and/or energy management system (EMS) trend data. Cadmus engineers analyzed the differences between baseline and as-built simulation models for LEED projects. Through this impact evaluation, we identified a variety of factors that reduced the overall program realization rate (the ratio of evaluated to reported savings), as shown in Table 2. Savings values listed in the impact evaluation are gross values. Calculation of a net-to-gross ratio fell outside the scope of this evaluation.

Table 2. Overall 2011 Program Realization Rates and Energy Savings

Measure Category	Total Measures*	Reported Savings*		Evaluated Savings*		Realization Rate	
		Electricity (kWh)	Gas (therms)	Electricity (kWh)	Gas (therms)	Electricity Savings	Gas Savings
Standard Food Service	174	2,002,170	39,461	1,997,594	40,580	100%	103%
Standard HVAC	186	512,989	97,883	509,288	102,628	99%	105%
Standard Lighting	469	3,717,814	0	3,524,029	0	95%	N/A
Standard Motors	79	497,527	0	333,077	0	67%	N/A
Standard Water Heating	143	365,385	42,257	425,977	42,135	117%	100%
Custom	100	9,657,102	218,370	8,468,144	182,800	88%	84%
Custom Food Service	42	1,739,329	71,626	1,732,462	70,395	100%	98%
LEED	33	5,409,556	308,900	5,104,045	277,759	94%	90%
Retired Measures	6	103,649	9,805	103,649	9,805	100%	100%
Total 2011 Population	**1,232**	**24,005,521**	**788,302**	**22,284,382**	**726,100**	**93%**	**92%**

* The total number of measures and electricity savings excludes three Custom measures from a large facility which has yet to be evaluated. Cadmus will finalize the report after evaluating that project.

Total combined reported energy savings (electricity and gas) represented 215,244 MMBtu. One facility with three Custom projects comprised a large portion of overall program savings, but Cadmus will not evaluate its savings until a third-party firm completes a post-occupancy evaluation. The remaining combined reported energy savings represented 160,737 MMBtu. Cadmus calculated the total combined evaluated energy savings, without the three unevaluated Custom projects, as 148,644 MMBtu, for a 92% overall realization rate for 2011 measures evaluated to date.

When combining all measure categories, the Standard Track population achieved an overall realization rate of 99.6%. The Custom Track population achieved an overall realization rate of 89%.

Most measure types achieved high realization rates. The overall program energy savings were primarily reduced by adjustments to Custom and LEED project energy savings. The 2011 program savings realization rate of 92% is slightly less than the 97% in 2010 and the 96% in 2009. The primary factors that lowered the overall realization rate were:

- Our verification process showed that some incented equipment only met baseline code efficiency and not the program requirements.
- Evaluated equipment operation differed from the expected patterns used to develop deemed savings estimates. This was usually either due to differences in as-built energy consumption or different applications than predicted for deemed savings.
- The verified cooling loads for one large project and heating loads for two large projects were much lower than reported in the incentive calculations.
- Observed equipment quantities differed from reported quantities.
- Building simulation models did not accurately reflect as-built conditions or operating parameters.
- A participant did not implement one incented measure.

Other findings that Cadmus identified included:

- A contractor submitted a custom residential HVAC project that was approved for the New Buildings program based on inaccurate information about the building's use. This project did not receive an inspection by the program management contractor because it was relatively small and did not get included in the 10% random sample of completed projects.
- Cadmus sometimes had difficulty obtaining the correct modeling files and calculations on whole building simulation projects for the Custom and LEED tracks. In several cases we had difficulty following the documentation between similar projects or determining whether the models matched those used to determine reported energy savings.
- We found limitations on data that would have been helpful to determine equipment operating patterns or calculate energy consumption for various end uses. In some cases, the participant had installed an energy management system but not enabled trending capabilities. In two cases, the building represented a portion of a larger campus served by a central steam plant or campus-wide gas service. The buildings did not have submeters to record energy consumption for their portion of the overall system. The lack of consumption data on these two projects limited our ability to calibrate their whole building simulation models. In addition, the project with a central steam plant did not account for the steam plant's conversion efficiency.

As a result of our evaluation, Cadmus recommends the following opportunities for Energy Trust to consider program improvements.

- Develop “sanity checks” to approve projects.
- Obtain energy simulation models during program year.
- Maintain consistent documentation on simulation model files.
- Ensure simulation models match approved savings.
- Encourage participants to enable energy management system trends.
- Obtain calculation sheets for exceptional calculations.
- Require energy metering for project not directly served by utility services.
- Ensure that incentives correctly account for all utility types.

Overall, the 2011 program implementer performed a reasonable level of review and quality control to achieve high average project savings realization rates. The measure types with lower evaluated savings represented large, complex measures whose final operating patterns can be difficult to predict, particularly in a new construction application. The implementer has continually worked to streamline and improve the program’s delivery mechanisms, and we believe their work has been effective.

MEMO

Date: January 30, 2014
To: Board of Directors
From: Sarah Castor, Evaluation Sr. Project Manager
Jessica Rose, Business Sector Manager, New Buildings Program
Subject: Staff Response to the 2011 New Buildings Program Impact Evaluation

The results of the 2011 New Buildings Impact Evaluation show that the program's overall realization rates remained close to those from 2009 and 2010, and the program management contractor (PMC), PECI, is doing a good job of estimating savings on average.

Energy Trust worked with Cadmus to further investigate the case of a large central utility plant project that had a very low realization rate due to lower-than-assumed load on its chillers. The conclusion that we reached was that the program did everything in its power to correctly estimate the plant load and in fact more load may have been added since the evaluation site visit. Program staff are following up with the participant to ascertain the current planned load and another site visit will be conducted by Cadmus in 2014 to gather additional data and information on plant loading and potentially revise the 2011 program realization rates. At this time, there are no changes to program processes needed as a result of our findings. We appreciate the excellent help from both PECI and Cadmus in understanding the reasons for the low realization rate for this project.

The evaluator made several specific recommendations for program improvements based on 2011 project findings (in italics), many of which the program has already addressed, or will address as follows:

- *Develop "sanity checks"*
  The program will discuss sanity checks to identify potentially problematic projects before they submit applications for prescriptive incentives.

- *Obtain energy simulation models during program year*
  Since receiving this recommendation in late 2010 through the 2008 Impact Evaluation report, the program began collecting model files for all LEED and modeled projects. Starting in October 2010, the LEED application terms and conditions required project owners to provide Energy Trust with the energy simulation models and inputs. The program has collected modeling files for all projects that applied for LEED incentives after October 2010.

  The program has always collected and reviewed modeling files and spreadsheet calculations for Custom and Modeled Savings projects.

- *Maintain consistent documentation on simulation model files*
  For LEED projects, the program keeps each version of model files in separate folders each with the date of submission. Additionally, the program has updated the review

memo template for both LEED and modeled savings projects that are submitted by the project representative or energy analyst. The LEED review memo specifies the names of all final documentation. For modeled savings, the review memo details the final savings for each measure, which are checked against the savings in the approved Savings Summary Worksheet. Going forward, the basis of the final incentive, supporting documentation, final incentive amount, and simulation models will be categorized consistently and clearly labeled for each projects in the program.

- *Ensure simulation models match approved savings for LEED projects*
  Currently the program reviews model input/output files but does not run the models unless there is a significant reason due to discrepancies. The program could re-run each model to verify that the models match the energy consumption output on a gross savings level. If a discrepancy is found, the program would most likely need to make any adjustments without support from the design team, since most LEED projects are reviewed after construction and certification and the energy analyst does not receive technical assistance incentives. PECI will review the benefits and drawbacks to this approach with Energy Trust and document the final agreed-upon process in the Program Implementation Manual.

  The program agrees that the models should be clearly labeled with what information they support. If the program opens and runs each model in the process described above, the team will ensure that models are labeled appropriately.

- *Encourage participants to enable energy management system trends*
  Given the usefulness to evaluation as well as participant energy performance monitoring, the program will suggest that energy management systems have trending enabled at the end of the project.

- *Obtain calculation sheets for exceptional calculations*
  The program currently, as a process step, does place all exceptional calculation workbooks, simulations, and associated documentation in the project files. PECI will ensure the final version of each exceptional calculation, including methodology and source, is included in the project file.

- *Require energy metering for projects not directly served by utility services*
  Recognizing the value to the evaluation and participant, the program will recommend that campus buildings with multiple fuel sources submeter each fuel source. The program will not require it for incentive eligibility.

- *Ensure that incentives correctly account for all utility types*
  For buildings connected to central steam plants that are eligible for incentives, the program will include central plant steam savings when calculating savings for that building.

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Impact Evaluation of Energy Trust of Oregon's 2009-2011 Production Efficiency Program

Final Report

Prepared for:
Energy Trust of Oregon

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December 3, 2013

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Executive Summary

The Energy Trust of Oregon Production Efficiency Program (PE Program) provides incentives to industrial and agricultural customers to install or implement energy efficiency improvements at their facilities. Program measures include boiler upgrades; compressed air and air abatement improvements water treatment efficiency improvements; efficient pumping, heating, ventilation, and air conditioning (HVAC) upgrades; insulation measures; irrigation improvements; efficient lighting and lighting controls; variable frequency drives (VFDs); industrial process improvements; refrigeration controls and equipment; and a variety of equipment tune-ups. In addition, the PE Program provides incentives for whole facility improvements such as operations and maintenance (O&M), retro-commissioning, and strategic energy management (SEM) programs.

The purpose of Navigant's evaluation effort is to inform Energy Trust and program stakeholders of the effectiveness of the PE Program, how the PE Program can be improved, energy savings impacts, and market effects of the program. The specific goals of this evaluation were to:

- Develop reliable estimates of both program and measure specific electric and natural gas savings for the program years 2009-2011.
- Obtain feedback on program design and implementation that can be used to improve the implementation of the current program.
- Identify program achievements to ensure that successful program elements are incorporated into future program cycles.

Throughout the evaluation effort, Navigant reviewed the input assumptions, savings methodologies, and corresponding savings estimates for the PE Program and collaborated with Energy Trust to ensure that evaluation findings were mathematically correct and consistent with industry standards.

Program Impacts

Overall, Energy Trust's PE Program is generating considerable savings. Table E-0-1 through Table E-0-4 provide summaries of *ex ante* and *ex post* energy savings by measure category for electricity. Table E-0-1 combines the three evaluation years of 2009, 2010, and 2011 while through Table E-0-4 represent each of the evaluation years, respectively. Along with the energy savings, realization rates by measure category are provided. The values in these four tables are not adjusted for consideration of closed facilities.

For the three years of electric measures combined, the overall realization rate is 94%. The highest realization rates were achieved by Strategic Energy Management at 107% and the lowest by miscellaneous measures at 42%. The low realization rate for miscellaneous measures is primarily driven by one problematic waste water treatment project, which had a 0% realization rate, and is not representative of the program overall. If that one site were not included, the realization rate for the miscellaneous measure category would improve to 90%.

Realization rates by program year varied with 2009 being the lowest at 78%, followed by 2010 having a realization rate of 98% and 2011 a 99% realization rate. The aforementioned waste water treatment plant accounted for a large portion of the lower 2009 realization rate. A Kaizen Blitz project was another

contributor to the lower 2009 realization rate. The realization rate for this particular refrigeration Kaizen Blitz project is 47%. However, this may be due to the measures approaching or reaching their measure life by the time Navigant's evaluation was performed.

Table E-0-1. Summary of Realized Savings by Measure Category – Unadjusted Electric – 2009, 2010, and 2011 Combined

	Electric Savings (kWh)			
Measure Category	Unique Sites	*Ex ante*	*Ex post*	Realization Rate
O & M - Custom	29	22,935,811	19,694,620	85.9%
Strategic Energy Mgmt	18	39,174,249	41,742,039	106.6%
Lighting	63	37,833,267	38,525,350	101.8%
Process	25	42,900,934	37,003,987	86.3%
Motor	24	1,467,367	1,437,483	98.0%
Compressed Air	36	11,969,897	10,243,151	85.6%
Custom Air Abatement	5	4,135,601	3,663,693	88.6%
Refrigeration	10	8,207,391	6,313,170	76.9%
Insulation	5	267,437	251,096	93.9%
Tune-up	7	302,182	302,182	100.0%
HVAC	11	2,408,632	1,978,865	82.2%
Custom Pump	14	17,376,019	17,648,742	101.6%
Irrigation	9	1,017,440	1,011,320	99.4%
Miscellaneous	6	3,292,293	1,386,519	42.1%
Total (Unique Electric Sites)	**117**	**193,288,520**	**181,202,216**	**93.7%**

Table E-0-2. Summary of Realized Savings by Measure Category – Unadjusted Electric – 2009

	Electric Savings (kWh)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	1	541,368	1,015,109	187.5%
Strategic Energy Mgmt	2	5,363,190	2,168,237	40.4%
Lighting	15	6,630,406	6,514,586	98.3%
Process	9	15,951,388	12,043,276	75.5%
Motor	14	911,801	899,612	98.7%
Compressed Air	7	1,232,632	1,622,591	131.6%
Custom Air Abatement	4	3,047,523	2,439,997	80.1%
Refrigeration	4	4,390,677	2,851,479	64.9%
Insulation	0	0	0	-
Tune-up	0	0	0	-
HVAC	2	431,184	427,078	99.0%
Custom Pump	6	3,649,673	3,975,202	108.9%
Irrigation	2	165,600	165,600	100.0%
Miscellaneous	1	1,739,130	0	0.0%
Total (Unique Electric Sites)	**67**	**44,054,572**	**34,122,767**	**77.5%**

Table E-0-3. Summary of Realized Savings by Measure Category – Unadjusted Electric – 2010

	Electric Savings (kWh)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	15	15,701,588	13,090,444	83.4%
Strategic Energy Mgmt	9	20,530,218	22,999,582	112.0%
Lighting	40	15,488,210	15,931,836	102.9%
Process	9	12,275,518	11,260,680	91.7%
Motor	15	339,647	330,999	97.5%
Compressed Air	18	3,888,252	3,608,061	92.8%
Custom Air Abatement	2	1,088,078	1,223,696	112.5%
Refrigeration	4	970,760	903,468	93.1%
Insulation	4	201,304	201,304	100.0%
Tune-up	3	59,180	59,180	100.0%
HVAC	3	799,989	319,890	40.0%
Custom Pump	4	5,422,113	5,646,585	104.1%
Irrigation	7	543,370	537,370	98.9%
Miscellaneous	4	799,383	632,739	79.2%
Total (Unique Electric Sites)	**137**	**78,107,610**	**76,745,834**	**98.3%**

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Table E-0-4. Summary of Realized Savings by Measure Category – Unadjusted Electric – 2011

	Electric Savings (kWh)			
Measure Category	**Sites**	***Ex Ante***	***Ex Post***	**Realization Rate**
O & M - Custom	17	6,692,855	5,589,066	83.5%
Strategic Energy Mgmt	7	13,280,841	16,574,220	124.8%
Lighting	29	15,714,651	16,078,928	102.3%
Process	15	14,674,028	13,700,031	93.4%
Motor	13	215,919	206,872	95.8%
Compressed Air	17	6,849,013	5,012,499	73.2%
Custom Air Abatement	0	0	0	-
Refrigeration	5	2,845,954	2,558,223	89.9%
Insulation	1	66,133	49,792	75.3%
Tune-up	5	243,002	243,002	100.0%
HVAC	9	1,177,459	1,231,897	104.6%
Custom Pump	8	8,304,233	8,026,955	96.7%
Irrigation	4	308,470	308,350	100.0%
Miscellaneous	1	753,780	753,780	100.0%
Total (Unique Electric Sites)	**131**	**71,126,338**	**70,333,615**	**98.9%**

Table E-0-5 through

Table E-0-8 provide summaries of *ex ante* and *ex post* energy savings by measure category for natural gas. Table E-0-5 combines the three evaluation years of 2009, 2010, and 2011 while Table E-0-6 through

Table E-0-8 represent each of the evaluation years, respectively. The values in these four tables are not adjusted for consideration of closed facilities or *ex post* estimates for savings from natural gas greenhouse HVAC measures, in which Navigant does not have full confidence.

For the three years of natural gas measures combined, the overall realization rate is 89%. The highest realization rates were achieved by boilers at 115% and the lowest by greenhouse–HVAC at 50%. Although Navigant did estimate a realization rate for greenhouse–HVAC, this measure type was difficult to evaluate for several reasons:

- Some sites were visited in the non-heating season and therefore direct metering was not possible.
- The vast majority of the claimed natural gas savings for greenhouse insulation measures were near or above billed natural gas levels, due to the way in which the Virtual Grower model was implemented for savings calculations.
- Heating profiles are very dependent on the plants/crops within the greenhouses. Records on the specific plants/crops as well as the timing of when they were in the greenhouses were not available.

Considering these difficulties, Navigant does not have full confidence in the *ex post* energy savings for the greenhouse-HVAC measure.
Realization rates by program year varied with 2009 being the lowest at 68%, followed by 2010 having a realization rate of 84% and 2011 a 97% realization rate. The increase in realization rates is due to a combination of factors, however the relative proportion of greenhouse HVAC measures, and their low realization rates, in each year is the most significant contributor. Greenhouse HVAC measures, constituted a decreasing percentage of *ex ante* savings in successive years, contributing substantially to the lower realization rates in earlier program years. The aforementioned greenhouse–HVAC measure accounted for most of the lower 2009 and 2010 realization rates.

Table E-0-5. Summary of Realized Savings by Measure Category – Unadjusted Natural Gas – 2009, 2010, and 2011 Combined

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	5	28,767	27,251	94.7%
Strategic Energy Mgmt	2	28,394	28,020	98.7%
Process	7	417,860	363,938	87.1%
Boiler	6	228,802	263,722	115.3%
Insulation	7	73,340	80,854	110.2%
Tune-up	6	52,942	52,942	100.0%
HVAC	3	28,712	28,655	99.8%
Greenhouse-HVAC	9	270,333	134,804	49.9%
Greenhouse-Other	9	270,190	268,354	99.3%
Miscellaneous	5	274,771	246,857	89.8%

Total (Unique Gas Sites)	**47**	**1,674,111**	**1,495,397**	**89.3%**

Table E-0-6. Summary of Realized Savings by Measure Category – Unadjusted Natural Gas – 2009

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	0	0	0	-
Strategic Energy Mgmt	0	0	0	-
Process	1	1,956	3,022	154.5%
Boiler	0	0	0	-
Insulation	1	22,471	30,128	134.1%
Tune-up	0	0	0	-
HVAC	0	0	0	-
Greenhouse-HVAC	5	137,271	59,908	43.6%
Greenhouse-Other	0	0	0	-
Miscellaneous	1	54,154	54,154	100.0%
Total (Unique Gas Sites)	**8**	**215,852**	**147,212**	**68.2%**

Table E-0-7. Summary of Realized Savings by Measure Category – Unadjusted Natural Gas – 2010

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	0	0	0	-
Strategic Energy Mgmt	0	0	0	-
Process	3	267,157	234,025	87.6%
Boiler	0	0	0	-
Insulation	5	41,819	41,676	99.7%
Tune-up	3	18,077	18,077	100.0%
HVAC	2	12,978	12,921	99.6%
Greenhouse-HVAC	1	89,055	45,773	51.4%
Greenhouse-Other	3	32,983	31,147	94.4%
Miscellaneous	1	39,840	39,840	100.0%
Total (Unique Gas Sites)	**18**	**501,909**	**423,459**	**84.4%**

Table E-0-8. Summary of Realized Savings by Measure Category – Unadjusted Natural Gas – 2011

	Gas Savings (Therms)			
Measure Category	**Sites**	***Ex Ante***	***Ex Post***	**Realization Rate**
O & M - Custom	5	28,767	27,251	94.7%
Strategic Energy Mgmt	2	28,394	28,020	98.7%
Process	3	148,747	126,891	85.3%
Boiler	6	228,802	263,722	115.3%
Insulation	1	9,050	9,050	100.0%
Tune-up	4	34,865	34,865	100.0%
HVAC	2	15,734	15,734	100.0%
Greenhouse-HVAC	4	44,007	29,123	66.2%
Greenhouse-Other	7	237,207	237,207	100.0%
Miscellaneous	4	180,777	152,863	84.6%
Total (Unique Gas Sites)	**38**	**956,350**	**924,727**	**96.7%**

The two issues of closed facilities and consideration of *ex post* estimates for savings from natural gas greenhouse HVAC measures significantly affect realization rates within certain measure and fuel categories and cloud the assessment for the measures in businesses still in operation.

Table E-0-9 through Table E-0-16 take into account these two issues and provide an adjusted assessment of *ex ante* and *ex post* energy savings by year, measure category and fuel type.

Adjusting for closed facilities (three facilities), the overall electric measure realization rate for the combined three years improved from 94% to 96%. Most of the end use categories are affected by this adjustment with the biggest changes in the compressed air category, which improved from 86% to 102%, and HVAC, which improved from 82% to 103%. The realization rates for each of the individual years also increased with both 2010 and 2011 being above 100%. The realization rate for 2009 is essentially unchanged at 78%

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Table E-0-9. Summary of Realized Savings by Measure Category – Adjusted Electric – 2009, 2010, and 2011 Combined

	Electric Savings (kWh)			
Measure Category	Unique Sites	*Ex ante*	*Ex post*	Realization Rate
O & M - Custom	28	22,556,478	19,694,620	87.3%
Strategic Energy Mgmt	18	39,174,249	41,742,039	106.6%
Lighting	62	36,826,414	38,525,350	104.6%
Process	23	41,643,322	37,003,987	88.9%
Motor	23	1,460,548	1,437,483	98.4%
Compressed Air	34	10,094,116	10,243,151	101.5%
Custom Air Abatement	5	4,135,601	3,663,693	88.6%
Refrigeration	10	8,207,391	6,313,170	76.9%
Insulation	5	267,437	251,096	93.9%
Tune-up	7	302,182	302,182	100.0%
HVAC	10	1,928,533	1,978,865	102.6%
Custom Pump	13	17,319,701	17,648,742	101.9%
Irrigation	9	1,017,440	1,011,320	99.4%
Miscellaneous	6	3,292,293	1,386,519	42.1%
Total (Unique Electric Sites)	**115**	**188,225,705**	**181,202,216**	**96.3%**

Table E-0-10. Summary of Realized Savings by Measure Category – Adjusted Electric – 2009

	Electric Savings (kWh)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	1	541,368	1,015,109	187.5%
Strategic Energy Mgmt	2	5,363,190	2,168,237	40.4%
Lighting	14	6,618,353	6,514,586	98.4%
Process	8	15,840,532	12,043,276	76.0%
Motor	14	911,801	899,612	98.7%
Compressed Air	7	1,232,632	1,622,591	131.6%
Custom Air Abatement	4	3,047,523	2,439,997	80.1%
Refrigeration	4	4,390,677	2,851,479	64.9%
Insulation	0	0	0	-
Tune-up	0	0	0	-
HVAC	2	431,184	427,078	99.0%
Custom Pump	6	3,649,673	3,975,202	108.9%
Irrigation	2	165,600	165,600	100.0%
Miscellaneous	1	1,739,130	0	0.0%
Total (Unique Electric Sites)	**65**	**43,931,663**	**34,122,767**	**77.7%**

Table E-0-11. Summary of Realized Savings by Measure Category – Adjusted Electric – 2010

	Electric Savings (kWh)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	15	15,701,588	13,090,444	83.4%
Strategic Energy Mgmt	9	20,530,218	22,999,582	112.0%
Lighting	39	14,493,410	15,931,836	109.9%
Process	8	11,128,762	11,260,680	101.2%
Motor	14	338,975	330,999	97.6%
Compressed Air	17	3,859,739	3,608,061	93.5%
Custom Air Abatement	2	1,088,078	1,223,696	112.5%
Refrigeration	4	970,760	903,468	93.1%
Insulation	4	201,304	201,304	100.0%
Tune-up	3	59,180	59,180	100.0%
HVAC	2	319,890	319,890	100.0%
Custom Pump	4	5,422,113	5,646,585	104.1%
Irrigation	7	543,370	537,370	98.9%
Miscellaneous	4	799,383	632,739	79.2%
Total (Unique Electric Sites)	**132**	**75,456,770**	**76,745,834**	**101.7%**

Table E-0-12. Summary of Realized Savings by Measure Category – Adjusted Electric –2011

	Electric Savings (kWh)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	16	6,313,522	5,589,066	88.5%
Strategic Energy Mgmt	7	13,280,841	16,574,220	124.8%
Lighting	29	15,714,651	16,078,928	102.3%
Process	15	14,674,028	13,700,031	93.4%
Motor	12	209,772	206,872	98.6%
Compressed Air	16	5,001,745	5,012,499	100.2%
Custom Air Abatement	0	0	0	-
Refrigeration	5	2,845,954	2,558,223	89.9%
Insulation	1	66,133	49,792	75.3%
Tune-up	5	243,002	243,002	100.0%
HVAC	9	1,177,459	1,231,897	104.6%
Custom Pump	7	8,247,915	8,026,955	97.3%
Irrigation	4	308,470	308,350	100.0%
Miscellaneous	1	753,780	753,780	100.0%
Total (Unique Electric Sites)	**127**	**68,837,272**	**70,333,615**	**102.2%**

The effect of removing the natural gas greenhouse-HVAC realization rates from the overall natural gas realization rate for the combined three years is significant. Before the adjustment, the realization rate was 89% and after the adjustment, it improved to 97%. The realization rates for each of the individual years also increased with the 2009 realization rate improving from 68% to 111%, 2010 from 84% to 92%, and 2011 from 97% to 98%.

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Table E-0-13. Summary of Realized Savings by Measure Category – Adjusted Natural Gas– 2009, 2010, and 2011 Combined

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	5	28,767	27,251	94.7%
Strategic Energy Mgmt	2	28,394	28,020	98.7%
Process	7	417,860	363,938	87.1%
Boiler	6	228,802	263,722	115.3%
Insulation	7	73,340	80,854	110.2%
Tune-up	6	52,942	52,942	100.0%
HVAC	3	28,712	28,655	99.8%
Greenhouse-HVAC	0	0	0	-
Greenhouse-Other	9	270,190	268,354	99.3%
Miscellaneous	5	274,771	246,857	89.8%
Total (Unique Gas Sites)	**50**	**1,403,778**	**1,360,593**	**96.9%**

Table E-0-14. Summary of Realized Savings by Measure Category – Adjusted Natural Gas– 2009

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	0	0	0	-
Strategic Energy Mgmt	0	0	0	-
Process	1	1,956	3,022	154.5%
Boiler	0	0	0	-
Insulation	1	22,471	30,128	134.1%
Tune-up	0	0	0	-
HVAC	0	0	0	-
Greenhouse-HVAC	5	0	0	-
Greenhouse-Other	0	0	0	-
Miscellaneous	1	54,154	54,154	100.0%
Total (Unique Gas Sites)	**8**	**78,581**	**87,304**	**111.1%**

Table E-0-15. Summary of Realized Savings by Measure Category – Adjusted Natural Gas– 2010

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	0	0	0	-
Strategic Energy Mgmt	0	0	0	-
Process	3	267,157	234,025	87.6%
Boiler	0	0	0	-
Insulation	5	41,819	41,676	99.7%
Tune-up	3	18,077	18,077	100.0%
HVAC	2	12,978	12,921	99.6%
Greenhouse-HVAC	1	0	0	-
Greenhouse-Other	2	31,147	31,147	100.0%
Miscellaneous	1	39,840	39,840	100.0%
Total (Unique Gas Sites)	**17**	**411,018**	**377,686**	**91.9%**

Table E-0-16. Summary of Realized Savings by Measure Category – Adjusted Natural Gas–2011

	Gas Savings (Therms)			
Measure Category	Sites	*Ex Ante*	*Ex Post*	Realization Rate
O & M - Custom	5	28,767	27,251	94.7%
Strategic Energy Mgmt	2	28,394	28,020	98.7%
Process	3	148,747	126,891	85.3%
Boiler	6	228,802	263,722	115.3%
Insulation	1	9,050	9,050	100.0%
Tune-up	4	34,865	34,865	100.0%
HVAC	2	15,734	15,734	100.0%
Greenhouse-HVAC	4	0	0	-
Greenhouse-Other	7	237,207	237,207	100.0%
Miscellaneous	4	180,777	152,863	84.6%
Total (Unique Gas Sites)	**38**	**912,343**	**895,604**	**98.2%**

Recommendations

The Navigant evaluation staff carefully documented the impact evaluation process in an effort to capture and assess program feedback based on program data, installation reports, evaluation observations and discussions with participants. This information was used to develop recommendations that should improve the operation of the Production Efficiency Program as well as future impact evaluation efforts.

Include Detailed Calculation Spreadsheets with All Project Files - Many of the Energy Trust project files included detailed calculation spreadsheets, which facilitated efficient and accurate review of project savings. This has improved substantially since Energy Trust switched to electronic program files. However, some project files, particularly those with complicated models, did not include enough data to thoroughly evaluate the calculations used in determining *ex ante* savings. Although *ex post* savings are often calculated independently, the original calculation details are helpful in determining the reasons for any discrepancies between the two savings values. Navigant recommends that Energy Trust continue to include as much detailed data as possible in their program records.

Work with Participants in Compressed Air Leak Detection Studies to Ensure Continued, Efficient Leak Detection Program Implementation - Energy Trust incentivized compressed air leak detection and repair projects for a number of participants. Although all of these projects resulted in short term savings, compressed air leak detection and repair must be implemented every few months in order to maintain savings. In particular, after about six months to a year a system will have redeveloped leaks equivalent to those which were repaired. This is because pressure and vibration in the system drive leak formation, making leak detection a continuing priority to help maintain an efficient compressed air system.[1] Participants' long term activities pertaining to leak detection varied widely, from detailed ongoing monitoring to none at all. Many participants fell into the category of some monitoring by ear, which is less effective than full, detailed surveys. Navigant recommends Energy Trust expand their compressed air leak detection program to further educate participants about the most effective methods of leak detection and how often to implement them. Education about the recurrence of leaks could help provide incentive for facilities to implement ongoing leak detection programs.

Additionally, for two sites, it was found that the compressor curve did not match the installed equipment. This was due to the use of simplified curves and not the actual manufacturer curves. Manufacturer curves or facility data should be used wherever possible.

O&M Impacts Should Be Evaluated Soon After Implementation – O&M measures can have relatively short lifetimes and delayed evaluation of them can result in low realization rates due to timing rather than problems with implementation. For example, one Kaizen Blitz project was completed in 2009, but included in this evaluation in late 2011. The measure implementation included O&M and operational changes to the refrigeration system. The realization rate for this project is only 47%. Some of the controls changes implemented are subject to operator intervention, based on facility operational changes. Unless procedures are in place at the facility to implement periodic tuning with changing conditions, the savings will not persist.

Use Billing Data to Provide "Reality Check" for Modeled Savings on Greenhouses and HVAC Upgrades - For projects that claim large energy savings based on models, such as many of the greenhouse and large HVAC measures, Navigant recommends using site billing data to confirm the calculated savings are reasonable. Some greenhouse projects previously estimated savings that were on par with or in excess of the typical total consumption estimated for the greenhouse in which they were installed. Although it is difficult to precisely determine savings for greenhouse measures, and models

[1] U.S. Department of Energy's EERE and the Compressed Air Challenge®. *Improving Compressed Air System Performance: A Sourcebook for Industry*. Washington, D.C., 2003. p.29. http://industrial-energy.lbl.gov/files/industrial-energy/active/0/LBNL-43888.pdf

are usually the best choice for estimation, comparison to billing data could provide guidance as to any large scale problems with the model and provide guidance for model adjustments to better match actual onsite performance.

Variable Frequency Drives - Navigant found that realization rates for some variable frequency drive (VFD) installations were low mainly because those VFDs were installed on systems that were close to fully loaded.

Navigant recommends some steps to be taken to more accurately calculate the savings for these measures:

- Before recommending VFDs, implementers should assure that the system is running partially loaded for a large majority of the time.
- Additionally, trend data should be taken for any equipment that is manually controlled as it is very difficult to estimate operation of manually controlled equipment.

Lighting Controls - Energy Trust's lighting controls savings worksheet assumes all occupancy sensors savings bring a flat savings percentage, regardless of the room type in which the occupancy sensors are installed. This is a not an accurate assumption. For example, occupancy sensors will cause the lights to be off a larger percentage of time in a warehouse than in an open office space.

Navigant recommends Energy Trust employ values from an established source such as "Table 24-5. Occupancy Sensors Reduction in Operating Time" of California's "2012 Statewide Customized Offering Procedures Manual for Business" to determine occupancy sensor savings, according to space type.

MEMO

Date: December 26, 2013
To: Board of Directors
From: Phil Degens, Evaluation Manager
Kim Crossman, Industry and Agriculture Sector Lead
Subject: Staff Response to the 2009, 2010, and 2011 Production Efficiency Impact Evaluation Report

The 2009-2011 impact evaluation report shows that the Production Efficiency program is a complex program that has delivered a wide array of energy efficiency solutions to a broad swath of Energy Trust's diverse set of industrial and agricultural customers. In the three years analyzed, the program has generated significant and growing electric and gas savings each year, and has been doing a good job in accurately estimating the bulk of these savings. The program has been doing all this while rolling out new and innovative services focused on operations and maintenance (O&M) measures and strategic energy management (SEM) practices.

Energy Trust staff believe that the adjusted realization rates that the report presents provide the best estimate of program achievements. These adjustments remove the effects due to plant closures that are already incorporated into the program savings through the average measure lifetime. In the case of gas measures installed in greenhouses, Energy Trust program staff will research how best to improve the current calculation methods to obtain a robust baseline and better savings estimates in the future. In the coming year, Energy Trust also looks to update and improve its lighting control savings calculations.

Industrial behavior-based program initiatives such as SEM and O&M have grown to represent a significant share of program savings. The impact evaluation indicates that the savings estimates for this class of measure have been reasonably accurate. In 2014, Energy Trust evaluation staff plans to research on how to improve its evaluation methods in regards to these projects and will be performing a separate evaluation of sites that received these services.

Additionally, Energy Trust evaluation staff plans on obtaining impact evaluation results on an annual basis. The main reason for this is that more frequent and faster delivery of evaluation results will also provide the program more useful and timely information with which to improve program delivery. Another reason is that measures with shorter lifetimes make more sense to evaluate closer to the time they are provided or installed. Finally, longer-term, ongoing evaluation of SEM savings and the after effects of SEM interventions will help better establish average measure life, which is currently set at 3 years, and could capture other actions taken and potential spillover savings at sites.

2013 Residential Awareness and Perceptions Study

BENENSON STRATEGY GROUP

October 2013

Executive Summary

The Benenson Strategy Group is pleased to present the findings of the sixth annual Energy Trust of Oregon Residential Awareness and Perceptions Study.

Objectives

- The goals of this study were to:

  - ✓ Understand consumer attitudes around energy efficiency and consumption.
  - ✓ Present a look at Energy Trust's brand image to residential customers.
  - ✓ Provide an assessment of the services that Energy Trust offers to understand whether the organization is meeting the needs of those who have participated in its programs, and identify targets who are most likely to participate in programs in the future.
  - ✓ Identify recommendations to improve awareness of Energy Trust and its programs and drive participation among residential customers.

Findings

- Oregon residents are committed to reducing the amount of energy they use in their homes and 73% have already taken steps to do so. 68% of residents indicate that they are likely to take action to reduce their use in the coming year.

- Yet while most residents are already taking actions to reduce their home energy use, few have significant concerns about their energy consumption.
  - ✓ Just 18% are very concerned about the amount of energy they use at home.

- When it comes to the energy they use at home, 37% of residents are most focused on saving money.
  - ✓ 26% are most focused on the comfort of their home, while 24% are most focused on not wasting energy
  - ✓ Just 11% are most focused on protecting the environment, yet this group is more motivated to take action than those focused on money.

- Several barriers are standing in the way of further reductions to energy use: the perception that reducing use is difficult, the perception that increasing efficiency is expensive, and the perception, for some, that their home is already energy efficient enough.

- Energy Trust's image is largely undefined, though generally positive.
  - ✓ With only 51% familiar with the organization, there is significant room to grow awareness and to strengthen and shape the brand's image.
    - Note: Last year's study found that 61% of residents were aware of Energy Trust; this year's question measured familiarity (how much they know about the organization) rather than just knowing the name. So while 48% say that they know nothing at all about Energy Trust in this survey, it should not be equated with having never heard of it.

- Among those who are familiar, Energy Trust is well-liked and seen as trustworthy.
  - ✓ Energy Trust has proven itself to those who have participated in the past, as past participants tend to have a strongly positive view.

- Reported participation in an Energy Trust service has held steady since last year, at 21%.
  - ✓ Those who engaged with Energy Trust had overwhelmingly positive experiences, and a majority of past participants (58%) intend to participate again.

- Those who have seen an Energy Trust ad rate the organization higher on brand awareness, favorability and intention to participate in Energy Trust's programs than those who have not seen an ad.
  - ✓ This is particularly true among those who saw ads online.
  - ✓ Residents who have seen or heard online ads are more likely to want to participate (68% likely to participate) than those who saw ads but not online (55% likely to participate).

Strategic Recommendations

- **Spread the word**
  - ✓ Given the current low level of familiarity with Energy Trust, build a general awareness campaign designed to boost not just familiarity with Energy Trust but also recognition of and connection with its core mission.

- **To drive engagement with Energy Trust, messaging should:**
  - ✓ **Keep it personal…**
    - Focus on household-level benefits, like lowering energy costs, reducing waste and increasing the value of one's home.
  - ✓ **… and avoid going too broad**
    - Issues like building Oregon's clean energy economy or reducing carbon emissions are less convincing as reasons to participate than saving energy and money, though they may be appropriate for more general awareness efforts.
  - ✓ **Tap into the emotional resonance of avoiding waste**
    - Coupled with a money-saving message, this can provide the impetus for action.
  - ✓ **Help residents keep the momentum going**
    - Give residents who haven't taken actions easy first steps to get started, and engage those who have already acted by showing them what else they can do.
  - ✓ **Emphasize how easy it is**
    - Highlight how easy and convenient it is to participate with Energy Trust and how quickly the cash incentives are disbursed.

- **Promote Energy Saver Kits**
  - ✓ Participants who received Energy Saver Kits were more likely to say that they would participate in an Energy Trust program again in the future than those who did not.

- **Strengthen partnerships with contractors**
  - ✓ Residents who are reaching out to contractors are serious about taking action, and are the lowest-hanging fruit for participation; maximizing Energy Trust's relationships with contractors – including links or ads on their websites – can help tap into this pool.

- **Continue to grow online advertising**
  - ✓ Residents who have seen or heard online ads are more likely to want to participate than those that have not.

MEMO

Date: November 11, 2013
To: Board of Directors
From: Sarah Castor, Evaluation Sr. Project Manager
Sue Fletcher, Sr. Communications and Customer Service Manager
Susan Jamison, Residential Marketing Manager
Shelly Carlton, Strategic Marketing Manager
Subject: Staff Response to the 2013 Oregon Residential Awareness and Perceptions Study

This is the sixth annual Oregon Residential Awareness and Perceptions Study. As in previous years, a primary goal of the survey was to assess Oregonians' awareness of Energy Trust and energy efficiency in general.

We made several changes to the survey and its methodology this year that make it more accurate and relevant, but which also make it difficult to directly compare results to previous surveys. One major change was in the decision to complete 50% of the surveys with customers via cell phone; in previous years 20% of surveys were completed via cell phone. Newer data from the CDC revealed that 38% of households have no landline (cell phone only) and another 14% complete most of their calls via cell phone. Those figures are up substantially since we began conducting the survey in 2008 with a 20% cell phone sample. The larger cell phone sample gives us a more accurate representation of residential customers.

Another significant change was in the way we asked about awareness of Energy Trust. In previous surveys, we asked if respondents had "heard of" Energy Trust prior to the survey, a "yes or no" question. Often, we found that many people had heard of Energy Trust, but fewer had any awareness of Energy Trust's purpose or offerings. This year, we asked a deeper question about how much they knew about Energy Trust; 51% knew something ("a great deal", "some, but not a lot" or "not much"), while 48% knew nothing about Energy Trust. Because of the different way of asking about awareness, this result cannot be directly compared to previous years, but will give us a better framework for gathering awareness in future surveys.

The study results continue to point to the strength of Energy Trust's brand, and the perception of Energy Trust as neutral, trustworthy and credible among past participants and those less familiar with Energy Trust. The study shows that current strategies, such as expanded online advertising, have been effective and should be continued. It also highlights opportunities to make Energy Trust more "top of mind" with potential customers and the challenge of capturing consumers' attention and countering perceptions relating to the difficulty or cost of energy-saving improvements.

The results point to a continuing need for increased awareness of Energy Trust across a broad residential audience. New tactics to raise awareness and deepen potential customers' knowledge of our offerings, across Energy Trust's service territory, are under consideration, including a general awareness campaign. More sophisticated targeted marketing efforts, utilizing CRM capabilities and new data, will also assist in efforts to increase general awareness and

present the right offer to a customer based on their past participation with Energy Trust or other available characteristics. Expanded educational content and tools on the Energy Trust web site will also help customers identify and select energy improvements.

Survey respondents pointed to the cost of energy-efficiency improvements as a concern. This feedback supports our approach of meeting homeowners where they want to engage and guiding them along a path to improvements over time. The survey recommends using messages that highlight the ease and convenience of working with Energy Trust and elimination of energy waste. It also suggests leveraging contractors as a marketing channel. These recommendations, along with others included in the report, will be considered as residential marketing strategies are developed for 2014.

Energy Trust's Program Marketing Manager for the residential sector and staff in the Communications and Customer Service group will utilize these findings to enhance existing and future marketing efforts. These results will be shared with marketing counterparts at each utility to facilitate customer participation in Energy Trust residential offers.

Finance Committee Meeting

February 7, 2014

The Finance Committee met at 10:00 am on Friday, February 7, 2014 via teleconference.

Present during the meeting were Dan Enloe, Finance Committee chair, Anne Root, board member, Debbie Kitchin, incoming board chair, Dave Slavensky, board member, Margie Harris, Executive Director; Courtney Wilton, CFO; Mark Wyman, program specialist and Savings Within Reach program liaison

Approved December meeting minutes

Review of and discussion of tentative year-end financial statements
Of note:

A. Revenues exceeded costs by $32.2m (vs. deficit of $9m in 2012) – so a swing of $41m to the positive last year. This in turn boosted ending retained earnings from $46m to $78m. Ending reserves of $78m are 48% of annual revenues, or 59% of annual expenditures. We budgeted beginning of year retained earnings at $62.6m.

B. Overall revenues were 11% over last year (from $146m to $163m). Revenue was slightly (2%) under budget with Cascade and NW Natural Demand Side Management (DSM) showing largest negative variances. Other revenues in aggregate were almost right on budget and an overall 2% variance is very close.

C. Program subcontracts (program management contractors or PMC's) ended up only 1% over last year, both at about $45m. Courtney commented that it is because a number of contracts were not awarded the full incentive. Pati mentioned today that total incentives were $1m under full potential.

D. Incentives were down 26% or $23.5m under prior year total ($68m vs. $91m) and 31% under budget.

E. Staffing costs were up over 9% over 2012 (from about $9m to $10m).

F. Professional services were down 25% from 2012 ($6.6m to $4.9m).

G. Overall spending was down 25m or 16% from the prior year, from $155m to $130m.

H. Retained earnings totaled to $77.9m at year end, but this is net of $26.3 in accounts payable, predominantly year-end incentives. End of year cash totaled to about $101m. If costs are down significantly in 2013 and savings up from the prior year, then Courtney suggested we would assume that would mean a significant drop in levelized costs, but will let the experts verify that one.

Audit Status Updates (financial audit / management review)
Of note: External auditors arrive February 17 and the audit committee will meet on March 19 to review a draft of audit statements and ask questions. The final report is scheduled to be presented to the board at the April 2 board meeting. Our management review topics have been

finalized after much interaction with the OPUC, and an RFP to engage a consultant is currently in process. The audit committee and an OPUC representative will be interviewing consultants on March 19. The final management review report is due on August 15.

Review of Investment Policy / Goals
The committee was notified of a change in bank deposit requirement (from 66% of total to $40m and the intent to purchase approximately $20m in commercial paper to generate higher yield and additional interest income. All purchases will be done consistent with the existing investment policy.

Savings Within Reach Loan Program Update
Courtney and Mark Wyman provided an update on Savings Within Reach. The program is about ready to launch and has changed somewhat from when it was first discussed with the committee in May 2012. This is a pilot project seeded with $600k of funds, $300k of which is from Energy Trust. It will hopefully allow us to better reach a market that now is somewhat limited by a lack of participant financing options. Loan repayment will occur via the utility bill. The loans are unsecured and participant incomes are low to moderate. Therefore, there will no doubt be some write-offs incurred. That being said, the losses are not expected to be significant due in part to the utility bill repayment structure and in part to lending practices planned that will mitigate losses including UCC filing and a credit and/or bankruptcy check. Our loan experience will be monitored and tracked to give us an idea on whether it is prudent to expand beyond the pilot.

Senate Bill 844 Update
Margie provided an update on current session legislation, specifically SB 844.

Schedule 2014 meetings / Other
Dan asked that Finance Committee committee meeting dates get finalized. Courtney will follow up. Meeting was adjourned around 11:00 a.m.

Notes on November 2013 Financial Statements

December 18, 2013

Revenue

Consistent with what we've seen throughout 2013, total revenues remain very close (within 1%) to budgeted amounts in aggregate. The Cascade Natural Gas variance will remain at $880K at year end.

Nov-13	YTD Actual	YTD Budget	YTD Var	YTD %
PGE	76,682,830	76,891,106	(208,276)	0%
PAC	47,214,006	46,315,534	898,472	2%
NWN	23,953,427	22,871,298	1,082,129	5%
CNG	1,939,065	2,822,116	(883,051)	-31%
Investment Income	85,638	110,000	(24,362)	-22%
Total	149,874,966	149,010,054	864,912	1%

Reserves

Total Reserves at the end of November for the four major utilities are indicated below. We will see the "hockey stick" impact in December, with substantial increases in spending and decreases in Reserves. It's likely that ending balances will be higher than the budgeted amounts below for the start of 2014.

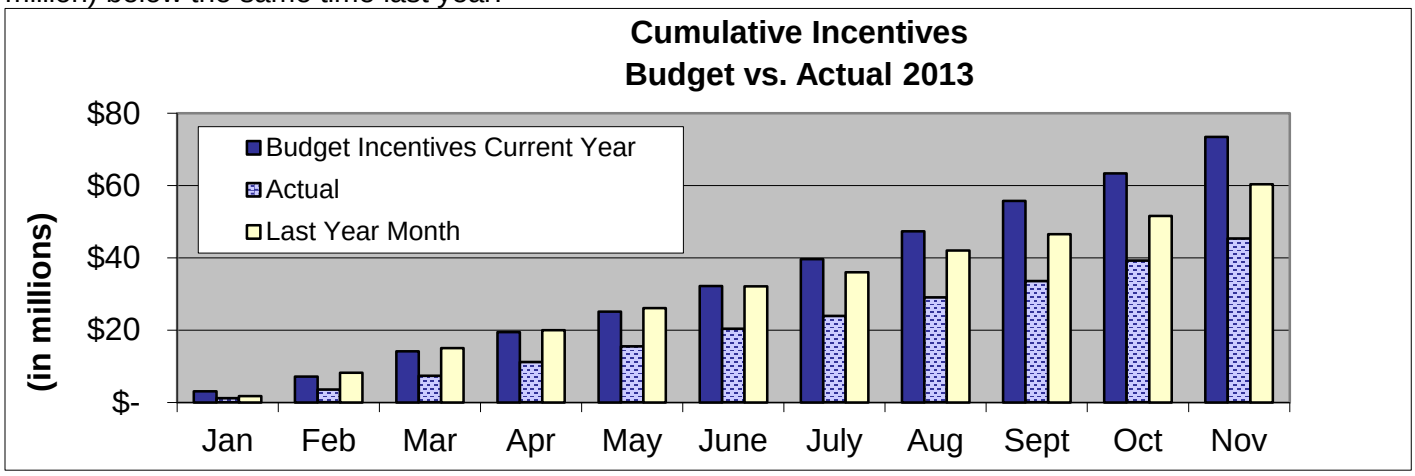
Reserves

	Amount	Anticipated Amount at Year End *
PGE	34,127,198	17,043,968
PacifiCorp	15,565,695	8,084,843
NW Natural	9,151,449	6,457,378
Cascade	792,506	920,517
NWN Industrial	989,100	0
NWN Washington	685,352	337,435
Clark PUD	29,693	0
PGE Renewables	12,265,371	11,146,829
PAC Renewables	11,740,568	10,790,511
Contingency Reserve	5,000,000	5,000,000
Contingency Available	2,565,740	2,828,277
Total	92,912,672	62,609,758

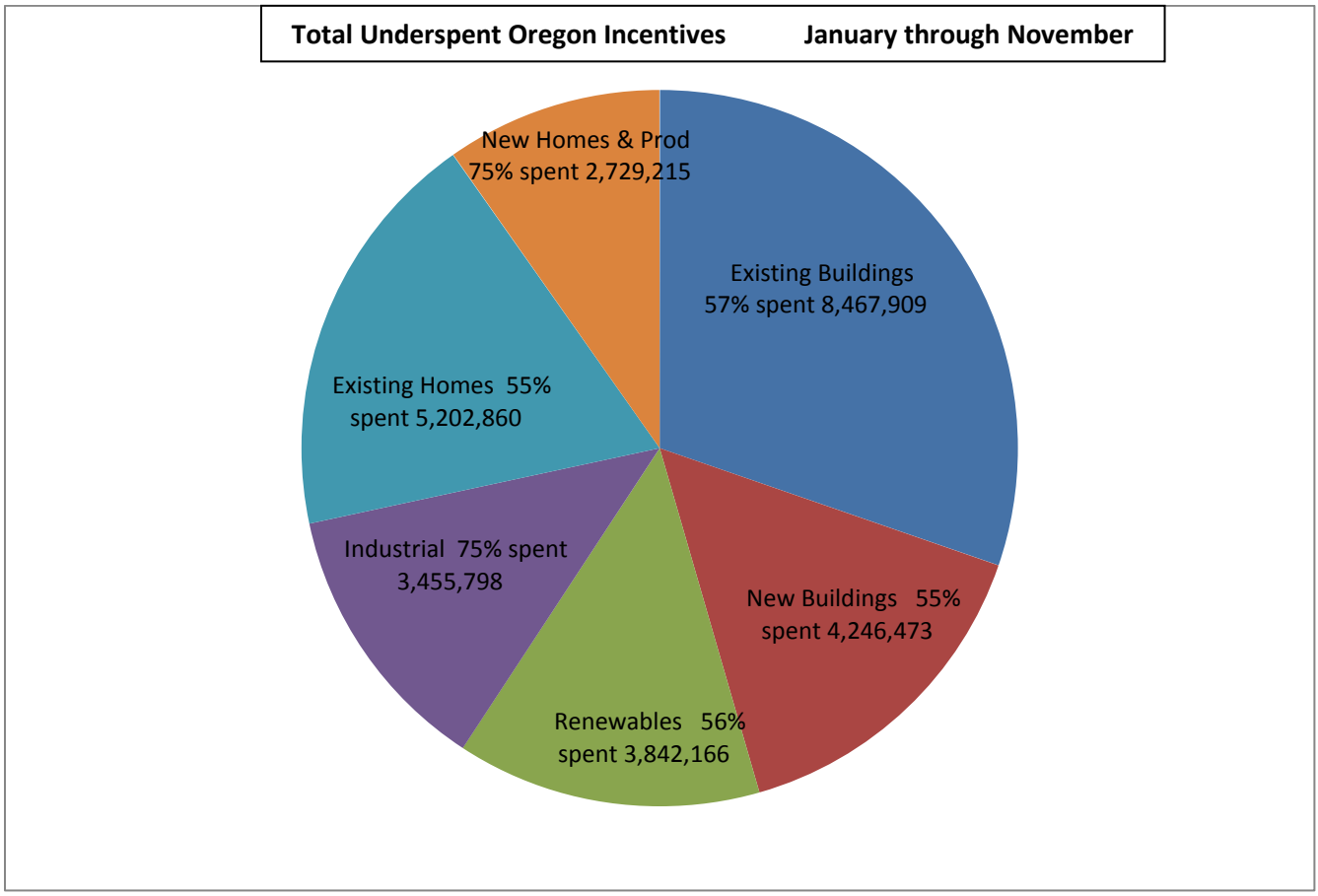
* From 2013 Forecast

Expenses

Total company expenses YTD are $102.7 million, which is $36.6 million less than budgeted spending and $16 million less than prior year at this time. Incentive spending makes up $28 million (77%) of the total amount underspent. Last year incentive spending was underspent by $21 million. $24 million of the $28 million underspent in 2013 is from Efficiency programs. As of November 30, incentive payments are 25% ($15.1 million) below the same time last year.



The following chart shows, by program, the incentive variance (versus budget) for the first eleven months. The % next to the program indicates how much of the current year's budgeted incentives have been spent. New Buildings, for example, has spent 55% of their January to November incentive budget, the remaining unspent 45% totals $4,246,473 of the total incentive spending variance.



Total Incentives
Year-to-Date 2013

Incentives thru Nov 2013	Actual	Budget	Variance	Var %
Existing Buildings	11,060,413	19,528,322	8,467,909	43%
New Buildings	5,083,006	9,329,479	4,246,473	46%
Production Efficiency	9,597,233	13,053,031	3,455,798	26%
Existing Homes	6,244,641	11,447,501	5,202,860	45%
New Homes & Products	8,023,144	10,752,359	2,729,215	25%
Washington Programs - All	326,455	519,644	193,189	37%
Solar	3,427,222	5,208,577	1,781,355	34%
Open Soliciation	411,708	2,222,820	1,811,112	81%
Biopower	1,136,382	1,386,081	249,699	18%
Total Incentives	45,310,204	73,447,812	28,137,607	38%
Energy Efficiency Only	**40,334,892**	**64,630,336**	**24,295,444**	**38%**

Total Incentives
Year-to-Year Comparison

Nov 2013 Year to Year	Current Year	Prior Year	Variance	Var %
Existing Buildings	11,060,413	14,223,179	3,162,766	22%
New Buildings	5,083,006	6,326,247	1,243,241	20%
Production Efficiency	9,597,233	8,991,030	(606,203)	-7%
Existing Homes	6,244,641	9,123,940	2,879,299	32%
New Homes & Products	8,023,144	8,292,004	268,860	3%
Washington Programs - All	326,455	361,801	35,346	10%
Solar	3,427,222	11,225,814	7,798,592	69%
Open Soliciation	411,708	894,189	482,481	54%
Biopower	1,136,382	972,740	(163,642)	-17%
Total Incentives	45,310,204	60,410,940	15,100,736	25%
Energy Efficiency Only	**40,334,892**	**47,318,201**	**6,983,309**	**15%**

Energy Trust of Oregon, Inc
BALANCE SHEET
November 30, 2013
(Unaudited)

	NOV 2013	OCT 2013	DEC 2012	NOV 2012	Change from one month ago	Change from Beg. of Year	Change from one year ago
Current Assets							
Cash & Cash Equivalents	95,297,836	92,847,355	64,005,605	75,188,094	2,450,481	31,292,230	20,109,742
Restricted Cash (Escrow Funds)	252,735	252,728	462,692	462,664	8	(209,956)	(209,929)
Investments	5,979,054	5,977,681	0	0	1,373	5,979,054	5,979,054
Receivables	47,652	4,314	123,795	60,267	43,339	(76,142)	(12,615)
Prepaid Expenses	456,235	553,744	265,829	319,548	(97,508)	190,406	136,687
Advances to Vendors	1,214,633	2,027,916	2,109,014	1,191,923	(813,284)	(894,381)	22,710
Total Current Assets	**103,248,145**	**101,663,737**	**66,966,935**	**77,222,497**	**1,584,409**	**36,281,211**	**26,025,648**
Fixed Assets							
Computer Hardware and Software	1,401,967	1,401,967	1,347,388	1,335,329	0	54,579	66,639
Leasehold Improvements	313,333	313,333	287,385	287,385	0	25,948	25,948
Office Equipment and Furniture	600,662	600,662	600,662	600,662	0	0	0
Total Fixed Assets	**2,315,962**	**2,315,962**	**2,235,435**	**2,223,376**	**0**	**80,527**	**92,587**
Less Depreciation	(1,473,054)	(1,445,613)	(1,183,098)	(1,155,828)	(27,441)	(289,955)	(317,225)
Net Fixed Assets	**842,909**	**870,349**	**1,052,337**	**1,067,547**	**(27,441)**	**(209,428)**	**(224,639)**
Other Assets							
Rental Deposit	61,461	61,461	64,461	64,461	0	(3,000)	(3,000)
Deferred Compensation Asset	476,258	472,262	409,369	366,794	3,997	66,889	109,465
Total Other Assets	**537,720**	**533,723**	**473,830**	**431,255**	**3,997**	**63,889**	**106,465**
Total Assets	**104,628,774**	**103,067,809**	**68,493,102**	**78,721,299**	**1,560,965**	**36,135,672**	**25,907,474**
Current Liabilities							
Accounts Payable and Accruals	10,225,636	8,350,108	21,430,138	7,663,521	1,875,527	(11,204,502)	2,562,114
Deposits Held for Others	(0)	(0)	49,433	50,508	0	(49,433)	(50,508)
Salaries, Taxes, & Benefits Payable	647,384	630,720	585,703	594,313	16,664	61,681	53,071
Total Current Liabilities	**10,873,020**	**8,980,828**	**22,065,273**	**8,308,342**	**1,892,192**	**(11,192,254)**	**2,564,677**
Long Term Liabilities							
Deferred Rent	365,314	361,489	323,237	319,412	3,825	42,077	45,902
Deferred Compensation Payable	476,258	472,262	409,369	366,794	3,997	66,889	109,465
Other Long-Term Liabilities	6,890	6,690	13,674	12,754	200	(6,784)	(5,864)
Total Long-Term Liabilities	**848,462**	**840,440**	**746,279**	**698,959**	**8,022**	**102,183**	**149,503**
Total Liabilities	**11,721,481**	**9,821,268**	**22,811,553**	**9,007,301**	**1,900,214**	**(11,090,071)**	**2,714,180**
Net Assets							
Temporarily Restricted Net Assets	252,735	252,728	462,692	462,664	8	(209,956)	(209,929)
Unrestricted Net Assets	92,654,557	92,993,814	45,218,858	69,251,334	(339,257)	47,435,699	23,403,223
Total Net Assets	**92,907,292**	**93,246,541**	**45,681,549**	**69,713,998**	**(339,249)**	**47,225,743**	**23,193,294**
Total Liabilities and Net Assets	**104,628,774**	**103,067,809**	**68,493,102**	**78,721,299**	**1,560,965**	**36,135,672**	**25,907,474**

BS-Acct-YTD-001

Energy Trust of Oregon
Cash Flow Statement-Indirect Method
Monthly 2013

	January	February	March	April	May	June	July	August	September	October	November	Year to Date
Operating Activities:												
Revenue less Expenses	$ 10,219,705	10,927,972	7,324,090	5,958,617	2,986,589	1,606,211	3,378,918	1,299,737	2,025,203	1,837,954	(339,249)	$ 47,225,746
Non-cash items:												
Depreciation	27,270	27,452	28,129	27,410	27,977	27,977	27,977	27,977	27,224	27,633	27,441	$ 304,466
Loss on disposal of assets												$ -
Receivables	53,256	66,082	35	(5,470)	(0)	0	(0)	5,470	-	-	(43,760)	$ 75,614
Interest Receivable	546	129	(496)	1,647	(518)	465	(590)	(787)	(701)	414	422	$ 530
Advances to Vendors	705,543	733,344	(1,456,911)	410,950	709,011	(1,307,397)	560,532	771,490	(1,457,405)	411,934	813,282	$ 894,373
Prepaid expenses and other costs	(559,565)	51,323	(82,665)	(46,877)	(9,774)	79,710	21,907	115,575	72,201	70,250	97,509	$ (190,406)
Accounts payable	(14,214,238)	1,481,611	(2,237,661)	700,669	(1,049,325)	1,129,368	(575,269)	(2,068,026)	2,665,392	1,038,017	1,875,528	$ (11,253,934)
Payroll and related accruals	16,657	39,359	5,770	21,984	25,790	9,262	(20,993)	(13,137)	(476)	23,694	20,660	$ 128,570
Deferred rent and other	(271)	(1,101)	(1,829)	(1,217)	(1,318)	(2,289)	(5,128)	(1,689)	(13,681)	(102)	28	$ (28,597)
Cash rec'd from / (used in) Operating Activities	(3,751,097)	13,326,171	3,578,462	7,067,713	2,688,432	1,543,307	3,387,353	136,609	3,317,756	3,409,795	2,451,861	$ 37,156,361
Investing Activities:												
Purchase of Investments Held to Maturity					(4,980,004)	(53)	(306)	(995,650)	(138)	(1,530)	(1,373)	$ (5,979,054)
(Acquisition)/Disposal of Capital Assets	-	(6,570)	(25,948)	-	(29,420)		-	-	(9,100)	(24,000)	-	$ (95,038)
Cash rec'd from / (used in) Investing Activities	-	(6,570)	(25,948)	-	(5,009,424)	(53)	(306)	(995,650)	(9,238)	(25,530)	(1,373)	$ (6,074,092)
Cash at beginning of Period	64,468,299	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,301	89,715,821	93,100,082	$ 64,468,299
Increase/(Decrease) in Cash	(3,751,097)	13,319,602	3,552,516	7,067,713	(2,320,992)	1,543,255	3,387,048	(859,040)	3,308,520	3,384,261	2,450,485	$ 31,082,269
Cash at end of period	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,301	89,715,821	93,100,082	95,550,571	$ 95,550,568

Energy Trust of Oregon
Cash Flow Projection
January 2013 - December 2014

	Actual											2013 Forecast
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	15,975,013	18,276,561	16,633,304	14,890,395	12,680,595	11,539,660	11,696,383	11,708,822	11,844,446	12,995,288	11,548,862	16,200,000
From other sources	53,256	66,082	35	(4,540)	(0)	0	(0)	5,470	-	12,500	(43,760)	
Investment Income	7,847	6,746	7,212	9,359	6,368	6,941	7,176	6,980	7,469	10,189	9,879	(1,000)
Total cash in	16,036,116	18,349,389	16,640,551	14,895,214	12,686,963	11,546,601	11,703,559	11,721,272	11,851,915	13,017,977	11,514,981	16,199,000
Cash Out:	19,787,213	5,029,788	13,088,038	7,827,499	15,007,955	10,003,347	8,316,510	12,580,315	8,543,395	9,633,713	9,064,491	24,200,000
Net cash flow for the month	(3,751,097)	13,319,601	3,552,516	7,067,718	(2,320,989)	1,543,254	3,387,048	(859,044)	3,308,520	3,384,264	2,450,490	(8,001,000)
Beginning Balance: Cash & MM	64,468,299	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,299	89,715,819	93,100,082	95,550,571
Ending cash & MM	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,299	89,715,819	93,100,082	95,550,571	87,549,571
Dedicated funds Adjustment	(10,600,000)	(10,600,000)	(7,900,000)	(8,100,000)	(8,400,000)	(13,300,000)	(13,300,000)	(13,300,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)
Committed Funds Adjustment	(37,200,000)	(40,000,000)	(33,900,000)	(46,300,000)	(45,800,000)	(41,200,000)	(39,900,000)	(39,600,000)	(45,200,000)	(45,200,000)	(45,200,000)	(36,400,000)
Cash Reserve	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)
Ending Cash & MM, adj by Above	**6,717,202**	**17,236,802**	**29,589,318**	**24,057,031**	**21,936,047**	**23,179,294**	**27,866,342**	**27,307,299**	**27,615,819**	**31,000,082**	**33,450,571**	**34,249,571**
Escrow Cash Balance												
Beginning Balance	462,692	381,052	381,090	381,118	252,683	252,690	252,697	252,704	252,712	252,720	252,728	252,735
Net Escrow (Payments)/Funding	(81,682)		-	(128,457)								(174,743)
Interest Paid on Escrow Balances	42	38	28	22	7	7	7	8	8	8	7	7
Ending Escrow Balance1	381,052	381,090	381,118	252,683	252,690	252,697	252,704	252,712	252,720	252,728	252,735	78,001

1Included in "Ending cash & MM" above

Dedicated funds adjustment: reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements
Committed funds adjustment: reduction in available cash for commitments to Efficiency program projects with signed agreements
Cash reserve: reduction in available cash to cover cashflow variability and winter revenue risk
Escrow: dedicated funds set aside in separate bank accounts

Energy Trust of Oregon
Cash Flow Projection
January 2013 - December 2014

	2014 Round 2 Budget											
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	16,000,000	16,500,000	15,800,000	14,800,000	12,300,000	11,400,000	12,600,000	11,600,000	11,200,000	13,300,000	12,300,000	15,000,000
From other sources												
Investment Income	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Total cash in	16,007,000	16,507,000	15,807,000	14,807,000	12,307,000	11,407,000	12,607,000	11,607,000	11,207,000	13,307,000	12,307,000	15,007,000
Cash Out:	32,100,000	9,600,000	12,400,000	11,600,000	10,600,000	13,500,000	12,700,000	10,500,000	14,600,000	13,600,000	13,300,000	26,900,000
Net cash flow for the month	(16,093,000)	6,907,000	3,407,000	3,207,000	1,707,000	(2,093,000)	(93,000)	1,107,000	(3,393,000)	(293,000)	(993,000)	(11,893,000)
Beginning Balance: Cash & MM	87,549,571	71,456,571	78,363,571	81,770,571	84,977,571	86,684,571	84,591,571	84,498,571	85,605,571	82,212,571	81,919,571	80,926,571
Ending cash & MM	71,456,571	78,363,571	81,770,571	84,977,571	86,684,571	84,591,571	84,498,571	85,605,571	82,212,571	81,919,571	80,926,571	69,033,571
Dedicated funds Adjustment	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)	(11,900,000)
Committed Funds Adjustment	(38,800,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)	(41,300,000)
Cash Reserve	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)
Ending Cash & MM, adj by Above	**15,756,571**	**20,163,571**	**23,570,571**	**26,777,571**	**28,484,571**	**26,391,571**	**26,298,571**	**27,405,571**	**24,012,571**	**23,719,571**	**22,726,571**	**10,833,571**
Escrow Cash Balance												
Beginning Balance	78,001	78,009	78,017	-	-	-	-	-	-	-	-	-
Net Escrow (Payments)/Funding			(78,017)									
Interest Paid on Escrow Balances	7	7	-	-	-	-	-	-	-	-	-	0
Ending Escrow Balance1	78,008	78,016	-	-	-	-	-	-	-	-	-	0

1Included in "Ending cash & MM" above

Dedicated funds adjustment: reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements
Committed funds adjustment: reduction in available cash for commitments to Efficiency program projects with signed agreements
Cash reserve: reduction in available cash to cover cashflow variability and winter revenue risk
Escrow: dedicated funds set aside in separate bank accounts

Energy Trust of Oregon, Inc
INCOME STATEMENT - ACTUAL AND PRIOR YR COMPARISON
For the Eleven Months Ending November 30, 2013
(Unaudited)

	November				YTD			
	Actual	Actual Prior Year	Prior Year Variance	Variance %	Actual	Actual Prior Year	Prior Year Variance	Variance %
REVENUES								
Public Purpose Funds-PGE	2,591,536	2,734,836	(143,300)	(5%)	31,568,502	33,294,713	(1,726,211)	(5%)
Public Purpose Funds-PacifiCorp	1,942,160	1,846,953	95,207	5%	23,674,517	23,146,309	528,208	2%
Public Purpose Funds-NW Natural	1,260,462	708,672	551,790	78%	20,934,487	15,673,604	5,260,883	34%
Public Purpose Funds-Cascade	252,457	89,103	163,354	183%	1,939,065	1,179,723	759,342	64%
Public Purpose Funds-Avista					0	(25,458)	25,458	100%
Total Public Purpose Funds	**6,046,614**	**5,379,564**	**667,050**	**12%**	**78,116,571**	**73,268,890**	**4,847,681**	**7%**
Incremental Funds - PGE	3,631,928	3,016,798	615,130	20%	45,114,328	36,336,728	8,777,601	24%
Incremental Funds - PacifiCorp	1,870,319	1,700,429	169,889	10%	23,539,489	21,676,043	1,863,446	9%
NW Natural - Industrial DSM					1,727,838	1,076,344	651,494	61%
NW Natural - Washington					1,291,102	1,261,914	29,188	2%
Consumer Owned Electric	0	42,180	(42,180)	(100%)	0	57,646	(57,646)	(100%)
Contributions	0	25	(25)	(100%)	13,430	30,515	(17,085)	(56%)
Revenue from Investments	9,457	7,437	2,020	27%	85,638	126,015	(40,377)	(32%)
TOTAL REVENUE	**11,558,318**	**10,146,434**	**1,411,884**	**14%**	**149,888,397**	**133,837,351**	**16,051,046**	**12%**
EXPENSES								
Program Subcontracts	4,400,393	4,137,793	(262,599)	(6%)	41,668,305	41,442,386	(225,920)	(1%)
Incentives	6,071,240	8,826,823	2,755,583	31%	45,310,203	60,410,943	15,100,740	25%
Salaries and Related Expenses	819,553	748,857	(70,696)	(9%)	8,862,439	8,143,549	(718,890)	(9%)
Professional Services	420,231	475,932	55,701	12%	4,437,932	6,012,067	1,574,135	26%
Supplies	3,096	6,970	3,875	56%	28,164	64,889	36,726	57%
Telephone	4,409	4,751	343	7%	48,845	43,475	(5,370)	(12%)
Postage and Shipping Expenses	653	1,299	646	50%	8,839	11,274	2,435	22%
Occupancy Expenses	54,407	54,325	(82)	(0%)	608,502	575,800	(32,702)	(6%)
Noncapitalized Equip. & Depr.	47,725	43,305	(4,420)	(10%)	576,546	1,292,032	715,486	55%
Call Center	32,712	15,861	(16,851)	(106%)	542,950	193,847	(349,104)	(180%)
Printing and Publications	7,517	5,052	(2,465)	(49%)	102,210	111,169	8,959	8%
Travel	4,646	15,251	10,605	70%	121,893	113,097	(8,796)	(8%)
Conference, Training & Mtng Exp	6,885	5,390	(1,496)	(28%)	114,412	116,472	2,060	2%
Interest Expense and Bank Fees	0	30	30	100%	5,443	5,030	(413)	(8%)
Insurance	8,622	7,800	(822)	(11%)	91,554	84,826	(6,727)	(8%)
Miscellaneous Expenses	0	3,055	3,055	100%	1,090	34,665	33,575	97%
Dues, Licenses and Fees	15,478	17,055	1,577	9%	133,327	133,050	(277)	(0%)
TOTAL EXPENSES	**11,897,567**	**14,369,550**	**2,471,984**	**17%**	**102,662,654**	**118,788,570**	**16,125,916**	**14%**
TOTAL REVENUE LESS EXPENSES	**(339,249)**	**(4,223,117)**	**3,883,868**	**92%**	**47,225,743**	**15,048,781**	**32,176,962**	**214%**

Energy Trust of Oregon, Inc
INCOME STATEMENT - ACTUAL AND YTD BUDGET COMPARISON
For the Eleven Months Ending November 30, 2013
(Unaudited)

	November				YTD			
	Actual	**Budget**	**Budget Variance**	**Variance %**	**Actual**	**Budget**	**Budget Variance**	**Variance %**
REVENUES								
Public Purpose Funds-PGE	2,591,536	2,426,618	164,918	7%	31,568,502	31,189,715	378,787	1%
Public Purpose Funds-PacifiCorp	1,942,160	2,150,426	(208,267)	(10%)	23,674,517	23,010,913	663,604	3%
Public Purpose Funds-NW Natural	1,260,462	992,500	267,962	27%	20,934,487	19,986,141	948,346	5%
Public Purpose Funds-Cascade	252,457	213,151	39,306	18%	1,939,065	2,822,116	(883,050)	(31%)
Total Public Purpose Funds	**6,046,614**	**5,782,696**	**263,919**	**5%**	**78,116,571**	**77,008,885**	**1,107,686**	**1%**
Incremental Funds - PGE	3,631,928	4,370,388	(738,460)	(17%)	45,114,328	45,701,391	(587,063)	(1%)
Incremental Funds - PacifiCorp	1,870,319	2,195,968	(325,650)	(15%)	23,539,489	23,304,621	234,869	1%
NW Natural - Industrial DSM					1,727,838	1,594,055	133,783	8%
NW Natural - Washington					1,291,102	1,291,102	0	0%
Contributions					13,430	0	13,430	
Revenue from Investments	9,457	10,000	(543)	(5%)	85,638	110,000	(24,362)	(22%)
TOTAL REVENUE	**11,558,318**	**12,359,052**	**(800,734)**	**(6%)**	**149,888,397**	**149,010,054**	**878,343**	**1%**
EXPENSES								
Program Subcontracts	4,400,393	4,203,694	(196,699)	(5%)	41,668,305	43,465,168	1,796,862	4%
Incentives	6,071,240	10,022,868	3,951,628	39%	45,310,203	73,447,814	28,137,612	38%
Salaries and Related Expenses	819,553	848,194	28,642	3%	8,862,439	9,777,102	914,663	9%
Professional Services	420,231	708,762	288,531	41%	4,437,932	9,374,990	4,937,059	53%
Supplies	3,096	10,354	7,258	70%	28,164	113,890	85,727	75%
Telephone	4,409	4,453	44	1%	48,845	50,093	1,248	2%
Postage and Shipping Expenses	653	833	180	22%	8,839	9,167	328	4%
Occupancy Expenses	54,407	58,434	4,026	7%	608,502	642,769	34,267	5%
Noncapitalized Equip. & Depr.	47,725	74,250	26,525	36%	576,546	839,621	263,074	31%
Call Center	32,712	44,917	12,205	27%	542,950	494,083	(48,867)	(10%)
Printing and Publications	7,517	17,112	9,595	56%	102,210	188,237	86,027	46%
Travel	4,646	14,682	10,036	68%	121,893	194,152	72,259	37%
Conference, Training & Mtng Exp	6,885	34,507	27,622	80%	114,412	377,307	262,895	70%
Interest Expense and Bank Fees	0	625	625	100%	5,443	6,875	1,432	21%
Insurance	8,622	9,167	545	6%	91,554	100,833	9,280	9%
Miscellaneous Expenses	0	225	225	100%	1,090	2,475	1,385	56%
Dues, Licenses and Fees	15,478	17,720	2,242	13%	133,327	160,165	26,838	17%
TOTAL EXPENSES	**11,897,567**	**16,070,797**	**4,173,230**	**26%**	**102,662,654**	**139,244,743**	**36,582,089**	**26%**
TOTAL REVENUE LESS EXPENSES	**(339,249)**	**#########**	**3,372,496**	**91%**	**47,225,743**	**9,765,311**	**37,460,432**	**384%**

Energy Trust of Oregon, Inc
Statement of Functional Expenses
For the Eleven Months Ending November 30, 2013

	Energy Efficiency	Renewable Energy	Total Program Expenses	Management & General	Communications & Customer Service	Total Admin Expenses	Total	Budget	Variance	Var %
Program Expenses										
Incentives/ Program Management & Deliver	81,858,539	5,119,969	86,978,508			0	86,978,508	116,912,983	29,934,475	26%
Payroll and Related Expenses	2,582,312	762,432	3,344,744	1,746,029	798,148	2,544,177	5,888,921	6,156,132	267,211	4%
Outsourced Services	2,990,150	358,394	3,348,544	137,808	468,334	606,142	3,954,686	7,845,257	3,890,571	50%
Planning and Evaluation	1,708,019	77,118	1,785,137			0	1,785,137	2,447,840	662,703	27%
Customer Service Management	926,962	20,879	947,841			0	947,841	949,752	1,911	0%
Trade Allies Network	315,320	14,271	329,591			0	329,591	402,306	72,715	18%
Total Program Expenses	**90,381,302**	**6,353,063**	**96,734,365**	**1,883,837**	**1,266,481**	**3,150,318**	**99,884,683**	**134,714,270**	**34,829,587**	**26%**
Program Support Costs										
Supplies	7,351	2,142	9,493	8,265	2,880	11,145	20,638	71,904	51,266	71%
Postage and Shipping Expenses	3,267	778	4,045	1,460	739	2,199	6,244	7,199	955	13%
Telephone	2,908	1,393	4,301	1,531	741	2,272	6,573	6,027	(546)	-9%
Printing and Publications	85,996	4,986	90,982	663	6,247	6,910	97,892	181,113	83,221	46%
Occupancy Expenses	187,916	58,703	246,619	109,120	55,758	164,878	411,497	411,398	(99)	0%
Insurance	28,381	8,866	37,247	16,480	8,421	24,901	62,148	64,759	2,611	4%
Equipment	17,851	30,767	48,618	5,020	2,565	7,585	56,203	21,935	(34,268)	-156%
Travel	39,868	15,641	55,509	18,599	4,035	22,634	78,143	143,644	65,501	46%
Meetings, Trainings & Conferences	25,521	10,573	36,094	22,850	5,297	28,147	64,241	267,882	203,641	76%
Interest Expense and Bank Fees		100	100	5,343		5,343	5,443	6,875	1,432	21%
Depreciation & Amortization	46,373	16,418	62,791	26,928	13,760	40,688	103,479	94,572	(8,907)	-9%
Dues, Licenses and Fees	74,735	16,239	90,974	4,200	2,722	6,922	97,896	84,113	(13,783)	-16%
Miscellaneous Expenses	1,072		1,072	18		18	1,090	1,655	565	34%
IT Services	1,247,908	146,898	1,394,806	248,881	122,792	371,673	1,766,479	3,167,394	1,400,915	44%
Total Program Support Costs	**1,769,147**	**313,504**	**2,082,651**	**469,359**	**225,959**	**695,318**	**2,777,969**	**4,530,470**	**1,752,501**	**39%**
TOTAL EXPENSES	**92,150,449**	**6,666,568**	**98,817,017**	**2,353,195**	**1,492,440**	**3,845,635**	**102,662,654**	**139,244,740**	**36,582,086**	**26%**
OPUC measure vs. 9%	**3.96%**									

Exp-Acct-YTD-002

Energy Trust of Oregon, Inc
Year to Date by Program/Service Territory
For the Eleven Months Ending November 30, 2013
(Unaudited)

	ENERGY EFFICIENCY										
	PGE	**PacifiCorp**	**Total**	**NWN Industrial**	**NW Natural**	**Cascade**	**Oregon Total**	**Clark PUD WA**	**NWN WA**	**WA Total**	**ETO Total**
REVENUES											
Public Purpose Funding	$24,391,390	$18,412,675	$42,804,065		$20,934,487	$1,939,065	$65,677,617				$65,677,617
Incremental Funding	45,114,328	23,539,489	68,653,817	1,727,838			70,381,655		1,291,102	1,291,102	71,672,757
Contributions											
Revenue from Investments											
TOTAL PROGRAM REVENUE	**69,505,718**	**41,952,164**	**111,457,882**	**1,727,838**	**20,934,487**	**1,939,065**	**136,059,272**		**1,291,102**	**1,291,102**	**137,350,374**
EXPENSES											
Program Management (Note 3)	2,231,211	1,420,294	3,651,505	109,076	886,462	70,547	4,717,589	2,027	161,874	163,901	4,881,490
Program Delivery	17,986,562	12,099,895	30,086,457	461,138	4,598,110	377,517	35,523,222	4,232	281,338	285,570	35,808,792
Incentives	20,671,535	11,477,348	32,148,883	1,110,515	6,249,307	499,731	40,008,436	16,065	310,390	326,455	40,334,891
Program Eval & Planning Svcs.	1,402,270	900,484	2,302,754	38,352	537,079	37,740	2,915,925	879	32,393	33,272	2,949,197
Program Marketing/Outreach	2,025,896	1,359,135	3,385,032	18,823	1,077,702	69,131	4,550,687	0	48,017	48,017	4,598,704
Program Quality Assurance	26,822	29,140	55,961	0	36,002	1,368	93,331	0	0	0	93,331
Outsourced Services	202,540	148,620	351,160	2,739	112,844	5,874	472,617	0	0	0	472,617
Trade Allies & Cust. Svc. Mgmt.	321,530	251,663	573,193	3,414	245,440	13,370	835,418	601	22,043	22,644	858,062
IT Services	548,038	366,074	914,112	13,665	268,981	16,948	1,213,707	856	33,345	34,201	1,247,908
Other Program Expenses	349,529	268,208	617,738	11,944	230,010	11,384	871,077	782	33,602	34,384	905,461
TOTAL PROGRAM EXPENSES	**45,765,933**	**28,320,862**	**74,086,795**	**1,769,667**	**14,241,937**	**1,103,610**	**91,202,009**	**25,441**	**923,003**	**948,444**	**92,150,449**
ADMINISTRATIVE COSTS											
Management & General (Notes 1 & 2)	1,089,855	674,424	1,764,279	42,142	339,153	26,281	2,171,855	606	21,980	22,586	2,194,441
Communications & Customer Svc (Notes 1 & 2)	691,207	427,733	1,118,940	26,727	215,097	16,668	1,377,432	384	13,941	14,325	1,391,757
Total Administrative Costs	**1,781,062**	**1,102,156**	**2,883,218**	**68,870**	**554,250**	**42,949**	**3,549,287**	**990**	**35,921**	**36,911**	**3,586,198**
TOTAL PROG & ADMIN EXPENSES	**47,546,995**	**29,423,015**	**76,970,010**	**1,838,538**	**14,796,186**	**1,146,558**	**94,751,292**	**26,431**	**958,922**	**985,353**	**95,736,645**
TOTAL REVENUE LESS EXPENSES	**21,958,723**	**12,529,149**	**34,487,872**	**(110,700)**	**6,138,301**	**792,507**	**41,307,980**	**(26,431)**	**332,180**	**305,749**	**41,613,729**
Cumulative Carryover at 12/31/12	12,168,475	3,036,549	15,205,024	1,099,798	3,013,149	(392,281)	18,925,690	50,734	353,174	403,908	19,329,598
Change in net assets this year	21,958,723	12,529,149	34,487,872	(110,700)	6,138,301	792,507	41,307,980	(26,431)	332,180	305,749	41,613,729
Interest Attributed						392,281	392,281				392,281
Ending Net Assets - Reserves	**34,127,198**	**15,565,695**	**49,692,893**	**989,100**	**9,151,449**	**792,506**	**60,625,947**	**24,303**	**685,352**	**709,655**	**0** **61,335,602**
Ending Reserve by Category											
Program Reserves (Efficiency and Renewables)	34,127,198	15,565,695	49,692,893	989,100	9,151,449	792,506	60,625,947	24,303	685,352	709,655	61,335,602
Interest Attributed						392,281	392,281				392,281
Organization Continegency Pool											
Emergency Continengency Pool											
TOTAL NET ASSETS CUMULATIVE	**34,127,198**	**15,565,695**	**49,692,893**	**989,100**	**9,151,449**	**1,184,787**	**61,018,228**	**24,303**	**685,352**	**709,655**	**61,727,883**

Note 1) Both Management & General and Communications & Customer Service Expenses (Administrative) have been allocated based on total expenses.
Note 2) Administrative costs are allocated for management reporting only. GAAP for Not for Profit organizations does not allow allocation of administrative costs to program expenses.
Note 3) Program Management costs include both outsourced and internal staff.

Energy Trust of Oregon, Inc
Year to Date by Program/Service Territory
For the Eleven Months Ending November 30, 2013
(Unaudited)

	RENEWABLE ENERGY				TOTAL			
	PGE	PacifiCorp	Total	Other	All Programs	Approved budget	Change	% Change
REVENUES								
Public Purpose Funding	$7,177,112	$5,261,842	$12,438,954		$78,116,571	$77,008,885	$1,107,686	1%
Incremental Funding					71,672,758	71,891,169	(218,412)	0%
Contributions				13,430	13,430		13,430	
Revenue from Investments				85,638	85,638	110,000	(24,362)	-22%
TOTAL PROGRAM REVENUE	**7,177,112**	**5,261,842**	**12,438,954**	**99,068**	**149,888,397**	**149,010,054**	**878,342**	**1%**
EXPENSES								
Program Management (Note 3)	298,873	463,560	762,433		5,643,923	5,669,914	25,991	0%
Program Delivery	70,084	74,575	144,659		35,953,451	38,173,182	2,219,731	6%
Incentives	2,816,339	2,158,973	4,975,312		45,310,203	73,447,814	28,137,611	38%
Program Eval & Planning Svcs.	32,788	44,330	77,118		3,026,315	4,947,828	1,921,513	39%
Program Marketing/Outreach	61,465	38,267	99,732		4,698,436	4,733,275	34,839	1%
Program Quality Assurance	1,621	0	1,621		94,952	243,750	148,798	61%
Outsourced Services	125,946	131,096	257,042		729,659	2,198,102	1,468,443	67%
Trade Allies & Cust. Svc. Mgmt.	21,261	13,848	35,109		893,171	986,308	93,137	9%
IT Services	63,390	83,508	146,898		1,394,806	2,501,360	1,106,554	44%
Other Program Expenses	82,053	84,597	166,650		1,072,111	1,135,192	63,081	6%
TOTAL PROGRAM EXPENSES	**3,573,820**	**3,092,754**	**6,666,568**		**98,817,017**	**134,036,725**	**35,219,698**	**26%**
ADMINISTRATIVE COSTS								
Management & General (Notes 1 & 2)	82,183	76,572	158,755		2,353,195	3,193,189	839,993	26%
Communications & Customer Svc (Notes 1 & 2)	52,122	48,563	100,685		1,492,440	2,014,827	522,385	26%
Total Administrative Costs	**134,305**	**125,135**	**259,440**		**3,845,638**	**5,208,016**	**1,362,378**	**26%**
TOTAL PROG & ADMIN EXPENSES	**3,708,124**	**3,217,888**	**6,926,012**		**102,662,654**	**139,244,743**	**36,582,089**	**26%**
TOTAL REVENUE LESS EXPENSES	**3,468,988**	**2,043,954**	**5,512,942**	**99,068**	**47,225,743**	**9,765,311**	**37,460,432**	**384%**
Cumulative Carryover at 12/31/12	8,796,384	9,696,615	18,492,999	7,858,953	45,681,550	37,070,557	8,610,993	23%
Change in net assets this year	3,468,988	2,043,954	5,512,942	99,068	47,225,743	9,765,311	37,460,432	384%
Interest Attributed				(392,281)				
Ending Net Assets - Reserves	**12,265,371**	**11,740,568**	**24,005,939**	**7,565,740**	**92,907,292**	**46,835,870**	**46,071,422**	**98%**
Ending Reserve by Category								
Program Reserves (Efficiency and Renewables)	12,265,371	11,740,568	24,005,939		85,341,552	46,835,868	38,505,684	82%
Interest Attributed				(392,281)	0		0	
Organization Continegency Pool				2,565,740	2,565,740		2,565,740	
Emergency Continengency Pool				5,000,000	5,000,000		5,000,000	
TOTAL NET ASSETS CUMULATIVE	**12,265,371**	**11,740,568**	**24,005,939**	**7,565,740**	**92,907,292**	**46,835,868**	**46,071,424**	**98%**

Note 1) Both Management & General and Communications & Customer Service Expenses (Administrative) have been allocated based on total expenses.
Note 2) Administrative costs are allocated for management reporting only. GAAP for Not for Profit organizations does not allow allocation of administrative costs to program expenses.
Note 3) Program Management costs include both outsourced and internal staff.

Energy Trust of Oregon, Inc
Program Expense by Service Territory
For the Eleven Months Ending November 30, 2013
(Unaudited)

	PGE	Pacific Power	Subtotal Elec.	NWN Industrial	NW Natural Gas	Cascade	Subtotal Gas	Oregon Total	Clark PUD WA	NWN WA	Total WA	ETO Total	YTD Budget	Variance	% Var
Energy Efficiency															
Commercial															
Existing Buildings	13,085,259	7,015,782	20,101,041	300,244	3,288,237	315,421	3,903,902	24,004,943	26,431	387,109	413,540	24,418,483	34,682,358	10,263,875	30%
New Buildings	6,386,747	3,317,454	9,704,201	58,946	846,389	95,370	1,000,705	10,704,906				10,704,906	16,080,103	5,375,197	33%
NEEA	1,504,565	1,135,022	2,639,587					2,639,587				2,639,587	2,762,671	123,084	4%
Total Commercial	**20,976,571**	**11,468,258**	**32,444,829**	**359,190**	**4,134,626**	**410,791**	**4,904,607**	**37,349,436**	**26,431**	**387,109**	**413,540**	**37,762,976**	**53,525,132**	**15,762,156**	**29%**
Industrial															
Production Efficiency	11,085,713	6,051,141	17,136,854	1,479,348	491,727	94,132	2,065,207	19,202,061				19,202,061	23,611,342	4,409,281	19%
NEEA	707,803	533,955	1,241,758					1,241,758				1,241,758	1,405,709	163,951	12%
Total Industrial	**11,793,516**	**6,585,096**	**18,378,612**	**1,479,348**	**491,727**	**94,132**	**2,065,207**	**20,443,819**				**20,443,819**	**25,017,051**	**4,573,232**	**18%**
Residential															
Existing Homes	5,050,201	5,486,617	10,536,818		6,777,502	257,550	7,035,052	17,571,870		331,199	331,199	17,903,069	24,723,520	6,820,451	28%
New Homes/Products	7,517,094	4,216,144	11,733,238		3,392,331	384,085	3,776,416	15,509,654		240,614	240,614	15,750,268	19,623,248	3,872,980	20%
NEEA	2,209,613	1,666,900	3,876,513					3,876,513				3,876,513	4,386,465	509,952	12%
Total Residential	**14,776,908**	**11,369,661**	**26,146,569**		**10,169,833**	**641,635**	**10,811,468**	**36,958,037**		**571,813**	**571,813**	**37,529,850**	**48,733,233**	**11,203,383**	**23%**
Energy Efficiency Program Cos	**47,546,995**	**29,423,015**	**76,970,010**	**1,838,538**	**14,796,186**	**1,146,558**	**17,781,282**	**94,751,292**	**26,431**	**958,922**	**985,353**	**95,736,645**	**127,275,416**	**31,538,771**	**25%**
Renewables															
Biopower	636,634	788,143	1,424,777					1,424,777				1,424,777	1,843,068	418,291	23%
Solar Electric (Photovoltaic)	2,793,091	1,698,619	4,491,710					4,491,710				4,491,710	6,901,301	2,409,591	35%
Other Renewable	278,399	731,126	1,009,525					1,009,525				1,009,525	3,224,957	2,215,432	69%
Renewables Program Costs	**3,708,124**	**3,217,888**	**6,926,012**					**6,926,012**				**6,926,012**	**11,969,326**	**5,043,314**	**42%**
Cost Grand Total	**51,255,119**	**32,640,903**	**83,896,022**	**1,838,538**	**14,796,186**	**1,146,558**	**17,781,282**	**101,677,304**	**26,431**	**958,922**	**985,353**	**102,662,654**	**139,244,743**	**36,582,089**	**26%**

PUC-Proj-ST-07-C

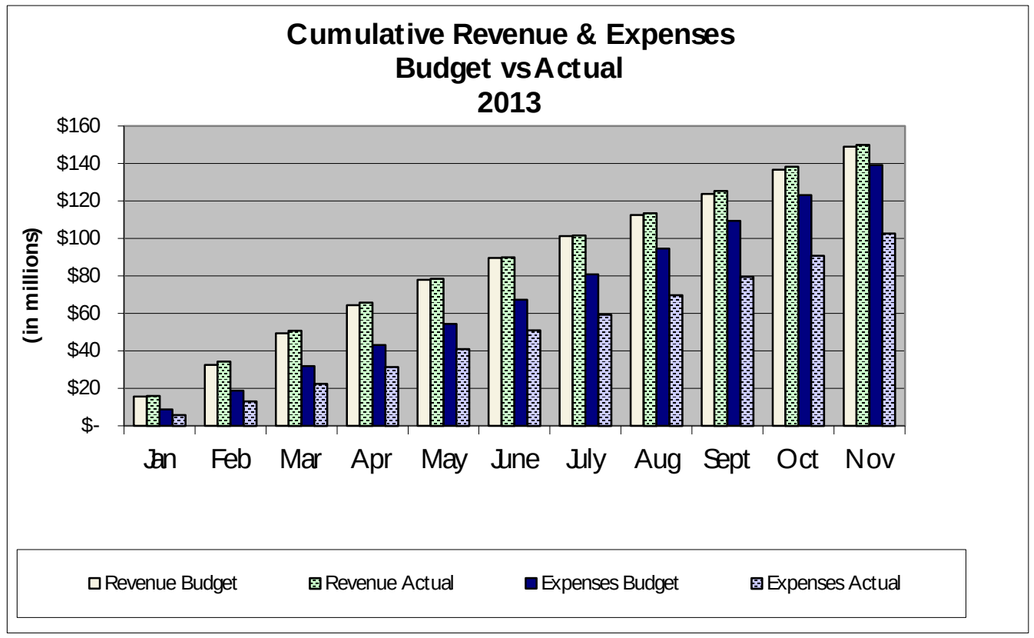
Energy Trust of Oregon, Inc.
ADMINISTRATIVE EXPENSES
For the Two Months and Year to Date Ended November 30, 2013
(Unaudited)

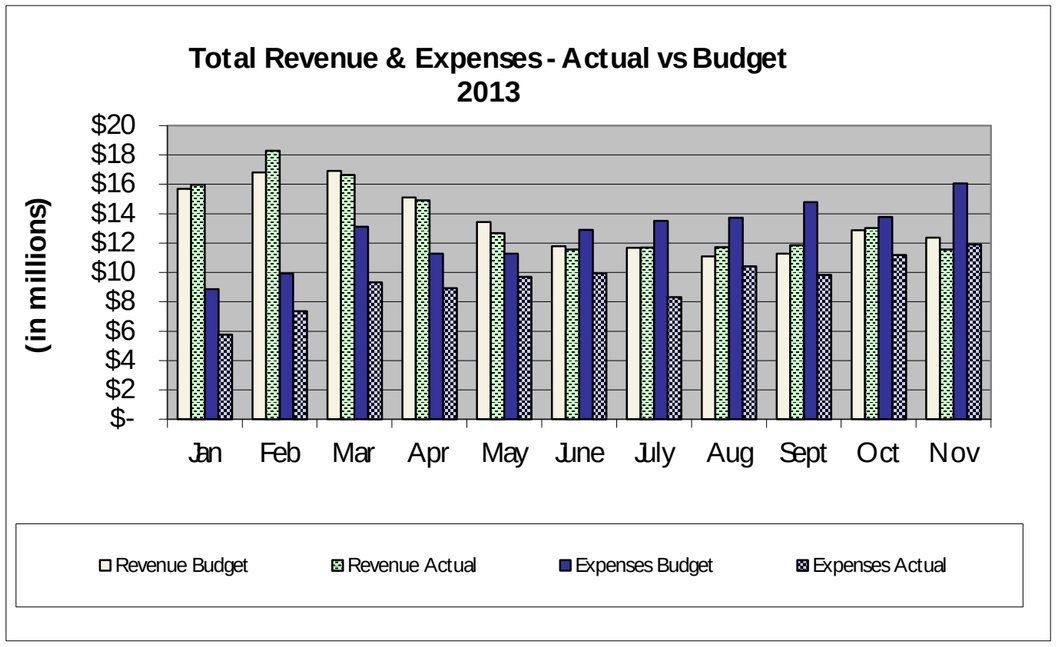
	MANAGEMENT & GENERAL							COMMUNICATIONS & CUSTOMER SERVICE						
	QTD ACTUAL	QUARTERLY BUDGET	QUARTER REMAINING	YTD ACTUAL	YTD BUDGET	YTD VARIANCE	VAR %	QTD ACTUAL	QUARTERLY BUDGET	QUARTER REMAINING	YTD ACTUAL	YTD BUDGET	YTD VARIANCE	VAR %
EXPENSES														
Outsourced Services	$26,972	$79,546	$52,574	$132,744	$415,835	$283,091	68%	$72,430	$232,500	$160,070	$468,334	$852,500	$384,166	45%
Legal Services	2,063	22,500	20,437	5,065	82,500	77,436	94%							
Salaries and Related Expenses	303,105	485,249	182,144	1,746,029	1,834,084	88,056	5%	145,915	208,331	62,417	798,148	763,427	(34,721)	-5%
Supplies	369	1,575	1,206	4,374	5,775	1,401	24%		250	250	892	917	25	3%
Telephone		350	350	352	1,643	1,291	79%	39		(39)	139		(139)	
Postage and Shipping Expenses				14		(14)			1,000	1,000		3,667	3,667	
Noncapitalized Equipment									250	250		917	917	
Printing and Publications	20	150	130	120	550	430	78%	1,360	13,750	12,390	5,969	50,417	44,447	88%
Travel	3,345	11,833	8,488	18,599	43,389	24,791	57%	2,143	1,750	(393)	4,035	6,417	2,382	37%
Conference, Training & Mtngs	2,277	56,147	53,870	22,824	169,099	146,274	87%	1,140	7,125	5,985	5,284	26,125	20,841	80%
Interest Expense and Bank Fees		1,875	1,875	5,343	6,875	1,532	22%							
Miscellaneous Expenses		50	50	18	183	165	90%							
Dues, Licenses and Fees	1,176	3,200	2,024	4,200	7,850	3,650	46%	308	500	192	2,722	1,833	(889)	-48%
Shared Allocation (Note 1)	29,400	48,897	19,497	164,632	179,449	14,816	8%	15,869	24,123	8,254	84,125	88,529	4,405	5%
IT Service Allocation (Note 2)	55,602	92,864	37,262	248,881	445,957	197,076	44%	27,433	45,828	18,395	122,792	220,079	97,287	44%
TOTAL EXPENSES	**424,329**	**804,237**	**379,908**	**2,353,195**	**3,193,190**	**839,995**	**26%**	**266,636**	**535,407**	**268,771**	**1,492,440**	**2,014,827**	**522,387**	**26%**

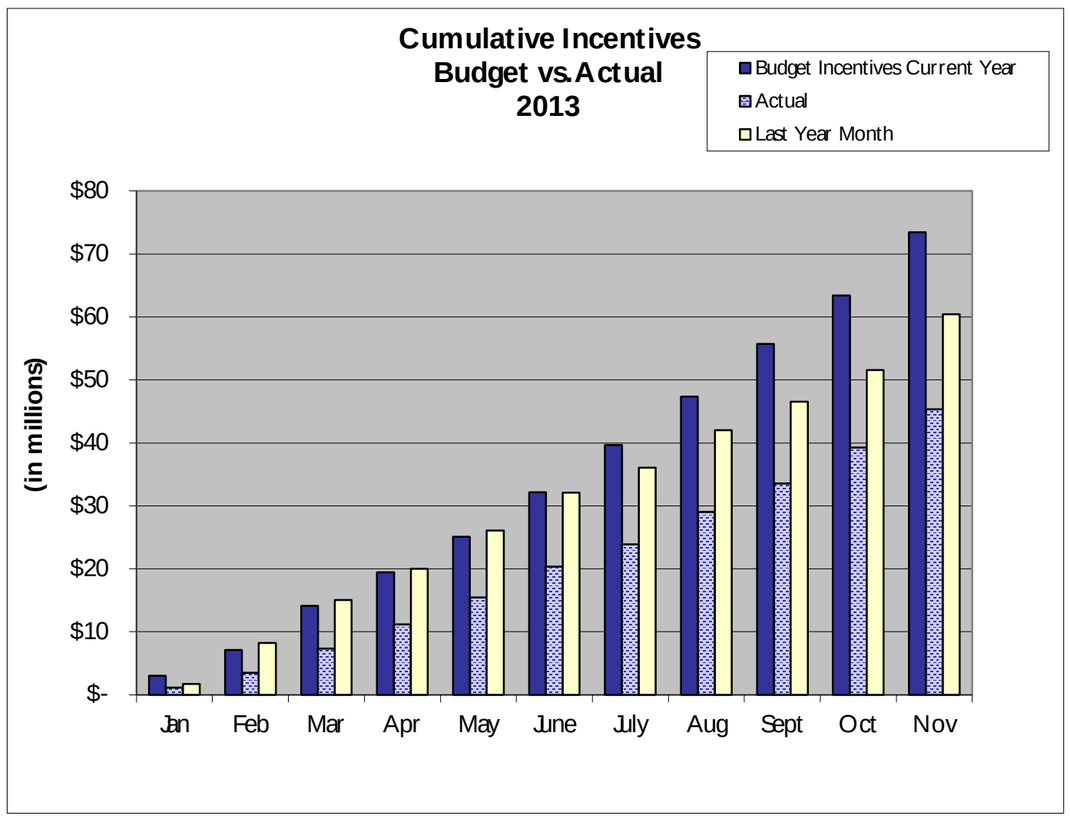
Note 1) Represents allocation of Shared (General Office Management) Costs
Note 2) Represents allocation of Shared IT Costs

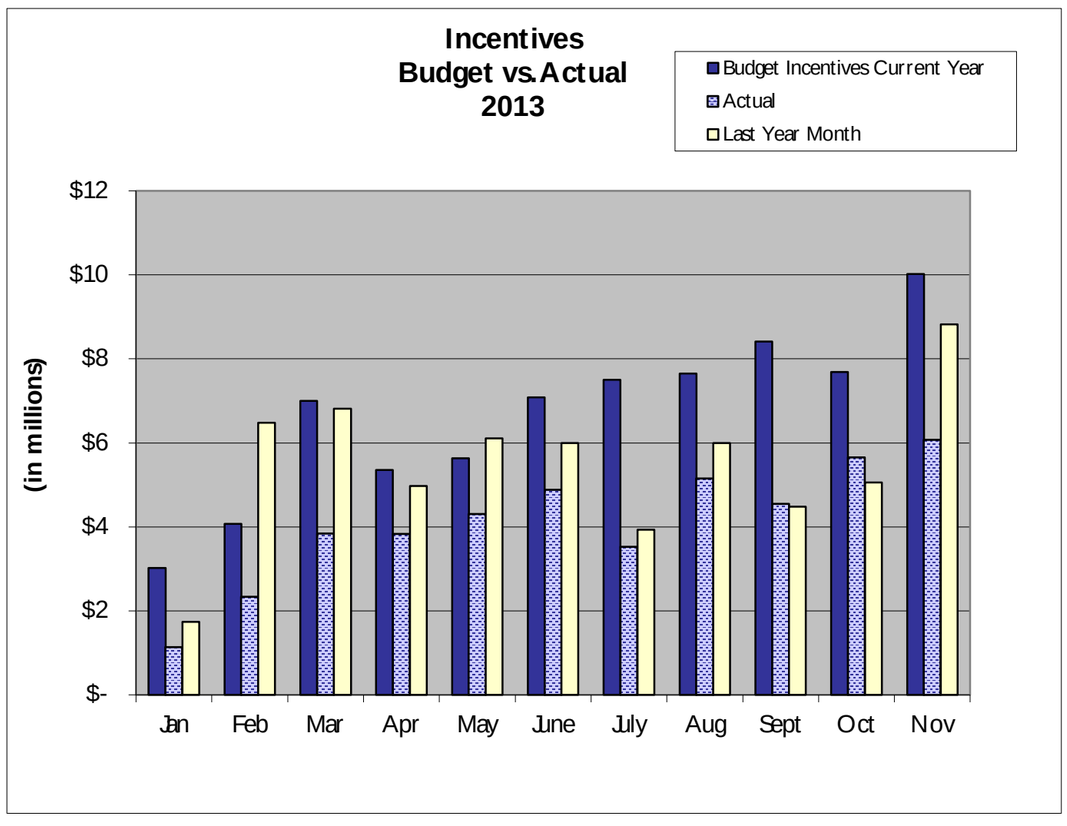
Exp-Prog-YTD-002

Administrative Expenses 2nd Month of Quarter


Cumulative Revenue & Expenses
Budget vs Actual
2013
(in millions)
$160
$140
$120
$100
$80
$60
$40
$20
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Total Revenue & Expenses - Actual vs Budget
2013
(in millions)
$20
$18
$16
$14
$12
$10
$8
$6
$4
$2
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Cumulative Incentives
Budget vs. Actual
2013
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$80
$70
$60
$50
$40
$30
$20
$10
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov


Incentives
Budget vs. Actual
2013
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$12
$10
$8
$6
$4
$2
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov

R00407

For contracts with costs through: 11/30/2013

Energy Trust of Oregon
Contract Status Summary Report

Report Date: 12/18/2013

Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
Administration							
		Administration Total:	**6,841,953**	**2,207,321**	**4,634,632**		
Communications & Outreach							
		Communications & Outreach Total:	**2,522,674**	**2,039,420**	**483,255**		
Energy Efficiency Programs							
Northwest Energy Efficiency Alliance	Regional Energy Eff Initiative	Portland	39,138,680	28,346,114	10,792,566	1/1/10	7/1/15
ICF Resources, LLC	PMC BE 2013	Fairfax	7,745,851	6,753,203	992,648	1/1/13	12/31/13
Fluid Market Strategies LLC	2013 HES PMC	Portland	7,416,843	6,527,501	889,342	1/1/13	12/31/13
Portland Energy Conservation, Inc.	PMC NHP 2013	Portland	6,315,684	5,331,568	984,116	1/1/13	12/31/13
Portland Energy Conservation, Inc.	2013 NBE PMC	Portland	4,736,060	3,972,723	763,337	1/1/13	12/31/13
Intel Corporation	Intel D1X Megaproject	Hillsboro	4,000,000	2,540,546	1,459,454	11/15/12	12/31/14
Lockheed Martin Services, Inc.	2013 MF PMC	Cherry Hill	2,816,996	2,445,913	371,083	1/1/13	12/31/13
OPOWER, Inc.	OPOWER Agreement	Arlington	2,092,200	2,084,920	7,280	3/2/10	2/28/14
Oregon State University	CHP Project - OSU	Corvallis	2,024,263	1,920,000	104,263	12/20/10	1/31/16
Portland General Electric	PDC - PE 2013		1,936,000	1,720,215	215,785	1/1/13	12/31/13
Cascade Energy, Inc.	PDC - PE 2013	Walla Walla	1,775,055	1,576,043	199,012	1/1/13	12/31/13
RHT Energy Solutions	PDC - PE 2013	Medford	1,293,651	1,152,073	141,578	1/1/13	12/31/13
Cascade Energy, Inc.	PDC - PE 2013 Small Industrial	Walla Walla	1,147,500	1,074,787	72,713	1/1/13	12/31/13
Evergreen Consulting Group, LLC	PE Lighting PDC 2013	Tigard	1,071,000	942,025	128,975	1/1/13	12/31/13
Northwest Power & Conservation Council	Annual Work Plan		874,652	550,195	324,457	3/20/12	12/31/14
NEXANT, INC.	PDC - PE 2013	San Francisco	825,818	632,949	192,869	1/1/13	12/31/13
Ecova Inc	Plug Load Solutions Funding	Spokane	499,950	371,004	128,946	1/1/13	12/31/13
SBW Consulting, Inc.	BE Program Impact Evaluation	Bellevue	489,000	459,000	30,000	1/15/12	10/30/13
Evoworx Inc.	EnergySavvy Online Audit Tool	Seattle	472,500	339,234	133,266	1/1/12	12/31/13
Clean Energy Works Oregon Inc	Clean Energy Works	Portland	448,500	300,000	148,500	1/1/10	2/28/14
OPOWER, Inc.	OPower Personal Energy Reports	Arlington	425,850	199,456	226,394	8/1/13	7/31/15
Navigant Consulting Inc	Analytical Model & Study	Boulder	412,052	52,410	359,642	8/12/13	4/30/14
The Cadmus Group Inc.	NB Impact Eval 2010-2011	Watertown	295,000	294,999	1	1/13/12	12/31/13
Fluid Market Strategies LLC	2013 HES WA PMC	Portland	265,000	237,214	27,786	1/1/13	12/31/13
Energy 350 Inc	PDC Transition Agreement	Portland	200,000	148,827	51,173	9/1/13	12/31/13
ICF Resources, LLC	NWN WA BE 2013	Fairfax	191,538	167,761	23,777	1/1/13	12/31/13
Home Performance Contractors Guild of Oregon	Existing Homes Program Support	Portland	155,000	121,311	33,689	1/1/12	3/31/14
D&R International LTD	Market Lift Program	Silver Spring	150,000	0	150,000	1/1/13	3/31/14
ICF Resources, LLC	NWN DSM Initiative 2013	Fairfax	110,000	102,254	7,746	1/1/13	12/31/13
J. Hruska Global	Quality Assurance Services	Columbia City	100,000	93,331	6,669	1/1/13	12/31/14
Vitesse LLC	Vitesse Data Center	Menlo Park	100,000	0	100,000	10/18/12	10/30/13
Research Into Action, Inc.	Existing Homes Process Eval	Portland	94,000	32,283	61,717	9/9/13	2/28/14
Ecotope, Inc.	Gas Hearth Study	Seattle	90,000	13,196	76,804	10/10/13	9/1/15
Pollinate Inc	Web Application Development	Portland	75,500	66,444	9,056	1/1/12	12/31/13

*The city indicated is the contractor's mailing address, not necessarily the location where work was performed.

Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
Evergreen Economics	New Homes Process Eval - 2013	Portland	70,000	60,058	9,942	6/24/13	3/31/14
Pivotal Energy Solutions LLC	New Homes Database	Gilbert	60,000	24,000	36,000	10/1/13	3/1/14
Portland Energy Conservation, Inc.	EE Consultant Services	Portland	54,170	50,758	3,412	6/1/11	12/31/13
Research Into Action, Inc.	Products Process Evaluation	Portland	52,800	51,658	1,142	7/1/13	4/1/14
Research Into Action, Inc.	BE Process Eval - 2013	Portland	51,000	17,153	33,848	10/1/13	2/28/14
ICF Resources, LLC	OSU CHP Performance Monitoring	Fairfax	50,000	2,385	47,615	7/1/13	6/30/14
The Cadmus Group Inc.	Commercial Op Pilot Eval	Watertown	50,000	41,640	8,361	7/1/11	12/31/13
PWP, Inc.	Comm SEM Initiative Evaluation	Gaithersburg	45,000	36,258	8,742	7/1/12	6/30/14
Portland General Electric	Utility Data Payment - OPOWER	Portland	40,000	19,928	20,072	8/1/10	2/28/14
PWP, Inc.	SEM Intro Pilot Evaluation	Gaithersburg	40,000	1,400	38,600	10/28/13	10/2/15
NW Natural	Info Transfer & Reimbursement	Portland	35,000	21,263	13,737	7/12/10	2/28/14
The Cadmus Group Inc.	Lighting Pilot Evaluation	Watertown	35,000	21,163	13,837	4/1/12	12/31/13
WegoWise Inc	Wegowise Benchmarking License	Boston	35,000	35,000	0	5/14/12	5/14/14
Navigant Consulting Inc	CORE Improvement Pilot Eval	Boulder	34,000	27,902	6,098	9/1/12	8/30/14
Apex Analytics LLC	Nest Pilot Evaluation	Boulder	32,000	1,090	30,910	11/15/13	10/31/14
The Cadmus Group Inc.	Market Solutions Review	Watertown	32,000	0	32,000	10/15/13	12/31/13
Energy Center of Wisconsin	Billing Analysis Review	Madison	30,000	0	30,000	11/1/13	12/31/14
Seattle City Light	Lighting Design Lab	Seattle	30,000	30,000	0	1/1/13	12/31/13
The Cadmus Group Inc.	Pay For Performance Pilot Eval	Watertown	30,000	0	30,000	9/25/13	12/31/14
Pivotal Energy Solutions LLC	License Agreement	Gilbert	29,500	0	29,500	3/1/14	12/31/14
Stellar Processes, Inc.	BE Measure Evaluation	Portland	25,250	19,125	6,125	10/24/12	10/24/14
Northwest Food Processors Association	NW Industrial EE Summit 2014	Portland	25,000	0	25,000	7/16/13	1/15/14
Triple Point Energy Inc.	SEM Workshops	Portland	24,240	9,114	15,126	4/29/13	1/15/14
Forrest Marketing	Commerical Financing Study	Portland	24,000	12,600	11,400	8/30/13	3/1/14
Issues & Answers Network Inc	Residential Awareness 2014	Virginia Beach	20,730	0	20,730	11/1/13	3/31/14
Michael Blasnick & Associated	Billing Analysis Process	Boston	20,000	3,938	16,063	1/1/10	12/31/13
Oregon Assoc. of Clean Water Agencies	SEM Training - Round III		19,920	8,000	11,920	5/23/13	6/15/14
Lane Community College, NEEI Science Division	2013 Scholarship Grant	Eugene	16,600	7,600	9,000	1/1/13	12/31/13
Oregon Department of Energy	Oregon Leaders Project	Salem	15,000	15,000	0	9/19/11	1/31/14
G. Curtis Consulting	Residential Windows Market	Salem	14,750	4,900	9,850	9/15/13	1/31/14
MetaResource Group	Energy Performance Score Eval	Portland	13,000	3,788	9,213	9/1/13	1/31/14
Consumer Opinion Services Inc	Residential Phone Surveys	Seattle	12,000	2,769	9,231	9/1/13	10/31/14
Portland State University Foundation	Green Modular Classroom Proj	Portland	10,500	10,500	0	6/13/12	7/31/14
City of Portland Bureau of Planning & Sustainability	City of Portland Workshops	Portland	8,000	0	8,000	1/1/14	12/31/14
Portland General Electric	Energy Monitoring Tool		1,190	1,190	0	10/3/13	11/30/13
	Energy Efficiency Programs Total:		**90,869,793**	**71,109,674**	**19,760,119**		
Joint Programs							
D&R International LTD	Better Data Better Design	Silver Spring	133,500	25,000	108,500	4/30/13	4/30/14

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Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
Portland State University	Technology Forecasting		87,437	49,311	38,126	11/7/11	12/31/14
Abt SRBI Inc.	Fast Feedback Survey	New York	65,000	57,831	7,169	3/1/13	2/28/14
CoStar Realty Information Inc	Property Data	Baltimore	19,220	14,898	4,322	6/1/11	5/31/14
KRH Consulting	Work Load Mangement	Portland	16,500	9,852	6,648	4/23/13	10/1/14
Glumac Inc	Planning Technical Analysis	Portland	15,000	15,000	0	10/17/12	10/17/14
The Cadmus Group Inc.	Evaluation Consultant	Watertown	14,940	14,940	0	6/20/13	2/28/15
Strategic Research Associates LLC	Trade Ally Survey	Spokane	14,000	11,596	2,405	5/1/13	12/31/13
		Joint Programs Total:	**365,597**	**198,428**	**167,169**		
Renewable Energy Program							
Outback Solar LLC	Outback Solar	Portland	5,000,000	4,950,000	50,000	5/9/12	5/9/37
Sunway 3, LLC	Prologis PV installation		3,405,000	3,396,044	8,956	9/30/08	9/30/28
JC-Biomethane LLC	Biogas Plant Project Funding	Eugene	2,000,000	500,000	1,500,000	10/18/12	10/18/32
Rough & Ready Lumber Company	Biopower Funding Agreement	Cave Junction	1,685,088	1,685,088	0	7/21/06	7/21/26
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	1,550,000	0	1,550,000	9/11/12	9/11/32
Central Oregon Irrigation District	COID Juniper Phase 2	Redmond	1,281,820	0	1,281,820	7/19/13	7/19/33
Alder Solar LLC	Habilitation Center PV	Portland	1,236,750	1,224,244	12,506	1/18/08	12/31/28
Central Oregon Irrigation District	Juniper Ridge Hydroelectric	Redmond	1,000,000	1,000,000	0	10/31/08	6/30/31
Farm Power Misty Meadows LLC	Misty Meadows Biogas Facility	Mount Vernon	1,000,000	250,000	750,000	10/25/12	10/25/27
Three Sisters Irrigation District	TSID Hydro	Sisters	1,000,000	0	1,000,000	4/25/12	4/25/32
RES - Ag FGO LLC	Biogas Manure Digester Project	Washington	883,320	331,245	552,075	10/27/10	10/27/25
Stahlbush Island Farms, Inc.	Funding Assistance Agreement	Corvallis	827,000	827,000	0	6/24/09	6/24/29
RBS Asset Finance Inc	Black Cap Solar PV Funding	Chicago	600,000	600,000	0	10/1/12	10/1/37
Tioga Solar VI, LLC	Photovoltaic Project Agreement	San Mateo	570,760	497,399	73,361	2/1/09	2/1/30
C Drop Hydro LLC	C Drop Project - Klamath Irrig	Idaho Falls	490,000	490,000	0	11/1/11	11/1/31
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	487,000	487,000	0	3/2/10	3/2/30
City of Medford	750kW Combined Heat & Power	Medford	450,000	225,000	225,000	10/20/11	10/20/31
City of Pendleton	Pendleton Microturbines	Pendleton	450,000	150,000	300,000	4/20/12	4/20/32
K2A Properties, LLC	Doerfler Wind Farm Project	Aumsville	230,000	184,275	45,725	5/20/10	5/20/30
Confederated Tribes of the Umatilla Indian Reservation	Small Wind Project Funding	Pendleton	170,992	0	170,992	7/25/13	12/31/28
Farmers Irrigation District	Low Line Canal Pressurization	Hood River	150,000	150,000	0	9/26/12	11/30/32
Farmers Irrigation District	Indian Creek Corridor Project	Hood River	100,000	100,000	0	1/5/10	1/4/29
Wallowa Resources Community Solutions, Inc.	Upfront Hydroelectric Project		100,000	13,490	86,510	10/1/11	10/1/15
Stoller Vineyards, Inc.	Stoller Vineyards PV	Dayton	79,815	77,390	2,425	12/1/05	12/1/26
Bloomberg LP	Insight Services	San Francisco	79,200	68,183	11,017	4/1/11	1/1/14
Oregon Military Department	Kingsley Field Geothermal Proj	Salem	75,000	0	75,000	11/26/13	6/1/14
Wallowa Resources Community Solutions Inc	Integrated Biomass Energy Camp	Enterprise	70,000	70,000	0	2/1/12	1/31/27
Deschutes Valley Water District	Early Development Assistance	Madras	68,373	0	68,373	7/23/13	12/31/14
City of Portland Water Bureau	Vernon Hydro	Portland	65,000	65,000	0	11/15/10	11/15/30

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Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
University of Oregon	UO SMRL Contribution - 2013	Eugene	45,000	45,000	0	3/9/13	3/9/14
MC Energy LLC	Small Wind Incentive	Spokane	43,250	43,250	0	9/21/10	9/21/25
Clean Energy States Alliance	CESA Year 11 (2014)		39,500	39,500	0	7/1/13	6/30/14
Wind Products Inc	Wind Consultant	Brooklyn	37,500	27,500	10,000	2/6/12	12/31/13
Harold Hartman dba Lynhart Farms	17.5 kW PV project	Malin	32,500	31,386	1,114	5/25/07	5/25/27
Mariah Wind LLC	Development Assistance Funding	Victor	28,300	0	28,300	10/25/13	12/31/14
SPS of Oregon Inc	Spaur Microhydro	Wallowa	25,000	25,000	0	7/23/10	7/23/30
Robert Migliori	42kW wind energy system	Newberg	24,125	11,641	12,484	4/11/07	1/31/24
Solar Oregon	Outreach Services	Portland	24,000	22,000	2,000	1/1/13	12/31/13
Wind Products Inc	Web Portal Tool	Brooklyn	24,000	25,000	-1,000	6/25/12	9/20/13
Warren Griffin	Griffin Wind Project	Salem	13,150	9,255	3,895	10/1/05	10/1/20
Corbett Water District	Corbett Water District Hydro	Corbett	12,000	4,559	7,441	4/16/12	6/30/32
Garrad Hassan America Inc	RE Consulting Services	San Diego	6,841	6,841	0	6/11/13	2/28/15
American Wind Group LLC	Anemometer Incentive Funding	Oasis	4,031	4,031	0	7/22/11	2/15/14
eFormative Options LLC	RE Evaluation Consultant	Vashon	3,000	3,000	0	3/1/13	2/28/15
	Renewable Energy Program Total:		**25,467,315**	**17,639,321**	**7,827,995**		
	Grand Totals:		**126,067,333**	**93,194,163**	**32,873,169**		

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Notes on December 2013 Financial Statements

February 4, 2014

Revenue

Consistent with what we've seen throughout 2013, total revenues finished the year within 2% of the budgeted aggregate amounts.

Dec-13	YTD Actual	YTD Budget	YTD Var	YTD %
PGE	83,191,779	84,869,088	(1,677,309)	-2%
PAC	51,366,899	51,354,091	12,808	0%
NWN	25,492,858	25,678,259	(185,401)	-1%
CNG	2,413,481	3,293,912	(880,431)	-27%
Investment Income	96,392	120,000	(23,608)	-20%
Total	162,561,409	165,315,350	(2,753,941)	-2%

Reserves

Total Reserves at the end of December for the four major utilities are indicated below. The end of November is shown to highlight the significant impact on reserves due to our final month's activity. Despite the strong December push, reserves ended up higher than forecast for all utilities other than CNG.

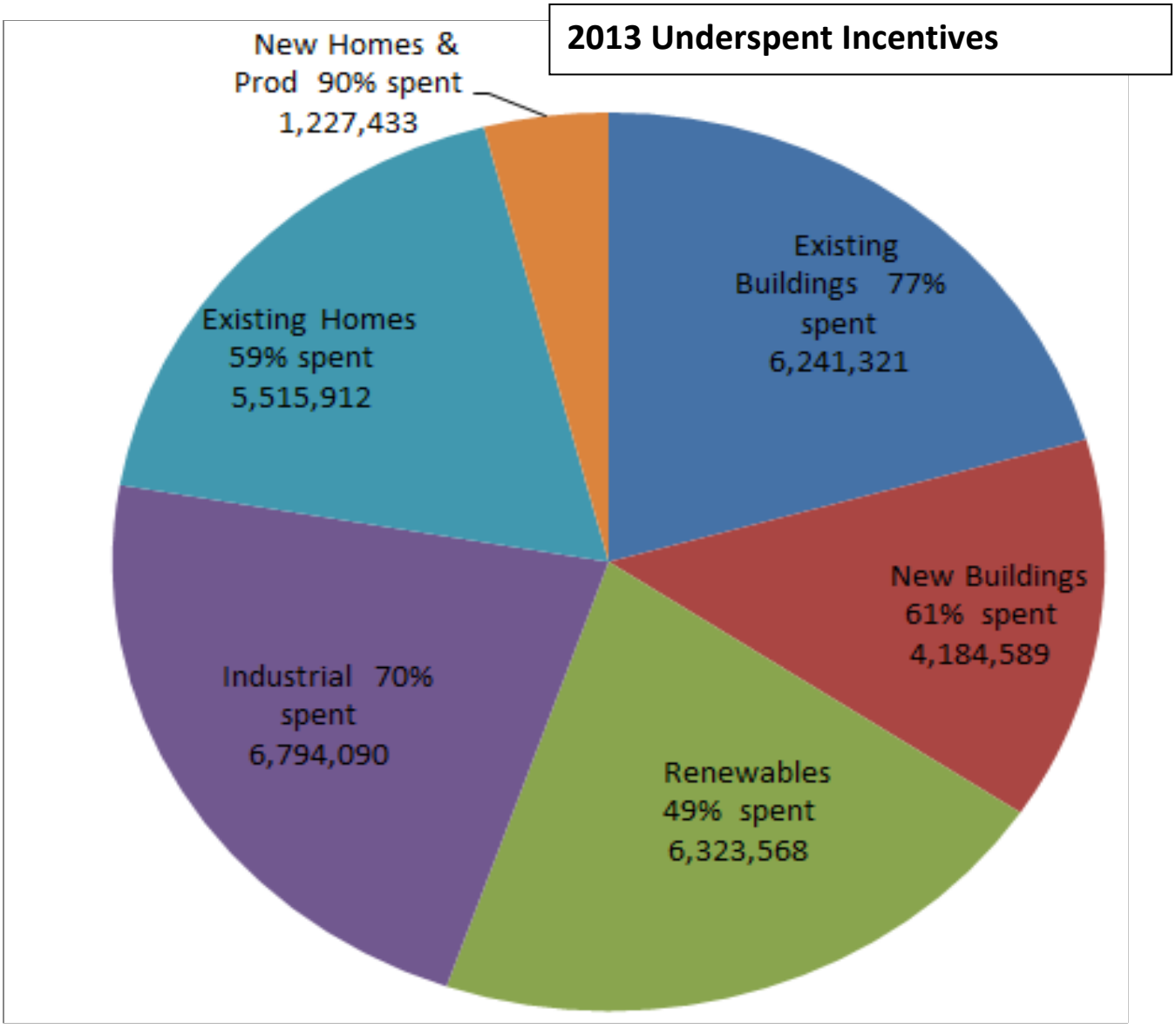
Reserves

	Actual 11/30/13 Amount	Actual 12/31/13 Amount	2013 Forecast Amount
PGE	34,127,198	24,483,032	17,043,968
PacifiCorp	15,565,695	11,560,814	8,084,843
NW Natural	9,151,449	8,569,670	6,457,378
Cascade	792,506	658,260	920,517
NWN Industrial	989,100	356,235	0
NWN Washington	685,352	473,674	337,435
Clark PUD	29,693	0	0
PGE Renewables	12,265,371	12,041,462	11,146,829
PAC Renewables	11,740,568	11,793,715	10,790,511
Contingency Reserve	5,000,000	5,000,000	5,000,000
Contingency Available	2,565,740	2,993,710	2,828,277
Total	92,912,672	77,930,572	62,609,758

Expenses

Total company expenses YTD are $130.3 million, which is $40 million less than budgeted spending and $25 million less than 2012 spending. We spent $67.7 million on incentives in 2013 vs. $91.3 in 2012 (a 26% drop) and $98.2 in the budget (a 31% shortfall). Incentive spending makes up $30 million (76%) of the total amount underspent. $24 million of the $30 million underspent in 2013 is from Efficiency programs.

The following chart shows, by program, the underspent $30 million of incentives (versus budget) for 2013. The % next to the program indicates how much of the current year's budgeted incentives have been spent. New Buildings, for example, spent 61% of their annual incentive budget, the remaining unspent 39% totals $4,184,589 of the total incentive spending variance.



Total Incentives
Year-to-Date 2013

Incentives thru Dec 2013	Actual	Budget	Variance	Var %
Existing Buildings	20,457,969	26,699,290	6,241,321	23.4%
New Buildings	6,476,122	10,660,711	4,184,589	39.3%
Production Efficiency	15,808,003	22,602,093	6,794,090	30.1%
Existing Homes	7,951,736	13,467,648	5,515,912	41.0%
New Homes & Products	10,511,504	11,738,937	1,227,433	10.5%
Washington Programs - All	520,849	624,135	103,286	16.5%
Solar	4,360,363	7,493,488	3,133,125	41.8%
Open Soliciation	430,959	2,496,703	2,065,744	82.7%
Biopower	1,246,797	2,371,496	1,124,699	47.4%
Total Incentives	67,764,302	98,154,499	30,390,196	31.0%
Energy Efficiency Only	**61,726,183**	**85,792,814**	**24,066,631**	**28%**

Total Incentives
Year-to-Year Comparison

Dec 2013 Year to Year	Current Year	Prior Year	Variance	Var %
Existing Buildings	20,457,969	24,069,490	3,611,521	15%
New Buildings	6,476,122	7,369,435	893,313	12%
Production Efficiency	15,808,003	16,815,914	1,007,911	6%
Existing Homes	7,951,736	12,453,954	4,502,218	36%
New Homes & Products	10,511,504	10,188,455	(323,049)	-3%
Washington Programs - All	520,849	538,966	18,117	3%
Solar	4,360,363	17,511,147	13,150,784	75%
Open Soliciation	430,959	957,389	526,430	55%
Biopower	1,246,797	1,389,837	143,040	10%
Total Incentives	67,764,302	91,294,583	23,530,281	26%
Energy Efficiency Only	**61,726,183**	**71,436,214**	**9,710,031**	**14%**

Energy Trust of Oregon, Inc
BALANCE SHEET
December 31, 2013
(Unaudited)

	DEC 2013	NOV 2013	DEC 2012	DEC 2012	Change from one month ago	Change from Beg. of Year	Change from one year ago
Current Assets							
Cash & Cash Equivalents	76,484,638	95,297,836	64,005,605	64,005,605	(18,813,198)	12,479,033	12,479,033
Restricted Cash (Escrow Funds)		252,735	462,692	462,692	(252,735)	(462,692)	(462,692)
Investments (Note 1)	25,270,363	5,979,054			19,291,308	25,270,363	25,270,363
Restricted Investments (Escrow Funds	77,988				77,988	77,988	77,988
Receivables	8,276	47,652	123,795	123,795	(39,376)	(115,519)	(115,519)
Prepaid Expenses	526,087	456,235	265,829	265,829	69,852	260,258	260,258
Advances to Vendors	2,015,420	1,214,633	2,109,014	2,109,014	800,787	(93,594)	(93,594)
Total Current Assets	**104,382,771**	**103,248,145**	**66,966,935**	**66,966,935**	**1,134,626**	**37,415,837**	**37,415,837**
Fixed Assets							
Computer Hardware and Software	1,401,967	1,401,967	1,347,388	1,347,388		54,579	54,579
Leasehold Improvements	313,333	313,333	287,385	287,385		25,948	25,948
Office Equipment and Furniture	600,662	600,662	600,662	600,662		0	0
Total Fixed Assets	**2,315,962**	**2,315,962**	**2,235,435**	**2,235,435**		**80,527**	**80,527**
Less Depreciation	(1,500,494)	(1,473,054)	(1,183,098)	(1,183,098)	(27,441)	(317,396)	(317,396)
Net Fixed Assets	**815,468**	**842,909**	**1,052,337**	**1,052,337**	**(27,441)**	**(236,869)**	**(236,869)**
Other Assets							
Rental Deposit	61,461	61,461	64,461	64,461		(3,000)	(3,000)
Deferred Compensation Asset	552,641	476,258	409,369	409,369	76,382	143,272	143,272
Total Other Assets	**614,102**	**537,720**	**473,830**	**473,830**	**76,382**	**140,272**	**140,272**
Total Assets	**105,812,341**	**104,628,774**	**68,493,102**	**68,493,102**	**1,183,568**	**37,319,240**	**37,319,240**
Current Liabilities							
Accounts Payable and Accruals	26,326,508	10,225,636	21,430,138	21,430,138	16,100,872	4,896,370	4,896,370
Deposits Held for Others	(0)	(0)	49,433	49,433		(49,433)	(49,433)
Salaries, Taxes, & Benefits Payable	631,548	647,384	585,703	585,703	(15,836)	45,845	45,845
Total Current Liabilities	**26,958,055**	**10,873,020**	**22,065,273**	**22,065,273**	**16,085,036**	**4,892,782**	**4,892,782**
Long Term Liabilities							
Deferred Rent	364,244	365,314	323,237	323,237	(1,070)	41,007	41,007
Deferred Compensation Payable	552,641	476,258	409,369	409,369	76,382	143,272	143,272
Other Long-Term Liabilities	6,830	6,890	13,674	13,674	(60)	(6,844)	(6,844)
Total Long-Term Liabilities	**923,714**	**848,462**	**746,279**	**746,279**	**75,252**	**177,435**	**177,435**
Total Liabilities	**27,881,769**	**11,721,481**	**22,811,553**	**22,811,553**	**16,160,288**	**5,070,217**	**5,070,217**
Net Assets							
Temporarily Restricted Net Assets	77,988	252,735	462,692	462,692	(174,748)	(384,704)	(384,704)
Unrestricted Net Assets	77,852,585	92,654,557	45,218,858	45,218,858	(14,801,973)	32,633,727	32,633,727
Total Net Assets	**77,930,572**	**92,907,292**	**45,681,549**	**45,681,549**	**(14,976,720)**	**32,249,023**	**32,249,023**
Total Liabilities and Net Assets	**105,812,341**	**104,628,774**	**68,493,102**	**68,493,102**	**1,183,568**	**37,319,240**	**37,319,240**

Note 1 - Investments purchased in the last few months have had maturities greater than six months.
For audit purposes, these are reclassed from Cash to Investments at year end.

BS-Acct-YTD-001

Energy Trust of Oregon
Cash Flow Statement-Indirect Method
Monthly 2013

	January	February	March	April	May	June	July	August	September	October	November	December	Year to Date
Operating Activities:													
Revenue less Expenses	$ 10,219,705	10,927,972	7,324,090	5,958,617	2,986,589	1,606,211	3,378,918	1,299,737	2,025,203	1,837,954	(339,249)	(14,976,721)	$ 32,249,025
Non-cash items:													
Depreciation	27,270	27,452	28,129	27,410	27,977	27,977	27,977	27,977	27,224	27,633	27,441	27,441	$ 331,907
Loss on disposal of assets													$ -
Receivables	53,256	66,082	35	(5,470)	(0)	0	(0)	5,470	-	-	(43,760)	39,733	$ 115,346
Interest Receivable	546	129	(496)	1,647	(518)	465	(590)	(787)	(701)	414	422	(357)	$ 173
Advances to Vendors	705,543	733,344	(1,456,911)	410,950	709,011	(1,307,397)	560,532	771,490	(1,457,405)	411,934	813,282	(800,788)	$ 93,585
Prepaid expenses and other costs	(559,565)	51,323	(82,665)	(46,877)	(9,774)	79,710	21,907	115,575	72,201	70,250	97,509	(69,852)	$ (260,258)
Accounts payable	(14,214,238)	1,481,611	(2,237,661)	700,669	(1,049,325)	1,129,368	(575,269)	(2,068,026)	2,665,392	1,038,017	1,875,528	16,100,872	$ 4,846,938
Payroll and related accruals	16,657	39,359	5,770	21,984	25,790	9,262	(20,993)	(13,137)	(476)	23,694	20,660	60,547	$ 189,117
Deferred rent and other	(271)	(1,101)	(1,829)	(1,217)	(1,318)	(2,289)	(5,128)	(1,689)	(13,681)	(102)	28	(77,512)	$ (106,109)
Cash rec'd from / (used in) Operating Activities	(3,751,097)	13,326,171	3,578,462	7,067,713	2,688,432	1,543,307	3,387,353	136,609	3,317,756	3,409,795	2,451,861	303,363	$ 37,459,724
Investing Activities:													
Purchase of Investments Held to Maturity (Note 1)					(4,980,004)	(53)	(306)	(995,650)	(138)	(1,530)	(1,373)	(19,369,297)	$ (25,348,351)
(Acquisition)/Disposal of Capital Assets	-	(6,570)	(25,948)	-	(29,420)		-	-	(9,100)	(24,000)	-	-	$ (95,038)
Cash rec'd from / (used in) Investing Activities	-	(6,570)	(25,948)	-	(5,009,424)	(53)	(306)	(995,650)	(9,238)	(25,530)	(1,373)	(19,369,297)	$ (25,443,389)
Cash at beginning of Period	64,468,299	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,301	89,715,821	93,100,082	95,550,571	$ 64,468,299
Increase/(Decrease) in Cash	(3,751,097)	13,319,602	3,552,516	7,067,713	(2,320,992)	1,543,255	3,387,048	(859,040)	3,308,520	3,384,261	2,450,488	(19,065,934)	$ 12,016,338
Cash at end of period	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,301	89,715,821	93,100,082	95,550,571	76,484,637	$ 76,484,637

Note 1 - Certain Certificates of Deposit purchased between September and December mature six months or later, qualifying them as investments for audit purposes. These have been reclassified as investments in December

Energy Trust of Oregon
Cash Flow Projection
January 2013 - December 2014

	Actual											
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	15,975,013	18,276,561	16,633,304	14,890,395	12,680,595	11,539,660	11,696,383	11,708,822	11,844,446	12,995,288	11,548,862	12,675,688
From other sources	53,256	66,082	35	(4,540)	(0)	0	(0)	5,470	-	12,500	(43,760)	39,733
Investment Income	7,847	6,746	7,212	9,359	6,368	6,941	7,176	6,980	7,469	10,189	9,879	10,397
Total cash in	16,036,116	18,349,389	16,640,551	14,895,214	12,686,963	11,546,601	11,703,559	11,721,272	11,851,915	13,017,977	11,514,981	12,725,818
Cash Out:	19,787,213	5,029,788	13,088,038	7,827,499	15,007,955	10,003,347	8,316,510	12,580,315	8,543,395	9,633,713	9,064,491	31,791,749
Net cash flow for the month	(3,751,097)	13,319,601	3,552,516	7,067,718	(2,320,989)	1,543,254	3,387,048	(859,044)	3,308,520	3,384,264	2,450,490	(19,065,932)
Beginning Balance: Cash & MM	64,468,299	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,299	89,715,819	93,100,082	95,550,571
Ending cash & MM	60,717,202	74,036,802	77,589,318	84,657,031	82,336,039	83,879,294	87,266,342	86,407,299	89,715,819	93,100,082	95,550,571	76,484,638
Dedicated funds Adjustment	(10,600,000)	(10,600,000)	(7,900,000)	(8,100,000)	(8,400,000)	(13,300,000)	(13,300,000)	(13,300,000)	(11,900,000)	(11,900,000)	(11,900,000)	(16,300,000)
Committed Funds Adjustment	(37,200,000)	(40,000,000)	(33,900,000)	(46,300,000)	(45,800,000)	(41,200,000)	(39,900,000)	(39,600,000)	(45,200,000)	(45,200,000)	(45,200,000)	(37,700,000)
Cash Reserve	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(6,200,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)
Ending Cash & MM, adj by Above	**6,717,202**	**17,236,802**	**29,589,318**	**24,057,031**	**21,936,047**	**23,179,294**	**27,866,342**	**27,307,299**	**27,615,819**	**31,000,082**	**33,450,571**	**17,484,638**
Escrow Cash Balance												
Beginning Balance	462,692	381,052	381,090	381,118	252,683	252,690	252,697	252,704	252,712	252,720	252,728	252,736
Net Escrow (Payments)/Funding	(81,682)		-	(128,457)								(174,755)
Interest Paid on Escrow Balances	42	38	28	22	7	7	7	8	8	8	8	8
Ending Escrow Balance1	381,052	381,090	381,118	252,683	252,690	252,697	252,704	252,712	252,720	252,728	252,736	77,989

1Included in "Ending cash & MM" above

Dedicated funds adjustment: reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements
Committed funds adjustment: reduction in available cash for commitments to Efficiency program projects with signed agreements
Cash reserve: reduction in available cash to cover cashflow variability and winter revenue risk
Escrow: dedicated funds set aside in separate bank accounts

Energy Trust of Oregon
Cash Flow Projection
January 2013 - December 2014

	2014 Round 2 Budget											
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	16,000,000	16,500,000	15,800,000	14,800,000	12,300,000	11,400,000	12,600,000	11,600,000	11,200,000	13,300,000	12,300,000	15,000,000
From other sources												
Investment Income	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Total cash in	16,007,000	16,507,000	15,807,000	14,807,000	12,307,000	11,407,000	12,607,000	11,607,000	11,207,000	13,307,000	12,307,000	15,007,000
Cash Out:	20,300,000	8,400,000	12,400,000	11,600,000	10,600,000	13,500,000	12,700,000	10,500,000	14,600,000	13,600,000	13,300,000	26,900,000
Net cash flow for the month	(4,293,000)	8,107,000	3,407,000	3,207,000	1,707,000	(2,093,000)	(93,000)	1,107,000	(3,393,000)	(293,000)	(993,000)	(11,893,000)
Beginning Balance: Cash & MM	76,484,638	72,191,638	80,298,638	83,705,638	86,912,638	88,619,638	86,526,638	86,433,638	87,540,638	84,147,638	83,854,638	82,861,638
Ending cash & MM	72,191,638	80,298,638	83,705,638	86,912,638	88,619,638	86,526,638	86,433,638	87,540,638	84,147,638	83,854,638	82,861,638	70,968,638
Dedicated funds Adjustment	(20,900,000)	(21,000,000)	(21,100,000)	(19,000,000)	(19,600,000)	(19,000,000)	(19,500,000)	(19,600,000)	(20,100,000)	(20,100,000)	(20,600,000)	(20,000,000)
Committed Funds Adjustment	(39,500,000)	(47,800,000)	(46,100,000)	(44,400,000)	(43,400,000)	(41,900,000)	(41,200,000)	(41,300,000)	(41,100,000)	(42,200,000)	(44,100,000)	(50,300,000)
Cash Reserve	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)	(5,000,000)
Ending Cash & MM, adj by Above	**6,791,638**	**6,498,638**	**11,505,638**	**18,512,638**	**20,619,638**	**20,626,638**	**20,733,638**	**21,640,638**	**17,947,638**	**16,554,638**	**13,161,638**	**-**
Escrow Cash Balance												
Beginning Balance	77,989	77,997	78,005	-	-	-	-	-	-	-	-	-
Net Escrow (Payments)/Funding			(78,005)									
Interest Paid on Escrow Balances	8	8	-	-	-	-	-	-	-	-	-	0
Ending Escrow Balance1	77,997	78,005	-	-	-	-	-	-	-	-	-	0

1Included in "Ending cash & MM" above

Dedicated funds adjustment: reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements
Committed funds adjustment: reduction in available cash for commitments to Efficiency program projects with signed agreements
Cash reserve: reduction in available cash to cover cashflow variability and winter revenue risk
Escrow: dedicated funds set aside in separate bank accounts

Energy Trust of Oregon, Inc
INCOME STATEMENT - ACTUAL AND PRIOR YR COMPARISON
For the Twelve Months Ending December 31, 2013
(Unaudited)

	December				YTD			
	Actual	Actual Prior Year	Prior Year Variance	Variance %	Actual	Actual Prior Year	Prior Year Variance	Variance %
REVENUES								
Public Purpose Funds-PGE	2,705,103	2,858,511	(153,408)	(5%)	34,273,605	36,153,224	(1,879,619)	(5%)
Public Purpose Funds-PacifiCorp	2,135,177	2,021,730	113,447	6%	25,809,694	25,168,039	641,655	3%
Public Purpose Funds-NW Natural	1,539,431	1,702,243	(162,813)	(10%)	22,473,918	17,375,847	5,098,071	29%
Public Purpose Funds-Cascade	474,416	189,889	284,527	150%	2,413,481	1,369,612	1,043,869	76%
Public Purpose Funds-Avista					0	(25,458)	25,458	100%
Total Public Purpose Funds	**6,854,126**	**6,772,373**	**81,753**	**1%**	**84,970,697**	**80,041,263**	**4,929,434**	**6%**
Incremental Funds - PGE	3,803,846	3,293,311	510,535	16%	48,918,175	39,630,039	9,288,136	23%
Incremental Funds - PacifiCorp	2,017,716	1,857,234	160,482	9%	25,557,205	23,533,277	2,023,928	9%
NW Natural - Industrial DSM	0	538,172	(538,172)	(100%)	1,727,838	1,614,516	113,322	7%
NW Natural - Washington	0	0	0		1,291,102	1,261,914	29,188	2%
Consumer Owned Electric	0	66,082	(66,082)	(100%)	0	123,728	(123,728)	(100%)
Contributions	0	0	0		13,430	30,515	(17,085)	(56%)
Revenue from Investments	10,753	7,358	3,396	46%	96,392	133,373	(36,981)	(28%)
TOTAL REVENUE	**12,686,441**	**12,534,529**	**151,912**	**1%**	**162,574,838**	**146,371,880**	**16,202,958**	**11%**
EXPENSES								
Program Subcontracts	3,729,590	4,224,222	494,632	12%	45,397,895	45,666,608	268,712	1%
Incentives	22,454,100	30,883,645	8,429,546	27%	67,764,302	91,294,588	23,530,286	26%
Salaries and Related Expenses	801,144	699,338	(101,807)	(15%)	9,663,583	8,842,887	(820,696)	(9%)
Professional Services	481,203	571,980	90,777	16%	4,919,134	6,584,047	1,664,912	25%
Supplies	2,302	8,328	6,027	72%	30,465	73,218	42,752	58%
Telephone	5,318	4,857	(461)	(9%)	54,163	48,332	(5,831)	(12%)
Postage and Shipping Expenses	932	753	(179)	(24%)	9,770	12,027	2,257	19%
Occupancy Expenses	52,396	54,042	1,646	3%	660,898	629,841	(31,056)	(5%)
Noncapitalized Equip. & Depr.	48,840	50,762	1,923	4%	625,386	1,342,795	717,409	53%
Call Center	7,844	15,057	7,213	48%	550,794	208,904	(341,891)	(164%)
Printing and Publications	4,683	14,709	10,025	68%	106,893	125,877	18,984	15%
Travel	10,671	8,967	(1,704)	(19%)	132,564	122,063	(10,501)	(9%)
Conference, Training & Mtng Exp	25,787	12,842	(12,945)	(101%)	140,200	129,314	(10,886)	(8%)
Interest Expense and Bank Fees	0	0	0		5,443	5,030	(413)	(8%)
Insurance	8,622	7,800	(822)	(11%)	100,175	92,626	(7,549)	(8%)
Miscellaneous Expenses	2,361	97	(2,264)	(2336%)	3,451	34,762	31,311	90%
Dues, Licenses and Fees	27,370	9,579	(17,790)	(186%)	160,697	142,630	(18,067)	(13%)
TOTAL EXPENSES	**27,663,161**	**36,566,978**	**8,903,817**	**24%**	**130,325,815**	**155,355,548**	**25,029,733**	**16%**
TOTAL REVENUE LESS EXPENSES	**(14,976,720)**	**(24,032,449)**	**9,055,729**	**38%**	**32,249,023**	**(8,983,668)**	**41,232,691**	**459%**

IS-Acct-YTD-PY

Energy Trust of Oregon, Inc
INCOME STATEMENT - ACTUAL AND YTD BUDGET COMPARISON
For the Twelve Months Ending December 31, 2013
(Unaudited)

	December				YTD			
	Actual	**Budget**	**Budget Variance**	**Variance %**	**Actual**	**Budget**	**Budget Variance**	**Variance %**
REVENUES								
Public Purpose Funds-PGE	2,705,103	2,829,373	(124,271)	(4%)	34,273,605	34,019,088	254,516	1%
Public Purpose Funds-PacifiCorp	2,135,177	2,461,578	(326,401)	(13%)	25,809,694	25,472,491	337,203	1%
Public Purpose Funds-NW Natural	1,539,431	2,009,934	(470,503)	(23%)	22,473,918	21,996,075	477,843	2%
Public Purpose Funds-Cascade	474,416	471,796	2,619	1%	2,413,481	3,293,912	(880,431)	(27%)
Total Public Purpose Funds	**6,854,126**	**7,772,682**	**(918,556)**	**(12%)**	**84,970,697**	**84,781,566**	**189,130**	**0%**
Incremental Funds - PGE	3,803,846	5,148,609	(1,344,762)	(26%)	48,918,175	50,850,000	(1,931,825)	(4%)
Incremental Funds - PacifiCorp	2,017,716	2,576,979	(559,264)	(22%)	25,557,205	25,881,600	(324,395)	(1%)
NW Natural - Industrial DSM	0	797,028	(797,028)	(100%)	1,727,838	2,391,083	(663,245)	(28%)
NW Natural - Washington	0	0	0		1,291,102	1,291,102	0	0%
Contributions	0	0	0		13,430	0	13,430	
Revenue from Investments	10,753	10,000	753	8%	96,392	120,000	(23,608)	(20%)
TOTAL REVENUE	**12,686,441**	**16,305,297**	**(3,618,856)**	**(22%)**	**162,574,838**	**165,315,351**	**(2,740,513)**	**(2%)**
EXPENSES								
Program Subcontracts	3,729,590	4,183,689	454,099	11%	45,397,895	47,648,857	2,250,962	5%
Incentives	22,454,100	24,706,686	2,252,587	9%	67,764,302	98,154,500	30,390,198	31%
Salaries and Related Expenses	801,144	848,194	47,050	6%	9,663,583	10,625,297	961,713	9%
Professional Services	481,203	916,787	435,584	48%	4,919,134	10,291,777	5,372,643	52%
Supplies	2,302	10,354	8,052	78%	30,465	124,244	93,779	75%
Telephone	5,318	4,703	(615)	(13%)	54,163	54,796	633	1%
Postage and Shipping Expenses	932	833	(98)	(12%)	9,770	10,000	230	2%
Occupancy Expenses	52,396	58,434	6,038	10%	660,898	701,202	40,305	6%
Noncapitalized Equip. & Depr.	48,840	107,250	58,411	54%	625,386	946,871	321,485	34%
Call Center	7,844	44,917	37,073	83%	550,794	539,000	(11,794)	(2%)
Printing and Publications	4,683	17,112	12,429	73%	106,893	205,350	98,457	48%
Travel	10,671	25,232	14,561	58%	132,564	219,384	86,820	40%
Conference, Training & Mtng Exp	25,787	41,507	15,720	38%	140,200	418,815	278,615	67%
Interest Expense and Bank Fees	0	625	625	100%	5,443	7,500	2,057	27%
Insurance	8,622	9,167	545	6%	100,175	110,000	9,825	9%
Miscellaneous Expenses	2,361	225	(2,136)	(949%)	3,451	2,700	(751)	(28%)
Dues, Licenses and Fees	27,370	22,332	(5,037)	(23%)	160,697	182,498	21,801	12%
TOTAL EXPENSES	**27,663,161**	**30,998,048**	**3,334,886**	**11%**	**130,325,815**	**170,242,790**	**39,916,975**	**23%**
TOTAL REVENUE LESS EXPENSES	**(14,976,720)**	**(14,692,750)**	**(283,970)**	**(2%)**	**32,249,023**	**(4,927,440)**	**37,176,463**	**754%**

IS-Acct-YTD-001

Energy Trust of Oregon, Inc
Statement of Functional Expenses
For the Twelve Months Ending December 31, 2013

	Energy Efficiency	Renewable Energy	Total Program Expenses	Management & General	Communications & Customer Service	Total Admin Expenses	Total	Budget	Variance	% Var
Program Expenses										
Incentives/ Program Management & Deliver	106,925,779	6,236,419	113,162,198				113,162,198	145,803,358	32,641,160	22%
Payroll and Related Expenses	2,804,042	835,895	3,639,937	1,892,490	862,012	2,754,502	6,394,439	6,711,140	316,701	5%
Outsourced Services	3,298,598	381,093	3,679,691	151,676	568,505	720,181	4,399,872	8,682,478	4,282,606	49%
Planning and Evaluation	1,848,883	83,478	1,932,361				1,932,361	2,656,645	724,284	27%
Customer Service Management	980,836	23,313	1,004,149				1,004,149	1,034,827	30,678	3%
Trade Allies Network	344,662	15,599	360,261				360,261	437,858	77,597	18%
Total Program Expenses	**116,202,800**	**7,575,796**	**123,778,596**	**2,044,167**	**1,430,517**	**3,474,684**	**127,253,280**	**165,326,304**	**38,073,024**	**23%**
Program Support Costs										
Supplies	8,021	2,366	10,387	8,642	3,089	11,731	22,118	78,442	56,324	72%
Postage and Shipping Expenses	3,537	872	4,409	1,620	826	2,446	6,855	7,853	998	13%
Telephone	3,593	1,587	5,180	1,841	856	2,697	7,877	6,725	(1,152)	-17%
Printing and Publications	90,242	5,008	95,250	821	6,434	7,255	102,505	197,577	95,072	48%
Occupancy Expenses	202,991	64,134	267,125	118,134	60,739	178,873	445,998	448,800	2,802	1%
Insurance	30,876	9,755	40,631	17,969	9,239	27,208	67,839	70,645	2,806	4%
Equipment	18,745	34,589	53,334	5,552	2,854	8,406	61,740	23,928	(37,812)	-158%
Travel	42,108	16,967	59,075	21,685	4,158	25,843	84,918	164,284	79,366	48%
Meetings, Trainings & Conferences	28,845	12,171	41,016	37,988	6,059	44,047	85,063	300,215	215,152	72%
Interest Expense and Bank Fees		100	100	5,343		5,343	5,443	7,500	2,057	27%
Depreciation & Amortization	50,300	17,823	68,123	29,273	15,051	44,324	112,447	103,076	(9,371)	-9%
Dues, Licenses and Fees	79,301	16,239	95,540	25,832	3,007	28,839	124,379	99,532	(24,847)	-25%
Miscellaneous Expenses	3,433		3,433	18		18	3,451	1,806	(1,645)	-91%
IT Services	1,371,835	161,486	1,533,321	273,597	134,987	408,584	1,941,905	3,406,104	1,464,199	43%
Total Program Support Costs	**1,933,828**	**343,097**	**2,276,925**	**548,313**	**247,297**	**795,610**	**3,072,535**	**4,916,487**	**1,843,952**	**38%**
TOTAL EXPENSES	**118,136,628**	**7,918,893**	**126,055,521**	**2,592,479**	**1,677,815**	**4,270,294**	**130,325,815**	**170,242,790**	**39,916,975**	**23%**
OPUC measure vs. 9%	**4.03%**									

Exp-Acct-YTD-002

Energy Trust of Oregon, Inc
Year to Date by Program/Service Territory
For the Twelve Months Ending December 31, 2013
(Unaudited)

	ENERGY EFFICIENCY										
	PGE	**PacifiCorp**	**Total**	**NWN Industrial**	**NW Natural**	**Cascade**	**Oregon Total**	**Clark PUD WA**	**NWN WA**	**WA Total**	**ETO Total**
REVENUES											
Public Purpose Funding	$26,484,406	$20,069,559	$46,553,965		$22,473,918	$2,413,481	$71,441,364				$71,441,364
Incremental Funding	48,918,175	25,557,205	74,475,380	1,727,838			76,203,218		1,291,102	1,291,102	77,494,320
Contributions											
Revenue from Investments											
TOTAL PROGRAM REVENUE	**75,402,581**	**45,626,764**	**121,029,345**	**1,727,838**	**22,473,918**	**2,413,481**	**147,644,582**		**1,291,102**	**1,291,102**	**148,935,684**
EXPENSES											
Program Management (Note 3)	2,036,991	1,217,597	3,254,589	99,510	648,827	61,296	4,064,221	1,800	135,590	137,390	4,201,611
Program Delivery	20,356,627	13,502,501	33,859,128	507,941	4,810,885	415,341	39,593,295	4,470	301,960	306,430	39,899,725
Incentives	33,129,653	17,491,791	50,621,444	1,683,443	8,230,184	670,261	61,205,332	16,065	504,784	520,849	61,726,181
Program Eval & Planning Svcs.	1,545,377	991,269	2,536,646	43,017	558,374	39,600	3,177,637	742	38,164	38,906	3,216,543
Program Marketing/Outreach	2,316,535	1,527,063	3,843,598	19,981	1,181,710	78,183	5,123,472	0	55,388	55,388	5,178,860
Program Quality Assurance	29,673	30,681	60,354	0	38,363	1,615	100,332	0	0	0	100,332
Outsourced Services	248,701	172,655	421,357	3,742	122,092	6,862	554,053	0	0	0	554,053
Trade Allies & Cust. Svc. Mgmt.	363,671	275,419	639,090	4,360	263,351	14,931	921,733	512	24,243	24,755	946,488
IT Services	617,319	401,071	1,018,389	16,417	281,231	18,200	1,334,237	734	36,863	37,597	1,371,834
Other Program Expenses	376,316	276,739	653,055	12,010	228,059	11,993	905,117	631	35,255	35,886	941,003
TOTAL PROGRAM EXPENSES	**61,020,862**	**35,886,788**	**96,907,650**	**2,390,421**	**16,363,076**	**1,318,282**	**116,979,429**	**24,954**	**1,132,247**	**1,157,201**	**118,136,628**
ADMINISTRATIVE COSTS											
Management & General (Notes 1 & 2)	1,254,966	738,054	1,993,020	49,162	336,526	27,112	2,405,819	513	23,286	23,799	2,429,618
Communications & Customer Svc (Notes 1 & 2)	812,196	477,658	1,289,854	31,817	217,795	17,546	1,557,012	332	15,071	15,403	1,572,415
Total Administrative Costs	**2,067,162**	**1,215,712**	**3,282,874**	**80,979**	**554,320**	**44,658**	**3,962,831**	**845**	**38,357**	**39,202**	**4,002,033**
TOTAL PROG & ADMIN EXPENSES	**63,088,024**	**37,102,499**	**100,190,523**	**2,471,401**	**16,917,397**	**1,362,940**	**120,942,261**	**25,799**	**1,170,602**	**1,196,401**	**122,138,660**
TOTAL REVENUE LESS EXPENSES	**12,314,557**	**8,524,265**	**20,838,822**	**(743,563)**	**5,556,521**	**1,050,541**	**26,702,321**	**(25,799)**	**120,500**	**94,701**	**26,797,024**
Cumulative Carryover at 12/31/12	12,168,475	3,036,549	15,205,024	1,099,798	3,013,149	(392,281)	18,925,690	50,734	353,174	403,908	19,329,598
Change in net assets this year	12,314,557	8,524,265	20,838,822	(743,563)	5,556,521	1,050,541	26,702,321	(25,799)	120,500	94,701	26,797,024
Interest Attributed						392,281	392,281				392,281
Interest Re-Attributed						(392,281)	(392,281)				(392,281)
Assets Released for General Purpose								(24,935)		(24,935)	(24,935)
Ending Net Assets - Reserves	**24,483,032**	**11,560,814**	**36,043,846**	**356,235**	**8,569,670**	**658,260**	**45,628,011**	**(0)**	**473,674**	**473,674**	**46,101,687**
Ending Reserve by Category											
Program Reserves (Efficiency and Renewables)	24,483,032	11,560,814	36,043,846	356,235	8,569,670	658,260	45,628,011	24,935	473,674	498,609	46,126,622
Interest Attributed						392,281	392,281				392,281
Interest Re-Attributed						(392,281)	(392,281)				(392,281)
Assets Released for General Purpose								(24,935)		(24,935)	(24,935)
Organization Contingency Pool											
Emergency Contingency Pool											
TOTAL NET ASSETS CUMULATIVE	**24,483,032**	**11,560,814**	**36,043,846**	**356,235**	**8,569,670**	**658,260**	**45,628,011**	**(0)**	**473,674**	**473,674**	**46,101,687**

Note 1) Both Management & General and Communications & Customer Service Expenses (Administrative) have been allocated based on total expenses.
Note 2) Administrative costs are allocated for management reporting only. GAAP for Not for Profit organizations does not allow allocation of administrative costs to program expenses.
Note 3) Program Management costs include both outsourced and internal staff.

Energy Trust of Oregon, Inc
Year to Date by Program/Service Territory
For the Twelve Months Ending December 31, 2013
(Unaudited)

	RENEWABLE ENERGY				TOTAL			
	PGE	PacifiCorp	Total	Other	All Programs	Approved budget	Change	% Change
REVENUES								
Public Purpose Funding	$7,789,199	$5,740,135	$13,529,334		$84,970,697	$84,781,566	$189,131	0.2%
Incremental Funding					77,494,319	80,413,784	(2,919,465)	-3.6%
Contributions				13,430	13,430		13,430	
Revenue from Investments				96,392	96,392	120,000	(23,608)	-19.7%
TOTAL PROGRAM REVENUE	**7,789,199**	**5,740,135**	**13,529,334**	**109,822**	**162,574,838**	**165,315,350**	**(2,740,512)**	**-1.7%**
EXPENSES								
Program Management (Note 3)	367,203	503,691	870,894		5,072,505	6,257,190	1,184,685	18.9%
Program Delivery	80,984	82,316	163,300		40,063,025	41,801,366	1,738,341	4.2%
Incentives	3,523,813	2,514,307	6,038,120		67,764,301	98,154,501	30,390,200	31.0%
Program Eval & Planning Svcs.	37,252	46,226	83,478		3,300,021	5,375,722	2,075,701	38.6%
Program Marketing/Outreach	63,821	40,552	104,373		5,283,233	5,173,736	(109,497)	-2.1%
Program Quality Assurance	1,621	0	1,621		101,953	270,000	168,047	62.2%
Outsourced Services	136,825	138,276	275,101		829,154	2,530,050	1,700,896	67.2%
Trade Allies & Cust. Svc. Mgmt.	23,569	15,304	38,873		985,361	1,073,685	88,324	8.2%
IT Services	72,638	88,848	161,486		1,533,320	2,689,874	1,156,554	43.0%
Other Program Expenses	91,482	90,168	181,650		1,122,653	1,258,171	135,518	10.8%
TOTAL PROGRAM EXPENSES	**4,399,208**	**3,519,688**	**7,918,893**	**0**	**126,055,521**	**164,584,295**	**38,528,774**	**23.4%**
ADMINISTRATIVE COSTS								
Management & General (Notes 1 & 2)	87,977	74,884	162,861		2,592,479	3,463,895	871,416	25.2%
Communications & Customer Svc (Notes 1 &	56,938	48,464	105,402		1,677,815	2,194,599	516,784	23.5%
Total Administrative Costs	**144,914**	**123,349**	**268,263**	**0**	**4,270,294**	**5,658,494**	**1,388,200**	**24.5%**
TOTAL PROG & ADMIN EXPENSES	**4,544,121**	**3,643,035**	**8,187,153**	**0**	**130,325,815**	**170,242,789**	**39,916,974**	**23.4%**
TOTAL REVENUE LESS EXPENSES	**3,245,078**	**2,097,100**	**5,342,181**	**109,822**	**32,249,023**	**(4,927,439)**	**(37,176,462)**	**754.5%**
Cumulative Carryover at 12/31/12	8,796,384	9,696,615	18,492,999	7,858,953	45,681,550	37,070,557	(8,610,993)	-23.2%
Change in net assets this year	3,245,078	2,097,100	5,342,181	109,822	32,249,023	(4,927,439)	(37,176,462)	754.5%
Interest Attributed				(392,281)				
Interest Re-Attributed				392,281				
Assets Released for General Purpose				24,935	0			
Ending Net Assets - Reserves	**12,041,462**	**11,793,715**	**23,835,180**	**7,993,710**	**77,930,572**	**32,143,116**	**(45,787,456)**	**-142.4%**
Ending Reserve by Category								
Program Reserves (Efficiency and Renewables	12,041,462	11,793,715	23,835,180		69,961,797			
Interest Attributed				(392,281)	0			
Interest Re-Attributed				392,281				
Assets Released for General Purpose				24,935	0			
Organization Contingency Pool				2,968,775	2,968,775			
Emergency Contingency Pool				5,000,000	5,000,000			
TOTAL NET ASSETS CUMULATIVE	**12,041,462**	**11,793,715**	**23,835,180**	**7,993,710**	**77,930,572**	**32,143,116**	**(45,787,456)**	**-142.4%**

Note 1) Both Management & General and Communications & Customer Service Expenses (Administrative) have been allocated based on total expenses.
Note 2) Administrative costs are allocated for management reporting only. GAAP for Not for Profit organizations does not allow allocation of administrative costs to program expenses.
Note 3) Program Management costs include both outsourced and internal staff.

Energy Trust of Oregon, Inc
Program Expense by Service Territory
For the Twelve Months Ending December 31, 2013
(Unaudited)

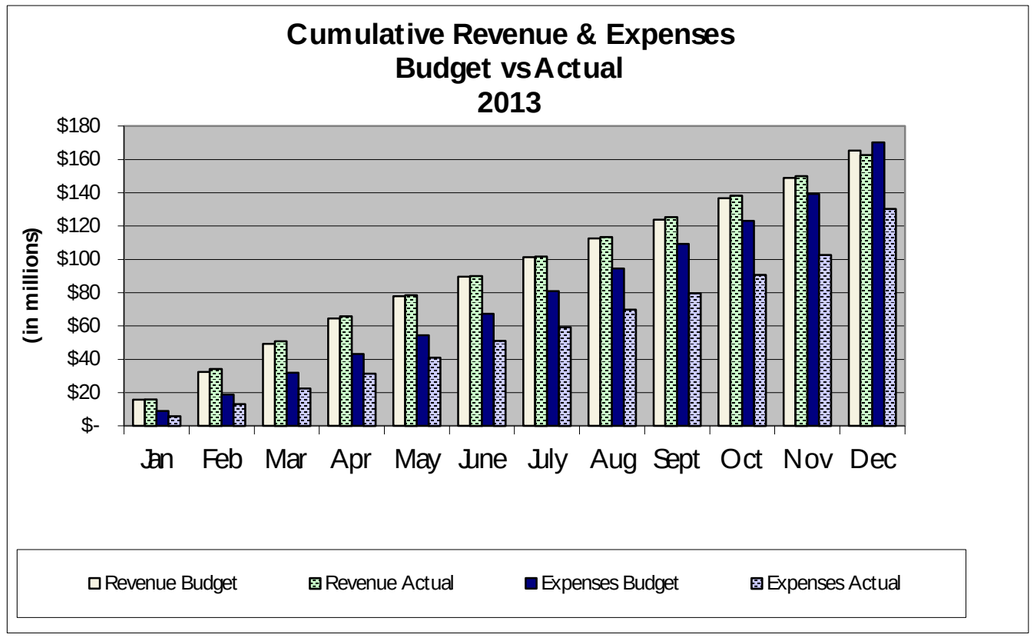
	PGE	Pacific Power	Subtotal Elec.	NWN Industrial	NW Natural Gas	Cascade	Subtotal Gas	Oregon Total	Clark PUD WA	NWN WA	Total WA	ETO Total	YTD Budget	Variance	% Var
Energy Efficiency															
Commercial															
Existing Buildings	20,156,252	9,453,586	29,609,838	729,734	3,763,632	400,963	4,894,329	34,504,167	25,799	491,756	517,555	35,021,722	43,289,935	8,268,213	19%
New Buildings	6,956,650	4,570,982	11,527,632	64,937	1,006,735	103,970	1,175,642	12,703,274				12,703,274	18,059,856	5,356,582	30%
NEEA	1,691,521	1,276,059	2,967,580					2,967,580				2,967,580	3,028,703	61,123	2%
Total Commercial	**28,804,423**	**15,300,627**	**44,105,050**	**794,671**	**4,770,367**	**504,933**	**6,069,971**	**50,175,021**	**25,799**	**491,756**	**517,555**	**50,692,576**	**64,378,494**	**13,685,918**	**21%**
Industrial															
Production Efficiency	15,789,782	8,033,860	23,823,642	1,676,730	702,972	104,322	2,484,024	26,307,666				26,307,666	34,204,199	7,896,533	23%
NEEA	722,019	544,681	1,266,700					1,266,700				1,266,700	1,556,676	289,976	19%
Total Industrial	**16,511,801**	**8,578,541**	**25,090,342**	**1,676,730**	**702,972**	**104,322**	**2,484,024**	**27,574,366**				**27,574,366**	**35,760,875**	**8,186,509**	**23%**
Residential															
Existing Homes	5,871,470	6,070,945	11,942,415		7,588,754	319,543	7,908,297	19,850,712		352,377	352,377	20,203,089	27,856,568	7,653,479	27%
New Homes/Products	9,412,646	5,275,712	14,688,358		3,855,304	434,142	4,289,446	18,977,804		326,469	326,469	19,304,273	21,363,818	2,059,545	10%
NEEA	2,487,684	1,876,674	4,364,358					4,364,358				4,364,358	4,915,928	551,570	11%
Total Residential	**17,771,800**	**13,223,331**	**30,995,131**		**11,444,058**	**753,685**	**12,197,743**	**43,192,874**		**678,846**	**678,846**	**43,871,720**	**54,136,314**	**10,264,594**	**19%**
Energy Efficiency Program Cos	**63,088,024**	**37,102,499**	**100,190,523**	**2,471,401**	**16,917,397**	**1,362,940**	**20,751,738**	**120,942,261**	**25,799**	**1,170,602**	**1,196,401**	**122,138,662**	**154,275,683**	**32,137,021**	**21%**
Renewables															
Biopower	764,614	781,119	1,545,733					1,545,733				1,545,733	2,913,605	1,367,872	47%
Solar Electric (Photovoltaic)	3,455,894	2,107,457	5,563,351					5,563,351				5,563,351	9,470,185	3,906,834	41%
Other Renewable	323,613	754,459	1,078,072					1,078,072				1,078,072	3,583,318	2,505,246	70%
Renewables Program Costs	**4,544,121**	**3,643,035**	**8,187,156**					**8,187,156**				**8,187,156**	**15,967,108**	**7,779,952**	**49%**
Cost Grand Total	**67,632,145**	**40,745,534**	**108,377,679**	**2,471,401**	**16,917,397**	**1,362,940**	**20,751,738**	**129,129,417**	**25,799**	**1,170,602**	**1,196,401**	**130,325,815**	**170,242,791**	**39,916,973**	**23%**

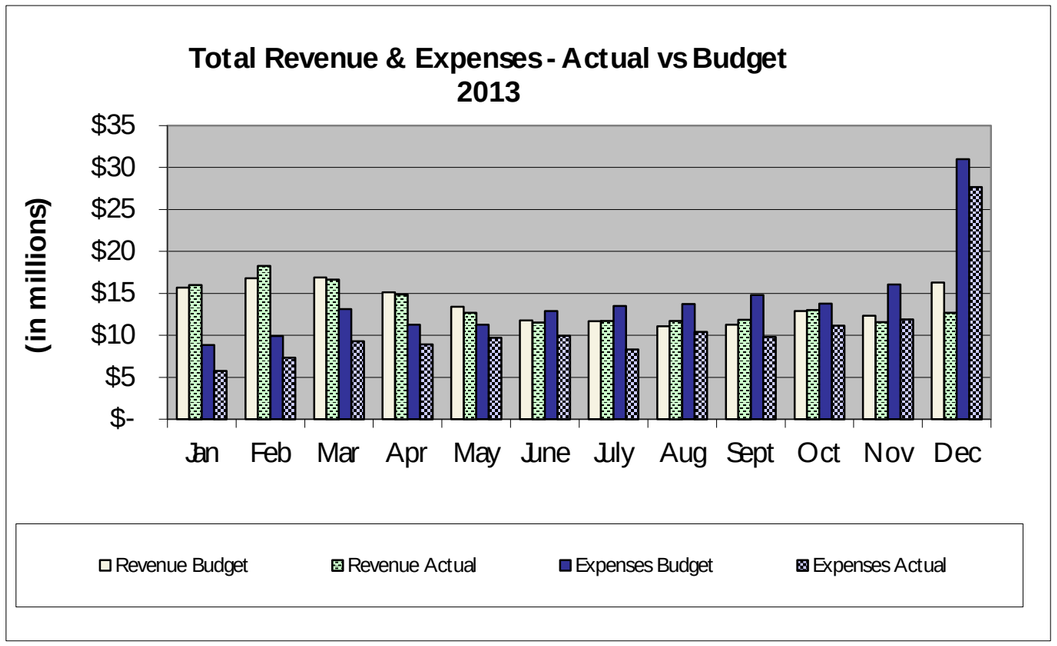
PUC-Proj-ST-07-C

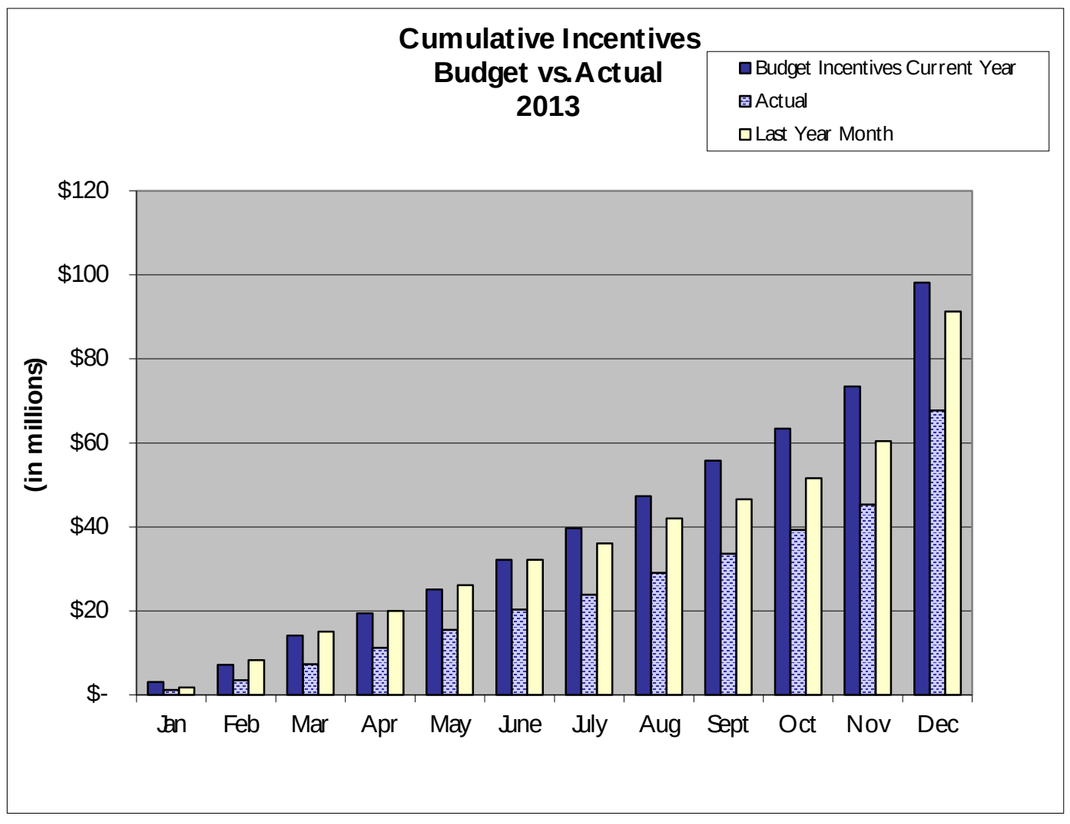
Energy Trust of Oregon, Inc.
ADMINISTRATIVE EXPENSES
For the Three Months and Year to Date Ended December 31, 2013
(Unaudited)

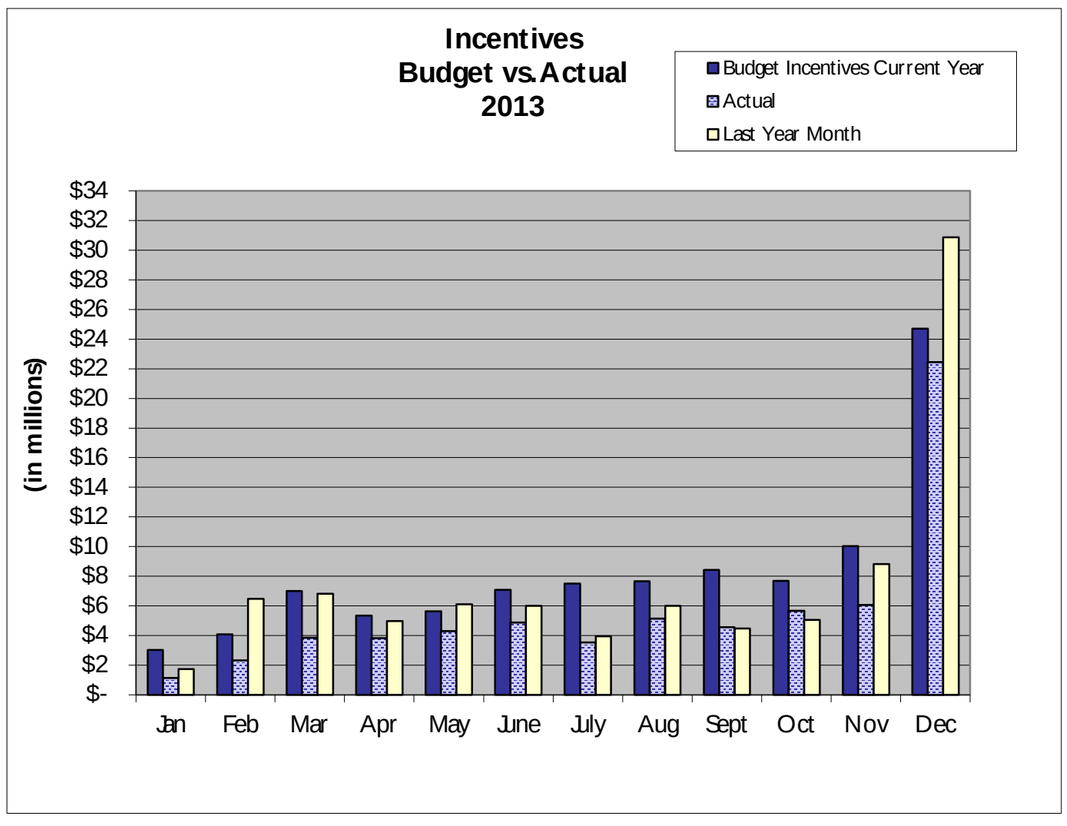
	MANAGEMENT & GENERAL							COMMUNICATIONS & CUSTOMER SERVICE						
	QUARTER			YTD				QUARTER			YTD			
	ACTUAL	BUDGET	VARIANCE	ACTUAL	BUDGET	VARIANCE	VAR %	ACTUAL	BUDGET	VARIANCE	ACTUAL	BUDGET	VARIANCE	VAR %
EXPENSES														
Outsourced Services	$36,622	$79,546	$42,924	$142,394	$442,350	$299,956	68%	$172,602	$232,500	$59,898	$568,505	$930,000	$361,494	39%
Legal Services	6,281	22,500	16,219	9,283	90,000	80,718	90%							
Salaries and Related Expenses	449,567	485,249	35,682	1,892,490	1,995,834	103,344	5%	209,779	208,331	(1,448)	862,012	832,871	(29,141)	-3%
Supplies	369	1,575	1,206	4,374	6,300	1,926	31%	3	250	247	895	1,000	105	11%
Telephone	120	350	230	472	1,760	1,288	73%	53		(53)	153		(153)	
Postage and Shipping Expenses				14		(14)			1,000	1,000		4,000	4,000	100%
Noncapitalized Equipment									250	250		1,000	1,000	100%
Printing and Publications	142	150	8	242	600	358	60%	1,527	13,750	12,223	6,136	55,000	48,864	89%
Travel	6,431	11,833	5,402	21,685	47,334	25,649	54%	2,266	1,750	(516)	4,158	7,000	2,842	41%
Conference, Training & Mtngs	17,193	56,147	38,955	37,740	187,815	150,075	80%	1,787	7,125	5,338	5,931	28,500	22,569	79%
Interest Expense and Bank Fees		1,875	1,875	5,343	7,500	2,157	29%							
Miscellaneous Expenses		50	50	18	200	182	91%							
Dues, Licenses and Fees	22,808	3,200	(19,608)	25,832	8,900	(16,932)	-190%	593	500	(93)	3,007	2,000	(1,007)	-50%
Shared Allocation (Note 1)	43,763	48,897	5,135	178,995	195,736	16,742	9%	23,775	24,123	348	92,031	96,565	4,534	5%
IT Service Allocation (Note 2)	80,317	92,864	12,546	273,597	479,567	205,970	43%	39,627	45,828	6,201	134,987	236,665	101,679	43%
TOTAL EXPENSES	**663,613**	**804,237**	**140,624**	**2,592,479**	**3,463,896**	**871,417**	**25%**	**452,011**	**535,407**	**83,396**	**1,677,815**	**2,194,600**	**516,786**	**24%**

Note 1) Represents allocation of Shared (General Office Management) Costs
Note 2) Represents allocation of Shared IT Costs


Cumulative Revenue & Expenses
Budget vs Actual
2013
(in millions)
$180
$160
$140
$120
$100
$80
$60
$40
$20
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Total Revenue & Expenses - Actual vs Budget
2013
(in millions)
$35
$30
$25
$20
$15
$10
$5
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Cumulative Incentives
Budget vs. Actual
2013
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$120
$100
$80
$60
$40
$20
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec


Incentives
Budget vs. Actual
2013
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$34
$32
$30
$28
$26
$24
$22
$20
$18
$16
$14
$12
$10
$8
$6
$4
$2
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec

R00407

For contracts with costs through: 12/31/2013

Energy Trust of Oregon
Contract Status Summary Report

Report Date: 2/4/2014

Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
Administration							
		Administration Total:	**7,268,902**	**2,371,950**	**4,896,953**		
Communications & Outreach							
		Communications & Outreach Total:	**2,676,688**	**1,739,960**	**936,728**		
Energy Efficiency Programs							
Northwest Energy Efficiency Alliance	Regional Energy Eff Initiative	Portland	39,138,680	29,179,846	9,958,834	1/1/10	7/1/15
ICF Resources, LLC	PMC BE 2014	Fairfax	8,860,987	0	8,860,987	1/1/14	12/31/14
CLEAResult Consulting Inc	2014 HES PMC	Austin	7,595,520	0	7,595,520	1/1/14	12/31/14
Fluid Market Strategies LLC	2013 HES PMC	Portland	7,416,843	7,243,472	173,371	1/1/13	12/31/13
Portland Energy Conservation, Inc.	PMC NHP 2014	Portland	6,965,473	0	6,965,473	1/1/14	12/31/14
Portland Energy Conservation, Inc.	PMC NHP 2013	Portland	6,315,684	6,136,013	179,671	1/1/13	12/31/13
Portland Energy Conservation, Inc.	2013 NBE PMC	Portland	4,736,060	4,455,356	280,704	1/1/13	12/31/13
Portland Energy Conservation, Inc.	2014 NBE PMC	Portland	4,735,000	0	4,735,000	1/1/14	12/31/14
Intel Corporation	Intel D1X Megaproject	Hillsboro	4,000,000	4,000,000	0	11/15/12	12/31/14
Lockheed Martin Services, Inc.	2014 MF PMC	Cherry Hill	3,569,068	0	3,569,068	1/1/14	12/31/14
Lockheed Martin Services, Inc.	2013 MF PMC	Cherry Hill	2,816,996	2,723,984	93,012	1/1/13	12/31/13
Portland General Electric	PDC - PE 2014	Portland	2,314,600	0	2,314,600	1/1/14	12/31/14
OPOWER, Inc.	OPOWER Agreement	Arlington	2,092,200	2,084,920	7,280	3/2/10	2/28/14
Oregon State University	CHP Project - OSU	Corvallis	2,024,263	1,920,000	104,263	12/20/10	1/31/16
Energy 350 Inc	PDC - PE 2014	Portland	1,976,000	0	1,976,000	1/1/14	12/31/14
Portland General Electric	PDC - PE 2013		1,936,000	1,881,563	54,437	1/1/13	12/31/13
Cascade Energy, Inc.	PDC - PE 2013	Walla Walla	1,775,055	1,721,426	53,629	1/1/13	12/31/13
NEXANT, INC.	PDC - PE 2014	San Francisco	1,429,461	0	1,429,461	1/1/14	12/31/14
RHT Energy Solutions	PDC - PE 2013	Medford	1,293,651	1,265,328	28,323	1/1/13	12/31/13
Cascade Energy, Inc.	PDC - PE 2014 Small Industrial	Walla Walla	1,234,100	0	1,234,100	1/1/14	12/31/14
Cascade Energy, Inc.	PDC - PE 2013 Small Industrial	Walla Walla	1,147,500	1,127,500	20,000	1/1/13	12/31/13
RHT Energy Solutions	PDC - PE 2014	Medford	1,145,000	0	1,145,000	1/1/14	12/31/14
Evergreen Consulting Group, LLC	PE Lighting PDC 2014	Tigard	1,092,000	0	1,092,000	1/1/14	12/31/14
Evergreen Consulting Group, LLC	PE Lighting PDC 2013	Tigard	1,071,000	1,034,256	36,744	1/1/13	12/31/13
Northwest Power & Conservation Council	Annual Work Plan		874,652	550,195	324,457	3/20/12	12/31/14
NEXANT, INC.	PDC - PE 2013	San Francisco	825,818	725,618	100,200	1/1/13	12/31/13
Ecova Inc	Plug Load Solutions Funding	Spokane	499,950	409,144	90,806	1/1/13	12/31/13
SBW Consulting, Inc.	BE Program Impact Evaluation	Bellevue	489,000	459,000	30,000	1/15/12	10/30/13
Evoworx Inc.	EnergySavvy Online Audit Tool	Seattle	472,500	339,234	133,266	1/1/12	12/31/14
Clean Energy Works Oregon Inc	Clean Energy Works	Portland	448,500	300,000	148,500	1/1/10	2/28/14
OPOWER, Inc.	OPower Personal Energy Reports	Arlington	425,850	199,456	226,394	8/1/13	7/31/15
Navigant Consulting Inc	Analytical Model & Study	Boulder	412,052	52,410	359,642	8/12/13	4/30/14
CLEAResult Consulting Inc	2014 HES WA PMC	Austin	277,600	0	277,600	1/1/14	12/31/14
Fluid Market Strategies LLC	2013 HES WA PMC	Portland	265,000	249,391	15,609	1/1/13	12/31/13
The Cadmus Group Inc.	BE Impact Evaluation 2012	Watertown	250,000	0	250,000	1/1/14	12/31/14
Energy 350 Inc	PDC Transition Agreement	Portland	200,000	199,855	145	9/1/13	12/31/13

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Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
ICF Resources, LLC	NWN WA BE 2013	Fairfax	191,538	183,200	8,338	1/1/13	12/31/13
ICF Resources, LLC	NWN WA BE 2014	Fairfax	191,538	0	191,538	1/1/14	12/31/14
Home Performance Contractors Guild of Oregon	Existing Homes Program Support	Portland	155,000	125,000	30,000	1/1/12	3/31/14
D&R International LTD	Market Lift Program	Silver Spring	150,000	0	150,000	1/1/13	3/31/14
Abt SRBI Inc.	Fast Feedback Surveys	New York	118,000	0	118,000	1/31/14	2/29/16
Navigant Consulting Inc	CORE Improvement Pilot Eval	Boulder	115,000	36,533	78,467	9/1/12	9/1/15
ICF Resources, LLC	NWN DSM Initiative 2014	Fairfax	113,850	0	113,850	1/1/14	12/31/14
J. Hruska Global	Quality Assurance Services	Columbia City	100,000	100,332	-332	1/1/13	12/31/14
Research Into Action, Inc.	Existing Homes Process Eval	Portland	94,000	50,639	43,361	9/9/13	2/28/14
Ecotope, Inc.	Gas Hearth Study	Seattle	90,000	39,919	50,081	10/10/13	9/1/15
Energy Efficiency Funding Group Inc	ESP Certificate Program	San Francisco	80,000	0	80,000	12/16/13	3/30/14
PWP, Inc.	NBE Process Evaluation	Gaithersburg	80,000	0	80,000	1/15/14	12/31/14
Pollinate Inc	Web Application Development	Portland	75,500	74,941	559	1/1/12	12/31/13
Research Into Action, Inc.	Products Process Evaluation	Portland	75,240	63,540	11,700	7/1/13	4/1/14
The Cadmus Group Inc.	Commercial Op Pilot Eval	Watertown	75,000	52,058	22,942	7/1/11	12/31/13
Evergreen Economics	New Homes Process Eval - 2013	Portland	70,000	65,948	4,052	6/24/13	3/31/14
Pivotal Energy Solutions LLC	New Homes Database	Gilbert	60,000	24,000	36,000	10/1/13	3/1/14
Research Into Action, Inc.	BE Process Eval - 2013	Portland	51,000	26,735	24,265	10/1/13	2/28/14
ICF Resources, LLC	OSU CHP Performance Monitoring	Fairfax	50,000	13,383	36,618	7/1/13	6/30/14
KEMA Incorporated	NEEA 2014 Lighting Survey	Oakland	47,500	0	47,500	12/2/13	7/30/14
PWP, Inc.	Comm SEM Initiative Evaluation	Gaithersburg	45,000	36,783	8,217	7/1/12	6/30/14
Portland General Electric	Utility Data Payment - OPOWER	Portland	40,000	19,928	20,072	8/1/10	2/28/14
PWP, Inc.	SEM Intro Pilot Evaluation	Gaithersburg	40,000	5,950	34,050	10/28/13	10/2/15
NW Natural	Info Transfer & Reimbursement	Portland	35,000	21,263	13,737	7/12/10	2/28/14
The Cadmus Group Inc.	Lighting Pilot Evaluation	Watertown	35,000	22,031	12,969	4/1/12	12/31/14
WegoWise Inc	Wegowise Benchmarking License	Boston	35,000	35,000	0	5/14/12	5/14/14
Apex Analytics LLC	Nest Pilot Evaluation	Boulder	32,000	2,775	29,225	11/15/13	10/31/14
The Cadmus Group Inc.	Market Solutions Review	Watertown	32,000	25,995	6,005	10/15/13	12/31/13
Energy Center of Wisconsin	Billing Analysis Review	Madison	30,000	925	29,075	11/1/13	12/31/14
MetaResource Group	Intel D1X Megaproject	Portland	30,000	6,168	23,832	10/10/11	12/31/14
Michael Blasnick & Associated	Billing Analysis Process	Boston	30,000	3,938	26,063	1/1/10	12/31/14
Seattle City Light	Lighting Design Lab	Seattle	30,000	30,000	0	1/1/13	12/31/13
The Cadmus Group Inc.	Pay For Performance Pilot Eval	Watertown	30,000	0	30,000	9/25/13	12/31/14
Pivotal Energy Solutions LLC	License Agreement	Gilbert	29,500	0	29,500	3/1/14	12/31/14
Stellar Processes, Inc.	BE Measure Evaluation	Portland	25,250	19,125	6,125	10/24/12	10/24/14
Northwest Food Processors Association	NW Industrial EE Summit 2014	Portland	25,000	17,500	7,500	7/16/13	1/15/14
Triple Point Energy Inc.	SEM Workshops	Portland	24,240	18,395	5,845	4/29/13	1/15/14
Forrest Marketing	Commerical Financing Study	Portland	24,000	21,600	2,400	8/30/13	3/1/14
Issues & Answers Network Inc	Residential Awareness 2014	Virginia Beach	20,730	0	20,730	11/1/13	3/31/14
Oregon Assoc. of Clean Water Agencies	SEM Training - Round III		19,920	8,000	11,920	5/23/13	6/15/14

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Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
Oregon Department of Energy	Oregon Leaders Project	Salem	15,000	15,000	0	9/19/11	1/31/14
G. Curtis Consulting	Residential Windows Market	Salem	14,750	4,900	9,850	9/15/13	1/31/14
Cascade Energy, Inc.	PDC Transition Agreement	Walla Walla	14,000	0	14,000	1/1/14	3/10/14
MetaResource Group	Energy Performance Score Eval	Portland	13,000	6,600	6,400	9/1/13	1/31/14
Consumer Opinion Services Inc	Residential Phone Surveys	Seattle	12,000	3,692	8,308	9/1/13	10/31/14
Portland State University Foundation	Green Modular Classroom Proj	Portland	10,500	10,500	0	6/13/12	7/31/14
American Council for and Energy Efficient Economy	Advancing EE Programs		10,000	10,000	0	12/19/13	9/30/14
American Council for and Energy Efficient Economy	High Participation Rates		10,000	10,000	0	12/23/13	12/31/14
American Council for and Energy Efficient Economy	Game-Based EE Programs		10,000	10,000	0	12/23/13	10/31/14
American Council for and Energy Efficient Economy	Extended Motor Products Label		10,000	10,000	0	12/23/13	3/31/15
Bridgetown Printing Company	January 2014 Bill Insert	Portland	8,509	0	8,509	1/1/14	12/31/14
City of Portland Bureau of Planning & Sustainability	City of Portland Workshops	Portland	8,000	0	8,000	1/1/14	12/31/14
Portland General Electric	Energy Monitoring Tool		1,190	1,190	0	10/3/13	11/30/13
	Energy Efficiency Programs Total:		**124,854,818**	**69,491,449**	**55,363,369**		
Joint Programs							
D&R International LTD	Better Data Better Design	Silver Spring	133,500	25,000	108,500	4/30/13	4/30/14
Portland State University	Technology Forecasting		87,437	49,311	38,126	11/7/11	12/31/14
Abt SRBI Inc.	Fast Feedback Survey	New York	65,000	63,070	1,930	3/1/13	2/28/14
KRH Consulting	Work Load Mangement	Portland	24,900	15,352	9,548	4/23/13	10/1/14
CoStar Realty Information Inc	Property Data	Baltimore	19,220	15,444	3,776	6/1/11	5/31/14
Glumac Inc	Planning Technical Analysis	Portland	15,000	15,000	0	10/17/12	10/17/14
The Cadmus Group Inc.	Evaluation Consultant	Watertown	14,940	14,940	0	6/20/13	2/28/15
American Council for and Energy Efficient Economy	ACEEE Sponsorships - 2014		7,500	0	7,500	1/1/14	12/31/14
	Joint Programs Total:		**367,497**	**198,118**	**169,380**		
Renewable Energy Program							
Outback Solar LLC	Outback Solar	Portland	5,000,000	4,950,000	50,000	5/9/12	5/9/37
Sunway 3, LLC	Prologis PV installation		3,405,000	3,396,044	8,956	9/30/08	9/30/28
JC-Biomethane LLC	Biogas Plant Project Funding	Eugene	2,000,000	500,000	1,500,000	10/18/12	10/18/32
Rough & Ready Lumber Company	Biopower Funding Agreement	Cave Junction	1,685,088	1,685,088	0	7/21/06	7/21/26
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	1,550,000	0	1,550,000	9/11/12	9/11/32
Central Oregon Irrigation District	COID Juniper Phase 2	Redmond	1,281,820	0	1,281,820	7/19/13	7/19/33
Alder Solar LLC	Habilitation Center PV	Portland	1,236,750	1,224,244	12,506	1/18/08	12/31/28
Central Oregon Irrigation District	Juniper Ridge Hydroelectric	Redmond	1,000,000	1,000,000	0	10/31/08	6/30/31
Farm Power Misty Meadows LLC	Misty Meadows Biogas Facility	Mount Vernon	1,000,000	250,000	750,000	10/25/12	10/25/27
Three Sisters Irrigation District	TSID Hydro	Sisters	1,000,000	0	1,000,000	4/25/12	4/25/32
Stahlbush Island Farms, Inc.	Funding Assistance Agreement	Corvallis	827,000	827,000	0	6/24/09	6/24/29
RBS Asset Finance Inc	Black Cap Solar PV Funding	Chicago	600,000	600,000	0	10/1/12	10/1/37
Tioga Solar VI, LLC	Photovoltaic Project Agreement	San Mateo	570,760	497,399	73,361	2/1/09	2/1/30

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Contractor	Description	*City	Est Cost	Actual TTD	Remaining	Start	End
C Drop Hydro LLC	C Drop Project - Klamath Irrig	Idaho Falls	490,000	490,000	0	11/1/11	11/1/31
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	487,000	487,000	0	3/2/10	3/2/30
City of Medford	750kW Combined Heat & Power	Medford	450,000	225,000	225,000	10/20/11	10/20/31
City of Pendleton	Pendleton Microturbines	Pendleton	450,000	150,000	300,000	4/20/12	4/20/32
RES - Ag FGO LLC	Biogas Manure Digester Project	Washington	441,660	331,245	110,415	10/27/10	10/27/25
RES - Ag FGO LLC	Biogas Manure Digester - FGO	Washington	441,660	110,415	331,245	10/27/10	10/27/25
K2A Properties, LLC	Doerfler Wind Farm Project	Aumsville	230,000	191,182	38,818	5/20/10	5/20/30
Confederated Tribes of the Umatilla Indian Reservation	Small Wind Project Funding	Pendleton	170,992	0	170,992	7/25/13	12/31/28
Farmers Irrigation District	Low Line Canal Pressurization	Hood River	150,000	150,000	0	9/26/12	11/30/32
Bloomberg LP	Insight Services	San Francisco	114,800	68,183	46,617	4/1/11	1/1/15
Farmers Irrigation District	Indian Creek Corridor Project	Hood River	100,000	100,000	0	1/5/10	1/4/29
Wallowa Resources Community Solutions, Inc.	Upfront Hydroelectric Project		100,000	13,490	86,510	10/1/11	10/1/15
Stoller Vineyards, Inc.	Stoller Vineyards PV	Dayton	79,815	77,390	2,425	12/1/05	12/1/26
Oregon Military Department	Kingsley Field Geothermal Proj	Salem	75,000	0	75,000	11/26/13	6/1/14
Wallowa Resources Community Solutions Inc	Integrated Biomass Energy Camp	Enterprise	70,000	70,000	0	2/1/12	1/31/27
Deschutes Valley Water District	Early Development Assistance	Madras	68,373	0	68,373	7/23/13	12/31/14
City of Portland Water Bureau	Vernon Hydro	Portland	65,000	65,000	0	11/15/10	11/15/30
City of Klamath Falls	Klamath Falls Biopower Project	Klamath Falls	49,927	0	49,927	1/9/14	12/31/14
University of Oregon	UO SMRL Contribution - 2013	Eugene	45,000	45,000	0	3/9/13	3/9/14
MC Energy LLC	Small Wind Incentive	Spokane	43,250	43,250	0	9/21/10	9/21/25
Clean Energy States Alliance	CESA Year 11 (2014)		39,500	39,500	0	7/1/13	6/30/14
United Wind Inc	Wind Consultant	Brooklyn	37,500	27,500	10,000	2/6/12	3/31/14
Harold Hartman dba Lynhart Farms	17.5 kW PV project	Malin	32,500	31,386	1,114	5/25/07	5/25/27
Mariah Wind LLC	Development Assistance Funding	Victor	28,300	0	28,300	10/25/13	12/31/14
SPS of Oregon Inc	Spaur Microhydro	Wallowa	25,000	25,000	0	7/23/10	7/23/30
Robert Migliori	42kW wind energy system	Newberg	24,125	11,641	12,484	4/11/07	1/31/24
Solar Oregon	Outreach Services	Portland	24,000	24,000	0	1/1/13	12/31/13
Solar Oregon	Education & Outreach Services	Portland	24,000	0	24,000	1/1/14	12/31/15
Wind Products Inc	Web Portal Tool	Brooklyn	24,000	25,000	-1,000	6/25/12	9/20/13
Farmers Conservation Alliance	Small-Scale Hydro Plant Review	Hood River	17,500	0	17,500	1/2/14	6/30/14
Warren Griffin	Griffin Wind Project	Salem	13,150	9,255	3,895	10/1/05	10/1/20
Corbett Water District	Corbett Water District Hydro	Corbett	12,000	16,559	-4,559	4/16/12	6/30/32
Garrad Hassan America Inc	RE Consulting Services	San Diego	6,841	6,841	0	6/11/13	2/28/15
American Wind Group LLC	Anemometer Incentive Funding	Oasis	4,031	4,031	0	7/22/11	2/15/14
eFormative Options LLC	RE Evaluation Consultant	Vashon	3,000	3,000	0	3/1/13	2/28/15
	Renewable Energy Program Total:		**25,594,342**	**17,770,642**	**7,823,700**		
	Grand Totals:		**160,762,248**	**91,572,119**	**69,190,129**		

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Financial Glossary

(for internal use) - updated August 9, 2012

Administrative Costs

Costs that, by nonprofit accounting standards, have general objectives which enable an organization's programs to function. The organization's programs in turn provide direct services to the organization's constituents and fulfill the mission of the organization.
i.e. management and general and general communication and outreach expenses

I. **Management and General**
- Includes governance/board activities, interest/financing costs, accounting, payroll, human resources, general legal support, and other general organizational management costs.
- Receives an allocated share of indirect costs.

II. **General Communications and Outreach**
- Expenditures of a general nature, conveying the nonprofit mission of the organization and general public awareness.
- Receives an allocated share of indirect costs.

Allocation
- A way of grouping costs together and applying them to a program as one pool based upon an allocation base that most closely represents the activity driver of the costs in the pool.
- Used as an alternative to charging programs on an invoice–by–invoice basis for accounting efficiency purposes.
- An example would be accumulating all of the costs associated with customer management (call center operations, Energy Trust customer service personnel, complaint tracking, etc). The accumulated costs are then spread to the programs that benefited by using the ratio of calls into the call center by program (i.e. the allocation base).

Allocation Cost Pools
- Employee benefits and taxes.
- Office operations. Includes rent, telephone, utilities, supplies, etc.
- Information Technology (IT) services.
- Planning and evaluation general costs.
- Customer service and trade ally support costs.
- General communications and outreach costs.
- Management and general costs.
- Shared costs for electric utilities.
- Shared costs for gas utilities.
- Shared costs for all utilities.

Auditor's Opinion
- An accountant's or auditor's opinion is a report by an independent CPA presented to the board of directors describing the scope of the examination of the organization's books, and certifying that the financial statements meet the AICPA (American Institute of Certified Public Accountants) requirements of GAAP (generally accepted accounting principles).

- Depending on the audit findings, the opinion can be unqualified or qualified regarding specific items. Energy Trust strives for and has achieved in all its years an unqualified opinion.
- An unqualified opinion indicates agreement by the auditors that the financial statements present an accurate assessment of the organization's financial results.
- The OPUC Grant Agreement requires an unqualified opinion regarding Energy Trust's financial records.
- Failure to follow generally accepted accounting principles (GAAP) can result in a qualified opinion.

Board-approved Annual Budget

- Funds approved by the board for *expenditures* during the budget year (subject to board approved program funding caps and associated policy) for the stated functions.
- Funds approved for *capital* asset expenditures.
- Approval of the general allocation of funds including commitments and cash outlays.
- Approval of expenditures is based on assumed revenues from utilities as forecasted in their annual projections of public purpose collections and/or contracted revenues.

Carryover Funds

- In any one year, the amount by which revenues exceed expenses for that year in a designated category that will be added to the cumulative balance and brought forward for expenditure to the next budget year.
- In any one year, if expenditures exceed revenues, the negative difference is applied against the cumulative carryover balance.
- Does not equal the cash on hand due to noncash expense items such as depreciation.
- Tracked by major utility funder and at high level program area--by EE vs RE, not tracked by program.

Commitments

- Represents funds obligated to identified efficiency program participants in the form of signed applications or agreements and tracked in the project forecasting system**.**
- If the project is not demonstrably proceeding within agreed upon time frame, committed funds return to incentive pool. Reapplication would then be required.
- Funds are expensed when the project is completed.
- Funds may be held in the operating cash account, or in escrow accounts.

Contract obligations

- A signed contract for goods or services that creates a legal obligation.
- Reported in the monthly Contract Status Summary Report.

Cost-Effectiveness Calculation

- Programs and measures are evaluated for cost-effectiveness.
- The cost of program savings must be lower than the cost to produce the energy from both a utility and societal perspective.
- Expressed as a ratio of energy savings cost divided by the presumed avoided utility and societal cost of energy.
- Program cost-effectiveness evaluation is "fully allocated," i.e. includes all of the program costs plus a portion of Energy Trust administrative costs.

Dedicated Funds

- Represents funds obligated to identified renewable program participants in the form of signed applications or agreements and tracked in the project forecasting system.

- May include commitments, escrows, contracts, board designations, master agreements.
- Methodology utilized to develop renewable energy activity-based budgets amounts.

Direct Program Costs

- Can be directly linked to and reflect a causal relationship to one individual program/project; or can easily be allocated to two or more programs based upon usage, cause, or benefit.

Direct Program Evaluation & Planning Services

- Evaluation services for a specific program rather than for a group of programs.
- Costs incurred in evaluating programs and projects and included in determining total program funding caps.
- Planning services for a specific program rather than for a group of programs.
- Costs incurred in planning programs and projects and are included in determining program funding expenditures and caps.
- Evaluation and planning services attributable to a number of programs are recorded in a cost pool and are subsequently allocated to individual programs.

Escrowed Program (Incentive) Funds

- Cash deposited into a separate bank account that will be paid out pursuant to a contractual obligation requiring a certain event or result to occur. Funds can be returned to Energy Trust if such event or result does not occur. Therefore, the funds are still "owned" by Energy Trust and will remain on the balance sheet.
- The funds are within the control of the bank in accordance with the terms of the escrow agreement.
- When the event or result occurs, the funds are considered "earned" and are transferred out of the escrow account ("paid out") and then are reflected as an expense on the income statement for the current period.

Expenditures/Expenses

- Amounts for which there is an obligation for payment of goods and/or services that have been received or earned within the month or year.

FastTrack Projects Forecasting

Module developed in FastTrack to provide information about the timing of future incentive payments, with the following definitions**:**

- Estimated-Project data may be inaccurate or incomplete. Rough estimate of energy savings, incentives and completion date by project and by service territory.
- Proposed-Project that has received a written incentive offer but no agreement or application has been signed. Energy savings, incentives and completion date to be documented by programs using this phase. For Renewable projects-project that has received Board approval.
- Accepted-Used for renewable energy projects in 2nd round of application; projects that have reached a stage where approval process can begin.
- Committed-Project that has a signed agreement or application reserving incentive dollars until project completion. Energy savings/generations, incentives and completion date by project and by service territory must be documented in project records and in FastTrack. If project not demonstrably proceeding within agreed upon time frame, committed funds return to incentive pool. Reapplication would then be required.
- Dedicated-Renewable project that has been committed, has a signed agreement, and if required, has been approved by the board of directors.

Incentives

I. **Residential Incentives**

- Incentives paid to a residential program participant (party responsible for payment for utility service in particular dwelling unit) exclusively for energy efficiency and renewable energy measures in the homes or apartments of such residential customers.

II. **Business Incentives**

- Incentives paid to a participant other than a residential program participant as defined above following the installation of an energy efficiency or renewable energy measure.
- Above market cost for a particular renewable energy project.

III. **Service Incentives**

- Incentives paid to an installation contractor which serves as a reduction in the final cost to the participant for the installation of an energy efficiency or renewable energy measure.
- Payment for services delivered to participants by contractors such as home reviews and technical analysis studies.
- End-user training, enhancing participant technical knowledge or energy efficiency practices proficiency such as “how to” sessions on insulation, weatherization, or high efficiency lighting.
- CFL online home review fulfillment and PMC direct installations.
- Technical trade ally training to enhance program knowledge.
- Incentives for equipment purchases by trade allies to garner improvements of services and diagnostics delivered to end-users, such as duct sealing, HVAC diagnosis, air filtration, etc.

Indirect Costs

- Shared costs that are “allocated” for accounting purposes rather than assigning individual charges to programs.
- Allocated to all programs and administration functions based on a standard basis such as hours worked, square footage, customer phone calls, etc.
- Examples include rent/facilities, supplies, computer equipment and support, and depreciation.

IT Support Services

- Information technology costs incurred as a result of supporting all programs.
- Includes FastTrack energy savings and incentive tracking software, data tracking support of PMCs and for the program evaluation functions.
- Includes technical architecture design and physical infrastructure.
- Receives an allocation of indirect shared costs.
- Total costs subsequently allocated to programs and administrative units.

Outsourced Services

- Miscellaneous professional services contracted to third parties rather than performed by internal staff.
- Can be incurred for program or administrative reasons and will be identified as such.

Program Costs

- Expenditures made to fulfill the purposes or mission for which the organization exists and are authorized through the program approval process.
- Includes program management, incentives, program staff salaries, planning, evaluation, quality assurance, program-specific marketing and other costs incurred solely for program purposes.
- Can be direct or indirect (i.e. allocated based on program usage.)

Program Delivery Expense

- This will include all PMC labor and direct costs associated with: incentive processing, program coordination, program support, trade ally communications, and program delivery contractors.
- Includes contract payments to NEEA for market transformation efforts.
- Includes performance compensation incentives paid to program management contractors under contract agreement if certain incentive goals are met.
- Includes professional services for items such as solar inspections, anemometer maintenance and general renewable energy consulting.

Program Legal Services

- External legal expenditures and internal legal services utilized in the development of a program-specific contract.

Program Management Expense

- PMC billings associated with program contract oversight, program support, staff management, etc.
- ETO program management staff salaries, taxes and benefits.

Program Marketing/Outreach

- PMC labor and direct costs associated with marketing/outreach/awareness efforts to communicate program opportunities and benefits to rate payers/program participants.
- Awareness campaigns and outreach efforts designed to reach participants of individual programs.
- Co-op advertising with trade allies and vendors to promote a particular program benefit to the public.

Program Quality Assurance

- Independent in-house or outsourced services for the quality assurance efforts of a particular program (distinguished from program quality control).

Program Reserves

- Negotiated with utilities annually, with a goal of providing a cushion of approximately 5% above funds needed to fulfill annual budgeted costs. Management may access up to 50% of annual program reserve without prior board approval (resolution 633, 2012).

Program Support Costs

- Source of information is contained in statement of functional expense report.
- Portion of costs in OPUC performance measure for program administration and support costs.
    - Includes expenses incurred directly by the program.
    - Includes allocation of shared and indirect costs incurred in the following categories: supplies; postage and shipping; telephone; printing and publications; occupancy expenses; insurance; equipment; travel; business meetings; conferences and training; depreciation and amortization; dues, licenses,

subscriptions and fees; miscellaneous expense; payroll & related expense; outsourced services; and an allocation of information technology department cost.

Project Specific Costs (for Renewable Energy)

- Expenses directly related to identified projects or identified customers to assist them in constructing or operating renewable projects. Includes services to prospective as well as current customers.
- Must involve direct contact with the project or customer, individually or in groups, and provide a service the customer would otherwise incur at their own expense.
- Does not include general program costs to reach a broad (unidentified) audience such as websites, advertising, program development, or program management.
- Project-Specific costs may be in the categories of; Incentives, Staff salaries, Program delivery, Legal services, Public relations, Creative services, Professional services, Travel, Business meetings, Telephone, or Escrow account bank fees.

Savings Types

- **Working Savings/Generation:** the estimate of savings/generation that is used for data entry by program personnel as they approve individual projects. They are based on deemed savings/generation for prescriptive measures, and engineering calculations for custom measures. They do not incorporate any evaluation or transmission and distribution factors.
- **Reportable Savings/Generation:** the estimate of savings/generation that will be used for public reporting of Energy Trust results. This includes transmission and distribution factors, evaluation factors, and any other corrections required to the original working values. These values are updated annually, and are subject to revision each year during the "true-up" as a result of new information or identified errors.
- **Contract Savings**: the estimate of savings that will be used to compare against annual contract goals. These savings figures are generally the same as the reportable savings at the time that the contract year started. For purposes of adjusting working savings to arrive at this number, a single adjustment percentage (a SRAF, as defined below) is agreed to at the beginning of the contract year and is applied to all program measures. This is based on the sum of the adjustments between working and reportable numbers in the forecast developed for the program year.
- **Savings Realization Adjustment Factors (SRAF):** are savings realization adjustment factors applied to electric and gas working savings measures in order to reflect more accurate savings information through the benefit of evaluation and other studies. These factors are determined by the Energy Trust and used for annual contract amendments. The factors are determined based on the best available information from:
  - Program evaluations and/or other research that account for free riders, spill-over effects and measure impacts to date; and
  - Published transmission and distribution line loss information resulting from electric measure savings.

Total Program and Admin Expenses (line item on income statement)

- Used only for cost effectiveness calculations, levelized cost calculations and in management reports used to track funds spent/remaining by service territory.
- Includes all costs of the organization--direct, indirect, and an allocation of administration costs to programs.
- Should not be used for external financial reporting (not GAAP).

Total Program Expenses (line item on income statement)

- All indirect costs have been allocated to program costs with the exception of administration (management and general costs and communications & outreach).
- Per the requirements of Generally Accepted Accounting Principles (GAAP) for nonprofits, administrative costs should not be allocated to programs.
- There is no causal relationship—costs would not go away if the program did not exist.

Trade Ally Programs & Customer Service Management

- Costs associated with Energy Trust sponsorship of training and development of a trade ally network for a variety of programs.
- Trade Ally costs are tracked and allocated to programs based on the number of allies associated with that program.
- Costs in support of assisting customers which benefit all Energy Trust programs such as call center operations, customer service manager, complaint handling, etc.
- Customer service costs are tracked and allocated based on # of calls into the call center per month.

True Up

- True-up is a once-a-year process where we take everything we've learned about how much energy programs actually save or generate, and update our reports of historic performance and our software tools for forecasting and analyzing future savings.
- Information incorporated includes improved engineering models of savings (new data factor), anticipated results of future evaluations based on what prior evaluations of similar programs have shown (anticipated evaluation factor), and results from actual evaluations of the program and the year of activity in question (evaluation factor).
- Results are incorporated in the Annual Report (for the year just past) and the True-up Report (for prior years).
- Sometimes the best data on program savings or generation is not available for 2-3 years, especially for market transformation programs. So for some programs, the savings are updated through the annual true-up 2 or 3 times

Policy Committee Meeting

January 28, 2014, 2:00–3:30 pm

Attending by phone and videoconference
Roger Hamilton, Rick Applegate, Ken Canon, John Reynolds

Attending at Energy Trust offices
Alan Mayer, Margie Harris, Steve Lacey, Peter West, Fred Gordon, Amber Cole, Scott Clark, Courtney Wilton, and Debbie Menashe

Project Savings Tracking System (FastTrack) Replacement Update

Scott Clark provided an update on the current status of the Integrated Solutions Implementation project (ISI). Scott described the overall ISI project to date, and then described the current second phase, the FastTrack system replacement phase of the project. The analysis stage of phase two was completed in December 2013. A working staff group and the ISI Steering Committee issued a Request for Information (RFI) regarding prospective software solutions. Following review of the RFI submissions, the Steering Committee, supported by the staff working group, recommended to Management Team that Energy Trust proceed to a "design and build" stage, rather than a "buy" stage. Management Team agreed with the recommendation. Through this design and build stage, the plan is to extend Energy Trust's current CRM (contact relationship management) system along with building out some custom elements as a replacement for FastTrack.

Scott explained that our project tracking system needs are really quite unique. We track incentives, savings and generation for multiple utilities utilizing a PMC (program management contractor) model that leads us to also serve as a hub for information from other systems. There is no off-the-shelf solution to meet these requirements, so any product would require extensive customization. In making its recommendation to move forward with a design and build option, the Steering Committee and staff working group also considered cost. The range of costs from the RFI responses for buying an off-the-shelf product was $960,000 to $1.2 million plus customization costs. The CRM build out option cost estimates ranged from $500,000 to $1.1 million.

At this point, Scott is proceeding to engage a project manager for the design and build process. The plan is to break this larger project up into a smaller series of projects or "sprints." By proceeding in this fashion, Scott believes that the organization can realize improved functionality faster and also learn as it goes.

Committee members asked about the timeline, and Scott explained that the plan is to proceed with the series of sprints through August. At that point, the project, if not yet complete, will focus only on work that has minimal user impact in order for the systems to be fully available for significant volume increases that we see in the fourth quarter of each year and for the 2015 budget development process. The project would then complete any outstanding sprints in early 2015.

Policy for Review

The board's Contract Execution and Oversight Policy is up for routine, three-year review. Staff reported that the policy operates well and proposed no changes. The Policy Committee agreed and recommends that the policy continue in place until the next three-year review.

Review of Draft Board Guidelines Document

In 2013, and following Penny Serrurier's presentation on board roles and duties, board president John Reynolds requested that Energy Trust staff provide written guidance regarding board member recruitment and other board operations. Staff prepared a draft "Board of Directors Corporate Governance Guidelines," a comprehensive document outlining expectations and guidelines for Energy Trust board members. A draft version of the Guidelines was distributed to the entire board for comment. Comments were received and reviewed by John Reynolds and Debbie Menashe. A revised version of the Guidelines was reviewed and discussed by the Policy Committee. The Committee discussed revising the Guidelines slightly to reflect the expectation that board members serve the full initial term to which they are appointed, and the draft Guidelines were revised accordingly. The Policy Committee approved the Guidelines with these revisions and recommends their approval as a formal board policy by the full board, to be maintained consistent with other Energy Trust board policies.

Preliminary Results for 2013

Margie and Courtney gave the committee a very early report on 2013 savings and budget results. The results are good; savings goals were achieved. It also appears that greater savings were achieved with a smaller amount of incentives spent. In addition, the carryover from 2013 appears to be larger than projected. Margie explained how these results reflect changes in the way Energy Trust programs are delivered, and the need to continually examine the role that financial incentives play as compared to other things in terms of savings acquisition. The committee acknowledged and discussed how these spending trends create some vulnerability to the organization, but also provide an opportunity for continuing discussions on budgeting and how to use the organizational reserves to minimize rate increases in the future.

Margie and Courtney explained that there is still a great deal of analysis to be undertaken to fully understand and explain these results, including an analysis of how much of the unspent amounts are currently committed to projects that were not completed in 2013 but are expected to complete soon in 2014. Courtney also advised the committee that Energy Trust plans to submit a "Management Discussion and Analysis" letter (an "MD&A") with its year-end financial statements for 2013. The MD&A will allow the organization an opportunity to explain year-end results in more detail.

These discussions were a good transition to the next topic, the 2015-2019 Strategic Plan, with the committee acknowledging that some of the underlying causes for the 2013 year-end results may reflect trends under discussion as part of the next strategic plan.

Status Reports and Updates

<u>Strategic Planning</u>
Under the PUC Grant Agreement, Energy Trust is required to update its strategic plan at least every five years. The current 2010-2014 strategic plan is entering its final year. The current strategic plan has been the basis and direction for budgeting and action plans since its adoption in 2010. Active work is underway by the Energy Trust board strategic planning committee and internal staff to prepare a draft of a proposed 2015-2019 strategic plan; such plan will be the basis of budgets and action planning going forward. The board's Strategic Policy Committee met on November 15, 2013, December 12, 2013 and January 22, 2014. Rick updated the committee on the process to date.

Rick reported that a great deal of staff work has already been completed. Beginning after the board's strategic planning workshops last summer, staff prepared an updated "Situation Analysis" identifying Energy Trust results to date and the information it collects regarding future resource potential. Staff "SWOT" meetings (strengths, weakness, opportunities, and threats), including specific renewable energy group strategic planning sessions, were conducted in November. In addition, Ed Sheets and Dave Hewitt completed external scans examining strategic planning concepts from other energy efficiency organizations and utility programs. Margie is engaged in a series of meetings with various influential thinkers and leaders. Rick described specifically some interesting subjects that have been under discussion including peak load management and its relationship to Energy Trust's energy efficiency mandate. He also described Dave Hewitt's report on a comprehensive Net Zero Energy initiative underway in California.

Rick explained that the Strategic Planning Committee is looking at a number of strategic issues broadly, but in general, information gathered suggests that there will be a leveling of potential savings and generation, and this leveling has serious implications for the next strategic plan. Next steps will be the compilation of the emerging strategic issues and a presentation to the full board at its next meeting. Margie also gave a general summary of her "influentials" discussions. Emerging themes from these discussions are that Energy Trust is well respected and should continue to work to link our work to other sustainability efforts throughout the state and region. Utility system benefits have also been discussed in these conversations, including peak load management, smart grid issues and demand response programs. The committee is interested in more information on how the utilities will respond to inclusion of these types of issues in Energy Trust's strategic plan. Committee members suggested that staff engage the utilities early for reaction and to gage implications of pursuing these as strategic issues. Committee members also recommended consideration of the work on integration of energy efficiency and demand response programs as presented recently by Jim Lazar of the Regulatory Assistance Project. Committee members suggested bringing Jim in to the strategic planning workshop for more background on the overall discussion.

Cost Effectiveness Docket Update

Fred updated the committee on current status of Energy Trust's work with the OPUC on the pending gas measure cost-effectiveness exception docket. There is a lot interest in this docket. Energy Trust will prepare a proposal for OPUC staff consideration and submit the proposal in July. Energy Trust will engage the Policy Committee through this process.

Short Legislative Session

The Oregon Legislature will open a short session on February 2nd. *Sine die* will occur no later than March 9th, and staff will monitor the session for discussions, bills and matters that affect Energy Trust. Hannah Hacker will prepare a list of energy or energy-related bills submitted once the session opens, supplementing the list as other items of interest and significance arise. These are the bills and issues that that we will track, and John Volkman will prepare a status summary for the full board packet in advance of the February 26th board meeting. Staff will report in on the status of tracked bills and the session in general at the full board meeting. During the session, Energy Trust staff will also respond to any requests for information from the OPUC, ODOE, legislators and other interested parties.

At the meeting, Staff updated the committee on HB 4105, a bill introduced which would, if passed eliminate public purpose charge expenditures and abolish related funds. The bill was introduced by Representative Jason Conger. Staff will continue to track closely this and other bills potentially affecting Energy Trust.

Board Decision
Energy Trust of Oregon Board of Directors
Corporate Governance Guidelines

February 26, 2014

Purpose

Adopt corporate governance guidelines as an Energy Trust board policy.

Background

Energy Trust's credibility and success is dependent upon the maintenance of an ethical business and operational environment that focuses on adherence to both the letter and spirit of regulatory and legal mandates. In an effort to ensure a clear and consistent understanding of board duties and ethical obligations, Energy Trust provides new board member orientation and periodic board meeting presentations on these topics. In 2013, John Reynolds, board president, requested that Energy Trust staff provide written guidance regarding board member recruitment and other board operations. Staff prepared a draft "Board of Directors Corporate Governance Guidelines," a comprehensive document outlining expectations and guidelines for Energy Trust board members (the "Guidelines"). The Guidelines are intended to provide current and prospective Energy Trust board members with information and guidance on expectations for service on Energy Trust's board. These Guidelines, if adopted and maintained as a board policy, would provide board service information in a centralized and public location. As a board policy, the Guidelines would be subject to regular review by the board's Policy Committee. The Guidelines would supplement information provided to new board members in the new member orientation process.

An initial draft version of the Guidelines was distributed to the entire board for comment in late 2013. Comments were received and reviewed by John Reynolds and Debbie Menashe, Energy Trust's General Counsel. A revised version of the Guidelines was reviewed and discussed by the Policy Committee. The draft Guidelines were revised based on Policy Committee discussions and, with these revisions, the Policy Committee recommended their approval by the full board as a formal board policy.

Recommendation

Adopt the resolution below.

RESOLUTION 697
RESOLUTION ADOPTING CORPORATE GOVERNANCE GUIDELINES FOR ENERGY TRUST'S BOARD OF DIRECTORS

WHEREAS:

1. **It is important to the success of Energy Trust programs and operations that its board of directors is informed about expectations for board service and corporate governance.**

2. **Energy Trust operates in a transparent manner, and expectations for board service should be consistent with relevant law and regulation, publicly available, and reviewed on a regular basis.**

3. **The Policy Committee of the board has reviewed the Energy Trust Board of Directors Corporate Governance Guidelines in the form attached and recommends their approval as a board policy.**

It is therefore RESOLVED that:

1. **The board adopts the Energy Trust of Oregon Board of Directors Corporate Governance Guidelines as attached hereto as Exhibit A as a board policy; and**

2. **Energy Trust maintain the Energy Trust of Oregon Board of Directors Corporate Governance Guidelines in accordance with its procedures for maintaining and reviewing Energy Trust board policies.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Exhibit A

2.03.000 Energy Trust Board of Directors Corporate Governance Guidelines

History			
Source	Date	Action/Notes	Next Review Date
Board Decision			

The following corporate governance guidelines (these "Guidelines") have been approved by the Board of Directors (the "Board") of Energy Trust of Oregon, Inc. ("Energy Trust") to provide a corporate governance framework within which the Board and management can effectively pursue Energy Trust's objectives of acquiring low cost energy efficiency resources and supporting the development of renewable energy for its affiliated utilities. These guidelines, along with Energy Trust's Articles of Incorporation, Bylaws, Public Interest Policy, Conflict of Interest Policy, and the charters of the various Board committees, provide the foundation for Energy Trust's corporate governance. The Board believes that Energy Trust's long-term credibility and success is dependent upon the maintenance of an ethical business and operational environment that focuses on adherence to both the letter and spirit of regulatory and legal mandates, as well as Energy Trust's Public Purpose Policy and Conflict of Interest Policy. The Board expects management to conduct operations in an ethical manner consistent with applicable laws, rules and regulations and Board policies.

I. REGULAR BOARD FUNCTIONS

The Board, directly and through its appropriate committees, shall:

- Review and approve strategic plans;
- Review Energy Trust's financial and strategic performance;
- Oversee and evaluate management's systems for internal control, financial reporting and public disclosure;
- Establish corporate governance standards;
- Select, evaluate and compensate Energy Trust's Executive Director;
- Oversee and evaluate employee compensation frameworks;
- Plan for effective succession of the Executive Director and senior management;
- Set a tone for a climate of trust and confidence;
- Set standards for director qualification;
- Set standards for director orientation and continuing education; and
- Undertake performance assessments of the Board as needed.

The Board, shall also retain legal, accounting and other advisors who report directly to the Board, to the extent the Board deems necessary or appropriate to carry out its responsibilities. Such advisors may be the regular advisors to Energy Trust.

II. SELECTION OF THE BOARD

The Board Nominating Committee is responsible for selecting nominees for the Board and recommending them for election to the Board by the Board. The Board Nominating Committee has primary responsibility for the screening process necessary to identify qualified candidates and recommend such candidates to the Board. The Board Nominating Committee shall regularly review the appropriate experience, skills and qualifications expected of Board member candidates in the context of the current membership of the Board. This assessment should include, in the context of the perceived needs of the Board at that time, issues of experience, reputation, judgment, diversity and skills. If the Board Nominating Committee determines that adding or replacing a director is advisable, the Committee shall initiate a search for a suitable candidate, which may include working with other directors, management, or a search firm retained to assist in the search, each as the Board Nominating Committee deems necessary or appropriate. The Board Nominating Committee shall establish a process to consider nominations for directors, including but not limited to those received from Energy Trust's advisory committees and shall consider all appropriate candidates. The Board Nominating Committee should evaluate the candidates based on the needs of the Board at that time as identified in the assessment process outlined above to enhance the overall composition of the Board. The Board Nominating Committee shall then meet to consider the selected candidate(s) and submit the approved candidate(s) to the full Board for approval as a nominee.

III. BOARD COMPOSITION

A. Size of the Board

Energy Trust's Articles of Incorporation and Bylaws provide that the number of directors of Energy Trust shall be fixed from time to time by a majority of the Board, but shall never be less than five (5) or more than thirteen (13), not including *ex officio* members. The Board Nominating Committee, in consultation with the President of the Board, shall periodically examine the composition of the Board and determine whether the Board would better serve its purposes with the addition or subtraction of one or more directors. The Board shall determine, after considering the recommendations of the Board Nominating Committee, the number of members of the Board appropriate to provide that all of the necessary or desirable core competencies are possessed by the Board as a whole.

B. Director Interests Reporting

At least once per year, and as required by Oregon law, the Board shall review each relationship that exists between a director and his or her related interests for the purpose of determining whether the director is compliant with Energy Trust's Board Conflict of Interest policy and Oregon's Government Ethics Law. This information shall be collected by Energy Trust's General Counsel and submitted to the Oregon Ethics Board in compliance with Oregon law.

C. Service on Board of Directors

Directors must be willing to devote sufficient time to carrying out their duties and responsibilities effectively. It is expected that, at the time of initial appointment, a director should be committed to regular meeting attendance and participation and to serving on the Board for the full appointed term. In deciding whether to serve on the Energy Trust board, a nominee should consider his or her time commitments and interest in the objectives and mission of Energy Trust. Directors and nominees should also consider the time commitment of service on Energy Trust's board when deciding whether to participate or serve on other organization boards of directors.

The expectation is that board members devote time to actively participate on three of the Board's committees or advisory councils as specified in Section V. of these Guidelines.

D. Term Limits
The Board has determined not to establish formal term limits. However, the Board Nominating Committee shall review each director's continued service on the Board shortly before the end of such director's term. This review shall be conducted in connection with the Board Nominating Committee's evaluation of governance and Board effectiveness, consideration of nominations to the Board for the annual meeting at which such director's term will expire, and the Board's annual self-evaluation.

IV. BOARD MEETINGS

A. Schedule of Meetings
The President of the Board will work with Energy Trust's Executive Director to determine an appropriate schedule of Board meetings to ensure that the directors can perform their duties responsibly without interfering with the flow of Energy Trust's operations. Energy Trust's Board typically meets in regular board meetings at least eight times annually. Board committee meetings occur regularly throughout the year as well.

B. Selection of Agenda Items for Board Meetings
The President and the Policy Committee of the Board shall work with Energy Trust's Executive Director to establish the agenda for each Board meeting. Each other Board member may suggest the inclusion of items on the agenda. Each director may raise,at any Board meeting, subjects that are not on the agenda for that meeting.

C. Attendance at Board Meetings and Review of Board Materials
Each director is expected to attend all meetings of the Board and committees on which the director serves. In advance of each Board meeting, an agenda and, to the extent feasible or appropriate, information and data that is important to an understanding of the business to be discussed, shall be distributed. Each director shall review these materials prior to the Board meeting.

D. Executive Sessions
The President of the Board shall preside over and prepare or have prepared an agenda for all executive sessions in accordance with the Bylaws of Energy Trust.

V. BOARD COMMITTEES

A. Number, Structure and Independence of Committees
The Board shall establish committees in accordance with the Bylaws of Energy Trust. Currently, the Board has established a Finance Committee, a Policy Committee, a Program Evaluation Committee, a Compensation Committee, an Audit Committee, a Strategic Planning Committee, an Executive Director Review Committee, a Nominating Committee. Board members are also encouraged to participate in the Conservation Advisory Council (CAC) or Renewable Energy Advisory Council (RAC) meetings. Other committees may be established as the need arises.

B. Assignment of Committee Members
The President of the Board shall, with consideration of the desires of individual Board members, recommend to the full Board the assignment of directors to committees and selection of the chairperson of the committees.

C. Committee Meetings

Committee chairpersons, in consultation with committee members, will determine the frequency and length of committee meetings; *provided, however,* that each committee shall meet independently and in separate sessions from the Board's regular or special meetings at least twice per fiscal year. Each committee shall meet as set forth in each committee's charter, and otherwise as frequently as required to carry out its responsibilities. Committee chairpersons, in consultation with the President of the Board, appropriate members of senior management and staff, will develop the agenda for each committee meeting.

VI. DIRECTOR OBLIGATIONS

A. Ethics and Conflicts of Interest

Directors, as well as officers and employees, must act ethically at all times and should acknowledge their adherence to the Board's Public Interest Policy, Conflict of Interest Policy, law and regulation, and these Guidelines. The Board understands that an actual or potential conflict of interest may be created if Energy Trust provides substantial incentive support to organizations with which a director is affiliated, or if Energy Trust enters into consulting or other contracts with, or provides other direct or indirect compensation to, a director or an organization with which the director is affiliated. If an actual or potential conflict of interest arises in such circumstances or exists for other reasons for a director, the director shall promptly inform the Audit Committee and Board President and the Executive Director. If a significant conflict exists that may impair a director's ability to act in the best interests of Energy Trust and the conflict cannot be resolved, the director should submit his or her resignation to the Board. All directors shall recuse themselves from any discussion or decision affecting their personal or professional interests and disclose the existence of such conflict to the remaining members of the Board.

B. Reliance on Others; Liability Insurance

In discharging their obligations and responsibilities, Energy Trust's directors are entitled to rely, in good faith, on the honesty and integrity of their fellow directors, Energy Trust's management, independent auditors and outside advisors. Further, to promote the ability of each director to act in accordance with the director's good faith business judgment without undue concern for the substantial risk of personal liability faced by public company directors, Energy Trust shall seek to purchase and maintain at all times directors' and officers' liability insurance in amounts deemed reasonably appropriate.

C. Directors Who Change Their Present Job Responsibility

Directors who change their occupation shall notify the President of Board and the Executive Director in order to identify any changes in actual or potential conflict of interests.

VII. DIRECTOR ORIENTATION AND EDUCATION

Energy Trust will establish, or identify and provide access to, appropriate orientation programs, sessions or materials for newly elected directors. The program or materials will include information to acquaint new directors with Energy Trust, including its strategy, action plans, financial statements, these Guidelines, and the Board's Public Interest and Conflicts of Interest Policies. As part of the orientation, new directors will be introduced to Energy Trust's senior management and its independent auditors. The directors will also receive periodic training concerning their fiduciary duties as board members of the Energy Trust board of directors. Additionally, from time to time, directors will receive information and updates on legal and regulatory changes that affect Energy Trust and the directors. All directors are also encouraged to participate in continuing education programs sponsored by universities and other organizations specializing in director education.

VIII. DIRECTOR COMPENSATION

The Board has determined not to provide director compensation to members of Energy Trust's board of directors. Members of Energy Trust's board of directors shall be reimbursed for expenses associated with travel to and from, and attendance at, board meetings and committee meetings.

X. BOARD ACCESS TO SENIOR MANAGEMENT

Board members shall have unrestricted access to Energy Trust's senior management. Furthermore, the Board encourages senior management, from time to time, to bring to Board meetings officers and managers who (a) can provide additional insight to matters before the Board because of such person's involvement in the areas being discussed, or (b) are officers and managers with potential for future advancement that senior management believes should be given exposure to the Board. As necessary and appropriate, Board members shall also have access to outside legal, accounting and other professional advisors to assist them in carrying out their duties and responsibilities as directors.

XI. LEADERSHIP DEVELOPMENT

A. Formal Evaluation of the Executive Director

Each year, the full Board and a committee appointed by the Board shall evaluate the performance of the executive director. In evaluating the Executive Director, the full Board and the committee shall take into consideration the executive director's performance in both qualitative and quantitative areas, such as leadership and vision, integrity, keeping the Board informed on matters affecting Energy Trust, and the performance of the business, including the achievement of Oregon Public Utility Commission performance metrics and Integrated Resource Plan goals, as well as financial objectives. The evaluation will be communicated to the Executive Director by a designee of the Board and considered by the Board or a designated committee in the course of its deliberations when establishing the compensation of the Executive Director for the following year.

B. Succession Planning

The Executive Director shall periodically provide to the Board a report regarding succession planning for the position of Executive Director. The Executive Director will also communicate to the President of the Board a recommendation for his or her successor as a result of an unexpected event. This recommendation should be updated by the Executive Director periodically.

XII. PERIODIC REVIEW OF CORPORATE GOVERNANCE GUIDELINES

These Guidelines and Energy Trust's other board policies shall be reviewed by the Policy Committee on a periodic basis, but not less than every three years. Any recommended changes shall be submitted to the Board for consideration and approval. Energy Trust of Oregon counsel may request independent review of these Guidelines either periodically or as indicated. Recommendations resulting from such review shall be submitted to the Board Policy Committee for consideration and Board review.

XIII. DISCLOSURE OF CORPORATE GOVERNANCE GUIDELINES

Energy Trust shall maintain, and update promptly, its website to include these Guidelines.

Briefing Paper
Strategic Plan Discussion Topics and Opportunities

February 13, 2014

Energy Trust is developing a strategic plan for 2015-2019. Before developing a draft plan, Energy Trust invites discussion of topics that should shape a plan, i.e., those that may or should drive Energy Trust programs and operations over the coming five years.

Energy Trust anticipates that a draft plan will be issued for public comment after the Board's June, 2014 strategic planning retreat. Comment would then be solicited, and a final plan would be adopted in October, 2014.

I. Context

Energy Trust administers funds collected by utilities for electricity and natural gas conservation, electric market transformation and renewable energy programs. Since 2002, these programs have saved billions of dollars by reducing consumers' energy bills and helping utilities avoid or defer investment in new generation, transmission and distribution facilities. The discipline for these programs comes from analysis and planning that carefully weigh economic and environmental costs and benefits before making energy investments. The services delivered by these programs are delivered by thousands of private businesses distributed throughout Oregon. The result, now rooted in many years of practice, is a system that is widely supported by government, utilities, business and interest groups, and which produces clean, reliable and affordable power. This system, and Energy Trust's role in it, is the basic asset that Energy Trust's next strategic plan will leverage.

At the same time, as investment advisors remind us, past performance is no guarantee of future returns. A number of developments are rearranging the landscape in which Energy Trust programs will operate in the coming years:

- The energy conservation resource is changing. Mainstays such as home insulation and efficient lighting continue to play important roles, but after 30 years of energy conservation programs there are fewer of these things to do. Meanwhile, new measures involving innovative operations, maintenance, behavioral approaches and technologies are emerging. Community-based initiatives are being explored, in which energy, transportation, land and water use are viewed holistically. To what degree should these innovations be integrated into Energy Trust programs?
- Oregon's energy system is de-carbonizing. The Sixth Northwest Power Plan predicted that energy conservation, renewable energy requirements and reduced coal plant emissions would reduce Northwest carbon emissions below 1990 levels by 2020. So far, this prediction is on track. Continuing the trajectory, however, will take sustained and even accelerated performance from low-carbon energy resources such as renewable energy and conservation.
- The economic underpinnings of the traditional energy utility business model are beginning to shift. Load growth has been modest or negative for several years, locally and nationally. Increasing quantities of renewable energy that run for part of the day is making the business of owning baseload plants more difficult.
- New load management tools are emerging to help integrate new renewable energy generation and baseload generating plants: Smart Grid technologies that allow more active management of energy supply and demand; more extensive demand response

programs that use pricing and other incentives to reduce energy demand in peak periods; technologies that store surplus energy for use at times of high demand; and markets that pay more for flexible, fast-ramping services. How can energy conservation and renewable energy programs leverage these new tools?

- With hourly metering of homes and businesses, lower-cost information recording techniques, and customer-focused analysis software, energy management is becoming more feasible. In some cases, these innovations may become a deeper source of savings. But the best approaches, data sources, and management strategies differ for different customers, and are complicated by a flood of new opportunities and ideas.

The basic question is this: how should Energy Trust efficiency and renewable energy programs build on current strengths and capitalize on this changing landscape? To illuminate this question, Energy Trust undertook several analyses:

- A "situation analysis" prepared by staff discusses Energy Trust's current mission and goals, and identifies issues that Energy Trust's current programs are likely to face in the 2015-2019 time period.
- The survey of strategic ideas from other energy conservation organizations reports on how other organizations are approaching missions that resemble but also differ importantly from Energy Trust's mission.
- In addition, Executive Director Margie Harris engaged policy and business leaders in a series of conversations about Energy Trust's work and role.
- Energy Trust has in some cases done additional analysis to help understand whether particular issues belong in strategic planning. Energy Trust consultant Dave Hewitt prepared a paper summarizing zero net-energy goals in California; and a paper prepared by staff explores peak-load management opportunities.

Energy Trust also identified operational and strategic issues in staff SWOT workshops, which are reflected below. Energy Trust expects to complete further analysis of several of these topics between now and June. These analyses and discussions with interested parties will inform the board's consideration of a draft strategic plan in June, 2014.

The issues discussed below do not address Energy Trust management, infrastructure or delivery model. We do expect these considerations to arise in the draft and final strategic plans as we determine how to meet strategic goals.

These topics also do not address whether the current cost-effectiveness framework is appropriate, a question that is involved in the Oregon Public Utility Commission docket no. UM 1622. These topics do address the role of the current cost-effectiveness framework in balancing considerations in section 1.B.

II. Discussion Topics and Opportunities

1. Energy Trust goals for 2015-2019 given current resource assessments, funding and authorities

A. Energy efficiency goal: Assuming no major change in projected availability of energy savings, Energy Trust forecasts show annual achievable energy savings leveling off and beginning to decline over the next five years. Acknowledging that these are forecasts, subject to unforeseen economic, technological, policy and other developments, they raise several planning issues:

(1) Are forecasted annual savings levels, built upon known, commercially available and cost-effective resources, the most appropriate basis for a 2015-2019 goal?
(2) Energy Trust resource assessments assume no limit on funding for cost-effective energy savings, yet there are legal limits on funding for large energy users. To what degree will these limits constrain Energy Trust's ability to achieve its goals? How should these constraints be managed?

B. How can Energy Trust help grow the energy conservation resource?

(1) New technology and methods: Energy Trust currently funds NEEA to monitor and help develop emerging technologies. Should additional efforts, through NEEA or otherwise, be undertaken?
(2) Reduced costs: Low gas prices and other factors point to the need to reduce costs to maintain a robust conservation resource. Should Energy Trust put a high priority on reducing costs?
(3) Reaching under-served markets: Energy Trust programs try to reach everyone who pays public purpose charges, including rural communities, renters, multifamily dwellings and low-income households. Would deeper penetration of these markets add to the conservation resource? With what implications for cost-effectiveness? What tools and strategies should be used to reach these markets?
(4) Cost-effectiveness: The current cost-effectiveness framework has various sources of flexibility. How this flexibility is used could influence Energy Trust measures and programs that entail more risk, or produce important non-energy benefits. Is this enough flexibility to reach 2015-2019 goals?
(5) A risk budget: Should part of Energy Trust's budget be reserved for measures and efforts that are not demonstrated to be cost-effective, as a way to explore new technologies, or reach under-served populations? Should Energy Trust establish zero-net energy goals for new construction, for example? What might be an alternative framework for Energy Trust accountability?
(6) Behavior: Would more emphasis on behavioral approaches to residential energy conservation produce significantly more or less costly savings, as it has in industrial and commercial strategic energy management?
(7) Weighing trade-offs: Some of the above considerations pose trade-offs. How should efforts to reduce customer cost be balanced with efforts to find new technologies, investment in non-cost-effective measures, and efforts to reach under-served markets? Should Energy Trust be driven by energy savings volume above other considerations, or pursue these objectives simultaneously?

C. Renewable energy goal for 2015-2019: Energy Trust's early forecast for the next five years is 15 average megawatts (aMW) of renewable generation, which translates to three aMW per year. This is a more conservative forecast than the last strategic plan, reflecting changes in Oregon's energy tax credits and sustained low prices for power paid by utilities to renewable producers. It assumes continued Energy Trust emphasis on early-stage support for a range of technologies—biopower, hydropower, wind and geothermal—and standard incentives for solar. We expect to measure success according to new metrics relating to impacts on renewable energy markets and project development.

(1) Is it still appropriate for Energy Trust to emphasize support in early stages of project development?
(2) Is it still reasonable to support a range of technologies—biopower, hydropower, small wind, geothermal and solar?

(3) Is it reasonable to measure success in terms of market and project-development considerations?
(4) Given current funding constraints should Energy Trust develop long term "exit strategies" and visions for success for each technology to help frame the short term decisions for funding allocations between technologies?
(5) Given the pace of change in renewable energy policy, should Energy Trust continue to limit its support to projects with commercially available technologies? Should it pilot approaches that support policy innovation?
(6) Should Energy Trust play a larger role in articulating a positive vision for distributed generation and a clean energy future in Oregon?
(7) How might we better take advantage of other environmental efforts happening in the state and their intersection with energy?

2. Should Energy Trust's scope be broader?

A. Aspirational goals. California established zero-net energy goals for commercial and industrial efficiency without necessarily having either a cost-effective path or the infrastructure to achieve the goals, which they are building now. Is there value in having aspirational goals such as this, perhaps with longer-term (ten-year) time horizons? Should Energy Trust incorporate a zero-net energy goal even though programs to achieve it cannot be proven cost-effective today?

B. Beyond efficiency and renewable energy generation.
(1) Greenhouse gas goals: The State of Oregon and energy conservation organizations in other states (e.g., Vermont Energy Investment Corporation, Austin Energy, and the State of Connecticut) have greenhouse-gas reduction goals. Should Energy Trust? Should Energy Trust work with compressed natural gas, transportation or other customer groups to help achieve such goals?
(2) Reaching under-served customers: Should Energy Trust have an explicit goal to return benefits to all customers who pay public purpose charges?

C. Peak load management: Utility investments in generation, transmission and distribution facilities are typically geared to serve demand that occurs only in certain peak periods. Delaying or reducing this investment by saving energy in peak periods could produce significant savings. It is increasingly difficult for utilities to manage fluctuations in supply and demand. How might energy efficiency, distributed renewable generation and demand response programs fit together to lower ratepayer costs? Should Energy Trust play a role in helping to manage load, for example:

(1) Offering higher incentives for energy efficiency measures that reduce peak demand more than other measures?
(2) Tracking and reporting estimated contributions to peak savings? Would such estimates add value to Energy Trust programs, the board, OPUC or utilities?
(3) As the value of load management becomes clearer, working with electric utilities on integrated controls for water heating, industrial refrigeration, and other flexible loads that save energy while balancing wind?
(4) Exploring opportunities to use load management technology such as thermal storage to provide a market for intermittent resources?
(5) Exploring the use of integrated distributed generation and DSM programs, including Smart Grid, to help manage demand and support electric system resiliency to withstand storms or other disruptions?

3. **How can Energy Trust ensure that its strategic plan appropriately complements plans of state, regional and other organizations?**

   Energy Trust's strategic planning process will incorporate input from other organizations and interested parties at several points. The Oregon Public Utility Commission and the Oregon Department of Energy participate on Energy Trust's strategic planning committee. Comments and consultation on this document is actively sought. Similarly, public input will be invited on a draft strategic plan. Energy Trust will actively consult its advisory councils in this process.

   At the same time, energy planning is occurring at many other levels. The Oregon Governor's office has a 10-Year Energy Plan. The Oregon Department of Energy, the Northwest Power and Conservation Council, the Northwest Energy Efficiency Alliance and others are engaged in strategic planning. Are there ways in which Energy Trust should complement these planning efforts apart from the consultation and comment processes that are already anticipated?

2015-2019 Strategic Plan Development Schedule

Key Dates

February 26	Board meeting, schedule and overview
March 12	CAC, RAC Strategic topics discussion
May 14	Board meeting, introduction of draft as preparation for retreat
June 13-14	Board retreat, discussion of draft plan
July 30	Board meeting, update on feedback and retreat follow up
October 1	Board review and approval of final plan

Renewable Energy Advisory Council Meeting Notes

November 20, 2013

Attending from the council:
Robert Grott, Northwest Environmental Business Council
Juliet Johnson, Oregon Public Utility Commission
Suzanne Leta-Liou, Atkins
Michael O'Brien, Renewable Northwest Project
Vijay Satyal, Oregon Department of Energy
Frank Vignola, University of Oregon
Dick Wanderscheid, Bonneville Environmental Foundation
Tashiana Wangler, PacifiCorp
Attending from Energy Trust:
Chris Dearth
Pete Gibson
Fred Gordon
Jed Jorgensen
Betsy Kauffman
Thad Roth
Gayle Roughton
Peter West

Others attending:
Jerry Bryan, Farmers Irrigation District
John Charles, Cascade Policy Institute
Bruce Cordon, Clean Water Services
Bill Eddy, One Energy
Randy Neff, Clean Water Services
Ted Sorenson, Warm Springs Hydro LLC

1. Welcome and introductions

Betsy Kauffman called the meeting to order at 9:00 a.m. and reviewed the agenda. The minutes from the October meeting were approved. The agenda, notes and presented materials are available on Energy Trust's website at www.energytrust.org/About/public: meetings/REACouncil.aspx.

Betsy distributed the calendar for the 2014 Renewable Energy Advisory Council meetings.

Dave McClelland announced that the position vacated by Rob Del Mar has been filled by Jennifer Hall, with some changes in the role. Instead of Lizzie Rubado focusing on commercial solar and Jennifer focusing on residential solar, as Rob had done, Lizzie will now focus on customer experience and marketing while Jennifer will focus on the logistical and technical issues. Jennifer comes to Energy Trust from Synchro Solar and will join the team on December 10.

2. 2014 draft budget

Thad Roth outlined modifications from the 2014 draft budget that was presented at the October Renewable Energy Advisory Council meeting. Changes have been very minor from round one to round two of the draft budget. Thad first provided a general sector overview.

Thad: We encountered challenging market fundamentals this year but still have managed to maintain a robust pipeline for non-solar projects. Thirteen projects were reviewed and six projects have been selected for funding. Two were approved earlier in the year and four will be reviewed today. So we've had quite a bit of activity.

> We also started a new Project Development Assistance initiative through which we've awarded funds for projects representing four technologies. We spent less than budgeted but we have confidence we can build on this success. This is a new offering and we are learning about what the market is interested in, which will help us to improve next year. We also approved and dedicated funding for a solar project from an Energy Trust

Request for Proposals, RFP, for projects in PGE territory. We had thought those projects would come online this year, and now we expect them to come online next year.

At the last Renewable Energy Advisory Council meeting, we had some questions about what makes up the gap between the 2013 profit and loss, P&L, budget and the dollars we expect to spend by the end of 2013. In PGE territory, the difference comes from two sources: delayed or reallocated projects and funds remaining unallocated at the end of the year. For example, we had expected the solar project in PGE territory, from the RFP process, to come online this year. That was optimistic and that project was delayed, so that makes up about $1 million of the money not spent this year. The other source is that we were faced with the challenge of a really small pipeline, particularly on commercial solar, and we spent the year making adjustments on our incentives that resulted in a shortfall. Those funds will be moved forward to be used in the 2014 budget.

On the Pacific Power side, the gap is a bit bigger. Two major projects were delayed that make up about $1.8 million. Oregon Institute of Technology has a geothermal project that was pushed back to 2014 due to some permitting issues. Another biogas project was delayed as well. Generally, the shortfall is for projects that are still viable but coming online later. The unallocated funds will be rolled over into 2014. There may be some flexibility in the numbers as there are some projects where we are unsure if they will come online this year or next year.

Juliet: Only $0.9 million for PGE didn't go to a project and $0.19 million for Pacific Power didn't go to a project?
Thad: Correct. The others are just timing.

Vijay: Are those dollars added onto the 2014 budget?
Thad: Correct.

Juliet: I'm pleased to hear that Project Development Assistance is moving forward. This was a top priority item for the commission. What was the budget for this in 2013?
Thad: I believe it was around $1 million and I can get the exact number.
Juliet: So you are growing into being able to spend that amount?
Thad: Correct. We are still working on this and will be improving in the next year. There are projects out there ready to commit to a portion of the offer. What we believe will happen with these projects is that there will be an additional round of funding. It is probably more of a two-year cycle than a one-year cycle.
Juliet: I suggest you document what you are learning. Others could benefit from the knowledge you are gaining.
Thad: Yes. Betsy and her group will be working on that.

Thad covered the 2014-2015 renewable energy budget themes and budget numbers: We have $18 million in new dollars to allocate to projects this year that may complete in 2014 or future years. About 43 percent of the budget is going to Other Renewables and about 57 percent is going to Solar. That balance is based on our continuing efforts to maintain a viable standard Solar program and a solid pipeline. We are hopeful to outperform on our goals. Our total budget is very similar to 2013. I'll re-emphasize that we are spending more dollars on Solar than other projects to maintain that pipeline. We'll be in a pipeline-building mode rather than making big investments in 2014 for the Other Renewables program.

The dynamics of the budgets are different for each utility. We spend only dollars received from PGE ratepayers on projects delivering power to PGE and the same for

> Pacific Power. It is more of a challenge for us to do projects using non-solar technologies in PGE territory, so 69 percent of the budget for PGE will go to support Solar with the remaining 31 percent supporting the Other Renewables program.
>
> Pacific Power is just about opposite. This is where we can capture most of our non-solar opportunities. We are going to continue a competitive process for Other Renewables projects and focus on maintaining a viable standard Solar program. We are not in a position to do anything custom on the solar side this year.

Robert: The cost per average megawatt is the same for PGE and Pacific Power?
Dave McClelland: The cost for Pacific Power should be lower because of the lower incentives. There is more of a risk factor built in for PGE in terms of the conservative goal. We aren't sure that we will be able to allocate all those funds. We are seeing great growth in our pipeline since we've increased our incentives. We are hearing from our contractors that they are able to get a similar return to when there was a Business Energy Tax Credit. The costs have come down enough, by about 40 percent, that with no tax credit they think they can get the same return.

Suzanne: Does that mean you think that you are going to see an uptick in Solar projects?
Dave: We hope so. We think we are going to get more Solar activity, especially in PGE. Potential project owners have a feeling that they missed an opportunity now that the tax credit is gone, so we need to convince them that it's still a viable opportunity. We have a targeted marketing effort out there to commercial customers.

Vijay: There is a larger message than the loss of the Business Energy Tax Credit, that the industry is reaching maturity and can stand on its own.

Suzanne: We hear that the prices of solar components are increasing a little bit. Is that true?
Dave: We've seen prices stabilize. The market isn't being flooded in the same way with Chinese modules. The supply and demand is coming back into balance, so that has caused prices to stabilize. Our focus is on reducing soft costs. There is a quite a bit of difference between the soft costs of commercial and utility-scale projects, and we think we can help.

Suzanne: So prices of solar components are stabilizing but not up ticking. The takeaway is that costs might be stabilizing but that doesn't necessarily impact the general trend.
Dave: They are stabilizing and I think there is still room for much slower reduction in component costs, so our focus is about making the process more efficient.

Thad: The rest of our budget numbers are essentially the same. We will focus on biopower and hydropower, reflected in the projects you see later today. We'll be working on keeping our Solar program stable and streamlining our competitive process. We've had benefits and challenges that we want to learn from in the coming year.

Jason: Can you expand on how you are going to engage the OPUC's evaluation of the state's solar incentive programs?
Thad: We are going to have an opportunity to participate in a docket. There will be a report, and our role is to provide data and information that we have available and support that process. This is in response to HB 2893, which directs the OPUC to do a comparison of the Volumetric Incentive Rate, VIR, versus other funding opportunities, identify the benefits and challenges and produce a report. It needs to be completed by the end of July 2014 and we will support the process.

Thad: Any public comments on the draft 2014 annual budget are due November 27 and should be sent to info@energytrust.org. There is a public meeting at the OPUC on November 26, and then the final proposed budget will be taken to the board of directors on December 13. Any comments received will be summarized and provided to the board.

Juliet: Folks are welcome to come to the OPUC public meeting where Energy Trust will do a presentation on the budget and we will provide our comments.

3. Presentation of biopower project proposed for funding

Jed Jorgensen outlined the process for reviewing and approving projects before staff covered the details of this project. A lead staff member evaluates each project. An internal review memo is created and shared with a cross-department group. An independent, external contractor is also hired to evaluate the project. Projects are brought to the Renewable Energy Advisory Council before they are brought to the board. This is not required but the board has expressed interest in understanding the council's feedback and view.

Dick: Before you go, I'd like to say that I like that the Renewable Energy Advisory Council is now provided with the same staff reports as the board of directors and that you send them out before meetings. I commend staff for making these changes.
Jed: Thank you.

Dave Moldal presented on the proposed biopower project at Durham Advanced Wastewater Treatment Facility. Dave recognized Bruce Cordon of Clean Water Services for his work on this project.

This project includes a significant reconfiguration of the facility's digesters and construction of a brown grease receiving and processing facility, biogas storage and new gas cleaning equipment. The fuel for the reciprocating engines, otherwise known as co-generation engines because they produce power and heat, will be biogas produced by anaerobic digestion of municipal wastewater solids and co-digestible organic liquids. Clean Water Services intends to achieve commercial operation by January 2015.

Energy Trust proposes to offer a $3 million incentive paid in three installments. Energy Trust will request 65 percent of the Renewable Energy Certificates, RECs, for 25 years. The cost per average megawatt is $2.1 million. Brown grease tipping fees will produce about $330,000 in revenue a year. The only minor risk staff perceives is the facility not being able to secure enough co-digestible liquids for the engines to operate at full capacity. Given the facility's feedstock analysis, its location near a major transportation corridor, other sources of high strength organic wastes available in the region and increasing flows of wastewater solids into the treatment plant, staff is confident that adequate supplies of digestible materials will be available for sufficient biogas production to fuel both co-generation engines.

John Reynolds: Was the 2011 study on supply of available brown grease done for Washington County or a larger area?
Dave: The study was for Washington County only.

Juliet: Where does brown grease come from?
Dave: It generally comes from restaurants or food processing facilities. This material is collected in grease removal devices that are pumped out by waste haulers.

Jason: Are these the same fuels that are being turned into biofuels?

Dave: Those are typically yellow grease, which has higher energy content. That material is not normally put down the drain like brown grease but is separated.

Jason: So there is no present competition for this grease?
Dave: Not at this time, no.

Frank: What happens to the stuff they remove from the biogas?
Dave: The gas cleaning devices use iron sponge or carbon filters, which have to be replaced occasionally.

Jason: Is that why the project has 25 percent operations and management costs?
Dave: Yes.

Dick: Do those filters get put into a landfill?
Dave: That is correct.
Thad: There are some systems that can be regenerated, but you are removing a contaminant and it has to be put someplace.

Suzanne: What is the process to make the wastewater materials solid?
Dave: Wastewater materials are made solid more or less through a settling process. The municipal wastewater solids settle and then are pumped into a digester. In an oxygen-free environment, the solids are stirred and heated to a specific temperature. Bacteria in the tank digest the sugars, fats and proteins and produce biogas, which is approximately 60 percent methane. The biogas is also composed of carbon dioxide, nitrogen and contaminants such as hydrogen sulfide. Injecting brown grease and other co-digestible liquids into the municipal wastewater solids can greatly increase biogas production.

Juliet: Is a centrifuge used?
Randy Neff: There are two stages of separation. In the first stage, sludge primarily settles out. For the second stage, we use a centrifuge to thicken the materials.

Michael: Will the facility be net metering?
Dave: No. They will not be allowed to export power back onto the grid. They will use the power on-site, offsetting their retail rate.

Robert: Currently, the brown grease is going to landfills. Does this mean the competitive market for brown grease is the landfill?
Dave: Correct, plus other biopower projects.

Vijay: Is the 6 cents for tipping fees used in the analysis based on alternative costs of transporting brown grease for other uses?
Dave: Yes. This is also based on what we've seen on other biopower projects and tipping fees nationally.

Robert: With population growth in the district's service territory, you can use the full capacity of the co-generation engine. So if you keep the level of grease steady, will you increase the level of gas produced?
Dave: That is correct. We expect the facility will need an additional cogeneration engine in the future.

Vijay: So the supply of grease is affected by regulations rather than more sophisticated restaurants? Twenty five years seems to be a long stretch to predict. What are you relying on for this assumption on regulations?
Randy Neff: The state pumping code is new and is driving the regulation. Any time you have a new restaurant or significant remodel, they have to put brown grease removal devices in.

Dave: The digester is big enough to handle all the expected waste until about 2025. At some point in the future, they will likely add another digester and another engine.

Thad: Is it fair to say you have excess digester capacity?
Bruce Cordon: We do and we plan to add another digester in the future.
Randy: Yes, we have a plan to keep expanding our anaerobic digestion capacity as the population grows. As facilities expand, we will fully load our digesters. What the supply study showed was that there is plenty of supply.

Vijay: Be mindful of is what is driving the supply of brown grease.
Thad: We think regulations will increase, not decrease.

Suzanne: Is there any flexibility in your tipping fee value to account for an incentive to recognize the unknowns?
Thad: We've bracketed the analysis to account for a range and get a sense of the sensitivity.

Vijay: But you are still using a fixed tipping value throughout the life?
Thad: Yes, we think 6 cents is the middle ground. Clean Water Services will manage the risk of the availability of brown grease. They will need to maintain tipping fees to recover any lost revenue.

Robert: I saw you have gas storage in here. I'm not used to seeing this.
Dave: Yes, one of the digesters will be used as gas storage.
Thad: There is gas storage in a couple of the Revolution Energy Solutions projects, outside the digesters and under pressure.

Michael: What made you determine not to keep the facility below 2 megawatts so it could be net metered? Is this because most of the energy would be consumed on site, or because of the size of the two engines? Did you consider keeping the capacity below 2 MW so you could net meter?
Randy: Our determination was based on a comprehensive analysis of what we've produced over the years and projected into the future. In wastewater treatment, we have to use 20- and 50-year planning periods. We see our anaerobic digestion capacity as adequate. If you project gas production, it leads to a different engine size where we would be going if the project was just wastewater treatment alone. Now we have additional ability to take fats, oils and greases, FOG, so we can generate every bit of gas our digesters can allow. We were getting close to the net metering limit but that isn't what drove our decisions.

Robert: Who is the design engineer?
Randy: CH2M Hill.

Frank: What are you learning from this project to help other projects in Oregon?
Dave: We are learning a lot about operations and maintenance costs and how to reduce them. Every project varies and we are learning about reducing those significant costs so we can share that with others.

Randy: Clean Water Services prides itself on being a front-runner in clean energy technology. A week doesn't go by that we don't have a tour from around the country or the world. It is part of our corporate culture to educate others in the field.

Jason: Given operations and maintenance costs are on the high side, the benefits we are looking for are to advance carbon footprint and drive down operations and management costs. Is Energy Trust seeing a reduction in operations and maintenance costs?
Dave: On a cost per kilowatt basis, this project is almost the same as the City of Gresham's project. The costs are significant but not out of line. Thankfully, they are designing the facility to take advantage of additional biogas in the future.

Jason: I think it is important to look at these external issues because, bang-for-the-buck, this project seems low.
Thad: It is critical to understand that comparing projects is difficult. Incentives provided are based on energy projection. Medford changed an engine, they didn't have to build a building, so the cost of that project and how it's performing is very different. This makes it difficult to compare those two projects. JC-Biomethane is about the same size as the Durham Advanced Wastewater Treatment Facility, but JC-Biomethane had a $2 million incentive and benefited from other funding. The key issue is controlling operations and maintenance costs. Not as big a difference as we like to see. What can we do to improve that? In addition, right now you've got organic materials going to a landfill that may or may not have energy recovery and if it does, it's not nearly efficient as this. A benefit of this facility is capturing that waste and putting it to use. Plus we get the nutrients. These are not all direct energy related benefits, but they align with the goals of the state and are another key reason that we would provide the incentives.

4. Presentation of biopower project proposed for funding
Dave Moldal presented on the 395 kW Gresham wastewater treatment plant biogas project proposed for an incentive of $330,000.

> Energy Trust has been working with the City of Gresham for eight years, helping them achieve their goal of energy independence. With support from Energy Trust in 2005, Gresham replaced their first engine and installed a 395 kW Caterpillar engine fueled with biogas from wastewater solids. In 2012, Gresham installed a FOG receiving and processing station and began co-digesting available material. Gresham has secured more than 6,000 gallons per day of brown grease and other co-digestible materials through three-year renewable feedstock contracts with waste hauling firms.
>
> The current project proposal includes installation of another 395 kW co-generation engine fueled with biogas, installation of a second storage tank for brown grease and food processing waste, replacement of an existing standby generator and associated modifications and improvements to the existing electrical and hot water systems and the digester building. Energy Trust is proposing an incentive of $330,000, to be paid in two installments.

Suzanne: Can you talk about what you are seeing as far as whether wastewater treatment plants are moving toward biomass nationally and in Oregon? A lot of these projects take a long time to get all the pieces in place. Is this particularly challenging in Oregon where we have lower energy prices or is this similar to what you see in other states?
Dave: The value of this project is that Gresham is offsetting their retail power rate and they can make the system work. We are not seeing an explosion in the number of these projects throughout the country, but the market is robust. There is a lot of biogas in Oregon being flared, and the market to take advantage of smaller volumes of biogas is improving as co-generation

technology using biogas is improves. Like the City of Gresham, it's really wastewater treatment plant specific on whether the technology will work and whether there is sufficient leadership and planning.

Betsy: Strategically, we see wastewater treatment projects as being a really important focus for us. There are a lot of factors coming together here. They are not selling into the wholesale market and they are taking advantage of tax credits. Wastewater treatment plants are big energy users. They have a big load, so they have a lot of motivation. In terms of the development and construction timeline, this project is typical of the projects we deal with. All renewable energy projects have a certain degree of complexity, so I don't see these projects as being exceptional. These municipalities have a lot of reason to do this because there are additional benefits.

Thad: I saw a national survey of wastewater treatment plants about a year ago. First of all, you have to use anaerobic digestion to create biogas to make a project viable. The survey looked at wastewater treatment plants that had anaerobic digestion and how many were using this for electricity generation and it was one in10. In Oregon, it's 10 out of 28. We're already performing at a high level. What we are seeing now are projects coming back to expand generation or repower. Those are opportunities for us to convert projects that aren't currently generating electricity. There are opportunities for new and expanding projects.

Robert: In the last project you used 25 years for analysis, but you used 20 years here. Why is there a difference?
Betsy: The typical project life is 20 years. In Durham, we made it 25 years because it matched the life of their financing.

Frank: It seems that these projects are running up against the net metering limit. At some point, in the future, they may need added capacity. Is this limit making it more expensive now and in the future? Have you looked into ways of sizing the systems and what would be the optimum size? How would you work with the utilities?
Dave: Gresham has confronted that today and they have designed their system to produce what is needed.

Thad: There are just a handful of these kinds of projects. I imagine we will see efforts by the customers to go to the utility and find a solution. From Clean Water Services (developer of the Durham project), I heard they sized the system based on what their needs were, not to be restricted by the net metering rules. How that plays out for other projects is yet to be determined. As we bump up on these limits, these customers will see what unanticipated issues are coming out. We'll understand that going forward. Net metering is a hot topic in the U.S. and that will have implications.

5. Presentation of hydropower project proposed for funding
Jed Jorgensen presented the 2.7 MW Warm Springs hydropower project proposed for an incentive of $740,000. On the phone was Ted Sorenson of Warm Springs Hydro LLC, the company developing this project. This project came out of the RFP that was held in August to solicit projects in Pacific Power territory.

Located near Burns in Eastern Oregon, this project would add a 2.7 MW turbine and generator at the base of the Warm Springs Dam. It would also run 2.2 miles of 25 kilovolt lines to interconnect with Harney Electric Co-op. The power would be wheeled across Harney Electric Co-op and Bonneville Power Administration to sell to Pacific Power. The dam is owned by Warm Springs Irrigation District and the Bureau of Reclamation. The facility is entirely used for

irrigation purposes. Energy Trust has not done a project on an existing dam before and there is a tremendous amount of potential for unpowered dams. This system is expected to generate on average 6,300 MWh annually.

Energy Trust has worked with Warm Springs Hydro before. The developer executed a past project on schedule, has a very skilled team and knows how to make these projects move forward. Financing will come from an existing relationship with Farm Credit Services. Farm Credit Services wants a personal guarantee based on other assets that the LLC partners own. If there is a low water year or series of years, it will tap into personal assets to cover the gap. Farm Credit Services successfully employed this strategy on other projects, which gives staff confidence that this arrangement will work well. The proposed incentive is $740,000 made in three payments. One payment would be made upon commercial operation, one at the end of the first irrigation season and another at the end of the second irrigation season if performance milestones are met. Energy Trust would receive 82,000 RECs, which is 65 percent of the expected generation. This is a REC value of $9.02 and an energy value of $1.03 million per aMW.

Dick: I recall a project that we approved with some experimental technology. How did you structure the incentive for that?
Jed: That was going to be paid on a cents-per-kWh basis.

Dick: So your concern with the other project was the technology and your concern here is the flow?
Jed: Yes. That's not really a concern, just awareness that some years will have less water than others.

Dick: How long did the other project take?
Jed: Three or four years. We are trying to cover two risks here: performance and additional risk developed by private entities versus municipalities.

Frank: With climate change, you can expect that things will be different in the future. The certainty that they will get 6,300 MWh in the future isn't very certain. In addition, you have to be careful with large volumes of water. What will happen with storms? Are they dumping greater amounts over shorter amounts of time? What has been done to protect the facility?
Jed: The climate change conversation is one that we've had about this project. To deal with that, we didn't look at the whole 40 years of past data. We looked at the last 10 and the 10 before that to determine an average that takes into account more recent climate conditions. In terms of storms, the dam is going to act as flood control barrier unless there is a massive overtopping.

Jason: Is sediment a consideration?
Jed: No, the outlets are at the bottom of the dam. Ted, can you explain how sediment is being managed?
Ted: Upstream of the dam is undeveloped land. It is primarily used for grazing. So the sediment load coming in is going to be rather low, and there is no sediment at the outlet at the base of the dam. They often drain the reservoir so we know what it looks like.

Jason: What is the response from the conservation community?
Jed: There is no controversy about the project.

Michael: The addition of hydro triggered the requirement that they needed to restock the fish. The dam itself is responsible but are all the costs put on this project?

Jed: The restocking is more of a recreational value to this reservoir and is not related to fish issues. It's about $3,000 a year so it is not a large concern.

6. Presentation of hydropower project proposed for funding

Jed presented the Farmers Irrigation District turbine upgrade hydropower project proposed for an incentive of $825,000. Jerry Bryan from the Farmers Irrigation District attended.

Energy Trust has done a fair amount of work with the district, helping it pipe much of the service territory. This last year was a drought year and the district had to shut down one of the plants about a month earlier than expected. It was able to meet all deliveries without rationing water and exceeded generation expectations by 400 percent even though it was a drought year. That was a big success.

This project will remove two existing 1 and 2 MW Francis turbines, generators and controls. They will be upgraded with a single 3 MW turbine. This is because the old turbines have not performed as well as expected and are causing a lot of extra operations and maintenance costs for the district. With this change, the district expects to increase generation by 12 percent without increasing capacity and save significantly in operations and maintenance costs. For replacement projects, total cost is considered but only additional generation is taken into account. Energy Trust is proposing an incentive of $825,000 to be paid in two payments. Energy Trust will receive 29,295 RECs which is 75 percent of expected generation. The REC value is $28.16 and the energy value is $3.7 million per aMW.

Dick: The power purchase agreement, PPA, will stay the same. Could Pacific Power have required a new PPA? It's my understanding they have a higher rate now?
Jerry: We tell them our limit and our probable maximum, and we use an average between those two. It is unlikely that the unit will exceed our max, but if it does, we simply explain we are now capable of producing more.

Robert: You're only giving them half the money they need, so where's the rest coming from?
Jed: They are borrowing the rest from the state. Essentially, they are willing to take a longer return.

Jason: On all the projects today, the program providing less that 100 percent of above-market costs. If you can go to 100 percent, why aren't you?
Thad: It varies. For Durham, when we modeled it with a higher tipping fee, we were paying 100 percent. We have to make assumptions for performance over a 20-year period and we tend to be conservative.

Robert: Do you negotiate incentives?
Thad: Negotiation is usually over the number of RECs rather than over incentives.

Michael: So this would be the first hydroelectric turbine replacement project that Energy Trust has funded? Was it just one of the first ones to come forward? Do you think there is a potential market for more?
Jed: Turbine upgrades are more common with larger hydro facilities, where a 3 percent efficiency increase translates into a lot of MWh. That is beyond our ability to support. If you just look at smaller projects here in Oregon, there is much smaller potential. Since we are limited to 20 MW, this is probably not something we are going to see a lot of but it is a place we can help out.

Robert: Why is this going to the Renewable Energy Advisory Council instead of the Conservation Advisory Council for efficiency?
Jed: It is still new, additional generation, not energy savings.

Frank: Is there any salvage value of the old turbine?
Jed: They estimate about a $100,000 value.

John: Did you mention in the previous project that one of the reasons the wheeling cost is low is because Harney Electric Co-op has an option on the project in the out years?
Jed: No, but it is in the write-up. Essentially Harney Electric is saying that it would potentially be interested in owning the system in the future and in exchange they are not charging a wheeling fee.

Thad: In our contracts we include provisions such that if a project doesn't generate or deliver to the intended utility for the full 20 years, there is a repayment schedule to protect ratepayer dollars.

7. Public comment
No public comment.

8. Meeting adjournment
Betsy thanked the council members for their participation and adjourned the meeting at 11:55 a.m. The next full council meeting is February 5, 2014.

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.

Energy Trust of Oregon 2013 Preliminary Annual Results

February 3, 2014

The following represents preliminary Energy Trust of Oregon 2013 annual savings and generation results, and progress to stretch, conservative and IRP goals. This report contains the best available data at this time, and reflects net savings. Further review as part of Energy Trust's comprehensive annual reporting process may change the results reported here. The Energy Trust 2013 Annual Report to the Oregon Public Utility Commission will contain the most accurate and comprehensive Energy Trust data, and will be available April 15, 2014.

A. Preliminary Electric Efficiency Savings

In 2013, electric efficiency programs saved 57.8 average megawatts, achieving **104 percent of Energy Trust's 2013 stretch goal** of 55.8 aMW, and 122 percent of Energy Trust's 2013 conservative goal of 47.4 aMW.

Preliminary Electric Efficiency Savings	Pacific Power aMW	Portland General Electric aMW	Total aMW
Existing Buildings	4.08	9.34	13.42
New Buildings	6.68	3.24	9.92
Production Efficiency	4.45	12.38	16.83
New Homes and Products	2.64	4.32	6.96
Existing Homes	1.52	2.60	4.12
NEEA	2.82	3.73	6.55
Total Electric Efficiency Programs	**22.19**	**35.62**	**57.80**

Electric efficiency savings numbers include transmission and distribution savings

B. Preliminary Natural Gas Efficiency Savings

In 2013, gas efficiency programs saved 5.3 million annual therms of natural gas, achieving **97 percent of Energy Trust's 2013 stretch goal** of 5.4 million annual therms, and 115 percent of Energy Trust's 2013 conservative goal of 4.6 million annual therms.

Preliminary Gas Efficiency Savings	Cascade Natural Gas Therms	NW Natural—Oregon Therms	Total Therms
Existing Buildings	92,452	1,591,551	1,684,002
New Buildings	73,272	419,811*	493,083
Production Efficiency	57,119	992,325	1,049,445
New Homes and Products	95,004*	927,261*	1,022,265
Existing Homes	29,244	1,028,010*	1,057,255
Total Gas Efficiency Programs	**347,091***	**4,958,959***	**5,306,050***

**Includes gas market transformation savings*

C. Preliminary Renewable Energy Generation

In 2013, Energy Trust achieved total renewable energy generation of 2.87 aMW, achieving **72 percent of Energy Trust's conservative goal** of 4.0 aMW.

Preliminary Renewable Energy Generation	Pacific Power aMW	PGE aMW	Total Generation aMW
Biopower	0.69	1.44	2.13
Solar Electric	0.30	0.42	0.72
Other Renewables	0.01	0.01	0.02
Total Renewable Programs	**1.00**	**1.87**	**2.87**

Renewable energy generation numbers include transmission and distribution savings, where appropriate

D. Preliminary NW Natural-Washington Gas Efficiency Savings

In 2013, gas efficiency programs for NW Natural customers in Washington saved 221,172 annual therms of natural gas, achieving **85 percent of Energy Trust's 2013 stretch goal** of 259,319 annual therms, and exceeding 100 percent of Energy Trust's 2013 conservative goal of 220,421 annual therms.

Preliminary NW Natural—Washington Gas Efficiency Savings	NW Natural—Washington Therms
Existing Buildings	132,308
Existing Homes	40,238
New Homes	48,626
Total NW Natural-Washington Gas Efficiency Programs	**221,172**

E. Preliminary Progress to 2013 Annual Goals by Utility

Preliminary Progress to Goals by Utility		Energy Trust Annual Goal (Stretch)		Energy Trust Annual Goal (Conservative)		Annual IRP Goal	
	Annual Savings	Goal	% Achieved	Goal	% Achieved	Goal	% Achieved
PGE	35.62 aMW	36.08 aMW	99%	30.67 aMW	116%	29.22 aMW	122%
Pacific Power	22.19 aMW	19.68 aMW	113%	16.72 aMW	133%	16.70 aMW	133%
NW Natural—Oregon*	4,958,959 annual therms**	4,975,055 annual therms	100%**	4,228,797 annual therms	117%	3,593,679 annual therms	138%
Cascade Natural Gas*	347,091 annual therms	473,330 annual therms	73%	402,331 annual therms	86%	405,844 annual therms	86%

**Includes gas market transformation savings*
**Achieved 99.7% of stretch goal, rounded to 100% per Energy Trust reporting convention*

Briefing Paper
Bills in 2014 Legislature

February 18, 2014

Summary

This paper summarizes bills introduced in the 2014 legislature.

Background

- This year's legislative session is a short session. It began in January and will adjourn no later than March 9.
- Pursuant to our grant agreement with the OPUC, Energy Trust does not take positions on legislation or engage in political issues. We routinely brief legislators on Energy Trust and its accomplishments.
- During legislative sessions, we also monitor legislation that could impact Energy Trust and respond to legislative requests for information. We coordinate these activities with the OPUC.

Discussion

- The attached report summarizes the energy-related bills that we are tracking. The "bill number" column in the report links to the actual bills.
- 249 bills were introduced overall, and the processing schedule is abbreviated. Only a fraction of these bills moves to work sessions, and even fewer are likely to be enacted.
- The bills' "relating" clauses (reflected in the "summary" column) give notice of the purpose with which a bill is concerned, and because it is not unusual for a bill with a broad "relating" clause to be used as a vehicle for more extensive legislation that may not have been introduced early in the session, we monitor virtually everything that touches on energy.
- Highlights:
  - **Public-purpose charge: HB 4105**, introduced by Rep. Conger, would repeal the public-purpose charge that funds Energy Trust electric programs. No work sessions or hearings have been scheduled.
  - **Property Assessed Clean Energy program: HB 4041A** would authorize local governments to help property owners other than single-family homeowners finance energy improvements.
  - **Lottery funds for Clean Energy Works Oregon: SB 5703** transfers lottery dollars to the Oregon Department of Energy to provide a grant to Clean Energy Works Oregon to for its energy work.
  - **Renewable portfolio standard: HB 4126A** is a compromise bill that would allow consumer-owned utilities to use unbundled renewable energy certificates to meet renewable portfolio requirements, and the OPUC to study non-residential green power tariffs for electric companies. The bill is an alternative to an initiative proposed by the Umatilla Electric Cooperative, which would allow utilities to use existing hydropower to

meet renewable energy requirements, and a bill (HB 4043) that would create a greenhouse-gas standard for electric cooperatives.

- **Low-income energy conservation: HB 4146** would terminate Housing and Community Services Department low-income weatherization and electric bill payment assistance, and transfer these responsibilities to electric companies and/or an OPUC-designated entity.
- **Net-metering for wave energy: HR 4042A** would provide access to utility net-metering programs for wave energy projects.
- **Low-carbon fuel: SB 1570** would repeal the sunset clause relating to Oregon's low-carbon fuel requirements, while allowing exceptions based on interactions with the Oregon Department of Administrative Services and/or the Environmental Quality Commission.

Next Steps

- We will update this report and provide it to you after the March 9 close of the session.

77th Legislative Assembly — Tracked Bill List

Report Date: February 18, 2014

Schedule: 249 bills introduced, 2/7 was last day to post bills for work sessions, 2/13 was last day for measures to be passed out of committee and vote of first house, 2/20 is last day for work sessions on bills from other house, 2/25 is last day for bills to be voted on by second house with only Rules, Revenue and Ways & Means allowed to continue votes. Sine die is March 9. https://olis.leg.state.or.us/liz/2014R1/Measures/list/

Bill Number	Relating Clause Summary	Sponsor / Committee	Potential Impact	Status
HB 4005	**Relating to tax expenditures; prescribing an effective date.** Establishes income tax credit for manufacturing facility if taxpayer makes capital investment. Provides for certification by Oregon Business Development Department. Authorizes department to certify business firms on or after July 1, 2014, and on or before December 31, 2017. Limits amount of credits allowed per biennium. Applies to tax years beginning on or after January 1, 2014, and before January 1, 2018. Takes effect on 91st day following adjournment sine die.	Revenue	Extends up to $10 million to manufacturers for jobs and capital investment milestones; described as replacement to expired manufacturer BETCs; could add activity boost to industrial programs	House hearing 2/18; Business Oregon gave legislative days informational briefing
HB 4041A	**Relating to the facilitation of financing for energy improvements by local governments.** Expands energy improvement program by authorizing local governments to facilitate private financing of energy improvements by property owners. Modifies definition of "qualifying real property" to exclude single-family residential dwellings.	Senate Environment & Natural Resources House Energy & Environment	Effort on commercial financing via Property Assessed Clean Energy program	Senate hearing 2/19; Bailey indicated key bill during Climate Solutions event; Home Performance Guild potential amendment; Portland Development District provided informational briefing during legislative days (LC 51)
HB 4042 A	**Relating to net metering of energy produced by marine resources.** Adds renewable marine energy to types of energy for which availability of net metering is required.	Senate Rural Communities & Economic Development House Energy		Passed House; Legislative days LC 54

Bill Number	Relating Clause Summary	Sponsor / Committee	Potential Impact	Status
HB 4043	**Relating to utilities.** Restricts use of electricity by electric cooperative if facility generating electricity emits amount of greenhouse gases per megawatt-hour greater than any generating facility that generates electricity distributed or sold by Bonneville Power Administration. Becomes operative on date that Initiative Petition 3 (2014) becomes effective. Becomes operative only if Initiative Petition 3 (2014) becomes law	Energy & Environment	Known to be counter bill to UEC ballot measure if HB 4126 does not pass	No work session held; Legislative days LC 57
HB 4101	**Relating to a severance tax on the harvest of timber; appropriating money; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.** Imposes severance tax on harvest of timber from forestlands in Oregon at rate of $15 per thousand feet, board measure, to fund income tax credit for milling of logs in Oregon and for distribution to counties. Applies to tax years beginning on or after January 1, 2015.	Rep. Holvey Rep. Buckley Revenue	Funds processing of logs in state versus out of state/country; not expected to affect Biopower program	No work session held
HB 4105	**Repeals annual public purpose expenditure standard.** Repeals certain statutes related to annual public purpose expenditure standard and abolishes related funds. Transfers duties, functions and powers related to small scale local energy projects from Public Purpose Fund Administrator to Director of State Department of Energy. Makes conforming changes.	Rep. Jason Conger Energy & Environment	Repeals ORS 297.300 (audit of Energy Trust records) and 757.612 (PPC), 757.617 (annual PPC report), 757.687 (PPC); transfers to ODOE duties under ORS 470.500-.710 (EEAST); repeals 456.587 (OHCS funds)	No work session held; referral to Ways and Means found no fiscal impact
HB 4126 A	**Relating to utilities.** Allows consumer-owned utilities to use certain amount of unbundled renewable energy certificates to meet renewable portfolio standard under certain circumstances	Rep. Smith Senate Business & Transportation House Energy & Environment	The RPS compromise bill; Amendment 3 allows for OPUC to study case-by-case non-residential green tariff allowances for electric companies while prohibiting cost shifting; such allowance does not count toward RPS obligation; does not include large customer efficiency funding changes	Senate hearing 2/20

Bill Number	Relating Clause Summary	Sponsor / Committee	Potential Impact	Status
HB 4146	**Relating to moneys collected for energy-related purposes.** Requires Housing and Community Services Department to cease activities that are related to moneys collected for new low-income weatherization and low-income electric bill payment assistance. Establishes regulatory framework for electric companies and Oregon Community Power to use such moneys to provide services similar to those currently provided by department. Abolishes Housing and Community Services Department Low-Income Electric Bill Payment Assistance Fund.	Rep. Bailey Energy & Environment	Repeals low-income weatherization and bill payment assistance public purpose charge to OHCS; directs electric utilities to collect rate set in coordination with OPUC	No work session held; Bailey indicated key bill during Climate Solutions event
SB 1501	**Relating to energy savings performance contracts; declaring an emergency.** Exempts energy savings performance contracts, under certain circumstances, from requirement to use competitive bidding process to award public improvement contracts. Specifies circumstances. Becomes operative July 1, 2014.	Sen. Monroe Business & Transportation		No work session held after public hearing 2/11
SB 1511A	**Relating to radon.** Prohibits engaging in business of radon level testing or radon mitigation work without Department of Consumer and Business Services certification. Requires department to adopt rules establishing qualifications for certification. Allows department to accept national association certificate as proof of qualifications. Requires that application for child care facility certification or registration include documentation of radon level testing. Requires school district board to provide State Board of Education with documentation of radon level testing for district schools offering prekindergarten to grade 12 education. Makes design and construction standards for radon mitigation applicable to certain residential buildings and certain public buildings that undergo basement remodeling or construction of additions.	Environment & Natural Resources	Requires k-12 public schools to test and mitigate for radon by certified radon contractor; not believed to affect residential programs after narrowing of bill's scope with amendment 1	Assigned to Subcommittee on Human Services with amendments; Dembrow indicated key bill during Climate Solutions event; legislative days LC 243
SB 1512	**Relating to alterations in determined water rights in the Klamath Basin.** Makes Klamath Basin water right determined and established in order of determination existing water right for purposes of statute governing leasing of existing water rights for in-stream use.	Environment & Natural Resources		No work session held after public work session 2/12; priority for environment committees

Bill Number	Relating Clause Summary	Sponsor / Committee	Potential Impact	Status
SB 1520A	**Relating to securities registration for renewable energy cooperative corporations; declaring an emergency.** Exempts from registration securities that renewable energy cooperative corporation issues to cooperative corporation members as evidence of membership in cooperative corporation or to show members' respective interests in assets, reserves or patronage dividends. Becomes operative July 1, 2014.	Sen. Starr House Business & Labor Senate Business & Transportation	Removes registration requirements for cooperatives looking to raise money from citizens to build renewable energy systems.	House hearing 2/21
SB 1570	**Relating to low carbon fuel standards; declaring an emergency.** Repeals sunset on provisions related to low carbon fuel standards. Prohibits Environmental Quality Commission from requiring compliance with low carbon fuel standards if division of Oregon Department of Administrative Services that serves as office of economic analysis finds that projected incremental cost of compliance would exceed four percent of projected annual average cost of gasoline or diesel in Oregon. Requires commission to suspend requirements to comply with low carbon fuel standards upon certain findings by division. Allows commission to reinstate requirements to comply with low carbon fuel standards upon certain findings by division. Declares emergency, effective on passage.	Sen. Beyer Environment & Natural Resources		Governor announced 2/13 will use executive authority by directing DEQ to proceed with Phase 2 and creating an advisory committee; no work session held; Dembrow and Bailey indicated key bill during Climate Solutions event but cautioned short session may not be enough time; Governor indicated a priority
SB 5703	**Relating to state financial administration; declaring an emergency.** Changes fund into which proceeds of certain lottery bonds are deposited for State Department of Energy. Changes recipient of lottery bond proceeds to be used for digital switching equipment in Gilliam, Sherman and Wheeler Counties. Declares emergency, effective on passage.	Joint Ways & Means	Provides $5 million in lottery funding to the Oregon Department of Energy for purposes described under ORS 470.575 (EEAST)	Late session arrival (2/14); referred to committee 2/17
SJR 201	**Proposing amendment to Oregon Constitution relating to the regular sessions of the Legislative Assembly.** Proposes amendment to Oregon Constitution to modify maximum number of calendar days of regular sessions of Legislative Assembly. Refers proposed amendment to people for their approval or rejection at next regular general election held throughout this state.	Sen. Devlin	Housekeeping; extends short sessions by 10 days and shortens regular sessions by 10 days	Public hearing 2/19

Briefing Paper

Integrated Solutions Implementation Project Update

February 26, 2014

Summary

In December 2013, Phase 2 of the Integrated Solutions Implementation (ISI) project completed definition work. Through this work staff determined that a combination of extending our existing Customer Relationship Management (CRM) system and creating some custom elements is the preferred solution path to replace FastTrack, the system currently used by Energy Trust to track program management and delivery.

Background

The ISI project was initiated to achieve several objectives in support of program goals including improvements to our processes, increased data quality and systems improvements that both modernize our systems and strengthen integration among our systems. Phase 2 of the Integrated Solutions Implementation (ISI) project implements process and systems improvements focusing on program management and delivery. This phase addresses the major inefficiencies and limitations of FastTrack, the system currently used by Energy Trust for program management and delivery. FastTrack also serves as the system of record for tracking recognized energy savings and generation.

Phase 2 completed activities

1. Worked with Online Business Systems to complete Define stage activities. We engaged Online Business Systems in September 2013 through a competitive Request for Qualifications (RFQ) process.
2. Conducted deep-dive current state process analysis on the Program / Measure Development processes and gathered business and technical requirements. This work built on similar documentation and analysis completed in ISI Phase 1.
3. Developed a solution vision and technical architecture based on process analysis and business and technical requirements.
4. Assessed software product availability based on business requirements, solution vision, and technical architecture. Conducted Request for Information (RFI) process to gather software availability information. RFI included request for response regarding company, pricing, business requirements, and technical requirements.
5. Received and scored RFI responses from six vendors. Review team comprised of ISI steering committee and project team. Composition of review team included eight members from outside IT and four members from IT. Online Business Systems also reviewed responses but were not included in scoring.
6. Energy Trust Management Team approved recommendation from ISI Steering Committee to extend CRM and build some custom elements based on assessment of available software solutions and feasibility of internal development.
7. Decided to utilize an incremental approach to internal development, known as “agile” software development. This approach divides the larger project into smaller releases to be

delivered on shorter timelines. An agile approach allows staff to more quickly deliver value to users and also incorporate user feedback in subsequent releases.
8. Issued RFQ for project management resources and development resources.
9. Engaged with Hitachi Consulting to provide agile project management. Project manager started work on January 27.

Phase 2 planned activities

1. Engage development resources based on RFQ responses. These resources will supplement internal staff to complete project deliverables.
2. Create data, technology, integration, application and services designs. These technical designs will be developed by IT staff. Recommended approach to phased releases will be based on these designs.
3. Form project team comprised of technical and functional team members. Confirm scope and approach of the proposed solution with the team and begin building change readiness.
4. For each release, confirm the detailed requirements with organization stakeholders
5. Develop technical in-scope components, conduct tests, pilots and end user validation
6. For each release, create future state procedures and user guides
7. Develop and validate detailed deployment approach and plan
8. Convert existing data from old system(s) into new systems
9. Prepare all end users to begin using the new systems following the update processes
10. Release new solution components, assess successes and issues, and improve as necessary
11. Update process flows to reflect changes as a result of the designed solution

Timeline

- Phase 2 solution work commenced in early February. Staff is currently assessing solution design options. The ISI project team will utilize this assessment to drive an approach and timeline to prioritize and deliver the various releases within the larger project. The work on these releases will continue through 2014 and potentially into early 2015. The phased approach will allow the project to ensure minimal impact to staff during Q4 of 2014 given the significant volume of work related to program operations during that time period.

Budget

- Staff budgeted a total of $1.65 million in 2013 for completion of phase 2. The organization focused on other priorities during most of the year and spent $215,000 on ISI phase 2 Define stage in Q4 2013.

- Staff had estimated $450,000 for Define stage activities in Q4 2013 and included $1.2 million in the 2014 budget request approved in December.

True Up 2013: Tracking Estimate Corrections and True Up of 2002-2012 Savings and Generation

December 20, 2013
Adam Shick

Introduction

True Up is the annual process used to adjust and correct reported energy savings and renewable generation to reflect the best available information at the time of True Up. The 2013 True Up uses evaluation results as of June 30, 2013. In the True Up process, adjustments are made to past savings and generation data based on corrections to transaction errors, new data on measure assumptions, anticipated evaluation results (for years and programs where there is yet to be an evaluation completed), and actual evaluation results. The 2013 True Up updates reported energy savings and generation for Energy Trust funded activities from 2002-2012.

The purpose of the "True Up 2013" report is to summarize these adjustments to Energy Trust savings and generation. The three parts of this report discuss (1) definitions for evaluation results by which savings and generation are adjusted, (2) updates made to Energy Trust data by program, and (3) the difference between pre- True Up and post- True Up savings and generation estimates.

Summary

The 2013 True Up introduced significant adjustments to total annual electric and gas savings reported by Energy Trust of Oregon. Total electric savings from 2002-2012 increased by 2.6% from 347.7 aMW to 356.8 aMW and total gas savings from 2003-2012 decreased by 1.6% from 28.2 million therms to 27.7 million therms as a result of the 2013 True up. Renewable generation was also adjusted in the 2013 True Up and fell 0.03% from 109.52 aMW to 109.48 aMW.

For 2012, energy savings increased 9% from 52.9 aMW to 57.6 aMW, gas savings decreased 5.5% from 5.9 million therms to 5.6 million therms, and renewable generation decreased 3.4% from 5.5 aMW to 4.87 aMW compared to the values reported in Energy Trust's 2011 Annual Report.

The largest factors underlying the changes in electric savings are (1) an improved realization rate for Existing Buildings in 2010[1], (2) lower free-ridership for Existing Buildings in 2012, (3) corrections to free-ridership estimates for New Buildings from 2010-2012, (4) an improved

[1] The 3-year savings-weighted average realization rate is applied to savings in program years where an impact evaluation has not yet been completed. The improved realization rate for Existing Buildings in 2010 also improves the savings for 2011 and 2012 were a weighted average of past realization rates is currently being applied. The same is true for the Production Efficiency program.

realization rate for Production Efficiency in 2009, 2010, and 2011, and (5) adjustments to NEEA savings for 2011-2012.

On the gas side, the largest factors underlying changes to savings are (1) adjustments of savings for roof top tune-up measures, (2) adjustment of the assumed installation rate for showerheads and aerators, and (3) higher free-ridership for Existing Homes weatherization measures in 2012.

The 2013 True up incorporated significant adjustments in savings to the following programs:

1) Existing Buildings- 2010-2012
2) New Buildings- 2010-2012
3) Production Efficiency- 2009-2012
4) Existing Homes- 2010-2012
5) NEEA- 2011-2012
6) Renewables- 2003-2012

The annual changes to electric and gas savings are summarized by program in the Results section below. Additionally, there is a series of tables that represents overall changes by sector for each year. Lastly, results from True Up 2013 are shown for each funding utility within Energy Trust of Oregon's service territory.

Definitions

Working Savings/Generation: The estimate of anticipated results which are practical for data entry by program personnel while approving individual projects. These savings are based upon estimates of typical savings or generation for prescriptive measures and site-specific engineering calculations for custom energy efficiency measures. Transmission and distribution line loss savings are not included in working savings, and no adjustments are made for free riders (FR), who are customers that would have installed the measures absent program influence, or spillover, which represents customers who are influenced by the program but did not take the incentive for an efficiency measure. These are issues that are addressed when developing reportable savings/generation values.

The true-up process does not adjust working savings claimed in the past, but *does* incorporate new information used in true up adjustments by updating working savings on a forward looking basis. Reportable savings and generation only are adjusted through the true up process.

Reportable Savings/Generation: The estimate of savings results that are used to report Energy Trust achievements. Several factors are applied to working savings in order to arrive at reportable savings. Reportable energy savings are adjusted and updated annually through the true-up process based on new information. Realization Rates (RR) are used to adjust the initial

engineering estimate; a realization rate of 100% indicates that site savings were as expected, on average. Another adjustment is for market effects, also known as a Net-to-Gross (NTG) ratio. The NTG ratio adjusts for free riders and spillover. The final adjustment, which is applied only to electric savings, is for avoided line and transformer losses.

Free-rider rates are determined through Faster Feedback (FF) which is a short phone survey with a sample of recent program participants to assess satisfaction, understand customer decision making, and gather suggestions for program and process improvements. The survey is generally ten or fewer questions and is customized for each program or measure of interest. The goal of Fast Feedback is to get accurate answers to important questions within two months of program participation and to minimize the burden on survey respondents.

True Up adjusts reportable savings and generation estimates in different programs for different reasons. These fall into the following categories:

1) Corrections: Occasionally, through Energy Trust's routine quality assurance processes, transaction errors are discovered in the database, which require corrections. Individual transaction errors (i.e. typos that affect savings) are usually adjusted immediately and generic transaction errors (i.e. wrong deemed savings value for a measure) are easily fixed once per year during True Up.

2) *New Data:* Projections are updated based upon improved measure simulations and new data on measure performance.

3) *Anticipated Evaluation Results:* Experience shows that evaluated estimates of savings and generation can be either lower or higher than reportable estimates. Reportable estimates are often based on typical savings for prescriptive measures or "as installed" engineering analysis for custom measures. Impact evaluation uses energy use data and/or improved data on post-installation operation to improve reportable estimates. However, impact evaluations cannot be completed until well after programs finish a year's activity. This is due to the need to utilize post-installation energy use data. Based upon Board direction in the July, 2004 Strategic Work Session, staff is attempting to anticipate these effects in reportable savings for programs where there is not yet evaluation information available.

4) *Evaluation Results:* Once finalized, evaluations provide the most reliable representation of realized savings, and can replace the refined projections described above in (2) and (3). Evaluation results may change Energy Trust savings estimates for a single year or all prior years. This is dependent upon what other evaluations have already been performed for prior years and whether results seem applicable to prior years (e.g. similar measures, participants, and circumstances.)

Results Summary, Impacts By program

Existing Buildings

An impact evaluation of the Existing Buildings program for the 2010 program year was completed in 2013. The 2013 true up incorporates the results of that analysis into evaluation factors for 2010, and also within anticipated evaluation factors for 2011-2012 by applying the average of 2008-2010 evaluated realization rates. In addition to the 2010 impact evaluation, savings for several roof-top tune-up measures (RTUs) were adjusted to align with recent billing analysis results and updated measure assumptions. In total, adjustments to RTU measures in the 2013 true up decreased gas savings by 147 thousand therms and decreased electric savings by 0.16 aMW, across the commercial and industrial sectors.

Table 1 summarizes which evaluations have been applied to each program year. Tables 2a and 2b show in detail the various components of the 2009-2012 evaluation factors for gas and electric. The total combined impact on savings for Exiting Buildings, by program year, is shown in table 3.

Table 1: Existing Buildings Evaluations

Program	Year	Source	Type of Adjustment	Notes
BE	2003-2009	2003-2009 Evaluations	Evaluation Factor	Closed in Previous True Ups
BE	2010	2010 Impact Evaluation	Evaluation Factor	Closed in this True Up
BE	2011-2012	2008-2010 Impact Evaluations	Anticipated Evaluation Factor	RR Savings Weighted Average: 2008-2010
BE		2010-2012 FR, FF Evaluations		2010-2012 Free-rider Rates

Table 2a: 2009-2012 Existing Building Evaluation Factors- Electric

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	Free Riders	Participant Spillover	Non-Participant spillover	Evaluation Factor
2009	85%	19%	1%	7%	76%
2010	107%	19%	1%	7%	95%
2011	99%	30%	1%	7%	78%
2012	99%	16%	1%	7%	92%

Table 2b: 2009-2012 Existing Building Evaluation Factors- Gas

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	Free Riders	Participant Spillover	Non-Participant spillover	Evaluation Factor
2009	75%	19%	1%	7%	67%
2010	86%	11%	1%	7%	83%
2011	83%	27%	1%	7%	67%
2012	83%	18%	1%	7%	75%

Table 3: 2009-2012 Existing Buildings Combined Adjustment

Year	Old Electric Factor	New Electric Factor	Change in Savings (aMW)	Old Gas Factor	New Gas Factor	Change in Savings (mTherms)
2010	0.82	0.95	1.36	0.81	0.83	(0.02)
2011	0.72	0.78	0.66	0.68	0.67	(0.09)
2012	0.81	0.92	1.48	0.76	0.75	(0.03)
Total			**3.50**			**(0.13)**

2012 gas and electric savings for the Multifamily Existing Buildings program were also adjusted to reflect 2012 FastFeedback free-rider rates. The total combined impact on savings for Multifamily Existing Buildings is shown in table 4.

Table 4: 2012 Multifamily Existing Buildings Combined Adjustment

Year	Old Electric Factor	New Electric Factor	Change in Savings (aMW)	Old Gas Factor	New Gas Factor	Change in Savings (mTherms)
2012	0.80	0.84	0.07	0.70	0.64	(0.01)
Total			**0.07**			**(0.01)**

New Buildings

An impact evaluation of the New Buildings program for the 2010 program year was completed in 2013. The 2013 True Up incorporates the results of that analysis as evaluation factors for 2010, and also as anticipated evaluation factors for 2011-2012. Additionally, electric savings for a large custom data center project were corrected from the program wide realization rate to a 100% realization rate, since the program wide rate does not apply to large custom projects where the baseline efficiency is explicitly accounted for in savings calculations.

Table 5 summarizes which evaluations have been applied to each program year for the New Buildings program. Tables 6a and 6b show in detail the various components of the 2009-2012 evaluation factors for gas and electric. The total combined impact on savings for New Buildings, by program year, is shown in table 7.

Table 5: New Building Evaluations

Program	Year	Source	Type of Adjustment	Notes
NBE	2003-2009	2003-2009 Evaluations	Evaluation Factor	Closed in Previous True Ups
NBE	2010	2010 Impact Evaluation	Evaluation Factor	Closed in this True Up
NBE	2011-2012	2008-2010 Impact Evaluations	Anticipated Evaluation Factor	RR Savings Weighted Average: 2008-2010
NBE		2010-2012 FR, FF Evaluations		2010-2012 Free-rider Rates

Table 6a: 2009-2012 New Building Evaluation Factors- Electric

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	2007 Code Free-riders	2010 Code Free-riders	Participant Spillover	Evaluation Factor
2009	97%	34%	0%	1%	65%
2010	95%	34%	0%	1%	64%
2011	92%	34%	0%	1%	80%
2012	92%	34%	0%	1%	85%

Table 6b: 2009-2012 New Building Evaluation Factors- Gas

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	2007 Code Free-riders	2010 Code Free-riders	Participant Spillover	Evaluation Factor
2009	95%	32%	0%	1%	66%
2010	98%	32%	0%	1%	68%
2011	95%	32%	0%	1%	69%
2012	95%	32%	0%	1%	83%

Table 7: 2009-2012 New Buildings Combined Adjustment

Year	Old Electric Factor	New Electric Factor	Change in Savings (aMW)	Old Gas Factor	New Gas Factor	Change in Savings (mTherms)
2010	0.62	0.64	0.06	0.68	0.68	0.00
2011	0.66	0.80	0.46	0.71	0.69	(0.01)
2012	0.77	0.85	1.20	0.90	0.83	(0.04)
Total			**1.71**			**(0.04)**

Production Efficiency

An impact evaluation of the Production Efficiency program for the 2009-2011 program years was completed in 2013. The 2013 True Up incorporates the results of that analysis as evaluation factors for 2009-2011, and also as anticipated evaluation factors for 2012. Adjustments to Production Efficiency savings relating to impact evaluation findings were made in conjunction with corrections to savings for Strategic Energy Management (SEM) and Custom O&M measures in the 2013 True Up, for the program years 2009-2012. From 2009-2012, the Production Efficiency program used only one 'measure code' to book savings for both SEM and Custom O&M projects, and those savings therefore received the same evaluation factor adjustment. However, those different measures (SEM and Custom O&M) *should* have received unique evaluation factor adjustments, since SEM savings should not be discounted for free-riders, but O&M savings should be.

Table 8 summarizes which evaluations have been applied to each program year for the Production Efficiency program. Tables 9a and 9b show in detail the various components of the 2009-2012 evaluation factors for gas and electric. The total combined impact on savings for Production Efficiency, by program year, is shown in table 10.

Table 8: Production Efficiency Evaluations

Program	Year	Source	Type of Adjustment	Notes
PE	2003-2008	2003-2009 Evaluations	Evaluation Factor	Closed in Previous True Ups
PE	2009-2011	2009-2011 Evaluations	Evaluation Factor	Closed in this True Up
PE	2012	2009-2011 Impact Evaluation	Anticipated Evaluation Factor	RR Savings Weighted Average: 2009-2011
PE		2012 FF Evaluation		2010-2012 Free-rider Rates

Table 9a: 2009-2012 Production Efficiency Evaluation Factors- Electric

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	Free Riders	Participant Spillover	Program Spillover	Evaluation Factor
2009	94%	21%	1%	1%	76%
2010	94%	15%	1%	1%	82%
2011	94%	14%	1%	1%	83%
2012	94%	16%	1%	1%	81%

Table 9b: 2009-2012 Production Efficiency Evaluation Factors- Gas

	Realization Rate	Net to Gross Market Adjustment			Combined Adjustment
Year	Engineering Adjustment	Free Riders	Participant Spillover	Program Spillover	Evaluation Factor
2009	97%	21%	1%	1%	79%
2010	97%	4%	1%	1%	95%
2011	97%	20%	1%	1%	80%
2012	97%	26%	1%	1%	74%

Table 10: 2009-2012 Production Efficiency Combined Adjustment

Year	Old Electric Factor	New Electric Factor	Change in Savings (aMW)	Old Gas Factor	New Gas Factor	Change in Savings (mTherms)
2009	0.74	0.76	0.20	0.75	0.79	0.01
2010	0.79	0.82	0.64	0.91	0.95	0.01
2011	0.80	0.83	0.79	0.75	0.80	0.09
2012	0.77	0.81	0.87	0.91	0.74	(0.16)
Total			**2.49**			**(0.05)**

Existing Homes

The 2013 True Up revised savings for the Existing Homes program for the years 2010 through 2012. The adjustments and corrections made to Existing Homes savings include (1) an adjustment to the assumed installation rate of Energy Saver Kit (ESK) components, (2) an adjustment to free-ridership for select weatherization and HVAC measures and (3) the correction of other small reporting errors in the FastTrack database related to customizable ESKs and direct install showerheads.

The 2010-2011 Existing Homes process evaluation provided updated estimates for the installation rates of ESK components, which include kitchen and bathroom faucet aerators, showerheads, and CFLs. The updated installation rate for CFLs is higher than previously assumed, but the new install rate for aerators and showerheads is lower than the original savings assumption, resulting in an overall increase in electric savings, but a decrease in gas savings for ESKs. In addition to updated installation rates, data errors related to customizable ESKs and direct install showerheads were also corrected, which slightly decreased both gas and electric savings.

The total impact on electric savings for Existing Homes is shown in table 11 and the total impact on gas savings for Existing Homes is shown in table 12.

Table 11: Existing Homes Electric Savings Adjustments

Year	Previous aMW	New aMW	aMW Change	% Change
2010	3.40	3.51	0.12	3.4%
2011	4.96	5.10	0.13	2.7%
2012	7.41	7.34	(0.07)	-1.0%
Total	**15.77**	**15.94**	**0.17**	**1.1%**

Table 12: Existing Homes Gas Savings Adjustments

Year	Previous mTherms	New mTherms	mTherm Change	% Change
2010	1.15	1.10	(0.05)	-4.5%
2011	1.28	1.20	(0.08)	-6.1%
2012	1.78	1.67	(0.10)	-5.9%
Total	**4.21**	**3.98**	**(0.23)**	**-5.6%**

Northwest Energy Efficiency Alliance (NEEA)

Electric savings for the Northwest Energy Efficiency Alliance (NEEA) for 2011 and 2012 were adjusted in the 2013 True Up to reflect updated savings estimates published in NEEA's 2012 Annual Report. Table 13 shows the total impact on NEEA savings for 2011 and 2012.

2011 savings related to NEEA activities increased for the commercial sector by 0.4 aMW, but decreased in the residential and industrial sectors by 0.26 aMW and 0.16 aMW, respectively. Several factors contributed to the updates to 2011 NEEA savings, including declines for the efficient TV and desktop power supply initiatives, and increases for health care and real estate initiatives.

2012 savings were adjusted upwards by 1.04 aMW and 0.28 aMW for the residential and industrial sectors, respectively, and downwards by 0.04 aMW for the commercial sector. Residential savings increased compared to prior estimates primarily due to improved residential lighting sales, high market share for efficient TVs, and the ability to track non-incented ductless heat pump (DHP) sales. Industrial savings were increased from prior estimates as traction from the Drive Power Initiative improved. 2012 NEEA commercial savings fell in the commercial desktop power supply and real estate initiatives based on final 2012 market data. Overall, NEEA savings increased 1.24 aMW in 2011 and 2012.

Table 13: NEEA Savings Updates

Year	Residential Change (aMW)	Commercial Change (aMW)	Industrial Change (aMW)	Total Change (aMW)
2011	(0.26)	0.39	(0.16)	(0.03)
2012	1.04	(0.04)	0.28	1.27
Total	**0.77**	**0.35**	**0.12**	**1.24**

Renewables

Reportable generation for several renewables projects from 2003-2012 were adjusted in the 2013 True Up in order to align more closely with actual line-loss savings, which were previously determined at the program level, regardless of the characteristics of the load being served. In reality, line loss savings from distributed generation projects (renewable projects) depends on site level characteristics- specifically, the distance between generation and load and the voltage level of the load being served. On-site renewable projects serving residential and small commercial loads avoid the most line losses at about 10%, while on-site projects serving industrial loads and large commercial loads avoid about 6% of line losses. Additionally off-site projects that are closer to the loads than central power-plant[2] also represent some avoided line-loss value to utilities, which we estimate to be about 3% of generation on average[3]. Table 14 shows the total impact on renewable generation, by program year, for 2003 through 2012.

Table 14: Renewable Generation Adjustments

Year	Previous Reportable Generation (kWh)	New Reportable Generation (kWh)	kWh Change	% Change
2003	125,206,071	125,213,749	7,678	0.01%
2004	785,637	802,299	16,662	2.12%
2005	4,053,292	4,054,567	1,275	0.03%
2006	17,463,940	17,468,904	4,964	0.03%
2007	411,080,725	411,085,675	4,950	0.00%
2008	291,727,946	291,807,973	80,027	0.03%
2009	23,108,516	23,314,115	205,599	0.89%
2010	28,842,438	29,592,903	750,465	2.60%
2011	12,924,815	13,020,755	95,940	0.74%
2012	44,196,668	42,697,995	(1,498,673)	-3.39%
Total	**959,390,049**	**959,058,935**	**(331,114)**	**-0.03%**

[2] The project has to be with 20 miles of load to be assigned this 3% value for off-site T&D savings.
[3] PGE and PAC average is 3.6%, but BPAs more conservative value is 3.0%

Results Summary, Impacts by Sector

The following summary tables present the change in reportable gas savings and electric savings and generation as a result of the 2013 True Up. In the following table, an average megawatt (aMW) means that loads are reduced by an average of one megawatt or 8760 MWh during each year of a measure's life. The column "*mTherms*" reflects the annual therm savings achieved in each year of a measure's useful life, in millions of therms. In the summary, a change of 0% may not necessarily imply that there were no corrections, only that the corrections may not be significant enough to appear due to rounding[4].

Table 15: Electric Savings Impact, 2002-2012

Sector	Old Reportable (aMW)	New Reportable (aMW)	Change (aMW)	% Change
Commercial	114.41	119.98	5.57	4.87%
Industrial	111.83	114.44	2.61	2.33%
Residential	121.43	122.38	0.95	0.78%
Renewables	109.52	109.48	(0.04)	-0.03%
Total	**457.19**	**466.27**	**9.09**	**1.99%**

Table 16: Gas Savings Impact, 2003-2012

Sector	Old Reportable (aMW)	New Reportable (aMW)	Change (aMW)	% Change
Commercial	12.02	11.85	(0.18)	-1.47%
Industrial	2.73	2.68	(0.05)	-1.76%
Residential	13.45	13.22	(0.23)	-1.74%
Total	**28.20**	**27.74**	**(0.46)**	**-1.63%**

Table 17: Electric Savings Impact by Year

Year	Commercial Change (aMW)	Industrial Change (aMW)	Residential Change (aMW)	Total Change (aMW)	% Change
2009		0.20		0.20	0.7%
2010	1.42	0.64	0.12	2.17	4.8%
2011	1.51	0.63	(0.13)	2.01	4.2%
2012	2.64	1.15	0.96	4.75	9.0%
Total	**5.57**	**2.61**	**0.95**	**9.12**	**5.3%**

[4] It could also be the case that there were both positive and negative adjustments to savings within a sector, which cancelled each other out

Table 18: Gas Savings Impact by Year

Year	Commercial Change (mTherms)	Industrial Change (mtherms)	Residential Change (mTherms)	Total Change (mTherms)	% Change
2009		0.01			0.4%
2010	(0.02)	0.01	(0.05)	(0.06)	-1.3%
2011	(0.10)	0.09	(0.08)	(0.09)	-1.9%
2012	(0.06)	(0.16)	(0.10)	(0.32)	-5.5%
Total	**(0.18)**	**(0.05)**	**(0.23)**	**(0.46)**	**-2.6%**

Results Summary, Impacts by Utility

The following tables show the final, reportable annual savings and generation results from the 2013 True Up for each utility provider within Energy Trust service territory.

Table 19: Pacific Power Savings (aMW), 2002-2012

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Commercial	1.94	1.73	3.14	2.41	1.73	2.05	2.74	3.10	8.12	8.29	10.50
Industrial	1.62	2.68	8.66	5.96	4.98	4.00	3.83	3.51	7.06	6.55	5.69
Residential	2.11	2.64	3.61	3.36	4.60	6.31	5.51	3.57	5.29	5.33	6.53
Total	**5.67**	**7.05**	**15.41**	**11.73**	**11.32**	**12.37**	**12.08**	**10.18**	**20.47**	**20.17**	**22.72**

Table 20: Portland General Electric Savings (aMW), 2002-2012

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Commercial	3.95	4.03	4.24	5.18	4.05	3.78	5.57	7.11	10.47	11.63	14.21
Industrial	1.81	0.89	1.17	14.22	2.85	3.75	2.86	4.49	8.77	8.92	10.15
Residential	3.61	3.84	5.32	5.01	6.94	8.37	8.22	5.71	7.31	8.65	10.52
Total	**9.37**	**8.76**	**10.74**	**24.42**	**13.83**	**15.90**	**16.66**	**17.31**	**26.54**	**29.19**	**34.88**

Table 20: Cascade Natural Gas Savings (mTherms), 2005-2012

Sector	2005	2006	2007	2008	2009	2010	2011	2012
Commercial	0.00	0.05	0.02	0.05	0.07	0.20	0.20	0.16
Industrial	0.00	0.00	0.00	0.00	0.05	0.05	0.09	0.10
Residential	0.00	0.02	0.13	0.12	0.13	0.07	0.11	0.15
Total	**0.00**	**0.08**	**0.15**	**0.17**	**0.25**	**0.32**	**0.40**	**0.40**

Table 21: NW Natural Savings (mTherms), 2003-2012

Sector	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Commercial	0.00	0.08	0.44	1.31	1.15	1.10	1.10	2.00	1.67	2.26
Industrial	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.54	1.03	0.62
Residential	0.61	0.92	0.95	0.95	1.13	1.34	1.20	1.39	1.65	2.31
Total	**0.61**	**1.00**	**1.39**	**2.26**	**2.28**	**2.45**	**2.49**	**3.93**	**4.35**	**5.19**

*Includes savings for both Firm and Interruptible customers, and Market Transformation

* Savings are for Oregon only

Table 22: Renewable Energy Generation (aMW), 2002-2012

Utility Provider	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Pacific Power	0.000	14.27	0.08	0.04	1.96	0.08	31.47	2.12	2.42	0.40	2.37
Portland General Electric	0.003	0.02	0.01	0.42	0.03	46.84	1.84	0.55	0.96	1.08	2.51
Total	**0.00**	**14.29**	**0.09**	**0.46**	**1.99**	**46.93**	**33.31**	**2.66**	**3.38**	**1.49**	**4.87**

Briefing Paper
Market Indicators Quarterly Report

February 11, 2014

The purpose of this report is to track and assess changes in key economic indicators in an attempt to gain a better understanding of how demand for Energy Trust programs will respond to changing market dynamics. By monitoring the behavior of several widely used macro-level indicators we hope to stay closely attuned to any signs of improvement or further worsening of economic conditions, thereby providing Energy Trust program managers with the ability to respond to changes accordingly.

As 2013 came to a close, we reflected on a year where both the US and Oregon economies have continued to improve. Unemployment levels in Oregon have significantly decreased over the last 12 months from 8.4% to 7.0%, the lowest level in five years, and US unemployment rates have dropped to 6.7%. New home construction permits increased 32% in 2013 over 2012 and outpaced the US average. Both the Oregon Employment Department and University of Oregon Economic Forum are projecting continued growth and recovery in 2014. This optimism is also shared at the Federal level, with the Federal Open Market Committee (FOMC) recently releasing a cautiously optimistic statement on January 29th, 2014, stating:

> …growth in economic activity picked up in recent quarters. Labor market indicators were mixed but on balance showed further improvement. The unemployment rate declined but remains elevated. Household spending and business fixed investment advanced more quickly in recent months, while the recovery in the housing sector slowed somewhat. Fiscal policy is restraining economic growth, although the extent of restraint is diminishing. Inflation has been running below the Committee's longer-run objective, but longer-term inflation expectations have remained stable.[1] *–FOMC, 1/29/14*

As Ben Bernanke's eight-year tenure at the Federal Reserve comes to an end, he spoke recently at the annual meeting of the American Economic Association, and discussed the future outlook of several key issues that both explain the recovery and project its future. He stated:

> The economy has made considerable progress since the recovery officially began some four and a half years ago. Payroll employment has risen by 7-1/2 million jobs from its trough. Real GDP has grown in 16 of 17 quarters, and the level of real GDP in the third quarter of 2013 was 5-1/2 percent above its pre-recession peak. Industrial production and equipment investment have matched or exceeded pre-recession peaks…Despite this progress, the recovery clearly remains incomplete…The unemployment rate still is elevated. The number of long-term unemployed remains unusually high…and labor force participation has continued to decline.[2] *-Ben Bernanke, 1/3/14*

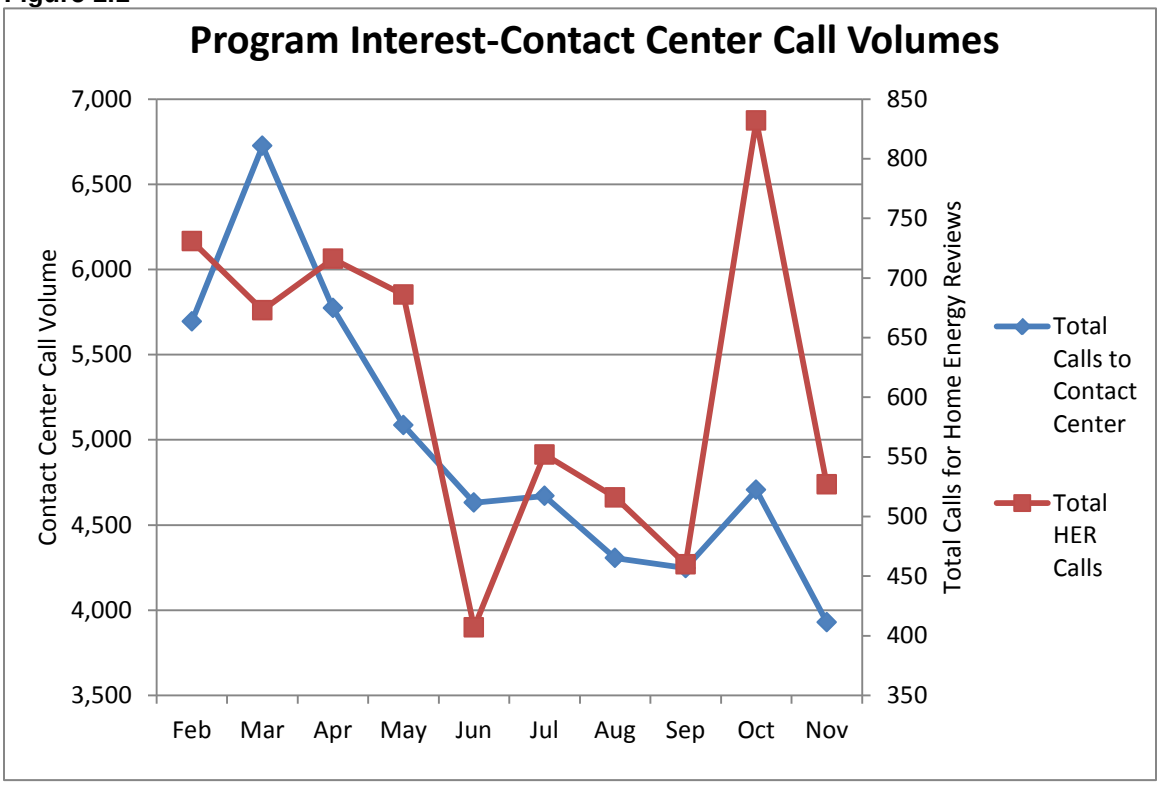
[1] http://www.federalreserve.gov/newsevents/press/monetary/20140129a.htm
[2] http://www.federalreserve.gov/newsevents/speech/bernanke20140103a.htm

In addition to GDP and employment concerns, Bernanke addresses the housing and construction market, which played a central role, both in overbuilding and in financial markets and has slowed the recovery; though he also notes that the market has shown positive signs of recovery as well.

> the weakness of the recovery reflects the overbuilding of housing (and, to some extent, commercial real estate) prior to the crisis, together with tight mortgage credit…though notwithstanding the effects of somewhat higher mortgage rates, house prices have rebounded, with one consequence being that the number of homeowners with "underwater" mortgages has dropped significantly, as have foreclosures and mortgage delinquencies[3] *-Ben Bernanke, 1/3/14*

1.1 Energy Trust Programmatic Indicators

Figure 1.1

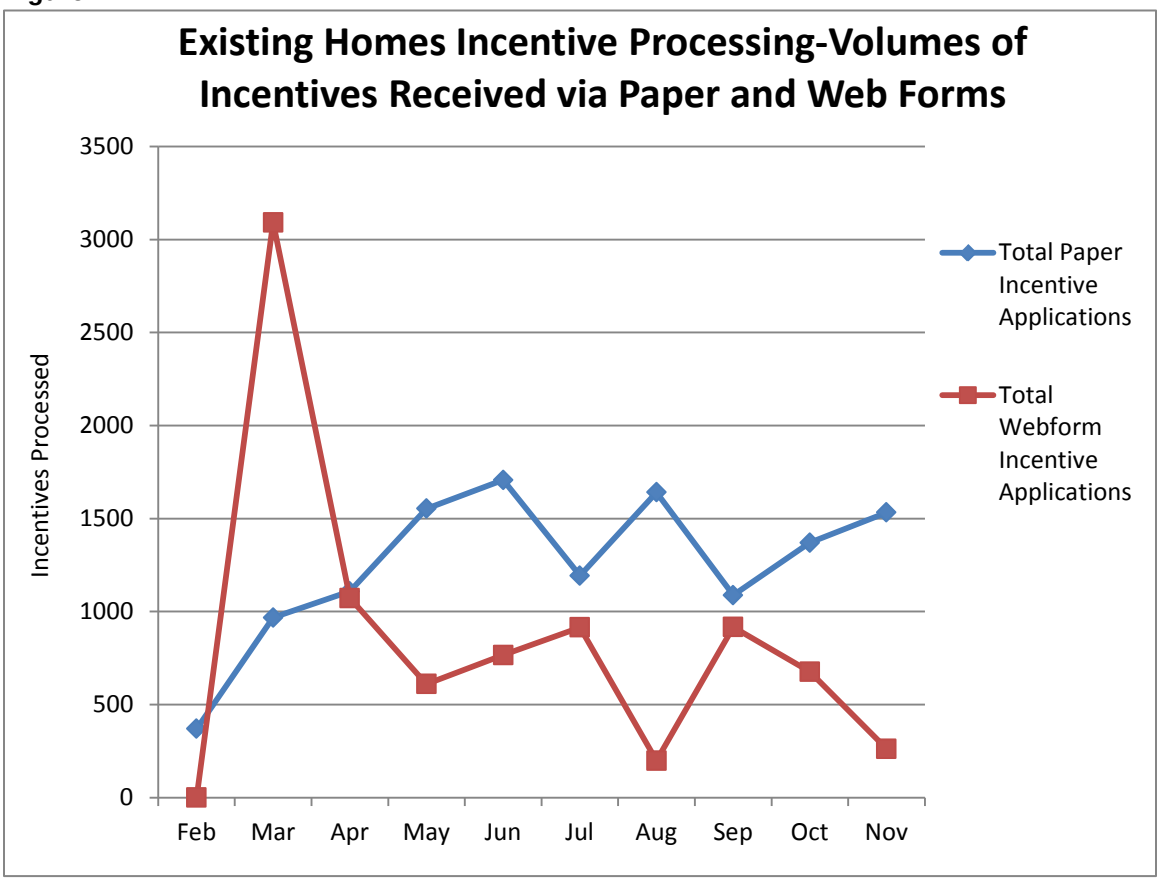


Activity in Energy Trust's Existing Homes program is presented here as general indicator of overall Energy Trust program interest. The transition of the Program Management Contractor for the Existing Homes program from CSG to Fluid Market Strategies resulted in anomalous January contact center data. January is absent in the above graph. While December data is not yet available, the majority of the year's activities have been recorded and Energy Trust Call Center volume continues to be generally consistent with historical patterns, with more calls received in fall and winter months compared to the

[3] http://www.federalreserve.gov/newsevents/speech/bernanke20140103a.htm

summer. The tremendous spike in Home Energy Review calls in October signal the onset of the winter's increased activity.

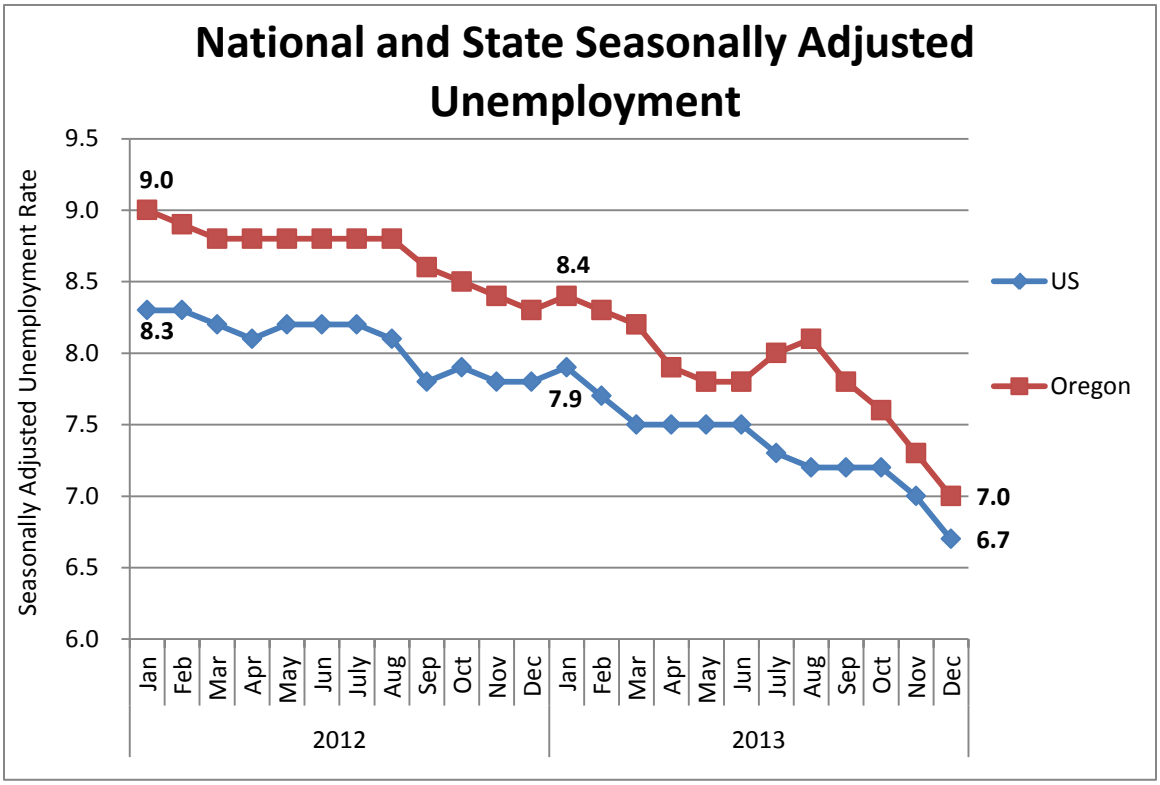
Figure 1.2



The number of paper and web processed incentives remained fairly consistent through the year with a couple of lulls in August and November. The spike in March is the result of the PMC transition and records being updated in mass. For the year, 40% of total processed incentive applications for the Existing Homes Program have been submitted via web form.

2.1 Macroeconomic Indicators

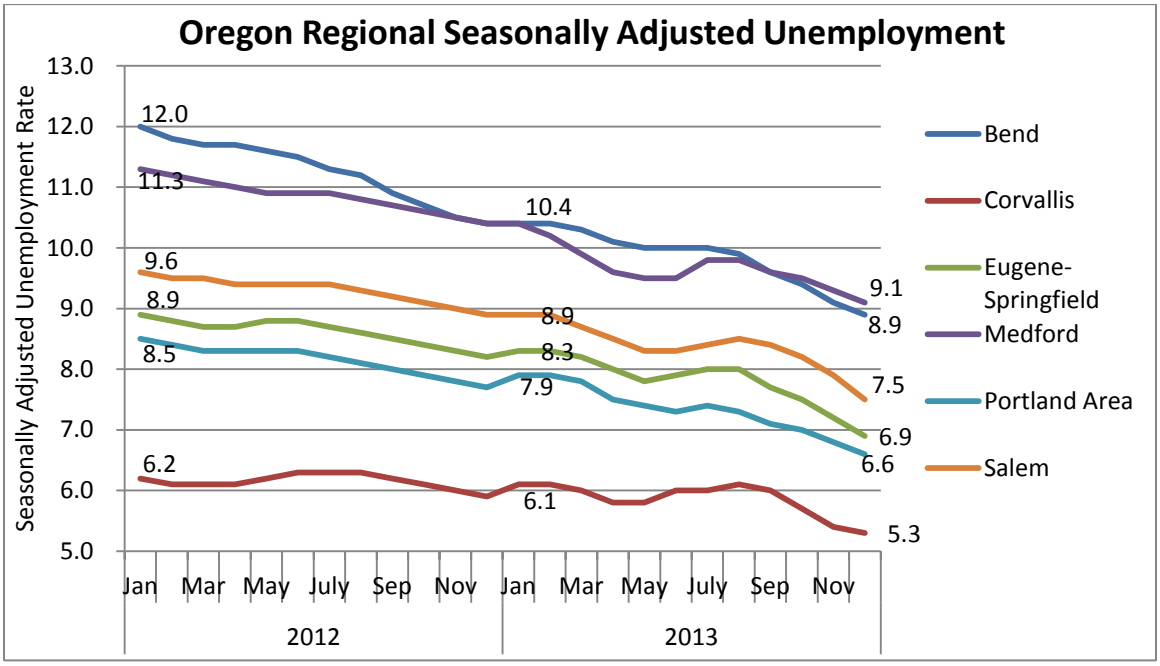
Figure 2.1



Despite the temporary increase in unemployment in July and August of this year, the last four months have shown rapidly decreasing levels of unemployment and, according to the Oregonian, "Oregon's economic recovery is taking hold" with the private sector creating most of the new jobs in recent months, half of which were created by the professional and business services industry, "making it among the fastest-growing major industries in the state. Government agencies shed fewer jobs than they normally do in December, meaning they were less of a drag on the economy than expected".[4]

[4] http://www.oregonlive.com/money/index.ssf/2014/01/oregon_unemployment_rate_falls_to_new_5-year_low_as_2013_becomes_standout_year_for_states_economic_recovery.html

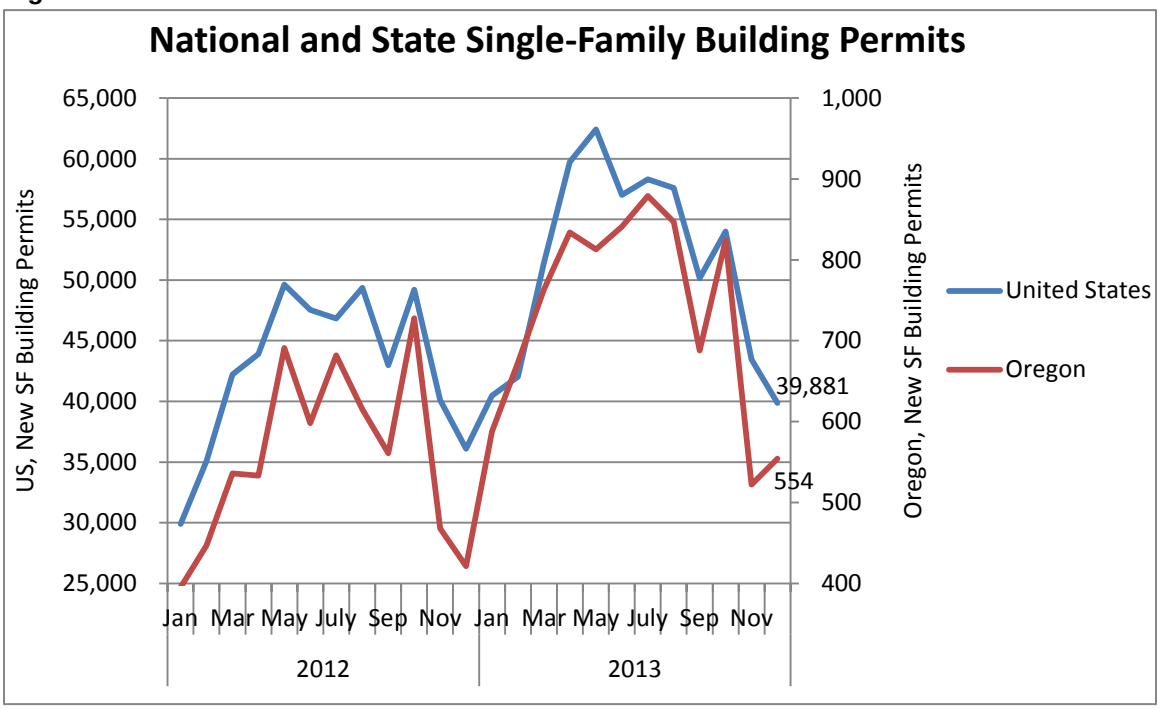
Figure 2.2



The Central and Southern (Bend/Medford) areas continue to have the highest unemployment rate in the state, but these areas have seen drops in unemployment rates in the last 12 months, from 10.4% to approximately 9% at year's end. Indeed, as described by the State Employment Department, "The Bend and Medford metropolitan areas experienced the fastest year-over-year job growth among Oregon metro areas in November, with growth rates of 3.1 percent and 2.4 percent, respectively. [5]

[5] http://www.qualityinfo.org/olmisj/ArticleReader?itemid=00009021

Figure 2.3

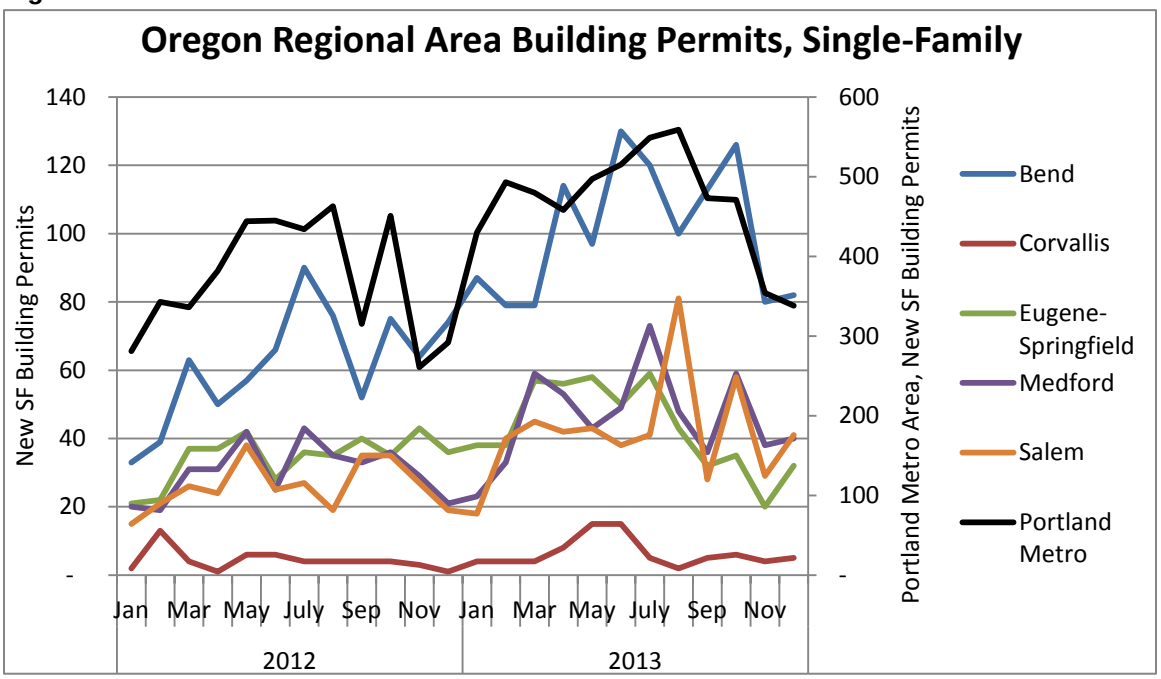


While the construction industry was hit hardest during the recession, 2013 showed definite improvement over 2012 as Oregon continued to closely follow US seasonal trends, while outstripping its growth rate. Oregon has showed a 32% increase in the number of single-family building permits from 2012 to 2013[6] while the US grew 20%. The Oregon State Employment Department notes that "the construction sector finally started rebuilding its workforce in 2013 by adding 8,100 jobs for a growth rate of 11.8 percent, the fastest growth rate of any sector". [7]

Regionally, the Bend and Salem areas showed the strongest growth in construction permits at 63% and 62% respectively over 2012. Portland metro and Eugene-Springfield grew the slowest, at 26% over 2012.

[6] 12-month totals for 2013, compared to 12-month totals for 2012
[7] http://www.qualityinfo.org/olmisj/ArticleReader?itemid=00009021

Figure 2.4



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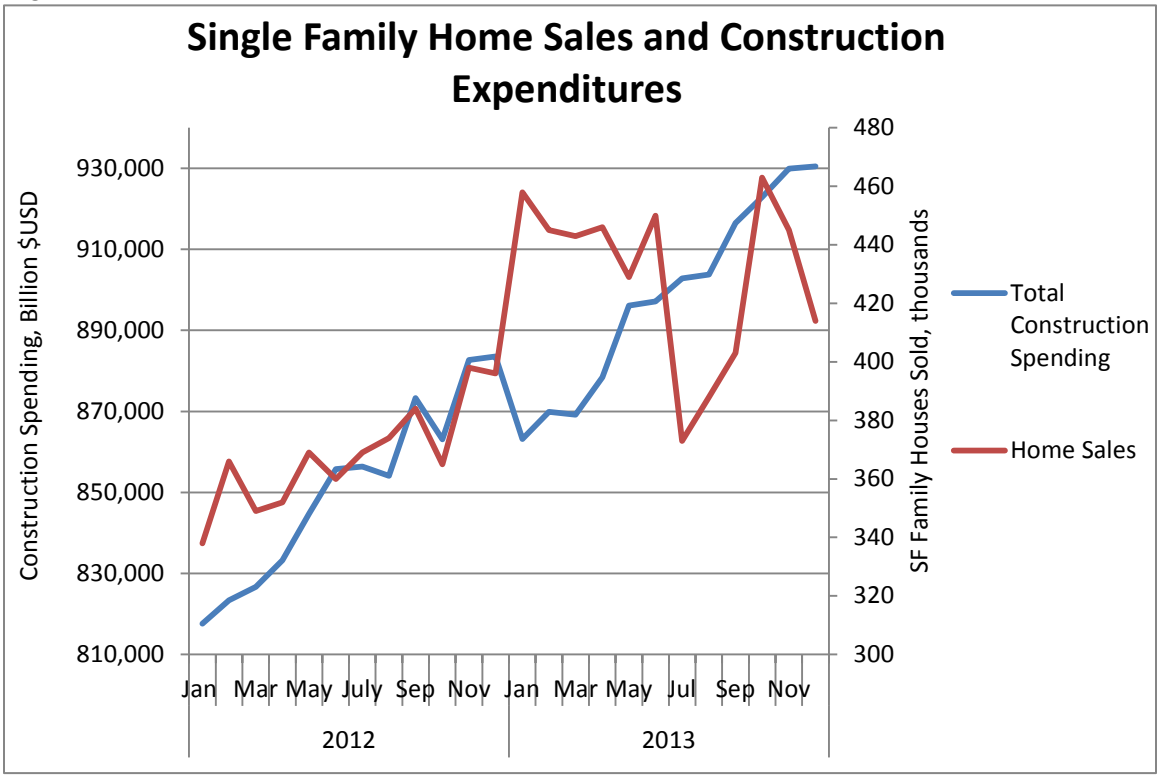
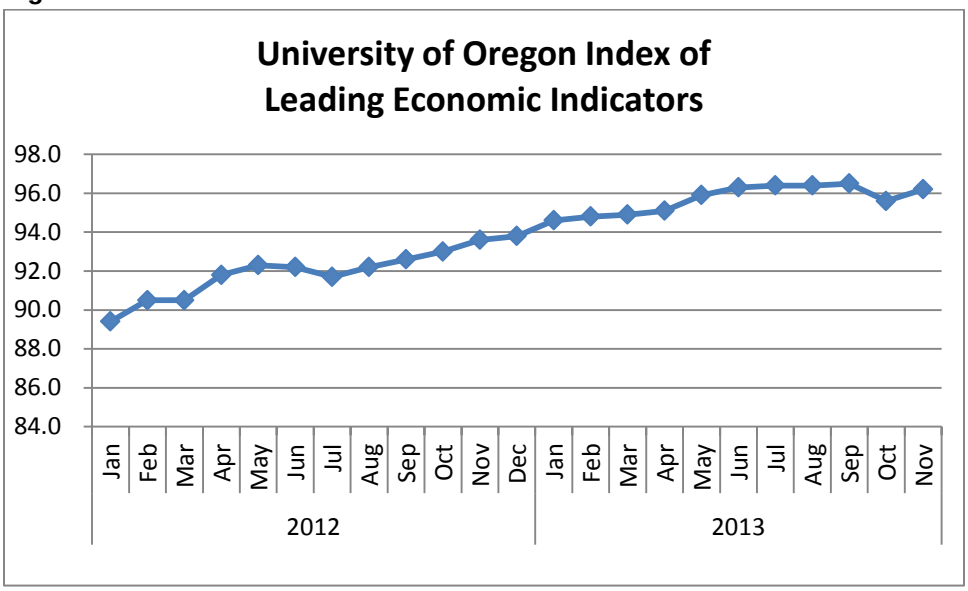
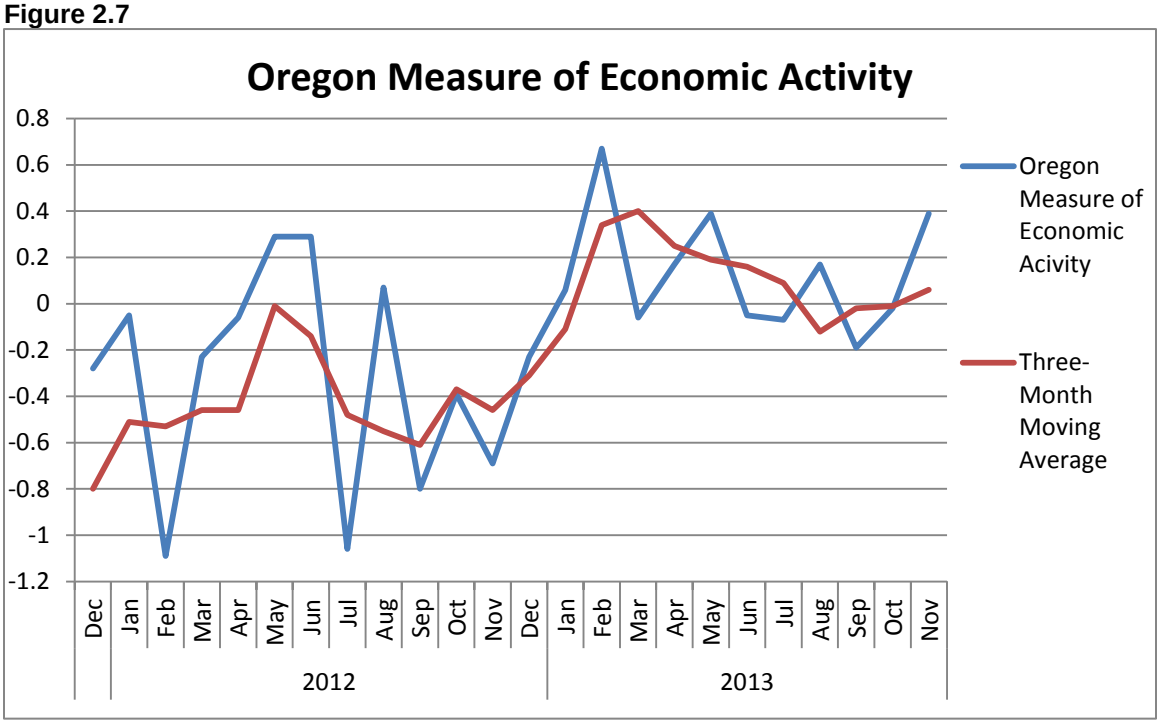


Figure 2.6



The University of Oregon Index of Economic Indicators gained 0.6 percent in November; the UO Index has risen in eleven of the past twelve months. Initial unemployment claims dropped sharply and are now in a range consistent with strong job growth in Oregon, suggesting that the pace of hiring may accelerate in the months ahead.[8]

Figure 2.7



[8] http://econforum.uoregon.edu/indexes.html

Figure 2.8

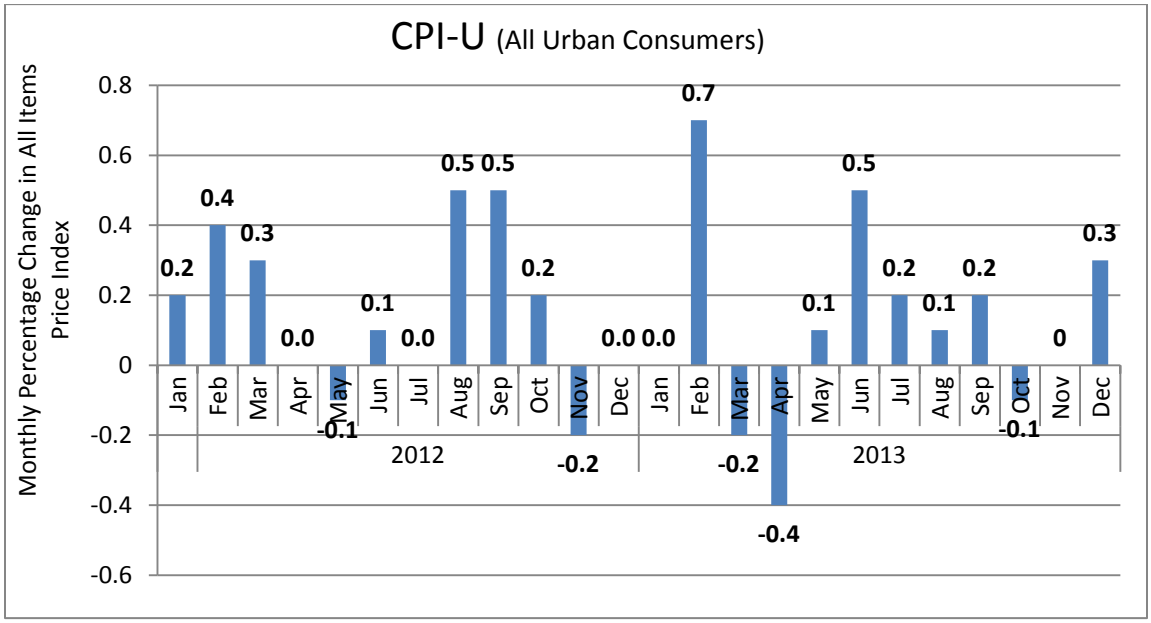
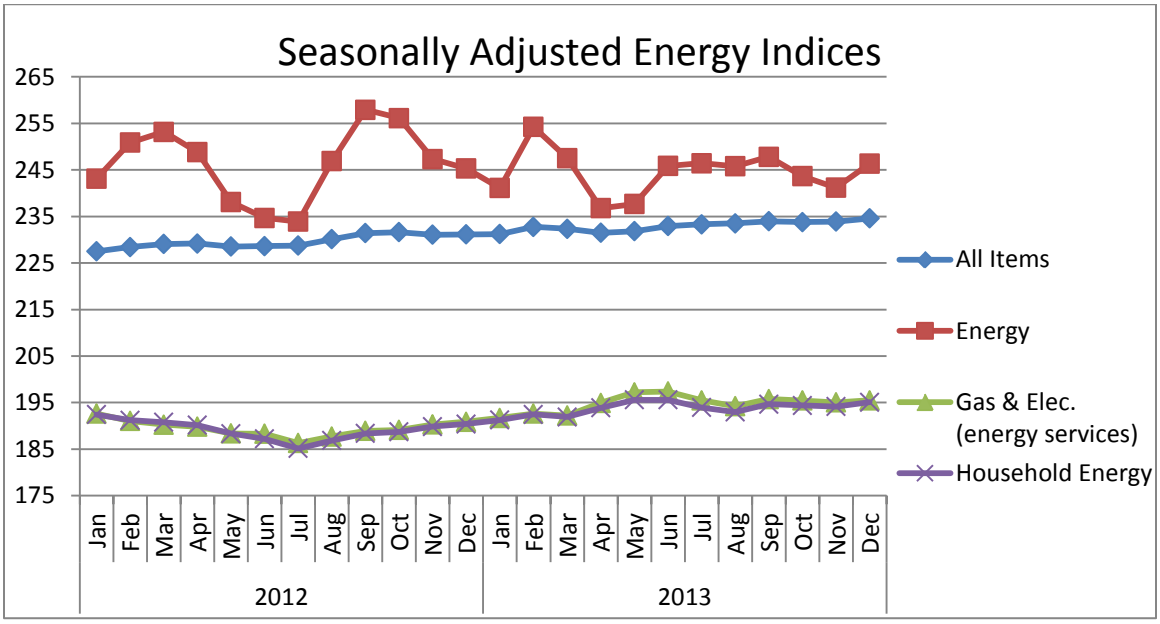


Figure 2.9



The Consumer Price Index for All Urban Consumers (CPI-U) increased 0.3 percent in December on a seasonally adjusted basis. Over the last 12 months, the all items index increased 1.5 percent before seasonal adjustment. The All Items Consumer Price Index (CPI-U) increased in November and December, after falling slightly in October. Advances in energy and shelter indexes were major factors in the increase in the seasonally adjusted all items index. The gasoline index rose 3.1 percent, and the fuel oil and electricity indexes also increased, resulting in a 2.1 percent increase in the energy index.[9]

[9] http://www.bls.gov/cpi/cpid1312.pdf

ISM Report on Business

According to August's *Manufacturing Report on Business* from the Institute of Supply Management, economic activity in the nation's manufacturing sector grew for the 8th consecutive month, and the overall economy grew for the 56th consecutive month. Of the 18 manufacturing industries, 11 are reporting growth in January. One industry respondent from 'Miscellaneous Manufacturing', indicated, "Delays in government product certification due to the partial government shutdown last year are still negatively impacting delivery and inventory levels".[10]

Rate Cases

PacifiCorp and Portland General Electric both filed for overall increases to their base electric rates in early 2013. PacifiCorp requested a 3.7-4.6 percent rate increase, which was primarily driven by revised depreciation rates proposed in UM 1647. The Oregon Public Utility Commission formalized an all-party settlement with customer groups that raised electric rates for Oregon customers of PacifiCorp by 1.9 percent overall or $23.7 million, beginning January 1, 2014. [11] [12]

PGE initially filed for a $105 million annual increase, or a 6.2 percent overall increase in 2013. The Commission reduced the request to roughly $60 million for an overall increase of 3.8 percent. The new rates took effect January 1, 2014. [13]

Northwest Natural Gas (NWN) filed for a rate adjustment to their revenue requirement in October, 2013 following a combination of slightly higher wholesale natural gas prices and investments in the Gasco Upland Pumping Station. The request was made for both Oregon and Washington customers. In Oregon, the OPUC approved these adjusted rates, which took effect November 1st, 2013. Oregon residential customers have seen a 0.8% rate increase (about 47 cents a month for the average home) and the average commercial customer's bill increased by 4.8% (about $10.54 a month). [14]

The Washington Utilities and Transportation Commission (WUTC) also approved the adjusted rates, which took effect November 1st, 2013. Washington residential rates increased by about 1.5 percent (about 91 cents a month for the average home); of that amount, 1 percent (58 cents per month) will fund energy-efficiency programs offered through Energy Trust. The increase for the average Washington commercial customer is 1.6 percent (about $3.98 per month); of that amount, 0.9 percent ($2.32 per month) will fund energy-efficiency programs offered through Energy Trust.[15]

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[10] http://www.ism.ws/news/NewsReleaseDetail.cfm?ItemNumber=23810

[11] "…if the Transmission Investment Adjustment for the Mona-to-Oquirrh transmission project approved by the Commission in the 2012 Rate Case becomes effective while this proceeding is pending, the overall price increase in this case would be reduced by approximately $11.4 million, to $44.6 million or 3.7 percent"- Direct Testimony of Richard P. Reiten, CEO of Pacific Power (http://www.pacificpower.net/content/dam/pacific_power/doc/About_Us/Rates_Regulation/Oregon/Regulatory_Filings/Advice_13_006_Docket_UE_263/03-01-13_Direct_Testimony_and_Exhibits/Richard_P_Reiten/2_Richard_P_Reiten.pdf).

[12] http://www.puc.state.or.us/Pages/news/2013/2013016.aspx

[13] http://www.puc.state.or.us/Pages/news/2013/2013015.aspx

[14] http://edocs.puc.state.or.us/efdocs/HAU/ug263hau165050.pdf

[15] https://www.nwnatural.com/AboutNWNatural/RatesAndRegulations/GasPriceInformation

Cascade Natural Gas filed a Purchased Gas Adjustment (PGA) in October 2013 in both Oregon and Washington to reflect the increase in pipeline capacity, reservation and storage for natural gas. The OPUC approved this increase, which resulted in a 12 percent price increase for CNG customers in Oregon, effective November 1st, 2013. The average residential customer can expect an increase of $5.71 per month to their bill. The average commercial customer can expect an increase of $22.90 per month.[16] [17]

While not part of Energy Trust's service territory, the WUTC approved CNG's Washington PGA, which resulted in an 18 percent price increase to its customers. This price increase went into effect on November 1st, 2013. The average Washington CNG residential customer will see an increase of $8.50 to their monthly bill while the average commercial customer can expect an increase of $41.70 per month.[18]

Around the State

Portland and Surrounding Areas

Green Zebra Grocery plans to open a store on Southeast 50th Avenue and Division Street in Portland in the summer of 2014. *The Oregonian, 12/17/2013*

NW Innovation Works LLC plans to build a methanol manufacturing facility at the Port Westward industrial park north of Clatskanie. It will export methanol directly to the city government of Dalian, China for use in plastics manufacturing and expects to employ about 120 workers. *The South County Spotlight, 1/22/2014*

Intel will sell its DuPont, Wash. plant and transfer 350 of the 690 workers at the site to other locations, many of them to Hillsboro. *The Oregonian, 10/15/2013*
Portland Development Commission will lay off 15 employees in a second round of cuts that began in April. *Daily Journal of Commerce, 10/10/2013*

Oregon Coast

WCT Marine and Construction boatyard opened in Astoria. It employs about seven people and plans to hire more. *The Daily Astorian, 1/23/2014*
American Bridge in Reedsport will close. It employs 51 people. *The World, 10/15/2013*

Willamette Valley

Businessman Brian Obie and the Housing and Community Services Agency of Lane County plan to build a $67-million mixed use complex in downtown Eugene. It will include residential apartments, a grocery store, and a cinema. *The Register-Guard, 11/13/2013*

[16] http://www.cngc.com/utility-navigation/news
[17] http://edocs.puc.state.or.us/efdocs/HAU/ug255hau105854.pdf
[18] http://www.utc.wa.gov/aboutUs/Lists/News/DispForm.aspx?ID=224

Avamere Family of Companies will build a transitional care facility next to its existing Bonaventure Assisted Living and Retirement Community in south Salem. It will have 79 skilled nursing beds with 72 private rooms. *Statesman Journal, 11/11/2013*

Central Oregon/Columbia Gorge

The Puff Factory, a 26,000-square-foot plant that will freeze dry Hood River County fruit into snack products, will open in Cascade Locks. It will employ 30 to 50 people. *Hood River News, 11/14/2013*

Pronghorn, An Auberge Resort near Bend will undergo a $20-million expansion that will include a 105-room luxury lodge, additions to the spa, and new space for weddings. Completion is expected in early 2015. *The Oregonian, 11/20/2013*

Precision Castparts, a manufacturer of castings for aircraft and other industrial products, plans to add 25 employees at its Redmond facility. *The Bulletin, 1/24/2014*

Southern Oregon

Ray's Food Place will close its two Grants Pass stores and one in Murphy. *Grants Pass Daily Courier, 11/20/2013*

SkyOak Wealth Management is converting a former Southern Oregon University building in Medford into office space where it will consolidate its Shady Cove, Grants Pass, Ashland, and Medford operations. *Mail Tribune, 10/14/2013*

The former Red Lion Inn in downtown Medford has been converted into The Inn at the Commons, a 118-room hotel. *Mail Tribune, 10/14/2013*

Siskiyou Community Health Center in Cave Junction began a $3.5 million-expansion project that is expected to be completed within a year. *Grants Pass Daily Courier, 10/9/2013*

Glossary of Energy Industry Terms

Glossary provided to the Energy Trust Board of Directors for general use. Definitions and acronyms are compiled from a variety of resources. Energy Trust policies on topics related to any definitions listed below should be referenced for the most up-to-date and comprehensive information. Last updated May 2013.

Above-Market Costs of New Renewable Energy Resources
The portion of the net present value cost of producing power (including fixed and operating costs, delivery, overhead and profit) from a new renewable energy resource that exceeds the market value of an equivalent quantity and distribution (across peak and off-peak periods and seasonally) of power from a non-differentiated source, with the same term of contract. Energy Trust board policy specified the methodology for calculating above-market costs.

Aggregate
Combining retail electricity consumers into a buying group for the purchase of electricity and related services. “Aggregator” is an entity that aggregates.

Air Sealing (Infiltration Control)
Conservation measures, such as caulking, better windows and weatherstripping, which reduce the amount of cold air entering or warm air escaping from a building.

Ampere (Amp)
The unit of measure that tells how much electricity flows through a conductor. It is like using cubic feet per second to measure the flow of water. For example, a 1,200 watt, 120-volt hair dryer pulls 10 amperes of electric current (watts divided by volts).

Anaerobic Digestion
A biochemical process by which organic matter is decomposed by bacteria in the absence of oxygen, producing methane and other byproducts.

Average Megawatt (aMW)
One megawatt of capacity produced continuously over a period of one year. 1 aMW equals 1 megawatt multiplied by the 8,760 hours in a year. 1 aMW equals 8,760 MWh or 8,760,000 kWh.

Avoided Cost
(Regulatory) The amount of money that an electric utility would need to spend for the next increment of electric generation they would need to either produce or purchase if not for the reduction in demand due to energy-efficiency savings or the energy that a co-generator or small-power producer provides. Federal law establishes broad guidelines for determining how much a qualifying facility (QF) gets paid for power sold to the utility.

Base Load
The minimum amount of electric power delivered or required over a given period of time at a steady rate.

Benefit/Cost Ratios
By law, Oregon public purpose funds may be invested only in cost-effective energy-efficiency measures—that is, efficiency measures must cost less than acquiring the energy from conventional sources, unless exempted by the OPUC.

Energy Trust calculates Benefit/Cost ratios (BCR) on a prospective and retrospective basis. Looking forward, all prescriptive measures and custom projects must have a total resource cost test BCR > 1.0 unless the OPUC has approved an exception. As required in the OPUC grant agreement, Energy Trust reports annually how cost effective programs were by comparing total costs to benefits, which also need to exceed 1.0.

Biomass
Solid organic wastes from wood, forest or field residues which can be heated to produce energy to power an electric generator.

Biomass Gas
A medium Btu gas containing methane and carbon dioxide, resulting from the action of microorganisms on organic materials such as a landfill.

Blower Door
Home Performance test conducted by a contractor (or energy auditor) to evaluate a home's air tightness. During this test a powerful fan mounts into the frame of an exterior door and pulls air out of the house to lower the inside air pressure. While the fan operates, the contractor can determine the house's air infiltration rate and better identify specific leaks around the house.

British Thermal Unit
The standard measure of heat energy. The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Cogeneration (Combined Heat & Power or CHP)
The sequential production of electricity and useful thermal energy, often by the recovery of reject heat from an electric generating plant for use in industrial processes, space or water heating applications. Conversely, may occur by using reject heat from industrial processes to power an electricity generator.

Compact Fluorescent Light Bulbs (CFL)
CFLs combine the efficiency of fluorescent lighting with the convenience of a standard incandescent bulb. There are many styles of compact fluorescent, including exit light fixtures and floodlights (lamps containing reflectors). Many screw into a standard light socket, and most produce a similar color of light as a standard incandescent bulb.

CFLs come with ballasts that are electronic (lightweight, instant, no-flicker starting, and 10–15 percent more efficient) or magnetic (much heavier and slower starting).Other types of CFLs include adaptive circulation and PL and SL lamps and ballasts. CFLs are designed for residential uses; they are also used in table lamps, wall sconces, and hall and ceiling fixtures of hotels, motels, hospitals and other types of commercial buildings with residential-type applications.

Conservation
While not specifically defined in the law or OPUC rules on direct access regulation, "conservation" is defined in the OPUC rule 860-027-0310(1)(a) as follows: Conservation means any reduction in electric power or natural gas consumption as the result of increases in efficiency of energy use, production or distribution. Conservation also includes cost-effective fuel switching.

Although fuel switching is part of the definition, this aspect of the rule has not been operationalized as of March 2013.

Cost Effective
Not specifically defined in SB 1149. The OPUC has a definition which refers to a definition from ORS 469.631 (4) stating that an energy resource, facility or conservation measure during its life cycle results in delivered power costs to the ultimate consumer no greater than the comparable incremental cost of the least-cost alternative new energy resource, facility or conservation measure. Cost comparison under this definition shall include but not be limited to: (a) cost escalations and future availability of fuels; (b) waste disposal and decommissioning cost; (c) transmission and distribution costs; (d) geographic, climatic and other differences in the state; and (e) environmental impact. ORS 757.612 (4) (SB 1149) exempts utilities from the requirements of ORS 469.631 to 469.645 when the public purpose charge is implemented.

By law, Oregon public purpose funds may be invested only in cost-effective energy-efficiency measures—that is, efficiency measures must cost less than acquiring the energy from conventional sources, unless exempted by the OPUC.

Cumulative Savings
Sum of the total annual energy savings over a certain time frame while accounting for measure savings "lives." (For example, if a measure is installed for each of two years, the cumulative savings would be the sum of the measure installed in the first year, plus the incremental savings from the savings installed in the second year plus the savings in the second year from the measure installed in the first year.)

Decoupling
A rate provision which reduces or eliminates the degree to which utility profits are driven by the volume of electricity or gas sold. Decoupling is thought by its proponents to reduce utility disincentives to support efficiency. There are many specific variants employed in different states and with different utilities.

Direct Access
The ability of a retail electricity consumer to purchase electricity and certain ancillary services from an entity other than the distribution utility.

Economizer Air
A ducting arrangement and automatic control system that allows a heating, ventilation and air conditioning (HVAC) system to supply up to 100 percent outside air to satisfy cooling demands, even if additional mechanical cooling is required.

Energy Management System (EMS)
A system designed to monitor and control building equipment. An EMS can often be used to monitor energy use in a facility, track the performance of various building systems and control the operations of equipment.

ENERGY STAR®
ENERGY STAR is a joint Environmental Protection Agency and Department of Energy program that encourages energy conservation by improving the energy efficiency of a wide range of consumer and commercial products, enhancing energy efficiency in buildings and promoting energy management planning for businesses and other organizations.

Energy Use Intensity (EUI)
A metric that describes a building's energy use relative to its size. It is the total annual energy consumption (kBtu) divided by the total floor space of the building. EUI varies significantly by building type and by the efficiency of the building.

Environmental Protection Agency (EPA)
Founded in 1970, this independent agency was designed to "protect human health and safeguard the natural environment." It regulates a variety of different types of emissions, including the greenhouse gases emitted in energy use. It runs several national end-use programs, like ENERGY STAR, SmartWay, Smart Growth programs and green communities programs.

Evaluation
After-the-fact analysis of the effectiveness and results of programs. *Process and Market Evaluations* study the markets to be addressed and the effectiveness of the program strategy, design and implementation. They are used primarily to improve programs. *Impact evaluations* use post-installation data to improve estimates of energy savings and renewable energy generated.

Feed-in Tariff
A renewable energy policy that typically offers a guarantee of payments to project owners for the total amount of renewable electricity they produce; access to the grid; and stable, long-term contracts.

Footcandle
A unit of illuminance on a surface that is one foot from a uniform point source of light of one candle and is equal to one lumen per square foot

Free Rider
This evaluation term describes energy efficiency program participants who would have taken the recommended actions on their own, even if the program did not exist. Process evaluations include participant survey questions, which lead to the quantification of the level of free rider impacts on programs that is applied as a discounting factor to Energy Trust reported results.

Geothermal
Useful energy derived from the natural heat of the earth as manifested by hot rocks, hot water, hot brines or steam.

Green Tags (Renewable Energy Credits or RECs)
A Green Tag is a tradable commodity that represents the contractual rights to claim the environmental attributes of a certain quantity of renewable electricity. For wind farms, the environmental attributes include the reductions in emissions of pollutants and greenhouse gases that result from the delivery of the wind-generated electricity to the grid.

Here's how emission reductions occur: When wind farms generate electricity, the grid operators allow that electricity to flow into the grid because it is less expensive to operate, once it has been built, than generators that burn fossil fuels. But the electricity grid cannot have more electricity flowing into it than is flowing out to electricity users, so the grid operators have to turn down other generators to compensate. They generally turn down those that burn fossil fuels. By forcing the fossil fuel generators to generate less electricity, wind farms cause them to generate

fewer emissions of pollutants and greenhouse gases. These reductions in emissions are the primary component of Green Tags.

Green Tags were developed as a separate commodity by the energy industry to boost construction of new wind, solar, landfill gas and other renewable energy power plants. Green Tags allow owners of these power plants to receive the full value of the environmental benefits their plants generate. They also allow consumers to create the same environmental benefits as buying green electricity, or to neutralize the pollution from their consumption of fossil fuels.

Green Tags are bought and sold every day in the electricity market. Tens of millions of dollars in Green Tags are under contract today. They are measured in units, like electricity. Each kilowatt hour of electricity that a wind farm produces also creates a one-kilowatt hour Green Tag. Wind farm owners may sell Green Tags to other purchasers, remote or local, to obtain the extra revenues they need for their wind farms to be economically viable.

Gross Savings
Savings that are unadjusted for evaluation factors of free riders, spillover, and savings realization rates. Energy Trust reports all savings in net terms, not gross terms, unless otherwise stated in the publication.

Heat Pump
An HVAC system that works as a two-way air conditioner, moving heat outside in the summer and scavenging heat from the cold outdoors with an electrical system in the winter. Most use forced warm-air delivery systems to move heated air throughout the house.

Heating, Ventilation and Air Conditioning (HVAC)
The mechanical systems that provide thermal comfort and air quality in an indoor space are often grouped together because they are generally interconnected. HVAC systems include: central air conditioners, heat pumps, furnaces, boilers, rooftop units, chillers and packaged systems.

Hydroelectric Power (Hydropower)
The generation of electricity using falling water to turn turbo-electric generators.

Incremental Annual Savings
Energy savings in one year corresponding to the energy-efficiency measures implemented in that same year.

Incremental Cost
The difference in cost relative to a base case, including equipment and labor cost.

Instant-savings Measure (ISM)
Inexpensive energy-efficiency products installed at no charge, such as CFLs, low-flow showerheads and high-performance faucet aerators. Predominately used by the Existing Homes program and multifamily track to provide homeowners and renters with easy-to-install, energy-saving products.

Integrated Resources Planning (Least-Cost Planning)
A power-planning strategy that takes into account all available and reliable resources to meet current and future loads. This strategy is employed by each of the utilities served by Energy Trust, and for the region's electric system by the Northwest Power and Conservation Council.

The term “least-cost” refers to all costs, including capital, labor, fuel, maintenance, decommissioning, known environmental impacts and difficult to quantify ramifications of selecting one resource over another.

Interconnection
For all distributed generation—solar, wind, CHP, fuel cells, etc.—interconnection with the local electric grid provides back-up power and an opportunity to participate in net-metering and sell-back schemes when they are available. It’s important to most distributed generation projects to be interconnected with the grid, but adding small generators at spots along an electric grid can produce a number of safety concerns and other operational issues for a utility. Utilities, then, generally work with their state-level regulatory bodies to develop interconnection standards that clearly delineate the manner in which distributed generation systems may be interconnected.

Joule
A unit of work or energy equal to the amount of work done when the point of application of force of 1 newton is displaced 1 meter in the direction of the force. It takes 1,055 joules to equal a British thermal unit. It takes about 1 million joules to make a pot of coffee.

Kilowatt
One thousand (1,000) watts. A unit of measure of the amount of electricity needed to operate given equipment.

Large Customers (with reference to SB 838)
Customers using more than 1 aMW of electricity a year are not required to pay electric conservation charges under SB 838. Additionally, Energy Trust may not provide them with services funded under SB 838 provisions.

Least Cost
The term “least-cost” refers to all costs, including capital, labor, fuel, maintenance, decommissioning, known environmental impacts and difficult to quantify ramifications of selecting one resource over another.

Levelized Cost
The level of payment necessary each year to recover the total investment and interest payments (at a specified interest rate) over the life of the measure.

Local Energy Conservation
Conservation measures, projects or programs that are installed or implemented within the service territory of an electric company.

Low-income Weatherization
Repairs, weatherization and installation of energy-efficient appliances and fixtures for low-income residences for the purpose of enhancing energy efficiency. In Oregon, SB 1149 directs a portion of public purpose funds to Oregon Housing and Community Services to serve low-income customers. Energy Trust coordinates with low-income agencies and refers eligible customers.

Lumen
A measure of the amount of light available from a light source equivalent to the light emitted by one candle.

Lumens/Watt
A measure of the efficacy of a light fixture; the number of lumens output per watt of power consumed.

Market Transformation
Lasting structural or behavioral change in the marketplace and/or changes to energy codes and equipment standards that increases the adoption of energy-efficient technologies and practices. Market transformation is defined in the Oregon Administrative Rules.

Megawatt
The electrical unit of power that equals one million watts (1,000 kW).

Megawatt Hour
One-thousand kilowatt hours, or an amount of electrical energy that would supply 1,370 typical homes in the Western U.S. for one month. (This is a rounding up to 8,760 kWh/year per home based on an average of 8,549 kWh used per household per year [U.S. DOE EIA, 1997 annual per capita electricity consumption figures]).

Methane
A light hydrocarbon that is the main component of natural gas and marsh gas. It is the product of the anaerobic decomposition of organic matter, enteric fermentation in animals and is one of the greenhouse gases.

Monitoring, Targeting and Reporting (MT&R)
A systematic approach to measure and track energy consumption data by establishing a baseline in order to establish reduction targets, identify opportunities for energy savings and report results.

Municipal Solid Waste
Refuse offering the potential for energy recovery. Technically, residential, institutional and commercial discards. Does not include combustible wood by-products included in the term “mill residue.”

Net Metering
An electricity policy for consumers who own (generally small) renewable energy facilities (such as wind, solar power or home fuel cells). "Net," in this context, is used in the sense of meaning "what remains after deductions.” In this case, the deduction of any energy outflows from metered energy inflows. Under net metering, a system owner receives retail credit for at least a portion of the electricity they generate.

Net-to-Gross
Net-to-gross ratios are important in determining the actual energy savings attributable to a particular program, as distinct from energy efficiency occurring naturally (in the absence of a program). The net-to-gross ratio equals the net program load impact divided by the gross program load impact. This factor is applied to gross program savings to determine the program's net impact.

Net Savings
Savings that are adjusted for evaluation factors of free riders, spillover and savings realization rates. Energy Trust reports all savings in net terms, not gross terms, unless otherwise stated in the publication.

Nondifferentiated Source (Undifferentiated Source)
Power available from the wholesale market or delivered to retail customers.

Non-energy Benefit (NEB)
The additional benefits created by an energy-efficiency or renewable energy project beyond the energy savings or production of the project. Non-energy benefits often include things like water and sewer savings (e.g. clothes washers, dishwashers), improved comfort (e.g. air sealing, windows), sound deadening (e.g. insulation, windows), property value increase (e.g. windows, solar electric), improved health and productivity and enhanced brand.

Path to Net Zero Pilot (PTNZ)
The Path to Net Zero pilot was launched in 2009 by Energy Trust's New Buildings program to provide increased design, technical assistance, construction, and measurement and reporting incentives to commercial building projects that aimed to achieve exceptional energy performance. Approximately 13 buildings worked with New Buildings to develop strategies to save 60 percent more energy than Oregon's already stringent code through a combination of 50 percent energy efficiency and 10 percent renewable power. The pilot demonstrates that a wide range of buildings can achieve aggressive energy goals using currently available construction methods and technology, as well as by testing innovative design strategies.

Photovoltaic
Direct conversion of sunlight to electric energy through the effects of solar radiation on semi-conductor materials. Photovoltaic systems are one type of solar system eligible for Energy Trust incentives.

Public Utility Commissions
State agencies that regulate, among others, investor-owned utilities operating in the state with a protected monopoly to supply power in assigned service territories.

Public Utility Regulatory Act of 1978 (PURPA)
Federal legislation that requires utilities to purchase electricity from qualified independent power producers at a price that reflects what the utilities would have to pay for the construction of new generating resources. The Act was designed to encourage the development of small-scale cogeneration and renewable resources.

Qualifying Facility (QF)
A power production facility that generates its own power using cogeneration, biomass waste, geothermal energy, or renewable resources, such as solar and wind. Under PURPA, a utility is required to purchase power from a QF at a price equal to that which the utility would otherwise pay to another source, or equivalent to the cost if it were to build its own power plant.

Renewable Energy Resources
a) Electricity-generation facilities fueled by wind, waste, solar or geothermal power or by low-emission nontoxic biomass based on solid organic fuels from wood, forest and field residues
b) Dedicated energy crops available on a renewable basis
c) Landfill gas and digester gas
d) Hydroelectric facilities located outside protected areas as defined by federal law in effect on July 23, 1999

Renewable Portfolio Standard
A legislative requirement for utilities to meet specified percentages of their electric load with renewable resources by specified dates, or a similar requirement. May be referred to as Renewable Energy Standard.

Retrofit
A retrofit involves the installation of new, usually more efficient equipment into an existing building or process prior to the existing equipment's failure or end of its economic life. In buildings, retrofits may involve either structural enhancements to increase strength, or replacing major equipment central to the building's functions, such as HVAC or water heating systems. In industrial applications, retrofits involve the replacement of functioning equipment with new equipment.

Roof-top Units (RTU)
Packaged heating, ventilating and air conditioning unit that generally provides air conditioning and ventilating services for zones in low-rise buildings. Roof-top units often include a heating section, either resistance electric, heat pump or non-condensing gas (the latter are called “gas-paks”). Roof-top units are the most prevalent comfort conditioning systems for smaller commercial buildings. Generally small (<10 ton) commodity products, but very sophisticated high-efficiency versions are available, as are units larger than 50 tons.

R-Value
A unit of thermal resistance used for comparing insulating values of different material. It is basically a measure of the effectiveness of insulation in stopping heat flow. The higher the R-Value number, a material, the greater its insulating properties and the slower the heat flow through it. The specific value needed to insulate a home depends on climate, type of heating system and other factors.

SB 1149
The Oregon legislation enacted in 1999 allowing for the creation of a third party, nonprofit organization to receive approximately 74 percent of a 3 percent utility surcharge (public purpose charge) and deliver energy-efficiency and renewable energy programs to the funding Oregon ratepayers of Portland General Electric and Pacific Power. Energy Trust was approved by the OPUC to deliver the services. The rest of the surcharge is distributed to school districts and Oregon Housing and Community Services.

SB 838
SB 838, enacted in 2007, augmented Energy Trust’s mission in many ways. Most prominently, it provided a vehicle for additional electric efficiency funding for customers under 1 aMW in load, and restructured the renewable energy role to focus on generation plants that produce less than 20 aMW. SB 838 is also the legislation creating the state’s Renewable Portfolio Standard and extended Energy Trust’s sunset year from 2012 to 2026.

SBW Consulting, Inc
A consulting firm based in Bellevue, WA, with expertise in facility energy assessments, utility conservation programs and program evaluations.

Sectors
For energy planning purposes, the economy is divided into four sectors: residential, commercial, industrial and irrigation.

Self-Directing Consumers
A retail electricity consumer that has used more than one average megawatt of electricity at any one site in the prior calendar year or an aluminum plant that averages more than 100 average megawatts of electricity use in the prior calendar year, that has received final certification from the Oregon Department of Energy for expenditures for new energy conservation or new renewable energy resources and that has notified the electric company that it will pay the public purpose charge, net of credits, directly to the electric company in accordance with the terms of the electric company's tariff regarding public purpose credits.

Societal Cost
Similar to the total resource cost as including the full cost to install a measure including equipment, labor and Energy Trust cost to administer and deliver the program, societal cost also includes any costs beyond those realized by the participant and Energy Trust associated with the energy-saving project. Typically additional societal benefits are seen with energy-efficiency projects that can be difficult to quantify and include in the Societal Cost Test for cost effectiveness.

Solar Power
Using energy from the sun to make electricity through the use of photovoltaic cells.

Solar Thermal
The process of concentrating sunlight on a relatively small area to create the high temperatures needed to vaporize water or other fluids to drive a turbine for generation of electric power.

Spillover
Additional measures that were implemented by the program participant for which the participant did not receive an incentive. They undertook the project on their own, influenced by prior program participation.

Therm
One hundred thousand (100,000) British thermal units (1 therm = 100,000 Btu).

Total Resource Cost
The OPUC has used the "total resource cost" (TRC) test as the primary basis for determining conservation cost-effectiveness as determined in Order No. 94-590 (docket UM 551). SB 1149 allows the "self-directing consumers" to use a simple payback of one to 10 years as the cost-effectiveness criterion.

Tidal Energy
Energy captured from tidal movements of water.

U-Value (U-Factor)
A measure of how well heat is transferred by the entire window—the frame, sash and glass—either into or out of the building. U-Value is the opposite of R-Value. The lower the U-Value number, the better the window will keep heat inside a home on a cold day.

Wave Energy
Energy captured by the cyclical movement of waves in the ocean or large bodies of water.

Watt
A unit of measure of electric power at a point in time, as capacity or demand. One watt of power maintained over time is equal to one joule per second.

Wind Power
Harnessing the energy stored in wind via turbines, which then convert the energy into electricity. Mechanical power of wind can also be used directly.

Weatherization
The activity of making a building (generally a residential structure) more energy efficient by reducing air infiltration, improving insulation and taking other actions to reduce the energy consumption required to heat or cool the building. In practice, “weatherization programs” may also include other measures to reduce energy used for water heating, lighting and other end uses.

Energy Industry Acronyms

AAMA	American Architectural Manufacturers Association	Trade group for window, door manufacturers
A/C	Air Conditioning	
ACEEE	American Council for an Energy-Efficient Economy	Environmental Advocacy, Researcher
AEE	Association of Energy Engineers	
AEO	Annual Energy Outlook	
AESP	Association of Energy Services Professionals	Energy services and energy efficiency trade org
A+E	Architecture + Energy	Outreach program for architects
AFUE	Annual Fuel Utilization Efficiency	The measure of seasonal or annual efficiency of a furnace or boiler
AgriMet	Agricultural Meteorology	Program for soil moisture data
AIA	American Institute of Architects	Trade organization
AIC	Association of Idaho Cities	Local government organization
aMW	Average Megawatt	A way to equally distribute annual energy over all the hours in one year; there are 8,760 hours in a year
AOI	Associated Oregon Industries	
APEM	Association of Professional Energy Managers	
ARI	Air-Conditioning and Refrigeration Institute	AC trade association
ASE	Alliance to Save Energy	Environmental advocacy organization
ASERTTI	Assocation of State Energy Research and Technology Transfer Institutions, Inc.	
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers	Technical (engineers) association
ASME	American Society of Mechanical Engineers	Professional organization
ASiMi	Advanced Silicon Materials LLC	Manufacturer of polysilicon with plants in Moses Lake and Butte Mountain
AWC	Association of Washington Cities	Local government trade organization
BACT	Best Achievable Control Technology	
BCR	Benefit/Cost ratio	See definition in text
BEF	Bonneville Environmental Foundation	Nonprofit that funds renewable energy projects
BETC	Business Energy Tax Credit	Oregon tax credit
BOC	Building Operator Certification	Alliance funded project that trains and certifies building operators
BOMA	Building Owners and Managers Association	
BPA	Bonneville Power Administration	Federal power authority
C&RD	Conservation & Renewable Discount	BPA program
CAC	Conservation Advisory Council	

CARES	Conservation and Renewable Energy System	Defunct consortium of Pacific Northwest PUDs
CCS	Communications and Customer Service	A group within Energy Trust
CCCT	Combined Cycle Combustion Turbine	
CEE	Consortium for Energy Efficiency	National energy efficiency group
CEWO	Clean Energy Works Oregon	
CFL	Compact Fluorescent Light bulb	
CHP	Combined Heat and Power	
CNG	Cascade Natural Gas	Investor-owned utility
ConAug	Conservation Augmentation Program	BPA program
CHT	Coefficient of Heat Transmission (U-Value)	A value that describes the ability of a material to conduct heat. The number of Btu that flow through 1 square foot of material, in one hour. It is the reciprocal of the R-Value (U-Value = 1/R-Value.
COU	Consumer-Owned Utility	
COP	Coefficient of Performance	The Coefficient of Performance is the ratio of heat output to electrical energy input for a heat pump
CT	Combustion Turbine	
CUB	Citizens' Utility Board of Oregon	Public interest group
Cx	Commissioning	
DG	Distributed Generation	
DSI	Direct Service Industries	Direct Access customers to BPA
DOE	Department of Energy	Federal agency
DSM	Demand Side Management	
EA	Environmental Assessment	
EASA	Electrical Apparatus Service Association	Trade association
ECM	Electrically Commutation Motor	An Electrically Commutation Motor, also known as a variable-speed blower motor, can vary the blower speed in accordance with the needs of the system
EE	Energy Efficiency	
EER	Energy Efficiency Ratio	The cooling capacity of the unit (in Btu/hour) divided by its electrical input (in watts) at standard peak rating conditions
EF	Energy Factor	An efficiency ratio of the energy supplied in heated water divided by the energy input to the water heater
EIA	Energy Information Administration	
EIC	Energy Ideas Clearinghouse	Washington State University program that provides energy-efficiency information, Alliance funded project
EMS	Energy Management System	See definition in text

EPA	Environmental Protection Agency	Federal agency
EPRI	Electric Power Resource Institute	Utility organization
EPS	Energy Performance Score	Brand name used by Energy Trust for the rating that assesses a newly built or existing home's energy use, carbon impact and estimated monthly utility costs
EQIP	Environmental Quality Incentive Program	
EREN	Energy Efficiency and Renewable Energy Network	DOE program
ESS	Energy Services Supplier	
EUI	Energy Use Intensity	See definition in text
EWEB	Eugene Water & Electric Board	Utility organization
FCEC	Fair and Clean Energy Coalition	Environmental advocacy organization
FEMP	Federal Energy Management Program	
FERC	Federal Energy Regulatory Commission	Federal regulator
GHG	Greenhouse gas	
HER	Home Energy Review	A free visit to a customer's home by an Energy Trust energy advisor to assess efficiency and provide personalized recommendations for improvement
HSPF	Heating Season Performance Factor	
HVAC	Heating, Ventilation and Air Conditioning	
ICNU	Industrial Consumers of Northwest Utilities	Trade interest group
ICF	ICF International	Existing Buildings Program Management Contractor
ICL	Institute for Conservation Leadership	
IDWR	Idaho Department of Water Resources	State agency
IEEE	Institute of Electrical and Electronic Engineers	Professional association
IESNA	Illuminating Engineering Society of America	
IOU	Investor-Owned Utility	
IRP	Integrated Resource Plan	
ISIP	Integrated Solutions Implementation Project	
ISM	Instant-Savings Measure	See definition in text
kW	Kilowatt	
kWh	Kilowatt Hours	8,760,000 kWh = 1 aMW
LBL	Lawrence Berkeley Laboratory	
LED	Lighting Emitting Diode	Solid state lighting technology
LEED	Leadership in Energy & Environmental Design	Building rating system from the U.S. Green Building Council
LIHEAP	Low Income Housing Energy Assistance Program	
LIWA	Low Income Weatherization Assistance	
LOC	League of Oregon Cities	Local government organization

MEEA	Midwest Energy Efficiency Alliance	Midwest Market Transformation organization, Alliance counterpart
MLCT	Montana League of Cities and Towns	Local government organization
MLGEO	Montana Local Government Energy Office	Local government organization
MT&R	Monitoring, Targeting and Reporting	See definition in text
MW	Megawatt	Unit of electric power equal to one thousand kilowatts
MWh	Megawatt Hour	Unit of electric energy, which is equivalent to one megawatt of power used for one hour
NAHB	National Association of Home Builders	Trade association
NCBC	National Conference on Building Commissioning	
NEB	Non-Energy Benefit	See definition in text
NEEA	Northwest Energy Efficiency Alliance	
NEEC	Northwest Energy Efficiency Council	Trade organization
NEEI	Northwest Energy Education Institute	Training organization
NEEP	Northeast Energy Efficiency Partnership	Northwest market transformation organization, Alliance counterpart
NEMA	National Electrical Manufacturer's Association	Trade organization
NERC	North American Electricity Reliability Council	
NFRC	National Fenestration Rating Council	
NRC	National Regulatory Council	Federal regulator
NRCS	Natural Resources Conservation Service	
NRDC	Natural Resources Defense Council	
NREL	National Renewable Energy Lab	
NRTA	Northwest Regional Transmission Authority	
NWEC	Northwest Energy Coalition	Environmental advocacy organization
NWBOA	Northwest Building Operators Association	Trade organization
NWFPA	Northwest Food Processors Association	Trade organization
NWN	NW Natural	Investor-owned utility
NWPPA	Northwest Public Power Association	Trade organization
NWPCC	Northwest Power and Conservation Council	Regional energy planning organization, "the council"
NYSERDA	New York State Energy Research & Development Authority	New York public purpose organization
OBA	Oregon Business Association	Business lobby group
OEFSC	Oregon Energy Facility Siting Council	Authority to site energy facilities in Oregon
ODOE	Oregon Department of Energy	Oregon state energy agency
OPUC	Oregon Public Utility Commission	
OPUDA	Oregon Public Utility District Association	Utility trade organization
OPEC	Organization of Petroleum Exporting Countries	

ORECA	Oregon Rural Electric Cooperative Association	Utility trade organization
OSD	Office of Sustainable Development	
OSEIA	Solar Energy Industries Association of Oregon	Volunteer nonprofit organization dedicated to education/promotion
OTED	Office of Trade & Economic Development	Washington State agency
P&E	Planning and Evaluation	A group within Energy Trust
PDC	Program Delivery Contractor	Company contracted with Energy Trust to identify and deliver industrial and agricultural services to Energy Trust customers
PEA	Pacific Energy Associates	
PECI	Portland Energy Conservation, Inc.	Energy Trust Program Management Contractor
PGE	Portland General Electric	Investor-owned utility
PG&E	Pacific Gas & Electric	California investor-owned utility
PMC	Program Management Contractor	Company contracted with Energy Trust to deliver a program
PNGC	Pacific Northwest Generating Cooperatives	
PNUCC	Pacific Northwest Utilities Conference Committee	
PPC	Public Power Council	National trade group
PPL	Pacific Power	
PSE	Puget Sound Energy	Investor-owned utility
PTC	Production Tax Credit	
PTCS	Performance Tested Comfort Systems	Alliance project that promotes the efficiency of air-systems in residential homes
PTNZ	Path to Net Zero pilot	See definition in text
PUC	Public Utility Commission	Oregon and Idaho PUCs
PUD	Public Utility District	
PURPA	Public Utility Regulatory Policies Act	See definition in text
QF	Qualifying Facility	
RAC	Renewable Energy Advisory Council	
RE	Renewable Energy	
REIT	Real Estate Investment Trust	
RETC	Residential Energy Tax Credit	Oregon tax credit
RFI	Request for Information	
RFP	Request for Proposal	
RFQ	Request for Qualification	
RNP	Renewable Northwest Project	Renewable energy advocacy group
RSES	Refrigeration Service Engineers Society	Trade association
RTF	Regional Technical Forum	BPA funded research group
RTU	Rooftop HVAC Unit Tune Up	Rooftop HVAC unit tune up, an Existing Buildings incentive offering

SCCT	Single Cycle Combustion Turbine	
SCL	Seattle City Light	Public utility
SEED	State Energy Efficient Design	Established in 1991, requires all state facilities to exceed the Oregon Energy Code by 20 percent or more
SEER	Seasonal Energy Efficiency Ratio	A measure of cooling efficiency for air conditioners; the higher the SEER, the more energy efficient the unit
SGC	Super Good Cents	Alliance project & legacy BPA & utility program that promotes the sales of SGC homes
SIS	Scientific Irrigation Scheduling	Agricultural information program
SNOPUD	Snohomish Public Utility District	Washington State PUD
SEIA	Solar Energy Industries Association	Volunteer nonprofit organization dedicated to education/promotion
SWEEP	Southwest Energy Efficiency Partnership	Southwest market transformation group, Alliance counterpart
T&D	Transmission & Distribution	
TNS	The Natural Step	
TRC	Total Resource Cost	See definition in text
TXV	Thermal Expansion Valve	
	University of Oregon Solar Monitoring Laboratory	Solar resource database
U-Value		The reciprocal of R-Value; the lower the number, the greater the heat transfer resistance (insulating) characteristics of the material
USGBC	U.S. Green Building Council	Sustainability advocacy organization responsible for LEED
VFD	Variable Frequency Drive	An electronic control to adjust motion
WAPUDA	Washington Public Utility District Association	Utility trade organization
WNP	Washington Nuclear Power Plant	
WPPSS	Washington Public Power Supply System	Also called "whoops"
WUTC	Washington Utilities and Transportation Commission	
Wx	Weatherization	
W	Watt	