

Energy Trust Board of Directors Annual Meeting

May 20, 2015

136th Board Meeting

Wednesday, May 20, 2015
421 SW Oak Street, Suite 300
Portland, Oregon

	Agenda	Tab	Purpose
12:15pm	Call to Order (Debbie Kitchin) <ul style="list-style-type: none"> Approve agenda General Public Comment The president may defer specific public comment to the appropriate agenda topic. Consent Agenda 1 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. <ul style="list-style-type: none"> April 1 Board meeting minutes Amend Balanced Competition Policy—R744 Executive Director Transition Committee—R745 Executive Director Annual Review—R746 		Action
12:20pm	President's Report (Debbie Kitchin)		
12:30pm	Energy Programs 2 <ul style="list-style-type: none"> Cascade Energy Contract Extension for Production Efficiency Streamlined Industrial Initiative (Adam Bartini) Evergreen Consulting Group Contract Extension for Industrial Lighting (Adam Bartini) CLEAResult Contract Extension for New Bulidings (Oliver Kesting) 		Info
1:15pm	Committee Reports <ul style="list-style-type: none"> Evaluation Committee (Alan Meyer)..... 3 Executive Director Transition Committee (Ken Canon) Finance Committee (Dan Enloe) 4 Policy Committee (Roger Hamilton) 5 Strategic Planning Committee (Mark Kendall)..... 6 		Info
2:45pm	Break		
2:55pm	Staff Report 8 <ul style="list-style-type: none"> Highlights Feature Presentation: Employee Sustainability and Engagement Report (Kathleen Belkhayat & Robert Wyllie) separate document 		
4:00pm	Adjourn		

**The Energy Trust Board of Directors will hold
its annual strategic planning workshop on
Friday, June 5, 2014 at 8:00am–5:00pm (breakfast available at 7:30am)
Saturday, June 6, 2014 at 9:00am–12:30pm (breakfast available at 8:30am)
at Reed College, 3203 SE Woodstock Blvd, Portland in the Vollum Lounge.**

Tab 1 Consent Agenda

- April 1 meeting minutes
- Amend Balanced Competition Policy—R744
- Executive Director Transition Committee—R745
- Executive Director Annual Review—R746

Tab 2 Energy Programs

- Briefing Paper: Cascade Energy Contract Extension for Production Efficiency Streamlined Industrial Initiative
- Briefing Paper: Evergreen Consulting Group Contract Extension for Industrial Lighting
- Briefing Paper: CLEAResult Contract Extension for New Buildings

Tab 3 Evaluation Committee

- March 31 meeting notes
- 2012 Existing Buildings Program Impact Evaluation & Staff Response
- 2012 Rooftop Unit Tune-up Initiative Impact Evaluation & Staff Response

Tab 4 Finance and Compensation Committees

- Notes on March 2013 financial statements
- March financials and contract summary report
- Financial glossary

Tab 5 Policy Committee

- April 28 meeting notes

Tab 6 Strategic Planning Committee

- April 14 meeting notes

Tab 7 Advisory Council Notes

- March 11 RAC meeting notes
- March 11 CAC meeting notes
- April 29 RAC meeting notes—*notes will be sent via e-mail prior to board meeting*
- April 29 CAC meeting notes—*notes will be sent via e-mail prior to board meeting*

Tab 8 Staff Report

- separate document
- Legislative update
 - Employee Sustainability and Engagement Report

Tab 9 Glossary of Acronyms and Terminology

Tab 1

Board Meeting Minutes—135th Meeting

April 1, 2015

Board members present: Susan Brodahl, Ken Canon, Melissa Cribbins, Heather Beusse Eberhardt, Dan Enloe, Roger Hamilton, Mark Kendall, Debbie Kitchin, Alan Meyer, John Reynolds, Anne Root (by phone), Warren Cook (ODOE special advisor, by phone)

Board members absent: Eddie Sherman, John Savage (OPUC *ex officio*)

Staff attending: Margie Harris, Ana Morel, Debbie Menashe, Amber Cole, Steve Lacey, Fred Gordon, Peter West, Courtney Wilton, Hannah Hacker, Betsy Kauffman, Jed Jorgensen, Juliet Eck, Dan Rubado, Erika Kociolek, Jay Ward, John Volkman, Cheryl Gibson, Wendy Bredemeyer, Cheryle Easton, Pati Presnail, Rachanney Ros, Elizabeth Fox, Alison Ebbott, Justin Buttles, Larisa Antonov, Lizzie Rubado, Dave McClelland, Sue Fletcher, Marshall Johnson

Others attending: Elaine Prause (OPUC), John Charles (Cascade Policy Institute), Jennifer Price (Moss Adams), Ashley Osten (Moss Adams), Patrick Nye (Bonneville Environmental Foundation), John Morris (CLEAResult), Clay Norris (NEEA), Anne Snyder Grassman (Portland General Electric), Samantha Taylor (Conservation Services Group), Bob Stull (CLEAResult), Janice Boman (Ecova), Cliff Davis (International Brotherhood of Electrical Workers)

Business Meeting

President Debbie Kitchin called the meeting to order at 12:20 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) February 25 Board meeting minutes
- 2) Amend Oregon preference policy—R740
- 3) Amend Other Renewables policy—R741

Moved by: John Reynolds

Seconded by: Melissa Cribbins

Vote: In favor: 11

Abstained: 0

Opposed: 0

RESOLUTION 740

AMEND POLICY ON OREGON PREFERENCE

WHEREAS:

1. In 2003, the board adopted a policy on preference for Oregon contractors competing for major Energy Trust contracts.
2. In later compiling policies for administrative purposes, staff included introductory language summarizing the discussions that preceded the 2003 policy.

3. The details of the introductory language are no longer current, and the introductory language was not itself part of the policy adopted by the board in 2003.
4. Simplifying the introductory language to the policy implies no substantive change in the policy itself.

It is therefore RESOLVED that the Board of Directors hereby adopts amendments to the introductory language of the Oregon Preference policy, as shown in the attached.

RESOLUTION 741

AMEND POLICY ON OTHER RENEWABLE ENERGY PROJECTS

WHEREAS:

5. The “Other Renewables” policy has two tracks: (1) a “mature technologies” track for established technologies including wind, biopower and traditional hydropower projects, which the executive director may approve up to \$500,000; and (2) other technologies, which require more intensive review, varying on the basis of dollar thresholds.
6. Based on the Energy Trust staff’s recommendation, the board finds that geothermal energy technology is sufficiently well established that it does not require the intensive review afforded to non-mature technologies.
7. The 2015-2019 strategic plan emphasizes early-stage assistance for renewable energy projects, such as grant-writing, feasibility studies and other development assistance. Under current practice, the executive director may approve such assistance up to \$200,000 per project.
8. The board has previously recognized this practice, approves it, and wishes the process for reviewing projects using non-mature technologies to use the same dollar threshold.

It is therefore RESOLVED that the Board of Directors hereby adopts amendments to the Other Renewable Energy Projects policy as shown in the attached:

1. Designating geothermal energy technology as a mature technology for purposes of this policy;
2. Authorizing the executive director to approve early-stage renewable project assistance up to \$200,000 per project; and
3. Requiring board review and approval of projects using non-mature technology only if they exceed \$200,000 in incentives.

~~POLICY ESTABLISHING THE MERGER OF THE BIOPOWER PROGRAM INTO~~ FOR THE OTHER RENEWABLES PROGRAM PROJECT APPROVAL

The Energy Trust of Oregon, Inc., Board of Directors:

1) Authorizes two tracks for approval of projects incentives within the Other Renewables Program and not covered by other Energy Trust solar energy programs:

- a. Mature technologies, i.e., biopower ~~projects~~, traditional hydropower ~~projects~~, wind ~~projects~~, geothermal and such other technologies as the board may designate in the future: The executive director may approve projects involving incentives less than \$500,000; board approval is required for projects involving \$500,000 or more.
- b. Other projects:

- i. Projects involving incentives of ~~\$5200,000~~ or less may be approved by the executive director. A summary of any such project will be provided subsequently to the board and Renewable Advisory Council.
- ~~ii. Projects entailing incentives of \$50,000 to \$125,000 require review by the Renewable Advisory Council and will be placed on a consent agenda for board action unless a member of the board asks to have the project placed on the regular agenda.~~
- iii. Projects involving incentives of more than ~~\$200~~125,000 will be reviewed by the Renewable Advisory Council and require ~~placed on the regular agenda for~~ board approval.

2) Authorizes the executive director to approve up to \$200,000 per project for early-stage project assistance activities such as grant-writing, feasibility studies and other expert development assistance. Procedures for reviewing such awards shall be reported to the Renewable Energy Advisory Council and discussed with the Board.

CLEAN VERSION:

POLICY FOR OTHER RENEWABLES PROGRAM PROJECT APPROVAL

The Energy Trust of Oregon, Inc., Board of Directors:

1) Authorizes two tracks for approval of project incentives within the Other Renewables Program and not covered by other Energy Trust solar energy programs:

- a. Mature technologies, i.e., biopower, traditional hydropower, wind, geothermal and such other technologies as the board may designate in the future: The executive director may approve projects involving incentives less than \$500,000; board approval is required for projects involving \$500,000 or more.
- b. Other projects:
 - i. Projects involving incentives of \$200,000 or less may be approved by the executive director. A summary of any such project will be provided subsequently to the board and Renewable Advisory Council.
 - ii. Projects involving incentives of more than \$200,000 will be reviewed by the Renewable Advisory Council and require board approval.

2) Authorizes the executive director to approve up to \$200,000 per project for early-stage project assistance such as grant-writing, feasibility studies and other expert development assistance. Procedures for reviewing such awards shall be reported to the Renewable Energy Advisory Council and discussed with the Board.

President's Report

Debbie Kitchin presented on the use of cross-laminated timber (CLT), an innovative structural material that can replace concrete and steel in construction of tall commercial buildings. The Wood Innovation and Design Center in Prince George, British Columbia used CLT as a substitute for concrete and steel in its seven-story building, and the Oregon Zoo is the first building in Oregon to use CLT. The pressed, prefabricated wood panels have been championed for their environmental and cost-saving benefits. When compared to steel and concrete, CLT is lightweight, strong, fast and easy to install, less expensive with less on-site waste and a lower carbon footprint. For example, constructing a 20-story wood building compared to the same building using concrete and steel is equal to the eliminating emissions from 900 cars for a year. While there are two manufacturers of CLT in Canada, there are none in the U.S. Debbie

noted this may be a new opportunity for Oregon's wood products industry. She mentioned DR Johnson in Riddle, Oregon recently received an Oregon Built Environment and Sustainable Technologies (BEST) grant to explore production of CLT. The board discussed potential opportunities for the Production Efficiency program to support such an operation with energy-efficient features.

Audit Committee

Ken Canon noted the annual financial audit is complete and before the board today for acceptance. He thanked the Audit Committee members for their efforts and involvement. The board recognized the full Finance team and its contributions to obtaining an unmodified audit opinion for Energy Trust.

Ken introduced Jennifer Price and Ashley Osten of Moss Adams LLP. This is the third year Moss Adams has conducted an independent financial audit for Energy Trust. The Audit Committee heard full details on the audit at the last committee meeting in March. Moss Adams summarized the audit process and results for the board. The audit process included meetings with the Audit Committee, approval of the audit scope and performance of all audit procedures. The audit followed this standard process and Energy Trust staff was well prepared. Moss Adams reported Energy Trust received an unmodified opinion on the 2014 financial statements, resulting in Energy Trust meeting its 2014 Oregon Public Utility Commission minimum performance measure to demonstrate financial integrity. An unmodified opinion means Energy Trust's financial statements are presented fairly in accordance with generally accepted accounting principles (GAAP) in the U.S. Moss Adams reviewed the highlights of the audit and reported there were no items noted to be communicated specifically to the board.

Moss Adams explained to the board the concept of materiality and how it relates to the Energy Trust financial audit. Materiality is a commonly used approach by the financial industry to review a sampling of an organization's financial transactions. Moss Adams also set other testing thresholds within the audit, such as random sampling, and followed industry standards to determine Energy Trust financial statements are materially correct in accordance with GAAP.

The board inquired about note 7 in the audit and whether the liability for \$13,211 rests with Energy Trust or Craft3. Moss Adams clarified the note is staff's best estimate of what may not be collected for energy efficiency loans to moderate income program participants and what would need to be reserved in case the balance is not collected. It was explained the agreement is a commitment to loan up to \$300,000 in \$100,000 increments to support the Savings Within Reach loan offering, and only \$100,000 has been loaned to date. Staff noted Craft3 has so far executed loans for about \$85,000. Energy Trust is obligated to cover about \$50,000 of loan losses.

The board inquired if there are any opportunities for Energy Trust be more efficient. Moss Adams suggested Energy Trust may want to review the financial audits of any third-party financial service providers. An example of such a third-party provider is the payroll provider. Moss Adams affirmed this is a best practice and only a recommendation.

The board asked how often Moss Adams has seen companies receive unmodified audit opinions for multiple years in a row. Moss Adams noted many companies received unmodified opinions but with adjustments provided beforehand. Energy Trust did not receive any such adjustments to incorporate before the audit concluded.

RESOLUTION 742 ACCEPTANCE OF AUDITED FINANCIAL REPORT

BE IT RESOLVED: That Energy Trust of Oregon, Inc., Board of Directors accepts the auditor's report on the financial statements, including an unmodified opinion, submitted by Moss Adams LLP for the calendar year ended December 31, 2014.

Moved by: Roger Hamilton
Vote: In favor: 11
Opposed: 0

Seconded by: Dan Enloe
Abstained: 0

Margie reviewed the 2014 Management Review Status Update memo in the board packet, highlighting progress made on implementing the review recommendations. The Audit Committee will receive periodic updates from staff three to four times during 2014 to ensure Energy Trust is on track to implement the recommendations.

Feature Presentation

Primer on Renewable Energy Certificates: Patrick Nye, Betsy Kauffman, Jed Jorgensen

The presentation on Renewable Energy Certificates (RECs) is part of an in-depth review of the Energy Trust REC policy to determine if updates are warranted in light of changes in the marketplace. To better position the board to provide direction on any changes, this presentation is to develop a shared understanding of RECs and the REC market. A briefing paper entitled the Renewable Energy Certificates Report was included in the board packet; the full report was reviewed by the Policy Committee. Challenges interpreting the policy, and potential changes to the policy, will be addressed at a later date, starting with the Policy Committee at its April meeting. Staff plans to bring the policy back to the board in the summer.

Betsy introduced Patrick Nye, carbon and renewable energy senior consultant at Bonneville Environmental Foundation.

Patrick delivered his presentation on RECs, which covered the concept behind a REC versus the generation output of a renewable energy system. He also described standards and registries for RECs, the makeup of the REC market, recent trends in price and quantity of RECs sold, and challenges facing the REC market.

Patrick first framed renewable energy as having two aspects: power generation and the environmental, economic and social benefits from the power being renewably produced with little to no greenhouse gas emissions. Eligible resources include wind, solar, geothermal and qualifying hydropower, biomass, biodiesel and fuel cells. He noted RECs have also been called green tags or green credits. A REC is a document that verifies ownership of the environmental benefits to the power, and is a transferable commodity that can be traded in a marketplace. The renewable energy producer can sell the power and REC to different markets. The purchaser of a REC can then "green" its own power and retains proof of those environmental, social and economic benefits. A REC can be bundled or unbundled. A bundled REC is the combined sale of both the power generation and the non-power attributes from the unit.

Patrick noted there are no standards or certifications required of RECs. It is open to interpretation, and over time, systems have emerged that provide checks and balances for the creation, sale and tracking of RECs. For example, Green-e certification is a standard that provides assurances and requires an annual audit that follows the movement of the REC from generation to the marketer or utility and then to the end-use customer to guarantee no one else has laid claim to the same REC or double sold the unit. In the past ten years, there has also been an emergence of registries, which act as bank accounts and provide a higher level of transparency. A registry, like the Western Renewable Energy Generation Information System (WREGIS) will account for the REC and track generation. The Federal Trade Commission is also developing guidelines for how purchasers can represent ownership of a REC to the public in an accurate, transparent manner. The REC market has changed over the last decade, largely by self-imposing standards and requirements.

There are two markets for RECs. The voluntary market is largely driven by businesses or households that want to buy green power for their individual and varied reasons. The compliance market is driven by mandates, like Oregon's Renewable Portfolio Standard (RPS), which allows RECs to be purchased to help utilities meet their RPS compliance targets. Another example is when a utility is mandated to make RECs available for customers through green power programs; both PGE and Pacific Power have programs available to customers.

Ken Canon departed the meeting at 1:21 p.m.

In the REC market, typical sellers are renewable energy project owners, brokers, marketers like Bonneville Environmental Foundation and utilities. Typical buyers include individuals, companies, universities, governments and utilities. The military is one of the biggest buyers of RECs in the country. Utilities purchase RECs for compliance or for their own voluntary green power programs.

The board inquired how long the REC operates. Patrick explained the seller wants the REC to be purchased the year in which the energy was used. Some compliance programs allow the banking of RECs for future energy use.

Patrick reviewed the pricing history from 2001 using data provided by the National Renewable Energy Lab. He noted a period of time in 2008 where the price per REC dropped due to an oversupply in the market. Patrick noted the REC market is dynamic in terms of prices. The volume of RECs has been increasing since 2006, especially for unbundled RECs.

In Oregon, the RPS allows utilities to use unbundled RECs for 50 percent of their compliance until 2020, at which time the allowance will change to 20 percent. Through Oregon law, utilities provide voluntary green power programs. Collectively, PGE and Pacific Power serve 200,000 customers through their green power programs. Voluntary corporate purchasers include higher education, owners of LEED-certified buildings and other businesses. The Port of Portland is one of the top 100 volume purchasers in the nation.

Challenges with RECs in the marketplace include the oversupply of RECs; administrative costs and cumbersome registry requirements that make it difficult for smaller producers like small net-metered solar systems; competing products like carbon offsets; and critics questioning the transparency in transferring and recording REC generation, sale and end-use claims.

Energy Trust controls about 125,000 RECs annually, and that number is expected to grow to 280,000 annually by 2025. Energy Trust has never sold RECs and has instead provided them to PGE and Pacific Power for their RPS compliance targets.

The board asked whether the downward trend in REC prices may change in the near future. Patrick said yes, especially as policy changes impact the market, such as California's RPS policy that gives greater value to in-state produced RECs.

The board inquired how wave technology could be accepted for RECs. Patrick noted some programs recognize less mature renewable energy technologies; however, the marketplace is in general waiting on those technologies.

The board asked what the inventory is of Energy Trust expired RECs. The Solar program has 7,000 projects, and each contract notes the percentage of RECs Energy Trust takes title to for a certain amount of time. The smaller system RECs like those from residential solar are not registered with WREGIS or any other registry. For custom renewable energy projects, some RECs have been delivered to the utility because the owner is already on WREGIS. Only a small subset of RECS are delivered to each utility.

The board discussed whether smart meters could be modified for the smaller solar systems to support counting and registering RECs.

Staff clarified that PGE and Pacific Power continue receiving RECs and can bank them for RPS compliance, which they've met through 2019 or 2020.

The board took a break from 1:52 p.m. to 2:07 p.m.

Committee Reports

Policy Committee, Roger Hamilton

At the March meeting, the committee reviewed changes to the two policies approved on the consent agenda by the board today: the Other Renewable Energy Projects Policy and the Oregon Preference Policy.

The Balanced Competition Policy is up for a regular three-year review in May. This policy is of particular importance given the fall 2014 acquisition of PECl by CLEAResult, resulting in three major programs managed by one contractor. At that time of acquisition, the board allowed an exception to the policy given its regular review in spring 2015.

The committee also received updates on state legislation, the large customer funding docket and the hiring of Elaine Prause by the OPUC to fill the role of Energy Trust liaison.

Evaluation Committee, Alan Meyer

At the February meeting, the committee discussed how Energy Trust tracks and counts energy savings from data centers built and occupied incrementally. The committee also discussed transitions related to Home Energy Reviews and received clarification that in-home reviews are available to customers upon request. The meeting included a review of four studies and evaluations. The third-party heat pump study will be presented to the OPUC and utilities. In response to OPUC Docket 1565, the study explores whether an incentive for a heat pump encourages fuel switching to electricity from natural gas. The study concluded factors like lower fuel costs and a single integrated heating and cooling system have a greater impact on a customer's decision to change from natural gas heating to a heat pump than an Energy Trust incentive.

The Rooftop Unit Tune-Up Initiative 2012 Impact Evaluation was also reviewed. It was discussed that staff is looking for additional strategies to encourage rooftop HVAC unit tune-ups, as noted in the committee notes. The board discussed ways the program could acquire more savings from rooftop tune-ups. Staff noted this is a harder market to reach given the hundreds of contractors that work on the units. Staff will follow up with the board on whether rooftop tune-ups are an element of commercial Strategic Energy Management.

The EPS and Solar Valuation Study explored whether and by how much an EPS™, energy performance score, or solar electric system improves property values. The study indicated solar improves home re-sale value. The study found that at this early stage in the availability of EPS, there is no additional premium in re-sale value. Staff noted such an effect will take time as brand awareness and builder promotion of EPS continues to increase.

The Residential Solar Market Research report evaluated what motivates customers to purchase residential solar systems. The primary motivator is lower electricity bills and the main barrier is cost. The board discussed the merits of marketing and advertising to promote solar electric system installations. It was noted the committee had encouraged staff to incorporate solar into existing energy-efficiency advertising.

Staff will provide an overview of Energy Trust's evaluation process at the July 29 board meeting.

The board inquired about the market demand for heat pump water heaters for domestic water heating. Staff noted General Electric has a tier 3 product available and a tier 2 product may be leaving the market soon. Heat pump water heaters are still a minor portion of overall water heater sales. The Northwest Energy Efficiency Alliance (NEEA) and Bonneville Power Administration are conducting advanced testing on heat pump water heaters, for both space and water heating, as well as a gas version. Energy Trust will receive those results when available.

Finance Committee, Dan Enloe

Along with reviewing the recently accepted 2014 financial audit, the committee reviewed the January 2015 financials. At this early stage in the year, there are no major shifts regarding revenues and expenditures. As typical, revenues were very close to budget and incentive payments were low. It was noted that incentive payments in January 2015 were higher than in January 2014.

Strategic Planning Committee, Mark Kendall

Mark reviewed a memo to the board provided by Margie Harris. In the memo, Margie announced her decision to leave her position as executive director of Energy Trust as of the end of calendar year 2016. Margie described her decision, the creation of an Executive Director Transition Committee to lead the hiring process. Margie expressed her interest in discussing with the board how to contribute to Energy Trust in new ways, provided what is considered enables and supports the full success of the new executive director.. Ken Canon will chair the new transition committee. Debbie Kitchin will contact board members to sit on the committee. The agenda for the annual board strategic planning workshop in June will include activities and discussion in preparation for this transition. The board commented on Margie's leadership in guiding the organization, and indicated its desire to approach the transition in a very thoughtful, planned manner.

At the March meeting, the committee also reviewed staff's proposal for reporting and tracking on 2015-2019 Strategic Plan implementation.

Staff Report

Highlights, Margie Harris

Margie began her report with a follow-up on the preliminary annual results previewed at the February board meeting. The official 2014 results will be published in the OPUC Annual Report on April 15, and an update will be provided to the board at the May meeting.

Margie highlighted the High Desert Museum, a recent customer that installed LEDs to reduce operating costs while preserving its exhibits and artifacts. Based on this successful LED upgrade, the museum is now adding energy-efficiency controls to its HVAC system. This demonstrates how lighting projects can open the door to energy-efficiency benefits and inspire additional energy-efficiency investments and commitments.

Margie reviewed a series of recent customer and community events celebrating completion of energy efficiency and renewable energy projects, including the City of Astoria's first renewable energy project, the City of Portland's commercial Strategic Energy Management achievements, energy-saving projects at the Columbia Boulevard wastewater treatment plant and a second energy-efficiency project at a Clackamas County wastewater treatment plant. Margie provided details on a recent Northwest Environmental Business Council event where she presented the Energy Trust 2015-2019 Strategic Plan.

Margie highlighted a recently published evaluation of energy savings associated with Nest thermostats in homes with heat pumps. A pilot is underway to evaluate savings associated with smart thermostats in gas-heated homes.

Margie described completion of two major milestones related to the Integrated Solutions Implementation (ISI) project. In early March, IT staff updated Energy Trust's web services and forms to a new server for greater web security, reduced maintenance and costs, and increased reliability and performance. In late March, staff across the organization completed the transition of customer site data from the FastTrack project tracking system to the Customer Relationship Management (CRM) system. The transition centralizes this information so staff can see all customer project history in one place, enhances the ability to conduct analysis and improves customer service.

Margie provided a follow-up to questions the board asked at the February meeting related to changes in delivering Home Energy Reviews. Staff evaluated annual cost trends and program participation rates for in-home reviews and determined there was less demand for these reviews, costs were not decreasing and alternatives that are faster and more cost-effective at supporting customer actions were available. Currently, staff is ramping up delivery of both online and phone reviews, making direct customer connections to trade allies and retaining in-home reviews for those who request it. Additional cost and savings trends will be analyzed based on the historic approach as well as the new approach.

Three active OPUC dockets were highlighted. UM 1622 is the gas cost-effectiveness docket. Last fall, the OPUC provided direction to Energy Trust to discontinue some measures that had been receiving cost-effectiveness exceptions. The discontinuation of some of those select measures is scheduled on April 30, 2015. In addition, the OPUC directed staff to research a residential incentive cap. Staff provided the OPUC with options, and the OPUC staff recommendation related to the cap is expected to be delivered soon. UM 1713 relates to large customer funding limits. OPUC staff filed an Issues Framing Document at the end of February in which a number of questions were raised, including whether this funding situation poses barriers to Energy Trust acquiring all cost-effective electric efficiency. Staff is active in responding to information requests related to the docket. UM 1158 relates to Energy Trust's 2015 OPUC annual minimum performance measures. Margie reviewed a table of the draft measures, which correspond directly to the annual budgeting process. She described two new performance measures that will be in place as of this year. The first is setting a cap of 7.75 percent of total expenditures for staffing, using a three-year rolling average. The second is to report annually on activities related to NEEA and market transformation.

Margie announced recent staffing transitions, including Senior Planning Manager Elaine Prause moving to the OPUC, changes in residential sector lead and renewable sector lead positions, and the status of hiring the four new positions approved in the 2015 annual budget.

Margie provided a brief state legislative update and highlighted a bill (SB 324) signed by Governor Kate Brown that repeals the sunset provisions for Oregon's Low Carbon Fuel Standard and a bill (HB 2946) that would eliminate the cap on large customer funding for Energy Trust.

Margie concluded her report with a review of Smith Frozen Foods' recent industrial Strategic Energy Management participation and achievement of 1.1 million kilowatt hours saved.

Adjourn

The meeting adjourned at 3:20 p.m.

The next regular meeting of the Energy Trust Board of Directors will be held Wednesday, May 20, 2015, at 12:15 p.m. at Energy Trust of Oregon, Inc., 421 SW Oak Street, Suite 300, Portland, Oregon.

Alan Meyer, Secretary

Board Decision

Amending Policy on Balanced Competition

May 20, 2015

Summary

Amend the Policy on Balanced Competition to: (1) allow a single firm to be the prime contractor for up to three (instead of two) program management contracts at the same time; and (2) eliminate the policy's limitation on subcontracts.

Background

- The current Balanced Competition Policy provides that no entity may be a prime contractor or subcontractor of more than two programs. The purpose of the policy is to ensure competition for Energy Trust program management contracts.
- The board amended the policy in 2012 to allow firms with two program management contracts to subcontract on other programs as long as the subcontract represents no more than 33% of the program's energy savings goals.
- In November, 2014 CLEAResult bought Portland Energy Conservation Inc. (PECI) and became the contract manager of three Energy Trust programs.
- In response, the Energy Trust board waived the two-contract limit for CLEAResult through 2015, and directed staff to assess the effects of consolidation in the energy efficiency industry on competition for program management services, and recommend whether to maintain the current policy or amend it.

Discussion

Staff first examined trends in industry consolidation and comparable policies in other organizations. We then analyzed whether amending the policy to allow three contracts to be managed by one entity would likely decrease competition for Energy Trust contracts or increase the risk that Energy Trust could not reach savings goals. Finally, we considered whether continuing to limit subcontracts is warranted.

- **Industry Consolidation:**
 - At the time of the CLEAResult-PECI consolidation, we were concerned that industry consolidation may force Energy Trust to seek less capable competitors simply to stay within the policy's two-contract limit.
 - Staff's review shows that the industry has grown from \$1 billion per year 10 years ago to \$8 billion/year now. This growth means, in part, that Energy Trust programs are a smaller factor in the industry and the competitive effects of our policy are less.
 - The pool of firms from which Energy Trust draws is in some ways growing stronger, better capitalized and more capable. Each of the top ten firms that provide program management services nationally can meet Energy Trust needs and/or has bid for an Energy Trust contract. Of the 10, two have been absorbed by other firms, and all have expanded service through internal growth or strategic partnerships. We recently learned that CLEAResult intends to acquire most of Conservation Services Group's (CSG) energy efficiency program work, demonstrating that consolidation in the industry is continuing. When this consolidation is finalized, another of the ten firms will have been absorbed.

- While consolidation continues, staff believes this strengthens services available to Energy Trust. Where Energy Trust programs previously supplemented management capabilities by subcontracting, these services now can be provided by a single entity.
- In short, while industry consolidation is worth ongoing monitoring, it does not appear to be a problem at this time. The primary effect at this point is to provide a wider range of integrated services by better-capitalized firms.
- **Comparable Policies**
 - Staff also looked for utilities or others with policies intended to foster industry competition by restricting the number of contracts an entity may hold.
 - Utility procurement strategies typically are designed to balance cost and reliability. Competitive solicitations, auctions, and bilateral contracting allow utilities to exert control over factors like quantity procured, generation profile, project siting, and reliability.
 - Oregon Public Utility Commission (OPUC) guidelines for utility Integrated Resource Plans (IRP) strive for the best combination of expected costs and associated risks (OPUC Order No. 07-002, Jan. 8, 2007). The OPUC does consider potential bias in utility resource procurement that favors utility ownership of generation assets over power purchase agreements (see OPUC Order 14-149, April 30, 2014; Order 11-001, January 3, 2011). In these situations, competitive bidding guidelines attempt to ensure fair competition in procurement, not limiting the number of contracts for which an entity may compete. See OPUC Order 14-149, noting “the goal underlying the IRP process that utilities obtain resources that are least risk and cost to ratepayers. Absent clear legislative direction, we are unwilling to consider any mechanism that would require a utility to procure certain types of resources regardless of the impact on customer rates.” Order 14-149, p. 16).
 - Governments encourage competition in contracting by requiring competitive bidding for contracts. Oregon law, ORS 279C.300, 279C.235, is in this vein.
 - By contrast, Energy Trust policy requires not just competitive bidding, but outcomes that foster competition. There are other settings that focus on contracting outcomes: minority contracting, local suppliers, etc. However, we found none that limits the number of contracts for which a contractor may compete.
 - Moreover, a two-contract limit involves a gamble: that limiting near-term competition by prohibiting entities with two contracts from competition will increase competition over the longer term by fostering industry diversity, and protect Energy Trust from the effects of a narrow contractor base.
 - In short, we found no policies that use this particular mechanism to encourage competition. In this respect, the Energy Trust Balanced Competition policy may be unique.
- **Potential Effects of Allowing Three Prime Contracts Instead of Two**
 - The two-contract policy limit was first adopted in 2002, when Energy Trust had five contractor-managed programs. At that time, a two-contract limit represented 40% of total programs. From 2007 to 2010 there were four contractor-managed programs, and two contracts was 50%. In 2011, contractor-managed programs increased to five; two contracts represented 40%. In 2014 contractor-managed programs grew to six, two contracts represented 33%. This diminishing proportion of contractor-managed

programs is due in part to Energy Trust's choice to manage two programs in-house: Production Efficiency and Commercial Strategic Energy Management.

- Increasing the limit on prime contracts from two to three would fall within the historic range. If in-house programs are included in the program total, a three-contract limit would represent less than 40% of current programs. If not, a three-contract limit would represent 50%.
- Staff believes that a three-contract limit would not significantly increase Energy Trust risk. The possibility that a single contractor would fail to deliver on three contracts at the same time is remote. Even if a contractor achieved 70% of savings under three contracts, which has never yet occurred, there would be a 10% effect on Energy Trust savings overall.
- CLEAResult's three contracts represent 16.7% of the electric savings goal and 26.7% of the gas savings goal in 2015. Even managing half of the program contracts, the amount of savings compared to Energy Trust savings goals is comparatively low.
- Staff examined the alternative of limiting the amount of savings under contract instead of the number of contracts. We believe such a policy would be hard to administer and create uncertainty for growing programs.

- **Sub-Contract Limit**

- The policy originally included subcontracts in the two-contract limit. In 2012, the board amended the policy to allow firms with two program management contracts also to subcontract on other programs as long as no subcontract represents more than 33% of a program's energy savings goals. This amendment was meant to foster competition by expanding opportunities for contractors to team with others.
- In staff's view, eliminating the subcontract limit will allow bidders to choose the best combinations of subcontractors and services to achieve Energy Trust goals without having an appreciable effect on competition.

Recommendation

Amend the policy on Balanced Competition to: (1) allow a single firm to be the prime contractor for up to three (instead of two) program management contracts at the same time; and (2) eliminate the policy's limitation on subcontracts.

**RESOLUTION 744
AMEND POLICY ON BALANCED COMPETITION**

WHEREAS:

1. The Energy Trust Balanced Competition policy provides that no entity may be a prime contractor or subcontractor of more than two programs. The purpose of the policy is to ensure competition for Energy Trust program management contracts.
2. The board amended the policy in 2012 to allow firms with two program management contracts to subcontract on other programs as long as the subcontract represents no more than 33% of the program's energy savings goals.
3. In 2014, Energy Trust waived the two-contract limit for a year after one program management contract, CLEAResult, acquired another, PECI, and thereby held three prime contracts. The board directed staff to assess the effects of consolidation in the energy efficiency industry on competition for program management services, and recommend whether the current policy should be maintained or amended.
4. Staff's assessment indicates: (a) while trends in industry consolidation bear watching, they are not currently limiting capable competitors for Energy Trust contracts; (b) no instances in which utilities or others have policies restricting the number of contracts in order to foster long-term industry competition; (c) increasing the policy limit from two to three contracts will not appreciably reduce competition for program management contractors or increase Energy Trust risk of not achieving energy savings goals; and (d) eliminating the limit on subcontracts will allow bidders to choose the best combinations of services to achieve Energy Trust goals without having an appreciable effect on competition.

It is therefore **RESOLVED** that the Board of Directors hereby adopts amendments to the Balanced Competition policy as shown in the attached:

1. Allowing a single firm to be the prime contractor for up to three (instead of two) program management contracts at the same time; and
2. Eliminating the policy's limitation on subcontracts.

Moved by:

Seconded by:

Vote:

In favor:

Abstained:

Opposed:

4.09.000-P Rules to Assure Balanced Competition for Energy Trust Program Management Contracts

History			
Source	Date	Action/Notes	Next Review Date
Board Decision	August 7, 2002	Approved (R122)	August 2005
Board	December 15, 2004	Waived two-program limit for Efficient Facility Operations RFP (R305)	December 2007
Board	April 9, 2008	Amended (R470)	March 2011
Policy Committee	March 8, 2011	Reviewed, no changes	March 2014
Board	May 23, 2012	Amended (R630)	May 2015

1. *Arrangements for regulated utility information and referrals.* The Energy Trust will arrange directly with regulated utilities for information and referrals that help the Energy Trust reach the public, and come as a byproduct of the regulated role. The Energy Trust and utilities will work together to determine what activities and information will be made available with or without fee. Examples:

- Coordination of 1-800 response for household and business efficiency inquiries
- Qualification of leads coming from utility/customer relationships and referral to programs
- Access to historic energy usage data as requested by utility customers
- Access to utility-generated consumer demographic information for evaluation and/or marketing purposes
- Utility customer representative role in marketing

Thus, ~~these~~ these capabilities will not influence selection of program management contractors.

Rationale

These are services that stem from the natural monopoly role of the utility.

They are unique and real assets, but not appropriate for the competitive bid.

1. *Limitation on number of program management contracts awarded to a single contractor.*

No single firm, including other companies under the same ownership and affiliates, will be a contractor for more than ~~two~~ three concurrent program management contracts.

- ~~1. A single firm, including other companies under the same ownership and affiliates, with two concurrent program management contracts may also be a subcontractor of other program management contracts if none of the subcontracts is responsible for more than 33% of a program's energy savings goals.~~
- ~~a. This limitation does not extend to or apply to contracts associated with NW Natural programs in Washington State.~~

3. This limitation does not apply to subcontracts for installation or technical work (studies, commissioning, etc.) that are awarded to multiple contractors as part of implementation of a single program.

Rationale

Energy Trust needs to maintain a competitive market for program management. If one competitor wins all slots, others will not develop the skills, nor are they likely to bid in the future.

4. *Limitations on participation of regulated personnel in competitions for program management contracts.* With the exception of utility work for which Energy Trust contracts in connection with supplemental energy efficiency activities pursuant to the 2007 Renewable Energy Act, an individual within a regulated utility cannot perform work under an Energy Trust contract for program management *and* perform work as part of the regulated utility (i.e., functions billed to ratepayers) in Oregon.

Rationale

- *Regulated utilities have their own objectives, which in some cases include maintaining and building load. It would be difficult to manage employees who also report to a regulated utility and its objectives as “first boss.”*
- *To have ratepayers pay for part of the cost of an FTE that was used for competitive Energy Trust work would make it difficult for others to compete.*

5. *No review of work of related companies.* Neither a program management contractor to the Energy Trust nor organizations under the same ownership or affiliates may perform work under separate contract that would be submitted to the program management contractor for review on behalf of the Energy Trust. This type of work includes recommendation of efficiency measure brands, models or performance, technical analysis of savings, or equipment installation or commissioning.

Rationale

Avoids having program management contractors review their own work.

Reduces consumer confusion about roles.

CLEAN VERSION:

4.09.000-P Rules to Assure Balanced Competition for Energy Trust Program Management Contracts

History			
Source	Date	Action/Notes	Next Review Date
Board Decision	August 7, 2002	Approved (R122)	August 2005
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 - Coordination of 1-800 response for household and business efficiency inquiries
 - Qualification of leads coming from utility/customer relationships and referral to programs
 - Access to historic energy usage data as requested by utility customers
 - Access to utility-generated consumer demographic information for evaluation and/or marketing purposes
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These capabilities will not influence selection of program management contractors.

Rationale

These are services that stem from the natural monopoly role of the utility.

They are unique and real assets, but not appropriate for the competitive bid.

2. *Limitation on number of program management contracts awarded to a single contractor.*

No single firm, including other companies under the same ownership and affiliates, will be a contractor for more than three concurrent program management contracts.

3. This limitation does not apply to subcontracts for installation or technical work (studies, commissioning, etc.) that are awarded to multiple contractors as part of implementation of a single program.

Rationale

Energy Trust needs to maintain a competitive market for program management. If one competitor wins all slots, others will not develop the skills, nor are they likely to bid in the future.

4. *Limitations on participation of regulated personnel in competitions for program management contracts.* With the exception of utility work for which Energy Trust contracts in connection with supplemental energy efficiency activities pursuant to the 2007 Renewable Energy Act, an individual within a regulated utility cannot perform work under an Energy Trust contract for program management *and* perform work as part of the regulated utility (i.e., functions billed to ratepayers) in Oregon.

Rationale

- *Regulated utilities have their own objectives, which in some cases include maintaining and building load. It would be difficult to manage employees who also report to a regulated utility and its objectives as “first boss.”*
- *To have ratepayers pay for part of the cost of an FTE that was used for competitive Energy Trust work would make it difficult for others to compete.*

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Rationale

Avoids having program management contractors review their own work.

Reduces consumer confusion about roles.

Board Decision Executive Director Transition Committee

May 20, 2015

RESOLUTION 745 EXECUTIVE DIRECTOR TRANSITION COMMITTEE

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 wishes to create an Executive Director Transition Committee in light of the current executive director's planned retirement at the end of calendar year 2016.

It is therefore RESOLVED:

1. The Board of Directors hereby creates an Executive Director Transition Committee to serve until Energy Trust fully completes its transition to a new executive director.
2. The Board of Directors hereby appoints the following directors to the Executive Director Transition Committee:

Ken Canon, Chair

Debbie Kitchin

John Reynolds

Mark Kendall

Susan Brodahl

Elaine Prause, OPUC Liaison

Moved by:

Seconded by:

Vote:

In favor:

Abstained:

Opposed:

Board Decision

Executive Director Annual Review

May 4, 2015

Summary

The Executive Director Review Committee conducted an annual review process for Margie Harris' 2014 performance. The results of this performance evaluation process lead them to recommend an increase in compensation.

Background

- The Executive Director Review Committee, including chair Roger Hamilton, John Reynolds, Melissa Cribbins, Ken Canon, Debbie Kitchin (*ex officio*) and Dan Enloe (*ex officio* from Compensation Committee) conducted the review process in April and May 2015. Mark Kendall also participated.
- Results of a survey of opinions offered to 52 stakeholders, including board members, staff members and external parties, reflected very positive ratings of Margie's performance in the following categories:
 - Leadership
 - Managing and Coaching
 - Achievement
 - Influence
 - Succession Planning
 - Decision Making
 - Communication
 - Accountability
 - Resource Management
 - Initiative
 - Teamwork
- An evaluation of Margie's performance compared to her 2014 work plan goals demonstrated she is performing at a very high level.
- Margie's current salary remains below mid-point of her assigned salary level. The salary level is determined by a periodic market survey of comparable positions.

Discussion

- Based on both the performance survey and the committee's evaluation of Margie's performance as outstanding, the committee recommends an increase to Margie's compensation.
- The Committee will be working with Margie to develop a work plan for 2015 describing her major goal targets for the year.

Recommendation

The Executive Director Review Committee recommends awarding a merit increase of 4.0% and a market adjustment of 4.0% to be awarded effective February 1, 2015.

**RESOLUTION 746
EXECUTIVE DIRECTOR PERFORMANCE REVIEW**

WHEREAS:

1. Energy Trust's Executive Director Review Committee completed its evaluation of Margie Harris' performance in 2014.
2. The committee evaluated Margie's performance as outstanding.
3. The Executive Director Review Committee also considered the following in proposing a merit increase from the review:
 - a. Energy Trust's existing salary structure and Margie's current salary position on that range.
 - b. Periodic survey and market analysis of comparable position salaries.

It is therefore RESOLVED:

The Board of Directors authorizes a merit award increasing Margie's salary by 8.0% effective February 1, 2015.

Moved by:

Seconded by:

Vote:

In favor:

Abstained:

Opposed:

Tab 2

Briefing Paper

Cascade Energy Contract Extension for Production Efficiency Streamlined Industrial Initiative

May 20, 2015

Summary

Staff recommends extending the program delivery contract with Cascade Energy, Inc. (Cascade) for the Production Efficiency Program's Streamlined Industrial Initiative (previously referred to as the Small Industrial Initiative) one additional year, from January 1, 2016 to December 31, 2016. Under the board resolution approving the three-year contract which expired at the end of 2014, the executive director may extend the contract for up to two one-year extensions, if extension criteria are met and the board does not object. This is the second of the one-year extensions.

Background

The Streamlined Industrial Initiative (SII) serves industrial and agricultural customers through a variety of vendor-delivered prescriptive and simple calculation-based efficiency measures. These customers have previously been difficult to reach through the high-touch model typically used to serve medium to large industrial facilities. 57 projects were completed in 2007, the year SII launched, continually increasing to over 530 projects in 2014. SII is the largest track in terms of project volume in the Industry and Agriculture sector. SII has helped to diversify the sources of sector energy savings, representing just under 10% of sector electric savings and 35% of sector gas savings in 2014.

In an open, competitive process, Energy Trust issued a request for qualifications for a Program Delivery Contractor (PDC) for SII in July 2011. Out of four respondents to the solicitation, Cascade was selected to be the PDC. The contract was given an initial three-year term with an option for two one-year extensions. The 2015 contract amount for Cascade's delivery of SII is \$1,439,000. The current projected contract amount for 2016 is also estimated to be \$1,439,000, but may shift based on program design or savings goal changes or final board-approved 2016 budget amounts.

Discussion

The board resolution authorizing the current SII contract requires that staff first report to the board on Cascade's progress and performance before extending the contract. As discussed below, Cascade has satisfactorily performed across all of the contract extension criteria.

1a. Annual savings goals: In 2014, Cascade achieved 112 percent of their electric savings goal, with 14.9 million kWh of savings, while also achieving 116 percent of their gas goal with over 435,000 therms of savings, an exceptional year overall. 2014 represented the highest amount of annual electric savings achieved through SII to date, exceeding the previous record total in 2013 by an impressive 2.1 million kWh.

1b. Delivery budget management: Cascade continues to professionally manage their contracted delivery resources. As program designs and strategies change, Cascade has shown an adaptability to perform all necessary delivery functions within budget, while maintaining its core focus on acquiring energy savings.

1c. Project pipeline development: As of late April 2015, the SII electric pipeline, including completed projects, was very strong and over 50 percent higher than the 2014 electric pipeline at this time. The gas pipeline has been slower to develop, though this is fairly common at this time of year. Greenhouse projects, in particular, are often identified and completed late in the year.

1d. Trade ally network development: Cascade has maintained its active and successful compressed air and irrigation trade ally networks, but has also appropriately recognized the need to diversify the sources of savings and types of vendors SII works with, including focusing on fast-acting door, refrigeration controls and industrial pumping vendors. Cascade has also increased its outreach staff in more rural locations in an effort to geographically diversify our base of trade allies across technologies.

1e. Data management: Cascade has consistently demonstrated competency in accurately maintaining its internal database, which provides valuable project insight to Energy Trust staff on an annual and ad hoc basis. Individual project data and forms are managed very well, as project reviews and approvals generally flow seamlessly. Data security protocols for information transmittals are consistently adhered to and Cascade has demonstrated to Energy Trust that it has policies and procedures in place to protect sensitive information.

1f. Service to customers and trade allies: Cascade cultivates positive relationships with its vendor network and provides valuable assistance to trade allies and customers alike. Cascade is effective in helping to create efficient delivery processes that minimize administrative time and improve the customer experience.

1g. Marketing coordination: A focus area for 2014, Cascade has coordinated well with Energy Trust staff to better address the need to align Cascade's outreach activities with Energy Trust marketing support. This has been an area of considerable improvement in Cascade's performance that we hope to continue building upon in 2015.

1h. Quality control: Excellent quality control processes are in place, including accurate development and version control of SII's Excel-based calculator tools, consistent onsite project verifications and continual coaching of SII vendors. Cascade's efforts have led to high technical realization rates for energy savings, as determined by third-party evaluators.

1i. Project reporting: Cascade is responsive to requests for information from Energy Trust, including regular project forecasting, and materials such as invoices and monthly reports are accurate and submitted on time.

2. Teamwork: Cascade continues to work cooperatively with all PDCs on exchanging project leads and with Program Management Contractors on cross-program referrals. Cascade has acted as a valuable resource to other PDCs in training them on SII offerings and providing project-specific expertise, when needed. Cascade also responded well in 2014 by seeking out and acquiring energy savings in Cascade Natural Gas territory that were much needed at the sector and organizational levels.

Next Steps

Staff recommends that the contract with Cascade for delivery of SII be extended to the end of December 2016. If the board does not object, the executive director has authority to sign a one-year contract extension with Cascade Energy, Inc. to continue delivery of SII.

Briefing Paper

Evergreen Consulting Group Contract Extension for Industrial Lighting

May 20, 2015

Summary

Staff recommends extending the contract with Evergreen Consulting Group, LLC (Evergreen) for industrial lighting delivery services for the Production Efficiency Program (Program), one additional year, from January 1, 2016 to December 31, 2016. Under the board resolution approving the three-year contract which expired at the end of 2014, the executive director may extend the contract for up to two one-year extensions, if extension criteria are met and the board does not object. This is the second of the one-year extensions.

Background

The Industrial Lighting Program Delivery Contractor (PDC) develops and trains Energy Trust's industrial lighting trade ally network, acts as a technical resource, helps develop useful calculator tools, coordinates with other Program contractors, as needed, and facilitates submitted industrial lighting energy efficiency projects through the program to deliver energy savings.

In an open, competitive process, Energy Trust issued a request for qualifications for a PDC for industrial lighting in July 2011. Out of two respondents to the solicitation, Evergreen was selected to be the PDC. The contract was given an initial three-year term with an option for two one-year extensions. The 2015 contract amount for Evergreen's industrial lighting delivery is \$1,248,000. The current projected contract amount for 2016 is also estimated to be \$1,248,000, but may shift based upon program design or savings goal changes or final board-approved 2016 budget amounts.

Discussion

The board resolution authorizing the current industrial lighting contract requires that staff first report to the board on Evergreen's progress and performance before extending the contract. As discussed below, Evergreen has satisfactorily performed across all of the contract extension criteria.

1a. Annual savings goals: While 2013 was an off-year in terms of energy savings for industrial lighting, Evergreen responded with a spectacular 2014, increasing their savings achievement by 45 percent and reaching 103 percent of savings goal. Performance was also strong in 2011 and 2012, the first two years of this contract cycle, when "stretch" savings goals were achieved.

1b. Delivery budget management: Evergreen continues to professionally manage their delivery efforts within contracted budget amounts. Evergreen effectively leverages its work on other Energy Trust programs by lining up procedures and processes, when appropriate, thereby reducing delivery spending per program. In 2014, Evergreen did a particularly good job in addressing the specific needs of the Production Efficiency program amid this cross-program work.

1c. Project pipeline development: As of late April 2015, the project pipeline stood at nearly 25 million kWh, including completed projects, approximately 5 percent higher than at this time in 2014. This is the largest lighting pipeline the Program has ever had at this time of year.

1d. Trade ally network development: Evergreen has grown a robust and highly active trade ally network. The support they provide trade allies and the positive relationships they cultivate are one of Evergreen's strength. Trade ally surveys indicate that Evergreen's semi-annual trade ally trainings are well-delivered and well-received events. Early in 2015, Evergreen also began offering smaller trade ally trainings in more rural parts of the state that have also been successful.

1e. Data management: Individual project data and forms are managed well, as project reviews generally flow seamlessly. Data security protocols for information transmittals are consistently adhered to and Evergreen has demonstrated to Energy Trust that it has policies and procedures in place to protect sensitive information.

1f. Service to customers and trade allies: As mentioned previously, Evergreen provides valuable assistance to trade allies and customers alike. Surveys with past participants have shown high satisfaction with Evergreen's level of service. Should customer service issues arise, Evergreen follows the proper protocol and acts professionally.

1g. Marketing coordination: Evergreen does a good job of coordinating with Energy Trust staff on marketing activities. Evergreen has demonstrated a good understanding of Energy Trust branding guidelines and provides staff with quality marketing-related content on a timely basis.

1h. Quality control: Consistent onsite project verifications, continual coaching of lighting trade allies on program requirements and processes and thorough internal project review have led to high technical realization rates for energy savings, as determined by third-party evaluators. Effective versioning controls are in place to manage the distribution of the cross-program lighting calculator to the large trade ally network.

1i. Project reporting: Evergreen is responsive to requests for information from Energy Trust and materials such as invoices and monthly reports are nearly always accurate and submitted on time. Evergreen's monthly report, submitted across Energy Trust programs, provides extensive detail on projects in the pipeline and offers great insight into what is happening in the field.

2. Teamwork: Evergreen has continued to work cooperatively with all PDCs on exchanging project leads and has taken a proactive approach to meeting with Custom PDCs, sharing lighting project forecasts in their territories and actively tracking leads. Evergreen has acted as a valuable resource to other PDCs in training them on lighting offerings and providing project-specific expertise, when needed.

Next Steps

Staff recommends that the contract with Evergreen for industrial lighting be extended to the end of December 2016. If the board does not object, the executive director has authority to sign a one-year contract extension with Evergreen to continue industrial lighting delivery services.

Briefing Paper

CLEAResult Contract Extension for New Buildings

May 20, 2015

Summary

Absent board objection, Energy Trust staff proposes to extend the contract for the New Buildings program management contractor (PMC) with CLEAResult (formerly Portland Energy Conservation Inc. (PECI)) for two years, from January 1, 2016 to December 31, 2017. The existing contract with CLEAResult is for two years from January 1, 2014 to December 31, 2015, with the option of three additional year extensions. Staff now proposes to extend the contract for an additional two years, from January 1, 2016 to December 31, 2017.

This proposal is conditioned on board approval of the proposed revisions to the Balanced Competition Policy to increase the permitted number of program management contracts with a single firm from two to three. Following CLEAResult's acquisition of PECI contracts, CLEAResult has been a PMC for three Energy Trust program management contracts under a board-approved exemption to the Balanced Competition Policy approved in 2014.

Background

- The New Buildings program provides technical assistance and financial incentives for new buildings, major renovations and tenant improvements, provides training and education to allies to advance design and construction practices and broaden the application of new savings strategies through offerings including Path to Net Zero and Market Solutions for small commercial building owners and businesses.
- In September 2013 (resolution 676), the board authorized a contract with PECI for program management and delivery services with a first-year budget of \$4,500,000 and future annual budgets consistent with board-approved annual budgets and action plans.
- The 2013 authorizing resolution included a provision allowing staff to offer up to three additional year extensions if the program management contractor meets certain established performance criteria, and the board resolution also directed staff to report to the board on PECI's progress toward meeting contract extension criteria, and recommend whether to extend the contract. Staff recommends a two year extension at this time.
- If the board does not object to the recommended extension, and as this program management contractor (PMC) contract approaches the end of its extended term, staff will consider whether it is appropriate and desirable to extend the contract for one additional year and will brief the board at that time.
- The 2016 and 2017 New Buildings program budgets will be known when the board adopts the 2016 and 2017 budgets and it is expected that the contract would be amended to add budget and savings goals consistent with the board-approved budgets and action plans for those years.
- Staff considered whether a one-year extension should be exercised rather than two years, and recommends a two-year extension at this time to provide stability in the program to:
 - Allow staff to complete several long-term initiatives, Path to Net Zero and Trade Ally training and education development
 - Integrate two new market solutions incentive packages

- Position the program for upcoming energy code changes

Performance Criteria Discussion

Staff has assessed PMC performance against the following criteria and determined that the PMC has satisfactorily performed in these areas in this contract period:

1. Cross-program referrals: PMC has worked cooperatively with other PMCs on cross-program referrals, providing leads to Existing Buildings, Production Efficiency and is actively delivering Solar, and providing comprehensive service in all areas of Energy Trust service territory.
2. Project pipeline: At the close of 2014 there were 364 projects complete, totaling 46 million kWh and 675,940 therms. As 2014 projects were completed, PMC enrolled 327 new projects to build a strong pipeline leading into 2015-2016. A great majority of projects and savings expected to close in 2015 are from buildings <70,000 square feet.
3. Innovation: PMC is delivering market solutions and Path to Net Zero streamlined offerings. The program is positioned well to respond to shifts in market needs, the economy, updates to the Oregon Energy Efficiency Specialty Code and also advance technologies entering the market, such as new Heating Ventilation and Cooling technologies and lighting controls.
4. Teamwork: Offerings and program delivery are tailored to markets resulting in positive market feedback and robust savings; in 2014 customer satisfaction with the overall program was 97 percent and satisfaction with program representatives was 100 percent. Program development is comprehensive, managed well and is driving results in this contract period. PMC has actively expanded statewide program delivery and expanded training and education to advance design practice among architects, engineers and design consultants and contractors.
5. Deliverables: PMC is responsive to requests for information. Materials such as invoices and monthly reports are submitted on time. PMC has consistently met deadlines for contract deliverables and has been responsive to making program updates related to cost-effectiveness changes, energy codes and additional requirements.

In 2013, PMC ACHIEVED their electric savings goal, achieving 86.8 million kWh of savings, and also ACHIEVED their gas savings goal, achieving 461,000 therms of savings.

In 2014, PMC ACHIEVED their conservative electric savings goal, achieving 46 million kWh of savings, and also ACHIEVED their gas savings stretch goal, achieving 676,000 therms of savings.

Next Steps

Absent board objection, staff will extend the New Buildings program management contract with the PMC through December 31, 2017.

Tab 3

Evaluation Committee Meeting

March 31, 2015 12:00-3:00 pm

Attendees

Evaluation Committee Members

Alan Meyer, Board Member, Committee Chair
Ken Keating, Expert Outside Reviewer
Heather Beusse Eberhardt, Board Member
Susan Brodahl, Board Member
Anne Root, Board Member (phone)

Energy Trust Staff

Steve Lacey, Director of Operations
Fred Gordon, Director of Planning and Evaluation
Phil Degens, Evaluation Manager
Sarah Castor, Evaluation Sr. Project Manager
Dan Rubado, Evaluation Project Manager
Erika Kociolek, Evaluation Project Manager
Andy Eiden, Data Analyst
Anna Kelly, Evaluation Intern
Adam Shick, Planning Project Manager
Jackie Goss, Planning Engineer
Sue Fletcher, Sr. Manager, Communications and Customer Service
Peter West, Director of Energy Programs
Spencer Moersfelder, Sr. Program Manager, Commercial
Thad Roth, Residential Sector Lead
Marshall Johnson, Sr. Program Manager, Residential
Mark Wyman, Residential Program Manager

Other Attendees

Christopher Frye, Northwest Energy Efficiency Alliance

Alan commented that he floated the idea of having evaluation staff give a presentation about evaluation at Energy Trust at the July 29th board meeting, and other board members agreed it was a good idea.

1. Short Take: New Homes Billing Analysis

Presented by Dan Rubado

Dan has been working on a billing analysis looking at new homes. The analysis compared modeled to actual energy usage to look at the accuracy of the modeled energy use estimates used to calculate savings for the EPS track of the New Homes program.

Background & Goals: The New Homes program has provided performance-based incentives to home builders through its Energy Performance Score (EPS) track since 2009. Program verifiers go out and audit EPS homes and, based on the information they collect, model the energy use of homes using REM/Rate software. Modeled energy performance is compared to a baseline, standard home built to Oregon state code. Energy Trust decided to do an internal analysis of EPS home energy use and compare to modeled usage. The goal of the analysis is to determine

the accuracy of modeled energy use in EPS homes built between 2009 and 2011 by comparing to actual energy use data.

Fred commented that the premise is that if the model has energy use about right, it will also be right about savings. However, here we are not measuring the difference in loads to look at savings, we're just comparing modeled to actual use to evaluate whether the model is a good tool. Ken commented that he thought this was a large jump made in the paper. The paper only looks at actual consumption data and compares to modeled, but doesn't look at savings. It seemed to make the leap that if the model works for estimating consumption, it also works for estimating savings. The paper establishes clearly that the tool is a good one for the program, but you can't know from the analysis if the savings are accurate.

Dan clarified that the analysis does not look at savings, it just compares homes' modeled use to actual energy use to see whether or not the modeling tool properly predicts energy use. Its purpose within the program is to calculate energy savings. Chris asked if modeled energy use is synonymous with code. Dan responded that code assumptions are used to create a code baseline for each home. The program claims savings based on the difference between the modeled home and a modeled (theoretical) code home. Mark commented that in a few instances, the reference home used in modeling deviates from code; for example, where we understand the market has advanced past code, such as baseline gas heating equipment.

Phil commented that this is the first in a series of analyses focused on new homes. We wanted to segment the analyses into a series of digestible pieces focused on answering a specific question. Alan commented that he understands Ken's concern. It sounds like these findings validate the REM/Rate tool for estimating energy use. Ken commented that it doesn't say anything about savings – it just concludes that the tool does a good job of modeling energy use. Phil responded that the next step is to dig into savings. Dan noted that the working theory is that if the tool can reasonably predict energy use, the savings are also reasonable; however, as Phil noted, we will dig into that question in a subsequent analysis.

The table below is a summary of program activity for 2009-2011. EPS started mid-way through 2009; some program homes included in the analysis are not EPS homes, they are whole-home projects in the program. The total savings in each year is fairly small; in these years, the program was not large. The program market share is also relatively low, but this has increased significantly in recent years (in 2013, market share was north of 30%).

New homes program activity, 2009-2011

Year Built	N	Mean Sq.Ft.	Total Therm Savings	Total kWh Savings	% Gas Heat	% Electric Heat	Program Market Share
2009	705	2,453	105,109	821,483	81%	18%	13%
2010	611	2,120	72,512	472,218	79%	21%	13%
2011	814	2,165	116,366	686,424	84%	16%	20%

Methods: We gathered electric and gas utility billing data and matched it to 2009-2011 program homes. We weather-normalized the data for each home using regression methods. Billing data was analyzed for each post-occupancy year, starting with the year after each home was built,

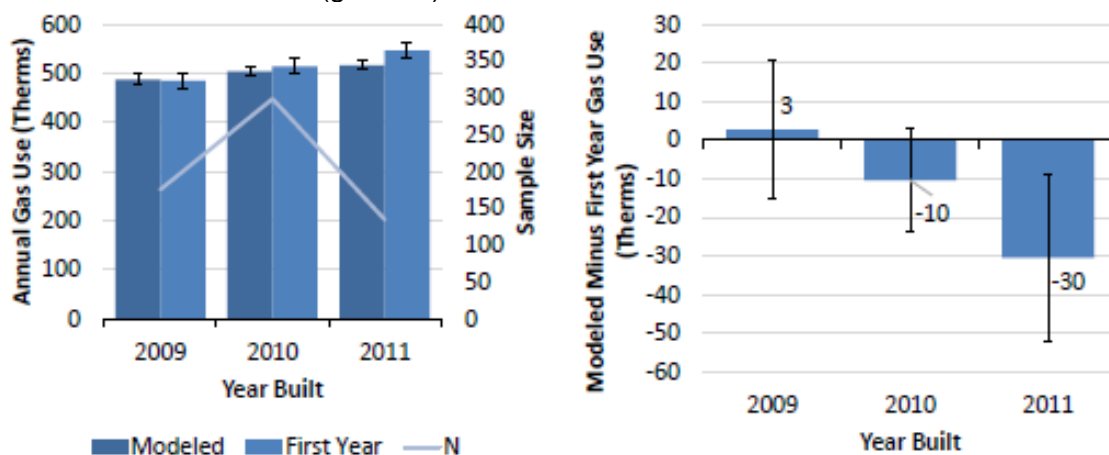
up to 2012. The analysis was done separately for primary heating fuel (gas heated homes were analyzed separately from electrically heated homes). Heating fuel was determined using each home's heating signature. Program documentation on heating fuel was not 100% accurate, so we went back and empirically decided whether homes were gas-heated or electrically-heated. We then removed homes that had bad or missing data, were outliers, or didn't meet analysis criteria. Once we had a final clean sample for each group of interest, we compared modeled to normalized annual usage with paired t-tests.

Results: To be in the analysis sample, homes had to be in western Oregon and had to match to energy use data. We also had to be able to determine a home's primary heating fuel and homes had to have modeled annual energy use data. We excluded homes with solar PV, homes that had major issues with energy use data, and any outliers in energy use (low or high).

For gas-heated homes, a large number of 2009 homes dropped out of the analysis (they were built prior to the full implementation of EPS). Also, a large number of 2012 gas billing records were missing from Energy Trust's database. Alan commented that EPS for gas homes is consistently higher than EPS for electric homes. He asked if Energy Trust had come up with a method to adjust for site vs. source energy. Mark responded that a correction factor is employed to balance scores for gas and electric homes since electric heat pumps are inherently more efficient than gas furnaces. Mark added that the efficiency baselines also differ because of transformation of the gas furnace market over time. Fred commented that this fudge factor to account for heat pumps was implemented after the years analyzed in this study.

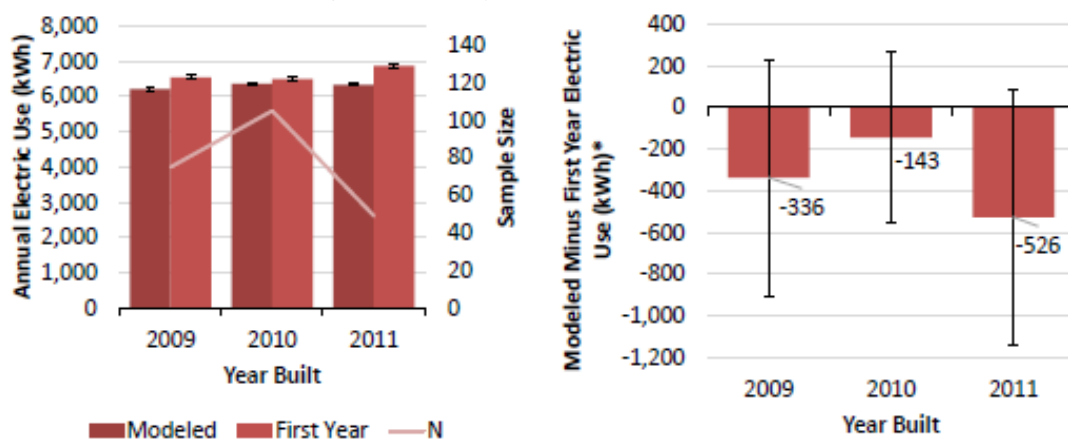
The graphs below show modeled and first year normalized gas use for gas-heated homes. In the graph on the left, the dark blue bars show modeled use and the lighter blue bars show first-year normalized gas use. The graph on the right shows the difference between each pair of bars in the graph on the left. In the graph on the right, a result above zero means the model is overestimating energy use and a result below zero means the model is underestimating energy use. In 2011, there was a significant difference between modeled and actual use for the first year of occupancy; however, 30 therms is less than 10% of annual usage, and is within the bounds of what is expected in an output from a model. This suggests that the model is reasonably accurate.

Gas-heated home results (gas use)



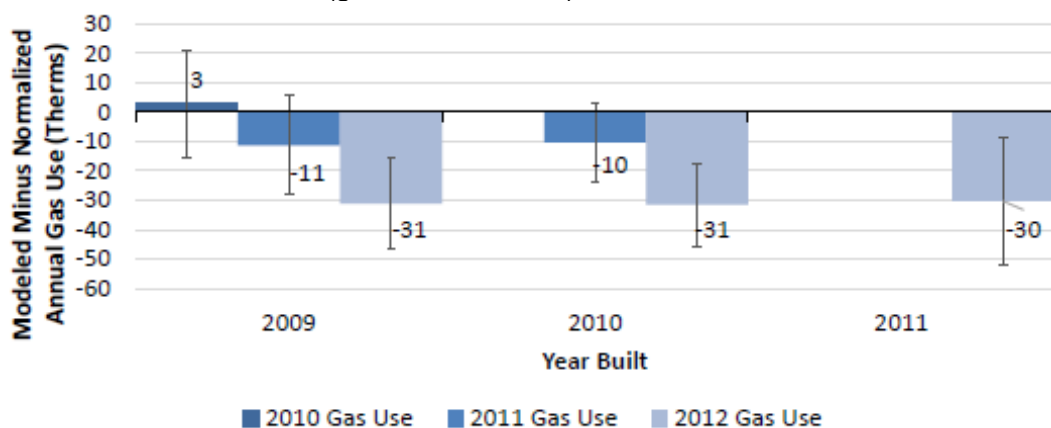
The graphs below compared modeled use to electric baseload use for gas-heated homes. In all cases, the model is slightly underestimating the electric baseload use in the first year of occupancy, however, due to high variability, the difference between modeled and actual use is not statistically significant. Also, these differences are fairly small (as a percent of annual electric use). This also suggests that the models are relatively accurate for electric baseload use for gas-heated homes in the first year of occupancy.

Gas-heated home results (electric use)



If we compare modeled and normalized gas use over time, we do see a divergence from modeled use as gas usage creeps up year over year. As shown in the graph below, for 2009, the difference is significant only in the third year of occupancy, and it is a relatively small difference (30 therms). We see a similar pattern for 2010 homes in the second year of occupancy.

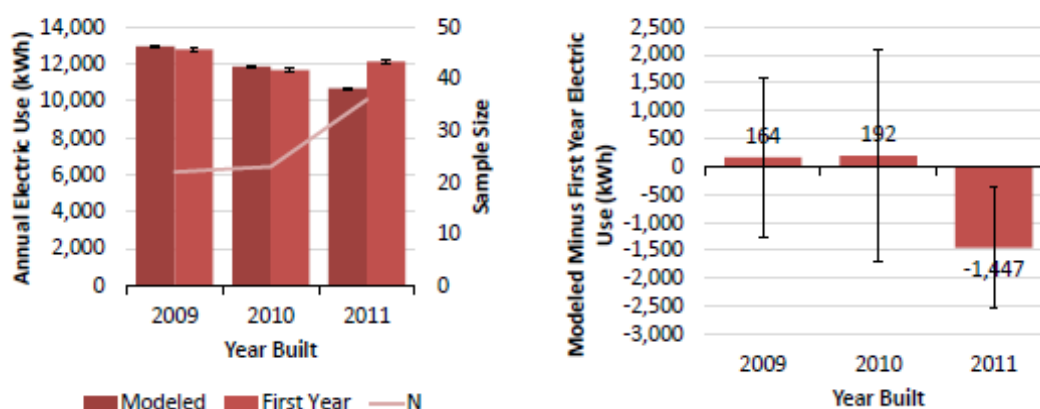
Gas-heated home results (gas use over time)



Alan asked if it is possible that 2012 just happened to be an anomaly where usage was high for everybody. Dan commented that it's likely more about the sample itself; we lost a big chunk of the sample due to missing data, so we're working with a smaller sample size relative to other years, and this would cause more random variation. Ken commented that this is an interesting issue. The first year comparison is the most important, and there could be a lot of things happening that explain the divergence over time.

We now turn to look at results for electrically-heated homes. It's worth noting that there are very few electrically-heated homes in the program, so sample sizes are quite small. The graph on the left below shows modeled use (dark red) and first year electric use (lighter red), and the graph on the right shows the difference between the pairs of bars in the graph on the left. In 2009 and 2010, there are no detectable differences. However, in 2011, there is a significant difference between modeled and actual use; this is almost 13% of annual usage. It's difficult to say whether this is an important difference or a random fluctuation given the small sample size. We performed the analysis a few different ways, and depending on which homes ended up in the final sample, the results changed dramatically. Fred asked if it could be something related to differences in the mix of measures at play in 2009-2011. Mark responded that the program will dig into this more.

Electrically-heated home results (electric use)



There was no discernible pattern when looking at electric usage over time for electrically-heated homes.

Conclusions: The New Homes program appears to have accurately modeled energy use in EPS homes, and REM/Rate is a valid modeling tool. Differences from modeled energy use were less than 10% in almost all the years of data analyzed. Energy modeling for gas-heated homes in particular appears to be in close alignment with actual use. There is some indication that usage creeps up over several years of occupancy, which we will continue to track as more data become available. Finally, sample sizes of electrically-heated homes were too small to draw any real conclusions.

Fred said that it's remarkable that the program does such a good job of modeling because there is so much variability in the home environment. The program protects its investments by paying incentives based on estimated performance. Mark said it's good to know the model works well, but this means that a lot of other things are working as well, such as program QC procedures, verifiers correctly using the modeling tool, and honest and accurate reporting of information gathered from sites. Jackie said that we should look into how often REM/Rate software changed versions during this time period. Version updates could have caused changes in estimated usage and there was a big version update in 2011 and smaller ones every year. Chris said we might look at what's disappearing from the sample each of those years, because there were significant differences in 2011. Thad said that REM/Rate is used nationally, but now there is a Northwest version. There are other efforts around the country to determine the accuracy of REM/Rates modeled estimates and they are continually improving and validating the model with

usage data. Phil said that this is just a draft report and that we are sending it out for review by third party reviewers at Energy Center of Wisconsin and DNV GL. Scott Pigg, the reviewer at Energy Center of Wisconsin, is also researching the validity of using REM/Rate for modeling home energy use in other parts of the country. However, there is not a long history of this quality of research for home energy modeling software. Jackie added that the EPS score was corrected for differences in gas and electric heating efficiency in 2012/2013 and that this analysis was done only with older scores, so we don't see any of the corrected scores in this analysis.

2. 2012 Existing Buildings Impact Evaluation

Presented by Dan Rubado

Overview: Energy Trust hired Cadmus to evaluate the 2012 Existing Buildings program, which involved sampling projects; recruiting sites; reviewing project documentation and data; conducting site visits to verify measure installation, collect data, and interview facility staff; performing engineering analysis of measures; and calculating savings and realization rates.

Sampling: Cadmus sampled 2012 projects using three program tracks: standard, lighting, and custom. The sample was stratified within the standard and custom tracks: Cadmus created a census stratum to ensure the largest projects were visited, and several randomly selected strata for projects with electric and gas savings, projects with only gas savings, and projects with only electric savings. Lighting projects were randomly sampled. The program was interested in having an oversample of custom HVAC and controls projects; many of them were included via the census stratum. We under-sampled lighting projects because of the long history of lighting having achieving realization rates of near 100%; we did not think we could learn anything more by including many lighting projects in the mix, and this was a place we could safely under-emphasize. We excluded pilot projects and rooftop unit tune-ups from the sample.

As shown in the table below, the sample contains 3% of the total 2012 projects, 23% of the electric savings in 2012, and 54% of the gas savings in 2012.

Sample as a proportion of 2012 program

Group	# of Projects	# of Measures	Reported kWh Savings	Reported Therm Savings
Program	2,756	8,072	91,319,647	1,498,629
Sample	74	202	20,868,215	801,844
Sample Portion	3%	3%	23%	54%

When we look at the sample by measure category (in the table below), we can see that it captured a variety of standard track measures, including HVAC, insulation, kitchen, water heating, and server virtualization/IT. On the custom side, the sample included controls, HVAC, and other. Lighting was also included in the sample.

Reported savings and number of measures, by measure category

Measure Category	Number of Measures	Reported kWh Savings	Reported Therm Savings
Standard HVAC	19	-	97,293
Standard Insulation	5	213,944	15,495
Standard Kitchen	11	10,864	2,706
Standard Water	6	742	9,142
Standard Virtualization/IT	6	1,340,415	-
Custom Controls	19	8,035,190	302,982
Custom HVAC	36	9,387,676	367,901
Custom Other	12	273,173	6,325
Lighting	88	1,606,211	-
Total 2012 Sample	202	20,868,215	801,844

Document Review: The document review involved examining project documentation on installed equipment, information about savings calculation methodologies, and energy simulation models and billing data.

Site Verification Visits & Engineering Analysis: Site visits focused on three primary tasks: verifying the installation of all measures, collecting physical data required to analyze energy savings, and conducting interviews with facility operations staff. The level of engineering analysis conducted for measures depended on the type of measure. For standard track measures, the evaluator verified that measures met efficiency requirements, matched project documentation, and had the correct quantities. They also verified that the measure was properly installed, and verified operating hours and set-points. Billing analysis was conducted for a few larger measures. For lighting measures, the evaluator verified fixture wattages, quantities, and operating hours. For lighting controls, the evaluator focused on proper installation, functionality, and operating hours. Custom measures had the most extensive analysis: the evaluator verified equipment installation, verified quantities and operating conditions, adjusted program calculations and simulation models to reflect as-built parameters, and conducted billing analysis. Heather asked if these were desktop audits or site visits. Dan responded that for the majority of projects, the evaluator did conduct site visits, but in cases where there wasn't anything to see (such as a server virtualization project), the evaluator would interview site staff in lieu of conducting a site visit.

To calibrate simulation models, the evaluator quantified the as-built construction characteristics; system operational characteristics; and measure quantities, capacities, and efficiencies. The evaluator used the original models created by project teams and reviewed assumptions and performance variables for each building to revise the inputs for the as-built conditions. They calibrated the models to annual electric and gas usage and compared to the baseline model to determine actual annual energy savings.

To calculate program realization rates, the evaluator used realization rates for each sample stratum based on projects sampled from the stratum. The realized stratum-level savings were computed as the reported savings multiplied by the stratum-specific realization rates. The total realized program savings were computed as the sum of all stratum-level savings. The overall program-level realization rates were calculated as the ratio of total realized savings to total reported savings.

The table below shows realization rates by sample stratum.

Un-weighted results by sample stratum

Sampling Stratum	Total Measures	Realization Rate	
		Electric Savings	Gas Savings
Standard Census	6	43%	11%
Standard Electric & Gas Large	5	100%	100%
Standard Electric & Gas Small	6	100%	100%
Standard Electric Only Large	4	65%	-
Standard Electric Only Small	4	114%	-
Standard Gas Only Boiler Large	10	-	100%
Standard Gas Only Boiler Small	5	-	99%
Standard Gas Only Other	7	-	100%
Custom Census	21	59%	81%
Custom Electric & Gas Large	11	112%	11%
Custom Electric & Gas Small	11	74%	57%
Custom Electric Only Large	14	82%	-
Custom Electric Only Small	5	158%	-
Custom Gas Only	5	-	79%

Alan asked what the Custom Census stratum means. Dan responded that it contains the largest projects that were not randomly sampled. Heather asked what 158% means for the Custom Electric Only Small category. Dan responded that a realization rate over 100% means the measures performed better than anticipated. Fred added that common reasons for high realization rates include longer operating hours or the installation of more equipment than was expected.

The table below shows realization rates by measure category. The Standard HVAC, Standard Virtualization/IT, and Custom Controls measure categories have relatively low realization rates. Lighting has had very consistent realization rates. Alan commented that he would have thought that custom measures, which include a lot of analysis and review, would have a higher realization rate than standard measures, which use rules of thumb. So, why do custom measures have lower realization rates? Dan responded that custom projects had variable realization rates. Some projects were decommissioned, which resulted in zero savings, and others functioned better than expected, resulting in higher savings. The spread was between 0% and 200%, and this high variability is due to the fact that these are large, complicated buildings with large, complicated custom projects. Ken added that before a measure is defined as “standard” there is a lot of data collected and analyzed to support the deemed measure.

Unweighted results by measure category

Measure Category	Total Measures	Realization Rate	
		Electric Savings	Gas Savings
Standard HVAC	19	-	78%
Standard Insulation	5	100%	100%
Standard Kitchen	11	100%	100%
Standard Water	6	100%	98%
Standard Virtualization/IT	6	49%	-
Custom Controls	19	61%	49%
Custom HVAC	36	82%	93%
Custom Other	12	104%	11%
Lighting	88	103%	-

Ken commented that the standard track measures raise the realization rates overall for program, but the things we are most interested in from an evaluation standpoint are custom measures, since they are inherently less known and studied than standard measures. Controls, in particular, take people to operate the controls optimally and these results show that they didn't perform that well. Fred said that once the hardware is in there and operable, our SEM program can get people to operate their buildings and equipment better. Chris asked if we did facility manager interviews or anything else that focused on customers' use of controls (if they had a control system). Dan said that the evaluator talked to participants about how they used their controls, what set points they had, and they looked to see what the controls were actually connected to. Ken said that in past retro-commissioning program evaluations, systems were set up ideally to maximize energy savings, but it didn't work for the facility, so they quickly changed things to less efficient operations, but in a way that worked for them.

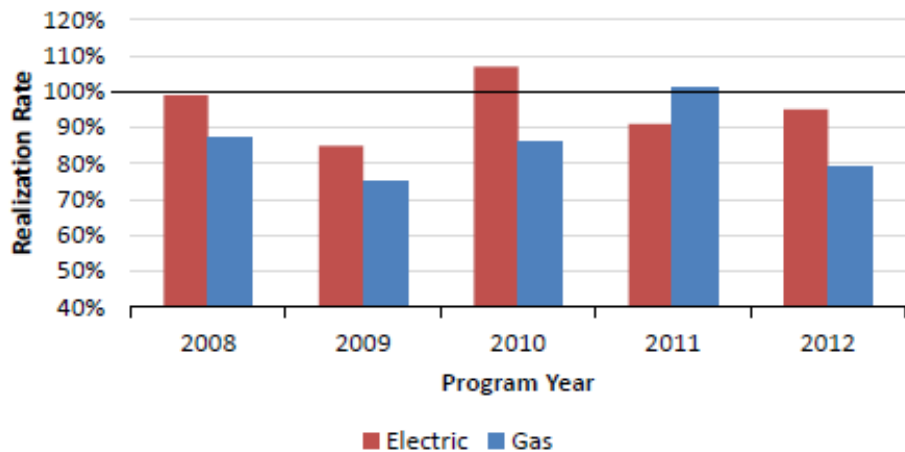
The table below shows the overall program realization rates. For the custom track, the realization rates are 84% for electric and 66% for gas. The realization rate for lighting is 103%. For the standard track, the realization rates are 95% for electric and 118% for gas. The goal was to achieve 90% confidence and 10% precision in these estimates, and we came close: the program overall achieved 90% confidence and 13% precision.

Program and track-level realization rates

Program Track	Total Measures	Realization Rate	
		Electric Savings	Gas Savings
Standard Track	1,103	95%	118%
Custom Track	279	84%	66%
Lighting Track	6,690	103%	-
Total Program	8,072	95%	79%

The graph below shows program-level realization rates over time. Steve asked what the realization rates have looked like over time for the custom and standard tracks; Dan responded that he didn't know, but could pull together that information.

Existing Buildings program realization rates over time



Lighting Track Projects - Lighting had a high realization rate. The reported values generally matched installations. There were a few differences in actual operating hours and alterations in fixture quantities that influenced the realization rate slightly.

Standard Track Projects – In the Standard HVAC measure category, condensing boilers and furnaces were generally accurate. Steam trap measures had high realization rates. There was a large pipe insulation project at a school that dramatically overestimated gas savings. The measure savings were calculated using a workbook, but based on site billing data, the savings were 40% of total usage. Ken commented that in schools, you tend to get overestimated savings, since nobody understands how little the equipment is used. Dan responded that deemed savings are adjusted based on space use, but even so, this was a big project with a lot of savings, and it heavily impacted the realization rate for this category. Measures in the Standard Insulation, Kitchen, and Water Heat measure categories achieved 100% realization rates.

The Standard Virtualization/IT measure category achieved a 49% electric realization rate; this had a large impact on the Standard track realization rate. One PC power management project was not implemented and another had unit savings less than half of what was estimated. Server virtualization at two sites had server consolidation ratios of 3:1, which was much lower than the estimated 10:1. Alan asked, what is a server virtualization measure? Steve responded that servers can be configured to act as virtually 10 other servers. Chris asked how these projects were verified. Dan responded that site staff provided information to the evaluator.

Custom Track Projects – The Custom Controls measure category achieved 61% electric and 49% gas realization rates. This was the biggest contributor to the overall Custom track realization rate. The primary of drivers of low savings included: some systems not functioning as expected or still being commissioned, and setpoints and system settings not matching the assumptions used in savings calculations. Some observed issues probably could have been identified during the PMC review process. Alan asked if for large projects, there is a commissioning step conducted before the full incentive is paid. Phil commented that all projects over a certain threshold are visited to verify installation. Dan added that the PMC conducts site verifications early in the implementation of the measure, and things change after that, so it's difficult.

Conclusions: The program electric realization rate was 95%, and the gas realization rate was 79%. The main contributors to realization rates were Custom Controls measures that had low gas and electric realization rates, Standard IT and Custom HVAC measures that had low electric realization rates, and Standard HVAC measures that had a low gas realization rate.

The evaluator noted that some problems with Custom track measures could have been identified by the PMC during project review. Spencer commented that more detail is needed there. Dan responded that there were 16 projects that had a major issue, and the evaluator estimated that for 10 of them, the issues could have been identified ahead of time. Spencer asked how much more Energy Trust needs to do; in one of these cases, the measure was a control system for a large building, and the control system was not connected to floor isolation dampers. The PMC verified that the control system worked, but not that all the appropriate connections were made. Susan commented that since realization rates impact future savings, the program should invest the time upfront.

Fred commented that some of this relates to the limits of the front end hardware approach vs. creating a different culture for building management that's more related to SEM. This is a much more complicated and long-term approach.

Spencer commented that custom measures involve a lot of time and are highly variable. We need to make sure the PMC is cognizant of key variables influencing the savings of custom measures so that they can create good inspection protocols to ensure measures are properly installed and performing. We try to balance our PMC resources by investing just enough in measure verification to ensure that systems operate properly and that we get the savings we expect. If the PMC knew that the major source of savings from a control system was the operation of floor dampers, then it would be important for them to inspect the damper connections. In general, custom measures take a lot of time and have a lot of variability. Ken said that there are things to learn across all projects evaluated. One is that the PMC needs to account for interactions between measures, and that some of the reasons why savings were calculated incorrectly were because they assumed every measure was additive. They can take care of this problem in the future.

Steve said that the school pipe insulation project was an outlier, and that since it was just one project, we could pull it out since the site represented only itself in the sample. Susan B. asked if there was a decision about when to use prescriptive savings for large projects like this. Spencer said this was a standard, prescriptive measure and it has a simple equation to determine savings based on the average savings of many past projects. So, the program didn't compare the savings that were calculated against the load of the building to see whether the savings made sense. In the future, we may need to have some boundaries for prescriptive measures and do additional checks if the savings are very large.

Spencer commented that the program has to balance between de-rated savings vs. spending additional delivery dollars to accurately inspect and verify every project. Ken said that some of the errors in savings estimates are working in the program's favor. Peter said that our prescriptive measure savings are based on average market conditions and that we may need to periodically re-base those averages. We can't control who is walking through the door, so we need to correct for that. Alan said that we should make sure that prescriptive measures are refined over time. Heather said that the program ensures that participants are designing the right system, are doing QC to ensure the system is built correctly, and are driving realization rates in different areas.

Recommendations: Consider commissioning as a program requirement, consider training facility staff as program requirement, require the project team to provide a verification checklist to facility staff, maintain consistent documentation on simulation model files (making their review by evaluators more efficient), and encourage participants to enable trend data tracking in energy management systems.

Other recommendations were to improve the PMC post-install audit process, improve server virtualization measure savings methods, and implement project savings sanity checks for large Standard track projects (specifically, looking at energy usage for projects saving above a certain threshold).

Energy Trust Take: The program realization rates will be adopted for True-Up. The results are reflective of the past PMC (Lockheed Martin) and next year will be the first year we get a look at ICF's performance. Some changes recommended by the evaluator have already been implemented by ICF or are in the works. Cadmus provided some valid but potentially expensive process improvement recommendations; we will work with the PMC to determine which are feasible and cost-effective.

3. Windows Delphi Study

Presented by Sarah Castor

Background: Apex Analytics performed this study; they have experience doing Delphi panels. The study kicked off in October/November 2014, and the panel was held in mid-February 2015. This study is a follow-up to work initiated in 2013 to establish the current market baseline for residential windows and incremental costs via interviews with window manufacturers. This study included different types of market actors. Energy Trust is considering a market transformation approach to windows; given this, we wanted to construct a defensible baseline.

History: The Northwest Energy Efficiency Alliance (NEEA) led a market transformation effort from 1998-2011 to get the market to a U-value of 0.35. It's worth noting that with U-values, the lower you go, the better (more efficient) the window. Energy Trust has been offering incentives for windows of 0.33 or better in 2003, and has increased the U-value tiers and changed the incentives several times since then. In 2010, the Energy Star specification went from 0.35 to 0.30. Currently, as of 1/1/2015, Energy Trust's windows incentives are \$1.75 per square foot for U-value 0.28-0.30 and \$4.00 per square foot for U-value less than or equal to 0.27.

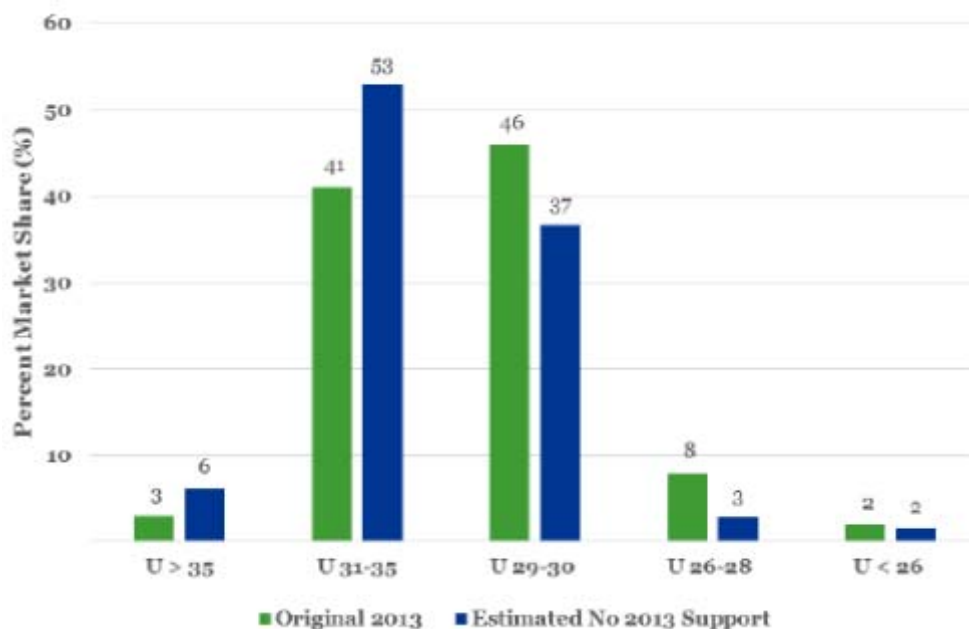
Methodology: For this study, Apex led a Delphi panel, which included window and glass manufacturers, dealers, and other industry experts. Participants were offered a \$350 incentive to participate, which was only paid out to four individuals as the rest were not able to accept. Initially, Apex envisioned that participants would fill out a survey, and then they would hold a webinar to discuss the results. However, only three participants filled out the survey. The survey was not deemed critical, so Apex closed the survey and focused on the webinar. There were seven webinar participants. The webinar was structured such that Apex set up various discussion topics and asked participants to provide estimates. Apex then facilitated a discussion about the estimates, and participants were asked to update their estimates based on the discussion. The report contains the average of participants' revised estimates. Apex also made a few follow-up calls with select participants after the webinar.

Findings: The panel began with questions about participants' familiarity with Energy Trust's incentives for windows, and the influence of Energy Trust's program on the windows market.

Four participants were somewhat familiar with Energy Trust incentives; one was very familiar and two were not very familiar. In terms of the program's influence on the windows market, two said it was strong, three said the program has a small influence, and two were not sure.

The graph below shows participants' estimates of the windows market in 2013 without Energy Trust program support by U-value bin (blue bars) and the estimates obtained from the 2013 study (in green).

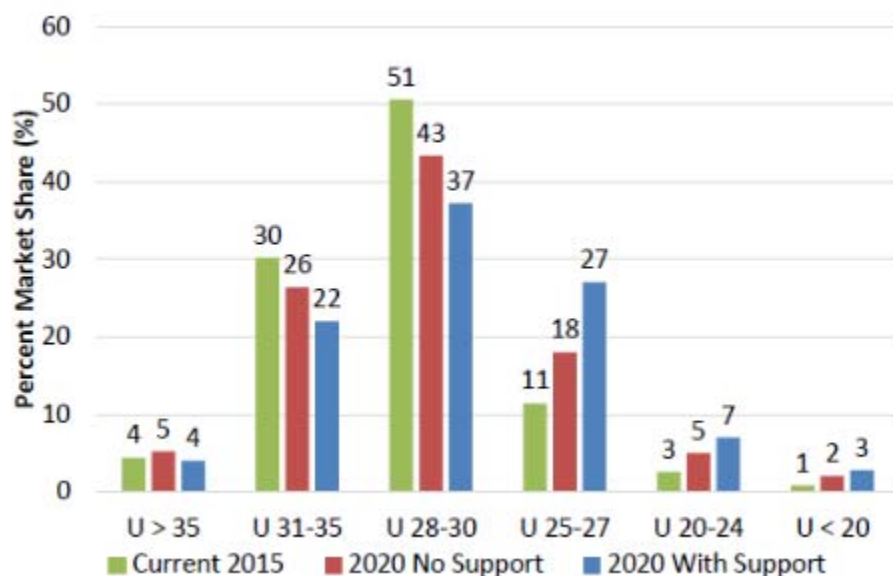
2013 market share, with and without program support



A big discussion point was the federal tax credit, which was in place from 2009-2010 and then stepped down in 2011. The tax credit was 30% of the cost up to \$1,500, which is more than double the average incentive we provide for windows. Participants felt that Energy Trust program support helped maintain the shift that begun with the federal tax credit. Participants mentioned that Energy Trust dropping the second measure requirement for windows in 2011 helped increase the number of efficient window sales. (At one time the program required the installation of a weatherization measure in order to receive an incentive for windows). Adam asked about patterns in responses based on participants' role in the windows market (e.g. manufacturers might answer differently than distributors). Sarah responded that there were only seven participants, and the responses were anonymous, so there was no way to know who said what. Participants noted that some less efficient windows will always be sold, due to the type of windows or framing material.

Apex then asked participants to think about the current market share and what the market share would be in 2015, and in 2020 with and without program support. The U-value bins changed slightly for this question to align with Energy Trust's current incentive tiers. The graph below shows the results for this question.

Current (2015) and projected market share



In 2015, participants thought that 50% of the market would be in the 0.28 to 0.30 bin, and 15% would be below 0.28. Looking at 2020 without program support, there is still a shift to more efficient windows, but when program support is factored in, there is even more of a shift.

Fred asked how the questions were framed: were they focused on Oregon and Energy Trust's market, or the national market? Sarah responded that we asked participants to think just about the existing homes market in Oregon (to the extent they could). Phil commented that by asking participants to project out market share, we have created a baseline against which we can measure actual market share as time goes on (and potentially use to claim savings).

When asked about future market influences, participants stated that incentives can drive big market shifts. Even though Energy Trust can't offer the amount of money that the federal tax credit did, participants do believe our incentives are influential. Currently 0.25 is a cutoff below which additional manufacturing costs exceed energy saving benefits. Participants stated that with technological advances and manufacturing changes, additional growth in the market below 0.25 could occur. Finally, Energy Star specification changes will have a big effect on the market, but currently, there is no effective date for the specifications.

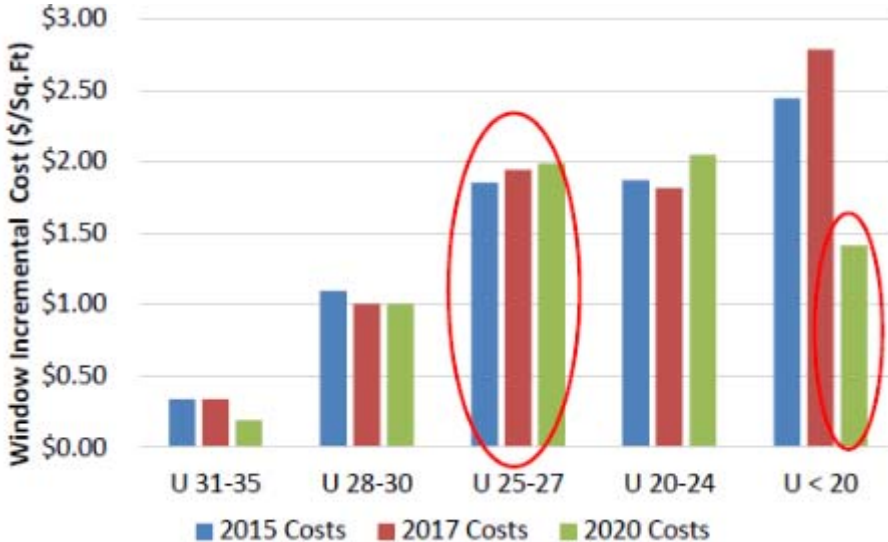
Participants noted that Energy Trust may want to include solar heat gain coefficient (SHGC) as part of the requirement for windows incentives. Ken commented that you discount savings when you get a better SHGC because you're reducing heat gains in the winter. Participants noted that Energy Trust might consider incentives for low-e storm windows and one participant mentioned that testing had shown that some windows had poor sealing/weather-stripping, which reduced the effective U-value.

The last area the study focused on was cost. There was agreement among the participants that providing an average price is difficult because the range for window prices is so large. Only 4 of the 7 participants could provide cost estimates, and most had modest confidence in their accuracy. The average cost per square foot for a 0.334 U-value window (the baseline) was \$13.04, which aligns with the 2013 study.

Thad clarified that the costs are just for the windows, and do not include installation costs. Sarah responded that this is the case; we assume that labor adds about the same amount for baseline and efficient windows.

The graph below shows the estimated incremental costs. Each one of the bins is relative to the previous one, so you add them up to get the total cost for that bin.

Incremental costs



The 0.25-0.27 U-value bin is a transition point in terms of costs. Costs over time look pretty stable, except for the dip in 2020 for below 0.20 U-value (participants assume there will be a technological shift that will allow incremental costs to come down). Alan commented that as the report noted, we pay above incremental cost for 0.28-0.30 and 0.25-0.27. Why is this? Marshall commented that windows with U-value 0.28-0.30 are the majority. We aligned with Energy Star in 2010 and promoted 0.22 windows, got little activity, and relaxed to 0.25. We got little activity there, so we moved to 0.20-0.30. The goal of the incentives was to encourage folks to move to the more efficient tier (incentive of \$4.00/square foot) and distinguish this from the less efficient tier (incentive of \$1.75/square foot). We recognize that this isn't a long-term, sustainable strategy.

Phil commented that we could look at other ways of getting incremental cost data, such as getting quotes for windows from various sources.

Conclusions & Recommendations: The webinar format worked well, although it would have been nice to have more participants. Market share data was relatively easy to estimate, but cost data was difficult for participants to provide. Apex recommends developing relationships with contacts who can participate in another panel in a few years, and possibly provide advice on program design. Chris asked if this Delphi panel had multiple iterations like other Delphi panels. Sarah responded that this panel had one iteration (participants filled out the survey during the webinar, discussed the results, and then revised their estimates), but we did not show the results from the initial round, just the final. Apex recommends having Ducker perform data collection on market share and costs for Oregon, and exploring other sources for acquiring market data (such as getting quotes for windows to obtain cost information).

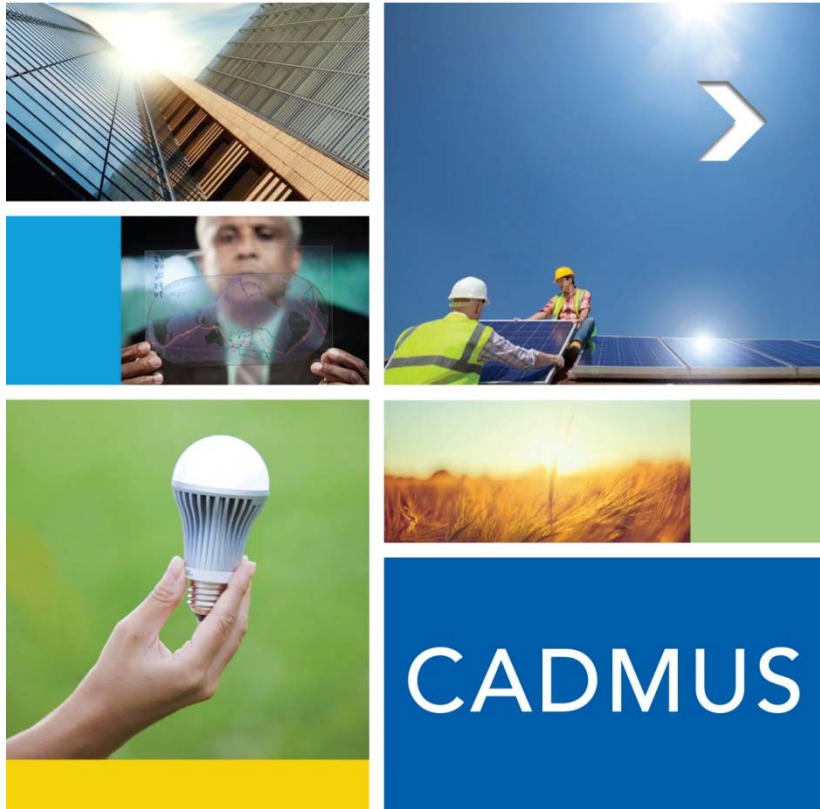
The program appears to have had an influence on the market, and panelists anticipate it will further influence the market in the next five years. Apex noted that the current windows incentives for the lower tier are greater than the incremental costs and the program should consider revising the incentive levels to be no more than the incremental costs. They also suggested investigating the issue around poor window performance and weather stripping (mentioned by a participant), consider an incentive for low-e coated storm windows (which we have done in the past, and it is not cost-effective right now), and consider an incentive for U-value 0.20 windows in alignment with Energy Star's Most Efficient tier.

Energy Trust Take: Energy Trust's incentives have helped maintain the move to more efficient windows that was spurred by the federal tax credit. The market share estimates from the study can serve as a baseline for a market transformation effort, if desired. However, NEEA might be a better owner for such an effort, depending on bandwidth, especially since they are now including gas in their portfolio. Peter asked what is meant by having NEEA take on a windows market transformation effort. Sarah clarified that this would involve working with the windows supply chain, and Ken commented that it would also involve coordination with other utilities, so that a unified front could be presented to manufacturers. Fred noted that the first windows market transformation effort was a NEEA-led effort, and it was mostly PR, not incentives. We have gone through two tiers without NEEA by brute force (a combination of our program and others), but this has only been loosely coordinated.

Marshall commented that windows is an interesting measure given low avoided costs for gas. Retrofit measures are going away, and incremental cost measures are a good tool to have in the portfolio. We need to track on these measures to ensure they change in step with the market.

Wrap-Up & Next Steps

The committee agreed to meet in June 2015. Erika will send out a Doodle poll with potential dates and times.



2012 Existing Buildings Program Impact Evaluation

March 24, 2015

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

The Cadmus Group, Inc.

An Employee-Owned Company • www.cadmusgroup.com

Prepared by:
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Cadmus: Energy Services Division

MEMO

Date: April 9, 2015
To: Board of Directors
From: Spencer Moersfelder, Business Sector Senior Program Manager
Dan Rubado, Evaluation Project Manager
Subject: Staff Response to Impact Evaluation of the 2012 Existing Buildings Program

This impact evaluation of the Existing Buildings program establishes the realized energy savings for 2012, based on a sample of projects. It should be noted that these results reflect the performance of the past Program Management Contractor (PMC), Lockheed Martin, whose contract came to an end with the close of 2012. The program level realization rates for both gas and electric savings are within the range of what we've seen in past impact evaluations of this program. Electric realization rates, particularly for the lighting and standard tracks, were relatively high. Custom track projects, which are larger and more complex, had low gas and electric realization rates which reduced the overall program realization rates. Although there were a few outliers, we feel that the sample was representative of the program and that the findings are valid and defensible. As a result, these realization rates will be adopted to true-up the 2012 program results and added to the three-year rolling average used for budgeting and forecasting.

This report also describes the causes for deviations from the expected savings. There was a substantial amount of variability observed in project level savings realization, particularly in the custom track. This is not surprising, given the nature of custom projects, and is consistent with past findings. Many of the causes of lower than expected savings were unpredictable and out of the program's control, but there were cases where additional scrutiny of custom projects could have uncovered issues before the incentives were paid and savings claimed. Staff will be working with the PMC to strike the right balance between how comprehensive the post-installation verification protocol should be in relation to the relative cost of such an effort. The evaluation also recommended that the program require system commissioning for large and complex custom projects. This has been recommended in the past and the program does sometimes include the cost of commissioning to calculate incentives and evaluate the cost-effectiveness of custom measures such as direct digital controls (DDC). However, the program will not pay for commissioning for all measures because of the high expense relative to its value to the program. Nor will the program require that the customer pay for commissioning because it would present a potentially large barrier to participation.

There are also a few standard track measures where the evaluation findings call in to question the savings assumptions that Energy Trust used. The report provides a number of process improvement recommendations to address some of the observed issues. Some of the recommended changes have already been implemented by the PMC or are pending implementation. Other recommendations are being considered, but are potentially expensive to implement. Energy Trust is working with the PMC to determine which changes are feasible and cost-effective.



Executive Summary

Energy Trust of Oregon (Energy Trust) retained Cadmus to complete an impact evaluation of the 2012 Existing Buildings program, a comprehensive effort to assist owners of existing commercial buildings in achieving energy savings by offering incentives for different types of measures. These measures fall into three program tracks—standard, custom, and lighting—which are described below:

- The standard track supports prescriptive equipment measures in categories such as HVAC, appliances, refrigeration, insulation, domestic hot water, and computer/data. Savings for these projects were estimated using deemed savings or simplified calculation workbooks.
- The custom track provides incentives for measures that are more comprehensive or interactive than prescriptive measures. They also usually involve more complex energy savings analysis than prescriptive measures.
- The lighting track provides incentives for lighting measures. Lighting measures are also included in standard and custom tracks, but for the evaluation process, Cadmus included all lighting measures in a separate lighting track.

This evaluation did not include projects in the 2012 Existing Buildings program that were performed under the Rooftop Unit (RTU) Tune-up Initiative, the Building Performance Tracking and Control Systems (BPTaC) Pilot, the Cool Schools Pilot, and the Comprehensive Lighting Pilot.

A third-party program management contractor (PMC), Lockheed Martin, implemented the 2012 Existing Buildings program.

Specifically, Cadmus evaluated 202 measures that participants installed at 74 sampled sites. As shown in Table 1, the final sample represented 23% of the program's total reported electric energy savings and 54% of the program's total reported gas savings.

The sample included 11 of the sites with the largest savings and a random sample of 63 smaller sites. When developing the evaluation plan, Energy Trust and Cadmus agreed to limit the amount of effort spent on lighting measures. The results of past evaluations of lighting measures have consistently shown high realization rates. Out of the 63 randomly sampled sites, 10 included lighting projects. The largest 11 sites did not include lighting projects.

Table 1. 2012 Program and Sample Totals

Group	Total Projects*	Total Measures**	Reported Savings	
			Electricity (kWh)	Gas (therms)
Program Total	2,756	8,072	91,319,647	1,498,629
Sample Total	74	202	20,868,215	801,844
Portion of Total Sampled	3%	3%	23%	54%

*Number of unique combined project ID and site ID.

**Number of unique measure IDs.

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 for which incentives were provided and recorded operational data to support our engineering analysis. We evaluated the standard and lighting 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. For the sites with the largest reported savings, we performed utility billing analysis. For some of the custom projects originally analyzed with energy simulation models, Cadmus engineers analyzed the differences between baseline and as-built simulation models. 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 2012 Program Realization Rates and Energy Savings by Measure Category

Program Track	Total Measures*	Reported Savings		Evaluated Savings		Realization Rate	
		Electricity (kWh)	Gas (therms)	Electricity (kWh)	Gas (therms)	Electricity Savings	Gas Savings
Standard	1,103	8,139,347	376,389	7,771,477	442,410	95%	118%
Custom	279	33,055,968	1,122,240	27,626,115	732,265	84%	66%
Lighting	6,690	50,124,332	-	51,513,055	-	103%	-
Total Program	8,072	91,319,647	1,498,629	86,910,648	1,174,676	95%	79%

*Number of unique measure IDs.

For comparison of the program over time, the evaluation results for the Existing Buildings program from 2008 through 2012 are presented in Table 3. The number of sites, electricity savings, and gas savings had



all increased each year from 2008 to 2011. For 2012, all three decreased from the 2011 levels. The 2012 electricity realization rate has increased from the 2011 program year, however the gas realization rate has decreased.

Table 3. Evaluated Savings by Program Year 2008-2012

Program Year	Sites	Reported Savings		Evaluated Savings		Realization Rate	
		Electricity (kWh)	Gas (therms)	Electricity (kWh)	Gas (therms)	Electricity Savings	Gas Savings
2008	1,170	42,105,793	862,294	41,887,080	746,564	99%	87%
2009	1,590	74,426,951	941,618	63,537,310	705,644	85%	75%
2010	2,544	85,813,714	1,729,547	91,884,445	1,486,729	107%	86%
2011	3,778	108,759,845	2,118,681	98,776,194	2,148,020	91%	101%
2012*	2,543	91,319,647	1,488,443	86,910,648	1,174,676	95%	79%
Average						95%	86%

*Excludes RTU Tune-up Initiative, BPTaC Pilot, Cool Schools Pilot, and the Comprehensive Lighting Pilot.

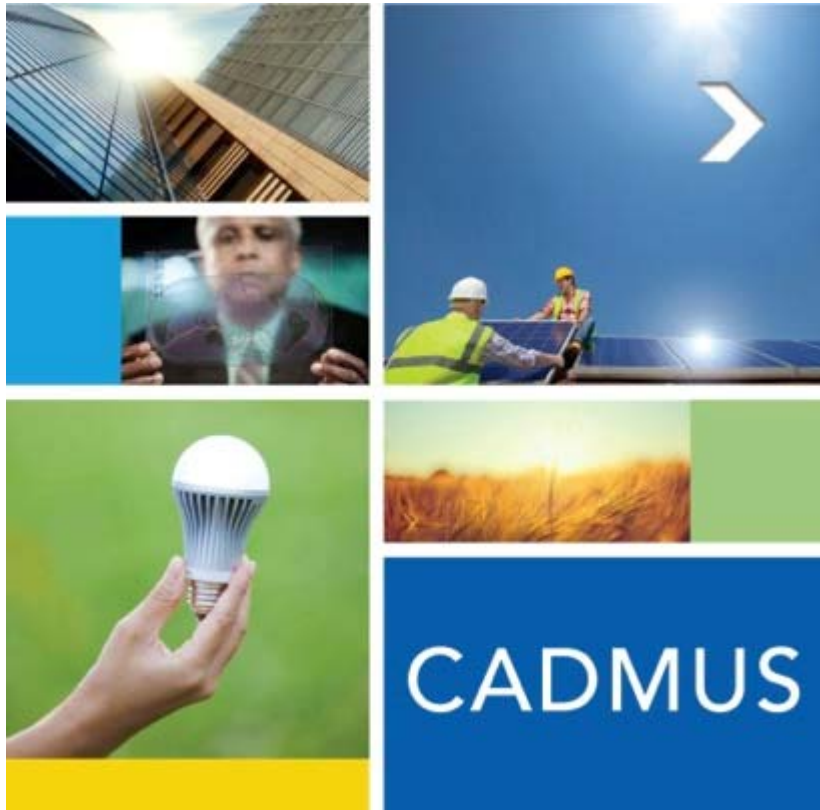
For program year 2012, most measure types in the standard track achieved high realization rates, with the exception of server virtualization and computer management measures. There was also a very large standard track pipe insulation measure at one site with a low realization rate. The lighting track achieved high realization rates.

The primary reduction to overall program energy savings resulted from adjustments to energy savings for custom track projects. The following are issues from specific projects that were primary factors that lowered the overall realization rate:

- The systems at several sites were not functioning as designed in the energy efficiency measures and the facility staff were still working to commission them. These were primarily HVAC systems and controls measures in the custom track.
- Building simulation models for several sites did not accurately reflect as-built conditions or operating parameters. When Cadmus engineers updated the models with observed conditions and calibrated them to actual utility data, the evaluated savings were less than reported savings.
- Evaluated equipment and system operation differed from the expected patterns used to develop savings estimates. This was usually due to differences in the operating setpoints, operating conditions, or the operating hours.
- Observed equipment quantities differed from reported quantities.
- For sites with multiple measures, the interaction between the measures was not accounted for in the energy savings analysis, thus savings were being over-estimated.
- Systems were decommissioned and no longer in service.

The measure types with lower evaluated savings represented large, complex measures, primarily under the custom track. We also found a large amount of variability in the measure level savings, with measures at some sites achieving substantially higher savings than predicted and others achieving substantially less. The variability in the savings is an indication that there is an opportunity for improvement in implementer quality control on the custom projects.

We also observed that Energy Trust implemented several of the recommendations made during earlier evaluations. In general, we found continued improvement in the project documentation that Energy Trust provided to the evaluation team. We received more complete calculation documentation and more of the energy model files than in past program years.



Impact Evaluation of the 2012 Rooftop Unit Tune-up Initiative

October 21, 2014

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

Prepared by:
John Walczyk

Cadmus

MEMO

Date: April 9, 2015
To: Board of Directors
From: Spencer Moersfelder, Business Sector Senior Program Manager
Dan Rubado, Evaluation Project Manager
Subject: Staff Response to Impact Evaluation of the 2012 Rooftop Unit Tune-up Initiative

This impact evaluation documents the results of Energy Trust's rooftop unit (RTU) tune-up initiative, which was run by Energy Trust's Existing Buildings program from 2010 through 2013. The evaluation was commissioned in response to a billing analysis that showed much lower than expected savings. This evaluation report establishes that 2012 RTU tune-up savings were very low and documents many of the reasons for those low savings. An initial study in 2009 and a pilot period in 2010 demonstrated that the first tier of participating service providers were capable of following the tune-up protocol. However, the initiative was expanded to include more service providers and the number of QC touch points was reduced in order to manage the delivery budget. The evaluation results demonstrated that the expanded base of service providers did not adequately follow the tune-up protocol. Furthermore, the evaluation demonstrated that planning analysis that was used to design the initiative overestimated the savings that could be achieved from rooftop unit tune-ups even if the service providers were able to tune-up the units effectively each time. A convergence of less savings potential than was originally assumed and subpar execution of the tune-up protocol in the market resulted in low realization rates.

RTUs still represent an extremely important opportunity for the program because they condition over half of the commercial floor space in the Northwest and are often poorly maintained or not well controlled. Even though this initiative was not ultimately successful, Energy Trust continues to look for solutions to address the inefficient stock of RTUs in some manner. This evaluation provides many lessons and recommendations about what the program could do differently to implement a tune-up initiative more effectively. Any new initiative must directly address the past implementation problems documented in this report. However, the nature of the service provider market presents significant barriers to design and implement a service protocol that can reliably achieve savings in this space. The Existing Buildings program is currently using the findings in this report to consider new capital and operations-based measures that can achieve the energy savings potential from existing RTUs.

Executive Summary

In February 2014, Energy Trust of Oregon contracted with Cadmus to conduct a detailed impact evaluation and research study of its 2012 Rooftop Unit (RTU) Tune-Up Initiative. Between March and November 2014, Cadmus worked to complete this study. The main research objectives of the impact evaluation were to update the gross savings estimates, determine why actual savings were different from estimated savings, and to recommend strategies for a new tune-up initiative. This report describes the tune-up initiative (the program), methods, results, and the evaluation team's recommendations for future tune-up initiatives.

To evaluate results, Cadmus (the evaluation team) used post-tune-up submeter data from 41 randomly sampled RTUs. The team also relied on secondary research from the Northwest to develop three typical baseline scenarios to estimate savings. Table 1 provides a summary of the cooling and heating savings and realization rates determined by Cadmus.

Table 1. Heating and Cooling Savings Summary

Savings	Reported	Evaluated	Realization Rate	Relative Precision @ 90% Confidence
Cooling (kWh)	4,889,403	1,249,877	25.6%	41.0%
Heating (therms)	659,856	130,584	19.8%	27.1%

The evaluation team found tune-up savings were lower than expected because for some RTUs:

- Tune-up measures were not correctly installed;
- Economizers were not functional;
- Tune-up measures may have been disabled;
- Heating and cooling demand was low so energy savings potential was low; and
- The fan ran in auto mode rather than continuous mode

The evaluation team offers several key conclusions and recommendations. We developed many of these conclusions and recommendations with the understanding that Energy Trust may fund a new RTU tune-up initiative.

Key Conclusion 1: *The quality and skill of contractors installing measures is critical to success.* Existing economizer controls are relatively straightforward on some HVAC systems and very complex on some HVAC systems. Several contractors explained that they witnessed a number of inexperienced HVAC technicians performing measures for the tune-up initiative. The evaluation found some significant

differences in savings of the RTUs metered. Through analysis of meter data, field observations, conversations with contractors, and our knowledge of similar tune-up programs, we conclude that experienced contractors are necessary for this type of program to succeed.

Key Recommendation 1: Provide or require economizer/RTU controls training. Many HVAC manufacturers (e.g. Carrier, Trane) offer training courses for RTUs, with specific courses focusing on economizer training. If the program requires each individual technician to provide proof of training, or if the program mandates training as an initial program entry requirement, the implementation team will ensure contractors have access to the skills needed for successful measure implementation.

Key Conclusion 2: A change to the program quality control (QC) requirements could improve contractor performance and could serve as an opportunity to provide baseline information. The evaluation team has evaluated various types of tune-up programs in many different regions of the country. We consistently find that if unchecked, a large portion of contractors will fail to perform the work intended by the design of the program. If technicians understand that the QC process will include actual fault diagnosis and if they expect consequences (e.g. loss of part of incentive, withholding payment) when the measurement and verification (M&V) contractor discovers an issue, then they will either choose not to participate or will perform work that aligns with the expectations of the program.

Key Recommendation 2: Randomly verify the work of the individual technician. In our experience the most successful tune-up programs first qualify each individual HVAC technician performing the work with a high level of rigor. This is the qualifying step, usually conducted by a program implementer or M&V contractor. Once qualified, the implementation team randomly inspects their work through standard M&V random sampling (e.g. 3-5% of all installations).

Key Conclusion 3: Many RTUs had tune-up measure installation issues, including some RTUs receiving field QC from the implementation contractor. Some RTUs are relatively simple and a visual inspection by a field verification contractor to confirm proper installation may prove sufficient. Conversely, some RTU economizer controllers are very complicated and field verification through visual inspection proves challenging or impossible. Even though some RTUs received field verification, we found evidence to suggest that economizers were never functioning correctly. Through detailed meter data analysis we discovered various issues that were difficult to detect through visual inspection or even through basic economizer functional testing.

Key Recommendation 3a: Modify the QC protocol to physically test the economizer operation. The industry has provided various initiatives and guidelines specific to economizer fault diagnostics and economizer improvement but none of these initiatives provide detailed guidance for functional testing from single point-in-time field M&V. There are several techniques one might employ to functionally test an economizer and the measures performed through a tune-up program. We provide examples and details in the conclusions and recommendations section.

Recommendation 3b: Consider alternate economizer controller technologies. Some RTU controller retrofit devices can reduce or eliminate the need for field verification but these measures might be more than three times the cost of the 2012 tune-up initiative measures. Before attempting to implement a new tune-up product, Energy Trust should investigate the cost-effectiveness of the measures and the probable reduction in participation caused by the more complex, relatively expensive alternatives.

Key Conclusion 4: Older RTUs have significant savings potential and if targeted correctly, successful tune-up of these systems using best practice techniques could provide significant savings. According to several contractors, many of the RTUs in the Northwest receive limited maintenance because the tenants, not equipment owners, pay the utility bills. Equipment owners have little incentive to pay for routine maintenance that might help reduce energy cost for tenants. Tenants may either neglect their responsibilities or choose a minimal RTU maintenance plan. Consequently, many RTUs are wasting energy, will not receive adequate service, and will not soon be replaced. Though the program targeted RTUs receiving routine maintenance to ensure predictable savings, our evaluation indicated many of the RTUs receiving tune-up measures probably do not receive regular maintenance.

Key Recommendation 4a: Perform targeted marketing to decision-makers who consider RTU maintenance a low priority. To better understand how best to reach out to decision-makers who might consider RTU maintenance a low priority (e.g. shopping malls), we recommend additional research through contractor interviews or focus groups.

Recommendation 4b: Ensure contractors follow quality tune-up practices. The evaluation team was unable to diagnose refrigerant charge because conditions were too cold during site visits and meter installations. None of the 41 RTUs we inspected received refrigerant charge adjustment (according to contractor's documentation records) but contractors often performed tune-ups when refrigerant charge diagnosis isn't possible because outdoor conditions are too cold. Contractors even mentioned the program was great for the "slow season" meaning conditions are likely too cold to test refrigerant charge. Future program design should hold contractors to a higher standard of refrigerant charge diagnostic testing or should require M&V on all tune-ups performed during cold conditions.

Tab 4

Notes on March 2015 Financial Statements

April 21, 2015

Revenue

March revenue was \$1.4 million below budget. Year-to-Date Revenues are slightly below budgeted amounts. Our receipts have been impacted by the warm temperatures we've experienced this winter.

Mar-15	<u>YTD Actual</u>	<u>YTD Budget</u>	<u>YTD Var</u>	<u>YTD %</u>
PGE	22,510,679	22,974,882	(464,203)	-2%
PAC	13,909,783	13,212,653	697,130	5%
NWN	6,377,398	7,329,904	(952,505)	-13%
CNG	608,561	880,306	(271,745)	-31%
Investment Income	194,231	72,000	122,231	170%
Total	43,600,653	44,469,745	(869,093)	-2%

Reserves

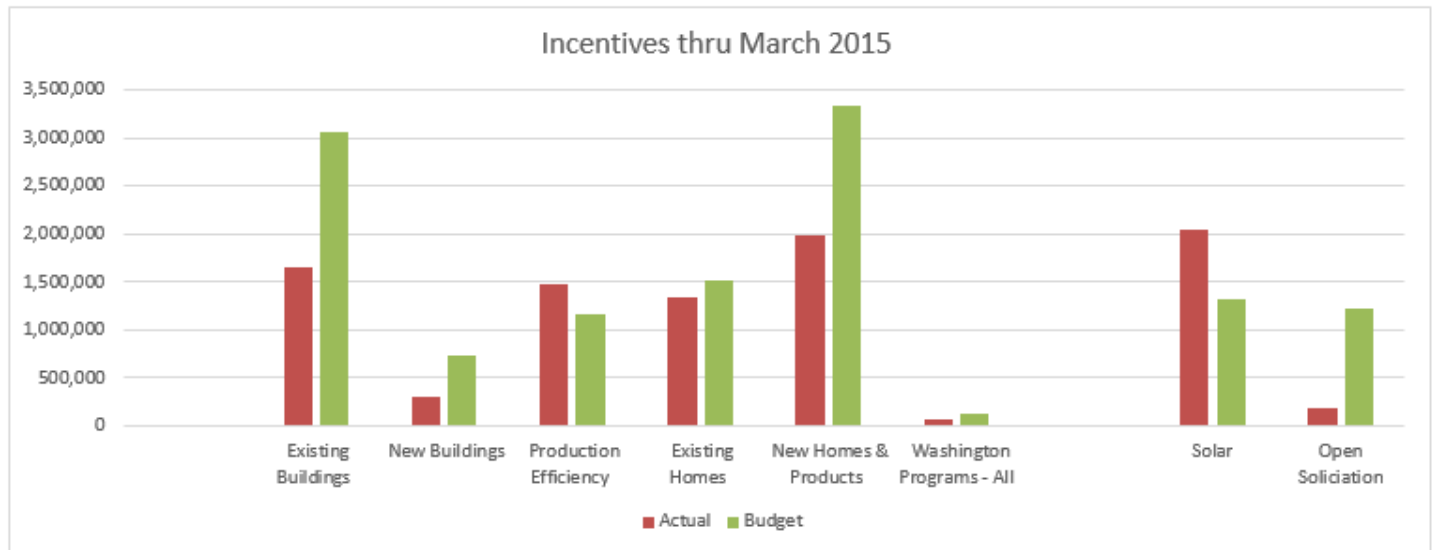
Total Reserves are shown below. Due to the revenue shortfall, reserves increased only \$1.5 million in March; less than the \$2.5 million budgeted.

<u>Reserves</u>	<u>Actual 12/31/14 Amount</u>	<u>Actual 03/31/15 Amount</u>	<u>YTD % Change</u>	<u>Actual 2/28/15 Amount</u>
PGE	27,816,061	36,076,765	29.7%	35,085,193
PacifiCorp	15,090,308	19,603,862	29.9%	19,550,295
NW Natural	9,503,289	12,705,948	33.7%	12,146,733
Cascade	1,156,900	1,355,904	17.2%	1,322,649
NWN Industrial	580,920	313,348	-46.1%	385,141
NWN Washington	217,848	(23,887)	-111.0%	94,050
PGE Renewables	13,736,997	13,991,450	1.9%	14,197,040
PAC Renewables	10,937,994	11,701,338	7.0%	11,477,641
Contingency Reserve	5,000,000	5,000,000	0.0%	5,000,000
Contingency Available	3,186,804	3,381,035	6.1%	3,315,868
Total	87,227,121	104,105,764	19.4%	102,574,611

The shortfall in NWN Washington reserves was corrected by a payment received in April for \$678K.

Incentive Expenses

Incentives for the month came in 9% below budget (\$478K). Total incentives for the year are \$3.4 million below budget, but we remain \$1.8 million ahead of last year's spending. Solar incentives for the Commercial sector are running hot this year. Open Solicitation had expected to pay \$1 million to Clean Water Services – Durham in January. That project is now projected to complete in Q2 or possibly Q3.

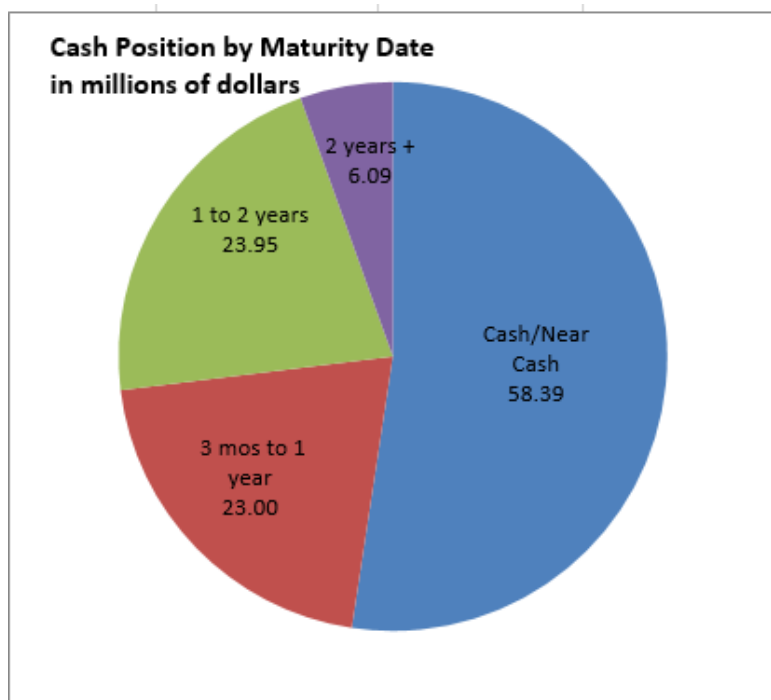
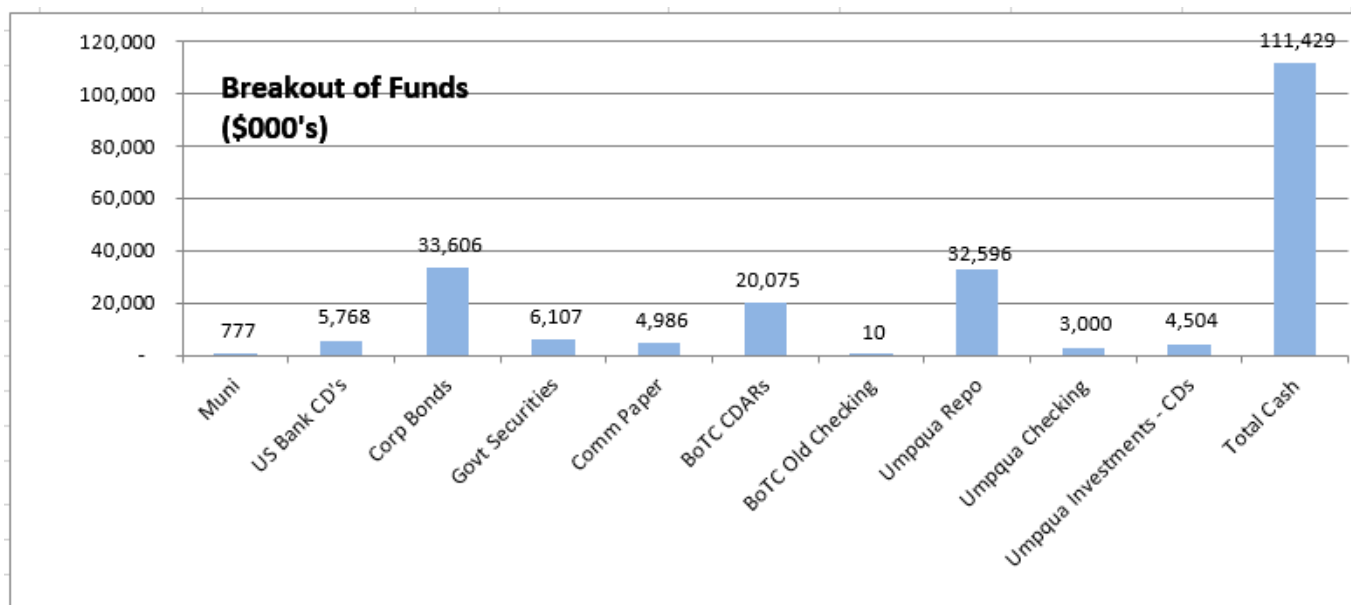


Total Incentives				
Year-to-Date 2015				
Incentives thru March 2015	<u>Actual</u>	<u>Budget</u>	<u>Variance</u>	<u>Var %</u>
Existing Buildings	1,659,772	3,062,091	1,402,318	46%
New Buildings	309,134	734,727	425,594	58%
Production Efficiency	1,470,046	1,166,692	(303,354)	-26%
Existing Homes	1,345,864	1,519,697	173,833	11%
New Homes & Products	1,977,612	3,323,455	1,345,843	40%
Washington Programs - All	77,334	127,430	50,096	39%
Solar	2,050,432	1,325,250	(725,182)	-55%
Open Solicitation	195,610	1,222,876	1,027,266	84%
Total Incentives	9,085,804	12,482,218	3,396,414	27%
Energy Efficiency Only	6,839,762	9,934,092	3,094,330	31%

Total Incentives				
Year-to-Year Comparison				
March 2015 vs. March 2014	<u>Current Year</u>	<u>Prior Year</u>	<u>Variance</u>	<u>Var %</u>
Existing Buildings	1,659,772	1,293,988	(365,785)	-28%
New Buildings	309,134	397,005	87,872	22%
Production Efficiency	1,470,046	1,389,447	(80,599)	-6%
Existing Homes	1,345,864	1,163,324	(182,539)	-16%
New Homes & Products	1,977,612	1,995,569	17,957	1%
Washington Programs - All	77,334	70,959	(6,375)	-9%
Solar	2,050,432	904,899	(1,145,533)	-127%
Open Solicitation	195,610	20,855	(174,755)	-838%
Total Incentives	9,085,804	7,236,046	(1,849,762)	-26%
Energy Efficiency Only	6,839,762	6,310,292	(529,470)	-8%

Investment Status

In 2014 we began to purchase a variety of secure assets with our reserves. We are continuing this policy in 2015. The graphs below show the type of investments we hold and the locations where our funds are held at the end of February (including cash). The second graph shows our overall liquidity. The average liquidity for all assets held at 3/31/15 was 213 days.



Energy Trust of Oregon
BALANCE SHEET
March 31, 2015
(Unaudited)

	Mar 2015	Feb 2015	Dec 2014	Mar 2014	Change from one month ago	Change from Beg. of Year	Change from one year ago
Current Assets							
Cash & Cash Equivalents	35,631,058	37,036,243	51,411,367	88,795,538	(1,405,185)	(15,780,309)	(53,164,480)
Restricted Investments (Escrow Funds)			0	4,637	0	0	(4,637)
Investments	73,614,652	72,396,764	64,490,244	23,517,122	1,217,888	9,124,408	50,097,530
Receivables	293,856	352,060	323,531	29,577	(58,204)	(29,675)	264,279
Prepaid Expenses	597,022	342,606	405,430	564,778	254,415	191,592	32,244
Advances to Vendors	1,650,799	473,652	1,482,149	2,306,806	1,177,147	168,650	(656,007)
Total Current Assets	111,787,386	110,601,326	118,112,720	115,218,457	1,186,060	(6,325,334)	(3,431,071)
Fixed Assets							
Computer Hardware and Software	2,770,146	1,931,988	1,653,762	1,448,587	838,158	1,116,384	1,321,559
Software Development in Progress	327,381	1,022,347	1025908.62		(694,966)	(698,528)	327,381
Leasehold Improvements	318,964	318,964	318,964	313,333	0	0	5,631
Office Equipment and Furniture	679,343	679,343	679,343	600,662	0	0	78,681
Total Fixed Assets	4,095,834	3,952,642	3,677,978	2,362,582	143,192	417,856	1,733,252
Less Depreciation	(1,977,643)	(1,913,077)	(1,831,551)	(1,583,453)	(64,566)	(146,092)	(394,190)
Net Fixed Assets	2,118,192	2,039,566	1,846,428	779,130	78,626	271,764	1,339,062
Other Assets							
Rental Deposit	135,340	135,340	135,340	64,461	0	0	70,879
Deferred Compensation Asset	655,411	647,161	630,176	499,637	8,250	25,235	155,774
Long Term Portion Note Receivable	100,000	100,000	100000		0	0	100,000
Total Other Assets	890,751	882,501	865,516	564,098	8,250	25,235	326,653
Total Assets	114,796,329	113,523,392	120,824,664	116,561,685	1,272,937	(6,028,336)	(1,765,356)
Current Liabilities							
Accounts Payable and Accruals	8,858,679	9,210,688	31,924,631	7,416,917	(352,009)	(23,065,952)	1,441,762
Salaries, Taxes, & Benefits Payable	813,562	725,602	671,849	742,924	87,960	141,713	70,638
Total Current Liabilities	9,672,241	9,936,289	32,596,480	8,159,841	(264,048)	(22,924,239)	1,512,400
Long Term Liabilities							
Deferred Rent	341,357	344,135	349,692	361,033	(2,778)	(8,335)	(19,676)
Deferred Compensation Payable	658,211	649,961	632,976	499,637	8,250	25,235	158,574
Other Long-Term Liabilities	18,750	18,395	18,395	6,955	355	355	11,796
Total Long-Term Liabilities	1,018,318	1,012,491	1,001,063	867,624	5,827	17,254	150,694
Total Liabilities	10,690,559	10,948,780	33,597,543	9,027,465	(258,222)	(22,906,984)	1,663,094
Net Assets							
Temporarily Restricted Net Assets	0	0	0	4,637	0	0	(4,637)
Unrestricted Net Assets	104,105,770	102,574,612	87,227,121	107,529,583	1,531,158	16,878,649	(3,423,813)
Total Net Assets	104,105,770	102,574,612	87,227,121	107,534,220	1,531,158	16,878,649	(3,428,450)
Total Liabilities and Net Assets	114,796,329	113,523,392	120,824,664	116,561,685	1,272,937	(6,028,336)	(1,765,356)

Energy Trust of Oregon
Cash Flow Statement-Indirect Method
Monthly 2015

	<u>January</u>	<u>February</u>	<u>March</u>	<u>Year to Date</u>
Operating Activities:				
<i>Revenue less Expenses</i>	8,620,993	6,726,499	1,531,158	\$ 16,878,648
<i>Non-cash items:</i>				
Depreciation	40,242	41,284	64,566	146,092
Change in Reserve on Long Term Note	-	-	-	-
Loss on disposal of assets				
Receivables	5,800	11,583	-	17,383
Interest Receivable	4,268	(50,180)	58,204	12,292
Advances to Vendors	543,337	465,160	(1,177,147)	(168,650)
Prepaid expenses and other costs	14,982	47,842	(254,416)	(191,592)
Accounts payable	(20,265,729)	(2,448,214)	(352,009)	(23,065,952)
Payroll and related accruals	17,794	52,944	96,210	166,948
Deferred rent and other	(11,515)	(11,028)	(10,673)	(33,216)
Cash rec'd from / (used in)				
Operating Activities	<u>(11,029,828)</u>	<u>4,835,890</u>	<u>(44,107)</u>	<u>\$ (6,238,045)</u>
Investing Activities:				
Investment Activity (1)	(2,475,092)	(5,431,428)	(1,217,888)	(9,124,408)
(Acquisition)/Disposal of Capital Assets	(132,268)	(142,396)	(143,192)	(417,856)
Cash rec'd from / (used in) Investing				
Activities	<u>(2,607,360)</u>	<u>(5,573,824)</u>	<u>(1,361,080)</u>	<u>\$ (9,542,264)</u>
Cash at beginning of Period	51,411,367	37,774,180	37,036,243	51,411,367
Increase/(Decrease) in Cash	(13,637,187)	(737,934)	(1,405,187)	(15,780,309)
Cash at end of period	<u>\$ 37,774,180</u>	<u>\$ 37,036,243</u>	<u>\$ 35,631,058</u>	<u>\$ 35,631,058</u>

(1) As investments mature, they are rolled into the Repo account.
Investments that are made during the month reduce available cash.

Energy Trust of Oregon
Cash Flow Projection
January 2015 - December 2016

	Actual			2015 Budget								
	January	February	March	April	May	June	July	August	September	October	November	December
Cash In:												
Public purpose and Incr funding	15,740,912	15,125,779	12,539,730	13,358,147	11,118,983	10,328,019	11,196,992	10,582,483	11,909,892	11,474,147	11,096,372	13,451,175
From other sources	5,800	11,583	-	-	-	-	-	-	-	-	-	-
Investment Income	110,630	(27,478)	123,371	-	-	-	-	-	-	-	-	-
Total cash in	15,857,342	15,109,884	12,663,101	13,358,147	11,118,983	10,328,019	11,196,992	10,582,483	11,909,892	11,474,147	11,096,372	13,451,175
Cash Out:	29,494,530	15,847,819	14,068,288	11,964,974	11,377,085	14,740,327	11,977,012	11,821,580	14,034,930	14,820,329	11,164,907	19,853,757
Net cash flow for the month	(13,637,188)	(737,935)	(1,405,187)	1,393,173	(258,102)	(4,412,308)	(780,020)	(1,239,097)	(2,125,038)	(3,346,182)	(68,535)	(6,402,582)
Beginning Balance: Cash & MM	51,411,367	37,774,180	37,036,248	35,631,058	37,024,232	36,766,129	32,353,822	31,573,802	30,334,705	28,209,667	24,863,485	24,794,949
Ending cash & MM	37,774,180	37,036,243	35,631,058	37,024,232	36,766,129	32,353,822	31,573,802	30,334,705	28,209,667	24,863,485	24,794,949	18,392,367

Future Commitments

Renewable Incentives	17,600,000	17,500,000	17,000,000	16,900,000	16,600,000	19,300,000	19,600,000	19,800,000	17,500,000	16,700,000	17,100,000	17,500,000
Efficiency Incentives	48,400,000	47,100,000	63,000,000	60,400,000	58,500,000	56,800,000	56,900,000	56,100,000	56,300,000	68,500,000	74,200,000	67,400,000
Emergency Contingency Pool	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
Total Commitments	71,000,000	69,600,000	85,000,000	82,300,000	80,100,000	81,100,000	81,500,000	80,900,000	78,800,000	90,200,000	96,300,000	89,900,000

(1) Included in "Ending cash & MM" above

Dedicated funds adjustment:

Committed funds adjustment:

Cash reserve:

Cash & MM Balance:

reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements

reduction in available cash for commitments to Efficiency program projects with signed agreements

reduction in available cash to cover cashflow variability and winter revenue risk

ending cash & MM does not include significant investment amounts. As investments mature, we may choose to keep the cash rather than reinvest.

Energy Trust of Oregon
Cash Flow Projection
January 2015 - December 2016

2016 Budgeted Amounts												
	January	February	March	April	May	June	July	August	September	October	November	December
Cash In:												
Public purpose and Incr funding	14,500,000	14,800,000	14,500,000	13,500,000	11,100,000	10,400,000	11,700,000	10,700,000	10,300,000	12,600,000	11,300,000	13,600,000
From other sources												
Investment Income	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
Total cash in	14,524,000	14,824,000	14,524,000	13,524,000	11,124,000	10,424,000	11,724,000	10,724,000	10,324,000	12,624,000	11,324,000	13,624,000
Cash Out:	35,100,000	10,600,000	12,000,000	12,700,000	11,900,000	13,900,000	14,800,000	12,600,000	14,700,000	13,700,000	14,600,000	30,700,000
Net cash flow for the month	(20,576,000)	4,224,000	2,524,000	824,000	(776,000)	(3,476,000)	(3,076,000)	(1,876,000)	(4,376,000)	(1,076,000)	(3,276,000)	(17,076,000)
Beginning Balance: Cash & MM	18,392,367	(2,183,633)	9,544,376	12,068,376	12,892,376	12,116,376	8,640,376	5,564,376	3,688,376	(687,624)	(1,763,624)	(5,039,624)
Ending cash & MM	(2,183,633)	9,544,376	12,068,376	12,892,376	12,116,376	8,640,376	5,564,376	3,688,376	(687,624)	(1,763,624)	(5,039,624)	(22,115,624)

Future Commitments

Renewable Incentives	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000	17,400,000
Efficiency Incentives	67,100,000	67,100,000	66,700,000	66,200,000	66,100,000	64,900,000	64,000,000	64,000,000	62,800,000	62,800,000	62,800,000	62,800,000
Emergency Contingency Pool	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
Total Commitments	89,500,000	89,500,000	89,100,000	88,600,000	88,500,000	87,300,000	86,400,000	86,400,000	85,200,000	85,200,000	85,200,000	85,200,000

(1) Included in "Ending cash & MM" above

Dedicated funds adjustment:

Committed funds adjustment:

Cash reserve:

Cash & MM Balance:

reduction in available cash for commitments to Renewable program projects with board approval, or when board approval not required, with signed agreements

reduction in available cash for commitments to Efficiency program projects with signed agreements

reduction in available cash to cover cashflow variability and winter revenue risk

ending cash & MM does not include significant investment amounts. As investments mature, we may choose to keep the cash rather than reinvest.

Energy Trust of Oregon
Income Statement - Actual and Prior Yr Comparison
For the Month Ending March 31, 2015
(Unaudited)

	March				YTD			
	Actual	Actual Prior Year	Prior Year Variance	Variance %	Actual	Actual Prior Year	Prior Year Variance	Variance %
<u>REVENUES</u>								
Public Purpose Funds-PGE	3,130,693	3,494,030	(363,337)	-10%	10,222,971	10,702,236	(479,266)	-4%
Public Purpose Funds-PacifiCorp	2,326,941	2,508,212	(181,272)	-7%	7,524,470	8,012,838	(488,368)	-6%
Public Purpose Funds-NW Natural	1,621,299	2,822,844	(1,201,545)	-43%	6,377,398	8,769,676	(2,392,278)	-27%
Public Purpose Funds-Cascade	139,974	464,816	(324,842)	-70%	608,561	1,551,879	(943,318)	-61%
Total Public Purpose Funds	7,218,906	9,289,902	(2,070,996)	-22%	24,733,400	29,036,629	(4,303,229)	-15%
Incremental Funds - PGE	3,542,305	4,778,037	(1,235,732)	-26%	12,287,708	15,154,857	(2,867,149)	-19%
Incremental Funds - PacifiCorp	1,778,519	2,418,892	(640,374)	-26%	6,385,313	8,034,878	(1,649,565)	-21%
NW Natural - Washington			0			527,177	(527,177)	-100%
Contributions		12,500	(12,500)	-100%		12,500	(12,500)	-100%
Revenue from Investments	65,168	11,583	53,584	463%	194,231	31,823	162,408	510%
TOTAL REVENUE	12,604,897	16,510,915	(3,906,018)	-24%	43,600,653	52,797,865	(9,197,212)	-17%
<u>EXPENSES</u>								
Program Subcontracts	4,420,762	4,179,926	(240,837)	-6%	12,795,516	11,312,381	(1,483,135)	-13%
Incentives	4,870,663	4,039,572	(831,091)	-21%	9,085,804	7,236,046	(1,849,758)	-26%
Salaries and Related Expenses	912,198	947,681	35,483	4%	2,690,609	2,674,049	(16,560)	-1%
Professional Services	645,703	554,385	(91,318)	-16%	1,523,279	1,372,096	(151,183)	-11%
Supplies	2,674	2,116	(559)	-26%	9,704	11,843	2,139	18%
Telephone	4,484	4,316	(168)	-4%	13,455	12,804	(651)	-5%
Postage and Shipping Expenses	3,683	812	(2,871)	-354%	5,851	2,619	(3,232)	-123%
Occupancy Expenses	52,276	53,927	1,651	3%	160,993	166,060	5,066	3%
Noncapitalized Equip. & Depr.	108,635	65,483	(43,152)	-66%	243,651	183,225	(60,427)	-33%
Call Center	13,368	11,188	(2,180)	-19%	40,051	37,521	(2,531)	-7%
Printing and Publications	2,397	9,616	7,220	75%	30,559	51,890	21,331	41%
Travel	8,681	7,089	(1,592)	-22%	24,446	17,434	(7,012)	-40%
Conference, Training & Mtng Exp	13,532	10,295	(3,238)	-31%	39,568	37,604	(1,964)	-5%
Interest Expense and Bank Fees	159.14		(159)		1,757	2,000	243	12%
Insurance	8,630	8,622	(8)	0%	25,889	25,866	(24)	0%
Miscellaneous Expenses		0	0			40	40	100%
Dues, Licenses and Fees	5,894	32,302	26,409	82%	30,872	50,740	19,869	39%
TOTAL EXPENSES	11,073,739	9,927,327	(1,146,411)	-12%	26,722,004	23,194,217	(3,527,788)	-15%
TOTAL REVENUE LESS EXPENSES	1,531,158	6,583,588	(5,052,429)	-77%	16,878,649	29,603,648	(12,725,000)	-43%

Energy Trust of Oregon
Income Statement - Actual and YTD Budget Comparison
For the Month Ending March 31, 2015
(Unaudited)

	March				YTD			
	Actual	Budget	Budget Variance	Variance %	Actual	Budget	Budget Variance	Variance %
<u>REVENUES</u>								
Public Purpose Funds-PGE	3,130,693	3,477,236	(346,543)	-10%	10,222,971	10,650,889	(427,918)	-4%
Public Purpose Funds-PacifiCorp	2,326,941	2,454,221	(127,280)	-5%	7,524,470	7,538,494	(14,024)	0%
Public Purpose Funds-NW Natural	1,621,299	2,132,252	(510,953)	-24%	6,377,398	6,624,228	(246,829)	-4%
Public Purpose Funds-Cascade	139,974	191,371	(51,397)	-27%	608,561	880,306	(271,745)	-31%
Total Public Purpose Funds	7,218,906	8,255,080	(1,036,174)	-13%	24,733,400	25,693,917	(960,517)	-4%
Incremental Funds - PGE	3,542,305	3,885,520	(343,215)	-9%	12,287,708	12,323,993	(36,285)	0%
Incremental Funds - PacifiCorp	1,778,519	1,825,176	(46,657)	-3%	6,385,313	5,674,159	711,154	13%
NW Natural - Washington			-			705,676	(705,676)	
Revenue from Investments	65,168	24,000	41,168	172%	194,231	72,000	122,231	170%
TOTAL REVENUE	12,604,897	13,989,775	(1,384,878)	-10%	43,600,653	44,469,745	(869,092)	-2%
<u>EXPENSES</u>								
Program Subcontracts	4,420,762	4,167,865	(252,897)	-6%	12,795,516	12,351,965	(443,552)	-4%
Incentives	4,870,663	5,349,101	478,438	9%	9,085,804	12,482,218	3,396,414	27%
Salaries and Related Expenses	912,198	984,779	72,581	7%	2,690,609	2,954,336	263,728	9%
Professional Services	645,703	753,163	107,460	14%	1,523,279	2,056,045	532,766	26%
Supplies	2,674	3,650	976	27%	9,704	10,950	1,246	11%
Telephone	4,484	5,583	1,099	20%	13,455	16,500	3,045	18%
Postage and Shipping Expenses	3,683	1,100	(2,583)	-235%	5,851	3,300	(2,551)	-77%
Occupancy Expenses	52,276	61,519	9,243	15%	160,993	184,556	23,563	13%
Noncapitalized Equip. & Depr.	108,635	61,854	(46,782)	-76%	243,651	236,861	(6,790)	-3%
Call Center	13,368	13,000	(368)	-3%	40,051	39,000	(1,051)	-3%
Printing and Publications	2,397	10,946	8,549	78%	30,559	32,838	2,279	7%
Travel	8,681	22,508	13,828	61%	24,446	51,525	27,079	53%
Conference, Training & Mtng Exp	13,532	36,128	22,596	63%	39,568	99,885	60,317	60%
Interest Expense and Bank Fees	159.14	208	49	24%	1,757	625	(1,132)	-181%
Insurance	8,630	9,167	537	6%	25,889	27,500	1,611	6%
Dues, Licenses and Fees	5,894	23,332	17,438	75%	30,872	34,731	3,860	11%
TOTAL EXPENSES	11,073,739	11,503,903	430,164	4%	26,722,004	30,582,835	3,860,831	13%
TOTAL REVENUE LESS EXPENSES	1,531,158	2,485,872	(954,714)	-38%	16,878,649	13,886,910	2,991,738	22%

Energy Trust of Oregon
Statement of Functional Expenses
For the Three Months Ending March 31, 2015
(Unaudited)

	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	\$19,536,457	\$ 2,344,863	\$ 21,881,320				\$ 21,881,320	\$24,834,183	\$(2,952,863)	-12%
Payroll and Related Expenses	810,791	231,668	1,042,460	506,232	288,963	795,195	1,837,654	1,947,340	(109,686)	-6%
Outsourced Services	971,193	84,350	1,055,543	58,134	344,857	402,991	1,458,534	1,898,670	(440,136)	-23%
Planning and Evaluation	486,823	16,182	503,005	360		360	503,364	602,734	(99,370)	-16%
Customer Service Management	156,041	12,133	168,174				168,174	135,030	33,144	25%
Trade Allies Network	74,001	5,037	79,037				79,037	99,843	(20,806)	-21%
Total Program Expenses	22,035,306	2,694,233	24,729,539	564,725	633,820	1,198,545	25,928,084	29,517,799	(3,589,715)	-12%
Program Support Costs										
Supplies	2,498	736	3,234	2,788	1,238	4,027	7,261	7,788	527	7%
Postage and Shipping Expenses	633	2,127	2,759	2,130	251	2,381	5,140	2,027	(3,113)	-154%
Telephone	471	159	630	291	187	478	1,108	2,493	1,385	56%
Printing and Publications	29,257	24	29,281	87	627	715	29,996	31,792	1,796	6%
Occupancy Expenses	46,309	15,652	61,961	28,673	18,366	47,038	108,999	122,632	13,633	11%
Insurance	7,447	2,517	9,964	4,611	2,953	7,564	17,528	18,273	745	4%
Equipment	605	24,938	25,543	375	240	614	26,158	33,696	7,538	22%
Travel	5,279	2,015	7,295	5,286	8,042	13,328	20,622	40,200	19,578	49%
Meetings, Trainings & Conferences	7,042	1,630	8,672	17,037	2,224	19,261	27,932	84,942	57,010	67%
Interest Expense and Bank Fees				1,757		1,757	1,757	625	(1,132)	-181%
Depreciation & Amortization	12,409	4,194	16,604	7,683	4,921	12,605	29,208	25,918	(3,290)	-13%
Dues, Licenses and Fees	6,290	6,550	12,840	1,666	6,359	8,025	20,865	21,344	479	2%
IT Services	328,989	43,399	372,388	74,013	50,945	124,958	497,345	673,305	175,960	26%
Total Program Support Costs	447,230	103,940	551,170	146,397	96,353	242,750	793,920	1,065,036	271,116	25%
TOTAL EXPENSES	22,482,536	2,798,172	25,280,708	711,122	730,173	1,441,295	26,722,004	30,582,835	3,860,831	13%

OPUC Measure vs. 9% 4.6%

ENERGY TRUST OF OREGON
Year to Date by Program/Service Territory
For the Three Months Ending March 31, 2015
Unaudited

	ENERGY EFFICIENCY								
	PGE	PacifiCorp	Total	NWN Industrial	NW Natural	Cascade	Oregon Total	NWN WA	ETO Total
REVENUES									
Public Purpose Funding	\$7,898,011	\$5,873,929	\$13,771,940	\$0	\$6,377,398	\$608,561	\$20,757,899	\$0	\$20,757,899
Incremental Funding	12,287,708	6,385,313	18,673,021				18,673,021		18,673,021
Revenue from Investments									
TOTAL PROGRAM REVENUE	20,185,719	12,259,242	32,444,961	-	6,377,398	608,561	39,430,921	-	39,430,921
EXPENSES									
Program Management (Note 3)	723,354	466,228	1,189,584	41,962	211,468	31,831	1,474,845	29,748	1,504,593
Program Delivery	5,572,921	3,875,459	9,448,380	180,745	1,318,705	211,604	11,159,436	84,378	11,243,814
Incentives	3,622,453	2,051,460	5,673,913	9,111	982,160	97,244	6,762,428	77,334	6,839,762
Program Eval & Planning Svcs.	394,726	288,779	683,503	8,084	113,239	11,722	816,549	10,422	826,971
Program Marketing/Outreach	516,901	339,643	856,545	3,268	213,659	19,790	1,093,262	9,472	1,102,734
Program Quality Assurance	6,907	6,320	13,228	0	6,121	225	19,574	0	19,574
Outsourced Services	140,888	86,359	227,246	5,321	31,000	4,250	267,819	0	267,819
Trade Allies & Cust. Svc. Mgmt.	96,021	69,497	165,518	630	52,946	3,474	222,568	7,474	230,042
IT Services	147,996	106,656	254,653	2,337	59,133	5,308	321,430	7,559	328,989
Other Program Expenses - all	59,651	37,509	97,159	1,682	15,074	2,020	115,934	2,308	118,242
TOTAL PROGRAM EXPENSES	11,281,818	7,327,910	18,609,729	253,140	3,003,505	387,468	22,253,845	228,695	22,482,536
ADMINISTRATIVE COSTS									
Management & General (Notes 1 & 2)	317,348	206,129	523,474	7,121	84,486	10,898	625,979	6,434	632,412
Communications & Customer Svc (Notes 1 & 2)	325,849	211,649	537,497	7,311	86,748	11,191	642,749	6,606	649,354
Total Administrative Costs	643,197	417,778	1,060,971	14,432	171,234	22,089	1,268,728	13,040	1,281,766
TOTAL PROG & ADMIN EXPENSES	11,925,015	7,745,689	19,670,703	267,572	3,174,740	409,557	23,522,572	241,733	23,764,305
TOTAL REVENUE LESS EXPENSES	8,260,704	4,513,554	12,774,261	(267,572)	3,202,659	199,004	15,908,348	(241,733)	15,666,615
NET ASSETS - RESERVES									
Cumulative Carryover at 12/31/14	27,816,061	15,090,308	42,906,369	580,920	9,503,289	1,156,900	54,147,478	217,848	54,365,326
Change in net assets this year	8,260,704	4,513,554	12,774,261	(267,572)	3,202,659	199,004	15,908,348	(241,733)	15,666,615
Ending Net Assets - Reserves	36,076,765	19,603,862	55,680,630	313,348	12,705,948	1,355,904	70,055,826	(23,885)	70,031,941
Ending Reserve by Category									
Program Reserves (Efficiency and Renewables)	36,076,765	19,603,862	55,680,630	313,348	12,705,948	1,355,904	70,055,826	(23,885)	70,031,941
Assets Released for General Purpose									
Emergency Contingency Pool									
TOTAL NET ASSETS CUMULATIVE	36,076,765	19,603,862	55,680,630	313,348	12,705,948	1,355,904	70,055,826	(23,885)	70,031,941

Note 1) Management & General and Communications & Customer Service Expenses (Admin) have been allocated based on total expenses.

Note 2) Admin costs are allocated for mgmt reporting only. GAAP for Not for Profits does not allow allocation of admin costs to program expenses.

Note 3) Program Management costs include both outsourced and internal staff.

ENERGY TRUST OF OREGON
Year to Date by Program/Service Territory
For the Three Months Ending March 31, 2015
Unaudited

	RENEWABLE ENERGY				TOTAL			
	PGE	PacifiCorp	Total	Other	All Programs	Approved budget	Change	% Change
REVENUES								
Public Purpose Funding	\$2,324,960	\$1,650,541	\$3,975,501	\$0	\$24,733,400	\$25,693,917	(\$960,517)	-4%
Incremental Funding					18,673,021	18,703,828	(30,807)	0%
Revenue from Investments				194,231	194,231	72,000	122,231	170%
TOTAL PROGRAM REVENUE	2,324,960	1,650,541	3,975,501	194,231	43,600,653	44,469,745	(869,092)	-2%
EXPENSES								
Program Management (Note 3)	167,024	69,645	236,669		1,741,262	1,734,807	(\$6,455)	0%
Program Delivery	55,929	37,892	93,821		11,337,635	10,809,832	(527,803)	-5%
Incentives	1,596,961	649,082	2,246,042		9,085,804	12,482,218	3,396,414	27%
Program Eval & Planning Svcs.	12,235	5,026	17,261		844,232	1,231,030	386,798	31%
Program Marketing/Outreach	16,618	7,976	24,594		1,127,328	1,377,874	250,546	18%
Program Quality Assurance	0	0	0		19,574	0	(19,574)	
Outsourced Services	23,750	34,927	58,678		326,497	378,675	52,178	14%
Trade Allies & Cust. Svc. Mgmt.	11,945	5,225	17,170		247,212	234,872	(12,340)	-5%
IT Services	30,704	12,695	43,399		372,388	504,137	131,749	26%
Other Program Expenses - all	40,617	19,924	60,541		178,783	256,393	77,610	30%
TOTAL PROGRAM EXPENSES	1,955,783	842,392	2,798,172	-	25,280,708	29,009,838	3,729,130	13%
ADMINISTRATIVE COSTS								
Management & General (Notes 1 & 2)	56,604	22,107	78,710		711,122	826,957	115,835	14%
Communications & Customer Svc (Notes 1 & 2)	58,120	22,698	80,819		730,173	746,038	15,865	2%
Total Administrative Costs	114,724	44,805	159,529		1,441,295	1,572,995	131,700	8%
TOTAL PROG & ADMIN EXPENSES	2,070,506	887,196	2,957,702		26,722,004	30,582,835	3,860,831	13%
TOTAL REVENUE LESS EXPENSES	254,453	763,344	1,017,797	194,231	16,878,649	13,886,910	2,991,739	22%
NET ASSETS - RESERVES								
Cumulative Carryover at 12/31/14	13,736,997	10,937,994	24,674,991	8,186,804	87,227,121	88,912,387	(1,685,266)	-2%
Change in net assets this year	254,453	763,344	1,017,797	194,231	16,878,649	13,886,910	2,991,739	22%
Ending Net Assets - Reserves	13,991,450	11,701,338	25,692,788	8,381,035	104,105,770	102,799,297	1,306,473	1%
Ending Reserve by Category								
Program Reserves (Efficiency and Renewables)	13,991,450	11,701,338	25,692,788	3,381,035	99,105,770			
Assets Released for General Purpose								
Emergency Contingency Pool				5,000,000	5,000,000			
TOTAL NET ASSETS CUMULATIVE	13,991,450	11,701,338	25,692,788	8,381,035	104,105,770	102,799,297	1,306,473	1%

Energy Trust of Oregon
Program Expense by Service Territory
For the Three Months Ending March 31, 2015
(Unaudited)

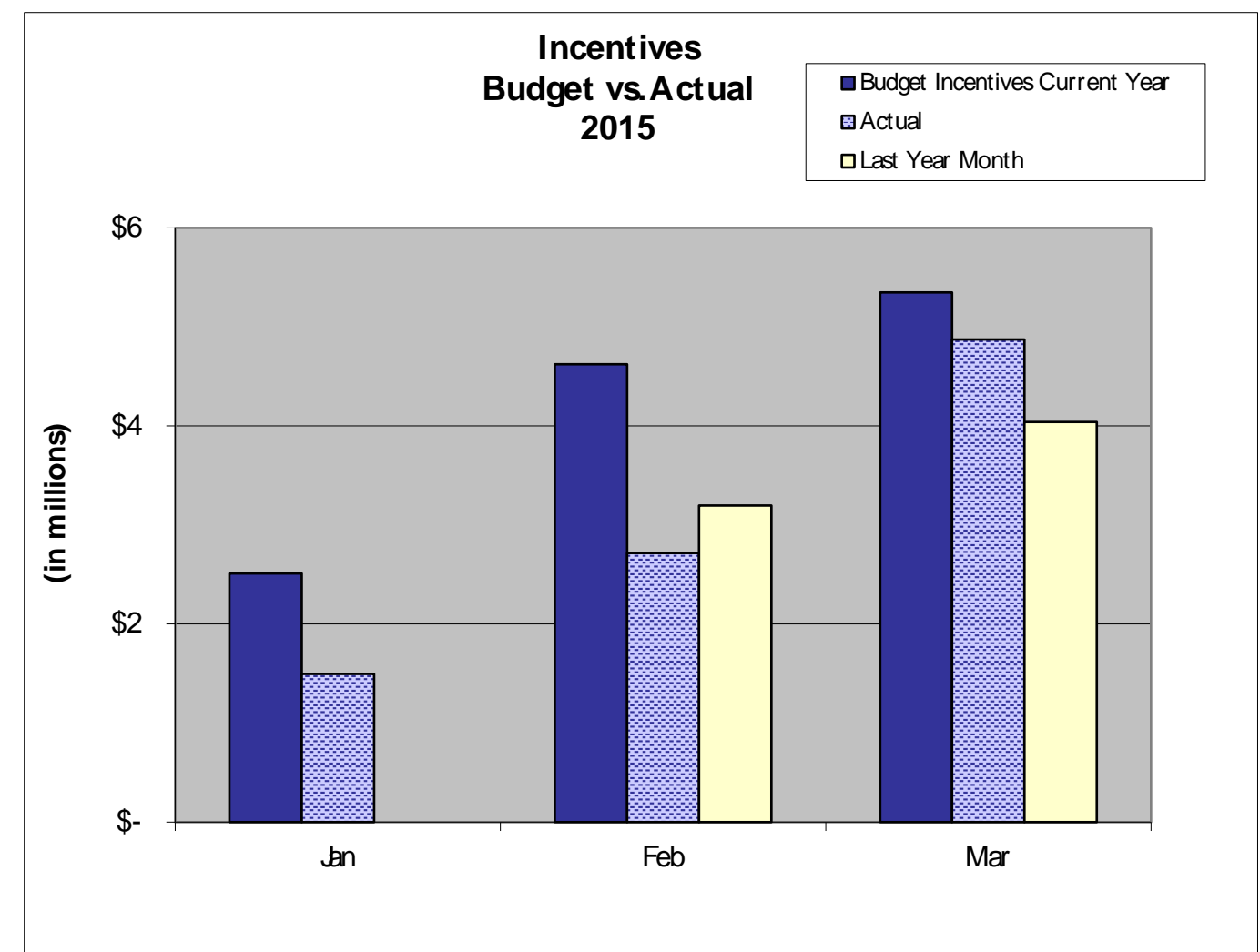
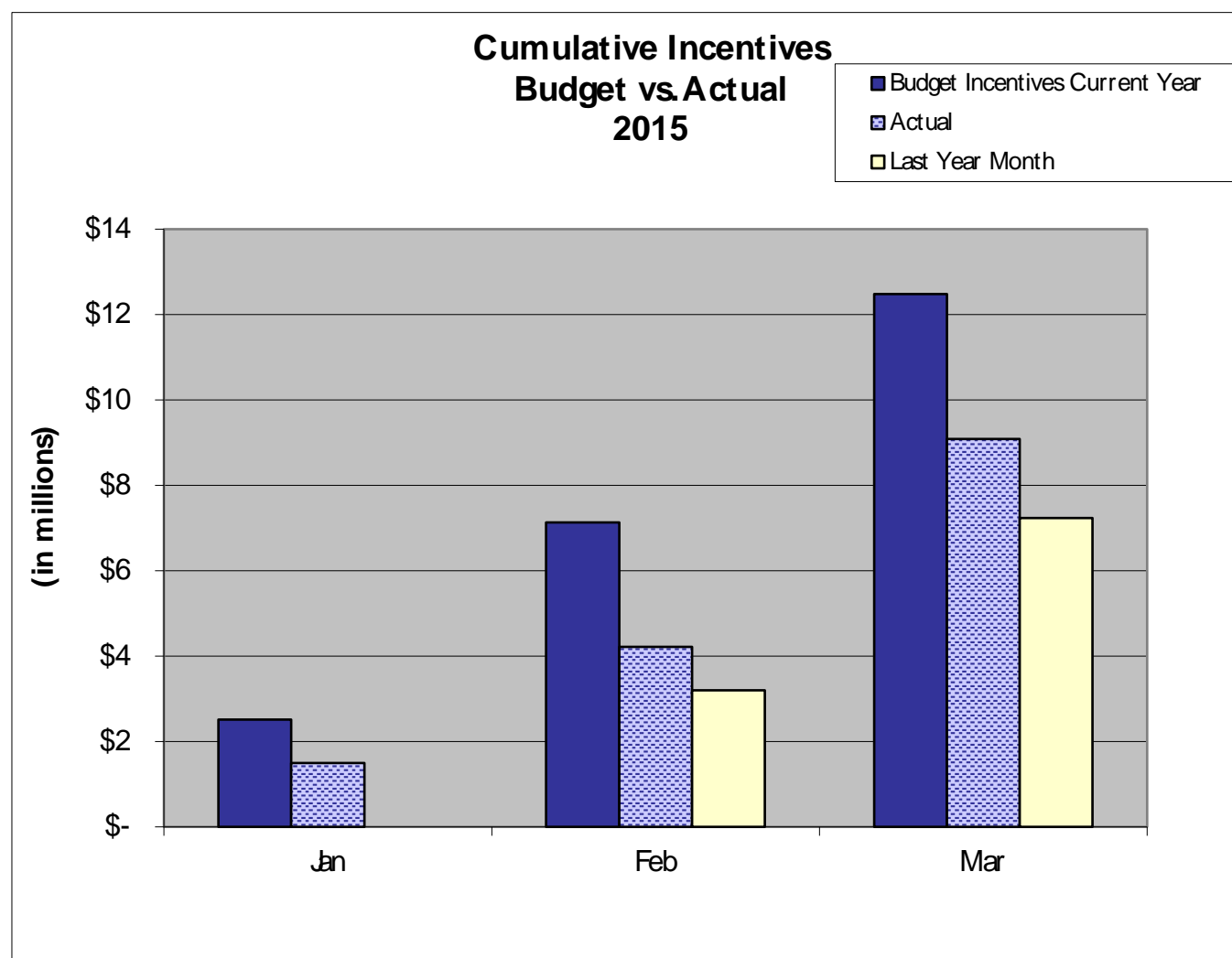
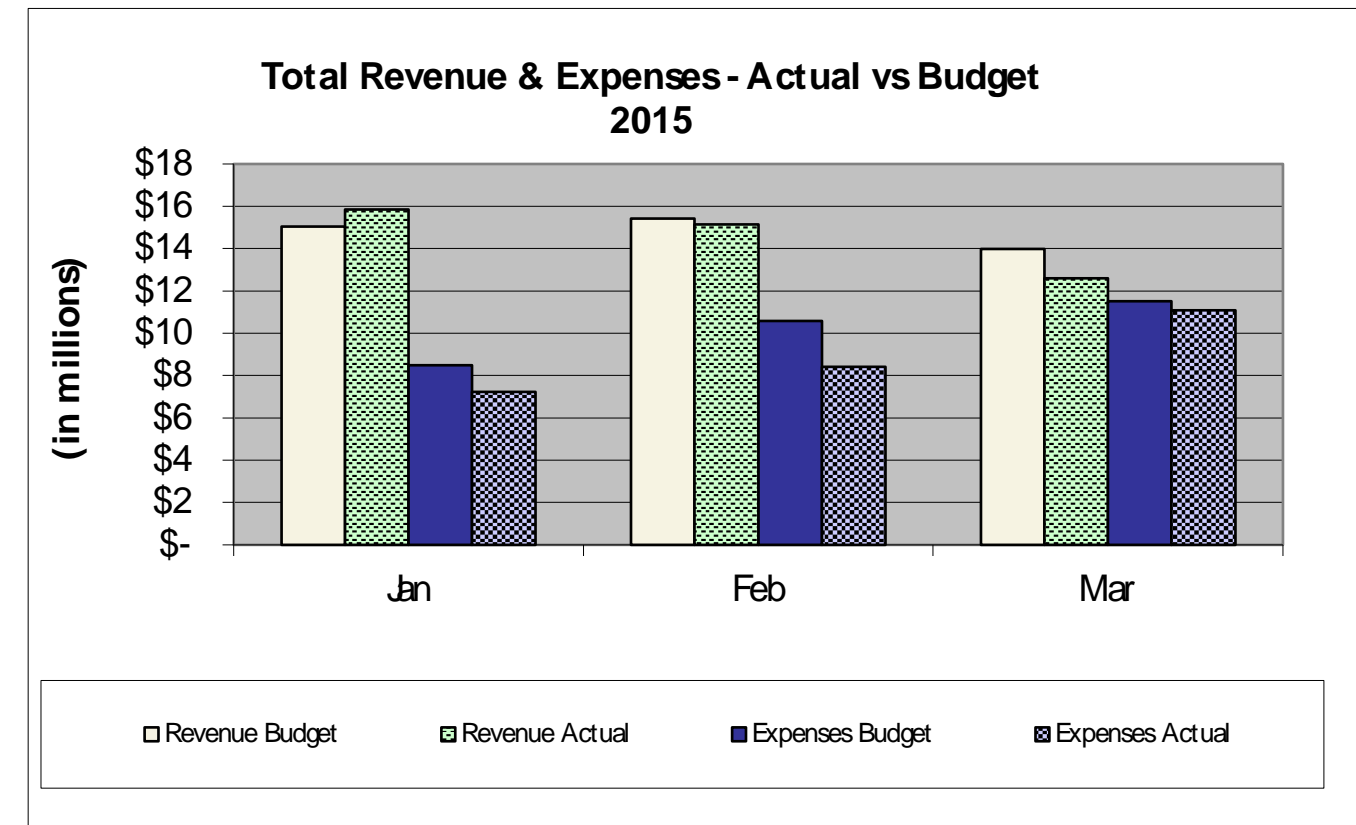
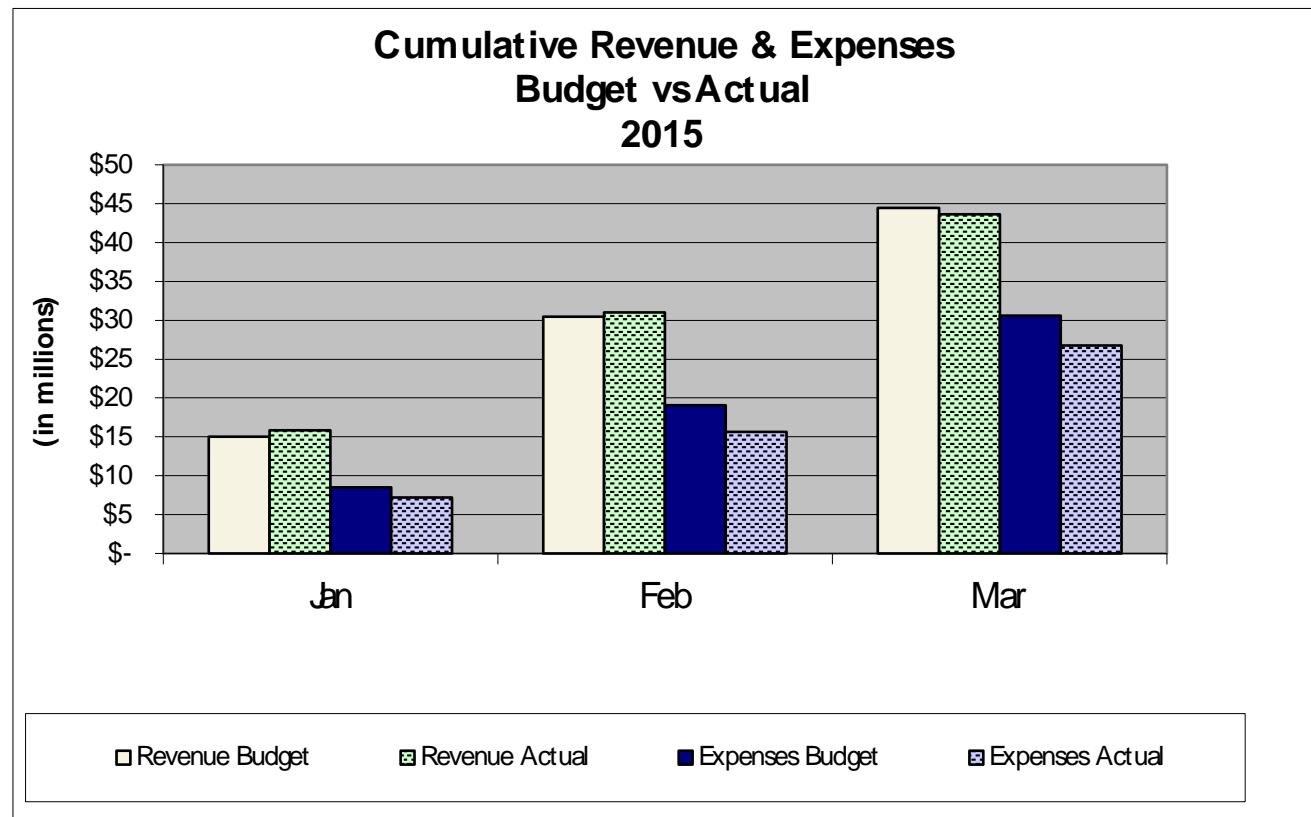
	PGE	Pacific Power	Subtotal Elec.	NWN Industrial	NW Natural Gas	Cascade	Subtotal Gas	Oregon Total	NWN WA	ETO Total	YTD Budget	Variance	% Var
Energy Efficiency													
Commercial													
Existing Buildings	\$ 3,461,607	\$ 2,070,111	\$ 5,531,717	\$ 74,708	\$ 572,887	\$ 175,040	\$ 822,635	\$ 6,354,352	\$ 95,146	\$ 6,449,498	\$ 7,935,067	\$ 1,485,569	19%
New Buildings	723,546	771,555	1,495,101	335	187,759	36,276	224,370	1,719,471		1,719,471	2,440,936	721,465	30%
NEEA	352,465	259,113	611,578		61,247	6,477	67,725	679,303	5,694	684,997	688,817	3,820	1%
Total Commercial	4,537,618	3,100,779	7,638,397	75,043	821,893	217,793	1,114,729	8,753,126	100,840	8,853,966	11,064,820	2,210,854	20%
Industrial													
Production Efficiency	2,799,807	1,739,775	4,539,582	192,529	141,720	51,541	385,789	4,925,371		4,925,371	4,607,215	(318,156)	-7%
NEEA	89,625	65,811	155,436					155,436		155,436	39,379	(116,057)	-295%
Total Industrial	2,889,432	1,805,586	4,695,018	192,529	141,720	51,541	385,789	5,080,807	-	5,080,807	4,646,594	(434,213)	-9%
Residential													
Existing Homes	1,455,279	1,331,664	2,786,943	0	1,285,480	47,176	1,332,656	4,119,599	67,111	4,186,710	4,384,950	198,240	5%
New Homes/Products	2,513,766	1,119,336	3,633,102	0	848,450	84,854	933,304	4,566,406	66,535	4,632,941	6,193,751	1,560,810	25%
NEEA	528,920	388,323	917,243		77,198	8,193	85,391	1,002,634	7,247	1,009,881	908,685	(101,196)	-11%
Total Residential	4,497,965	2,839,324	7,337,289	-	2,211,127	140,223	2,351,350	9,688,639	140,893	9,829,532	11,487,386	1,657,854	14%
Energy Efficiency Costs	11,925,015	7,745,689	19,670,703	267,572	3,174,740	409,557	3,851,869	23,522,572	241,733	23,764,305	27,198,800	3,434,495	13%
Renewables													
Solar Electric (Photovoltaic)	1,692,459	742,341	2,434,800					2,434,800		2,434,800	1,845,200	(589,600)	-32%
Other Renewable	378,047	144,855	522,902					522,902		522,902	1,538,835	1,015,933	66%
Renewables Costs	2,070,506	887,196	2,957,702	-	-	-	-	2,957,702	-	2,957,702	3,384,035	426,333	13%
Cost Grand Total	13,995,521	8,632,884	22,628,405	267,572	3,174,740	409,557	3,851,869	26,480,274	241,733	26,722,004	30,582,835	3,860,828	13%

Energy Trust of Oregon
Administrative Expenses
For the 1st Quarter and Three Months Ending March 31, 2015
(Unaudited)

EXPENSES	MANAGEMENT & GENERAL						COMMUNICATIONS & CUSTOMER SERVICE					
	ACTUAL	QUARTER		YTD			ACTUAL	QUARTER		YTD		
		BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE		BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE
Outsourced Services	\$58,134	\$115,922	\$57,788	\$58,134	\$115,922	\$57,788	\$344,857	\$299,125	(\$45,732)	\$344,857	\$299,125	(\$45,732)
Legal Services		6,750	6,750		6,750	6,750						
Salaries and Related Expenses	506,232	513,379	7,147	506,232	513,379	7,147	288,963	332,886	43,923	288,963	332,886	43,923
Supplies	1,441	1,075	(366)	1,441	1,075	(366)	375	250	(125)	375	250	(125)
Postage and Shipping Expenses	1,738		(1,738)	1,738		(1,738)						
Printing and Publications	44	88	44	44	88	44	600	1,250	650	600	1,250	650
Travel	5,286	12,387	7,101	5,286	12,387	7,101	8,042	6,250	(1,792)	8,042	6,250	(1,792)
Conference, Training & Mtngs	17,030	28,422	11,392	17,030	28,422	11,392	2,220	3,500	1,280	2,220	3,500	1,280
Interest Expense and Bank Fees	1,757	625	(1,132)	1,757	625	(1,132)						
Dues, Licenses and Fees	1,666	1,649	(17)	1,666	1,649	(17)	6,359	2,125	(4,234)	6,359	2,125	(4,234)
Shared Allocation (Note 1)	43,422	46,031	2,609	43,422	46,031	2,609	27,813	31,685	3,872	27,813	31,685	3,872
IT Service Allocation (Note 2)	74,013	100,198	26,186	74,013	100,198	26,186	50,945	68,970	18,024	50,945	68,970	18,024
Planning & Eval	360	431	71	360	431	71						
TOTAL EXPENSES	711,122	826,957	115,835	711,122	826,957	115,835	730,173	746,041	15,866	730,173	746,041	15,866

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

Note 2) Represents allocation of Shared IT Costs



For contracts with costs
through: 4/1/2015

CONTRACTOR	Description	City	EST COST	Actual TTD	Remaining	Start	End
Administration							
Administration Total:			7,570,165	3,736,763	3,833,401		
Communications							
Communications Total:			3,683,287	1,914,743	1,768,545		
Energy Efficiency							
Northwest Energy Efficiency Alliance	Regional Energy Eff Initiative	Portland	39,138,680	37,113,264	2,025,416	1/1/2010	7/1/2015
Northwest Energy Efficiency Alliance	Regional EE Initiative Agmt	Portland	33,662,505	3,178,866	30,483,639	1/1/2015	7/1/2020
ICF Resources, LLC	2015 BE PMC	Fairfax	9,361,147	2,327,457	7,033,690	1/1/2015	12/31/2015
CLEAResult Consulting Inc	2015 HES PMC	Austin	6,831,251	1,663,600	5,167,651	1/1/2015	12/31/2015
Northwest Energy Efficiency Alliance	Regional Gas EE Initiative	Portland	6,200,354	132,609	6,067,745	1/1/2015	7/1/2020
CLEAResult Operating LLC	2015 NBE PMC	Portland	4,986,181	1,062,717	3,923,464	1/1/2015	12/31/2015
Lockheed Martin Services, Inc.	2015 MF PMC	Cherry Hill	4,158,899	975,945	3,182,954	1/1/2015	12/31/2015
Ecova Inc	2015 Products PMC	Spokane	3,601,890	935,233	2,666,657	1/1/2015	1/31/2016
CLEAResult Consulting Inc	2015 NH PMC	Austin	2,772,252	669,625	2,102,627	1/1/2015	12/31/2015
Energy 350 Inc	PDC - PE 2015	Portland	2,388,150	597,048	1,791,102	1/1/2015	12/31/2015
Portland General Electric	PDC - PE 2015	Portland	2,211,000	562,919	1,648,081	1/1/2015	12/31/2015
Oregon State University	CHP Project - OSU	Corvallis	2,024,263	1,982,682	41,581	12/20/2010	1/31/2016
Northwest Power & Conservation Council	RTF Funding Agreement		1,825,000	321,766	1,503,234	2/25/2015	12/31/2019
Cascade Energy, Inc.	PDC - PE 2015 Small Industrial	Walla Walla	1,497,000	419,358	1,077,642	1/1/2015	12/31/2015
NEXANT, INC.	PDC - PE 2015	San Francisco	1,344,550	434,768	909,782	1/1/2015	12/31/2015
Evergreen Consulting Group, LLC	PE Lighting PDC 2015	Tigard	1,296,000	267,110	1,028,890	1/1/2015	12/31/2015
RHT Energy Solutions	PDC - PE 2015	Medford	1,126,440	232,678	893,762	1/1/2015	12/31/2015
Triple Point Energy Inc.	PDC - SEM 2015	Portland	1,048,000	108,318	939,682	1/1/2015	12/31/2015
HST&V, LLC	PDC - SEM 2015	Portland	848,375	245,757	602,618	1/1/2015	12/31/2015
EnergySavvy Inc.	EnergySavvy Online Audit Tool	Seattle	587,500	459,481	128,019	1/1/2012	12/31/2015
OPOWER, Inc.	OPower Personal Energy Reports	Arlington	399,447	397,287	2,160	8/1/2013	7/31/2015
The Cadmus Group Inc.	PE Impact Eval 2012	Watertown	345,000	169,218	175,782	4/15/2014	8/31/2015
Cascade Energy, Inc.	SEM Curriculum	Walla Walla	329,080	292,298	36,782	5/1/2014	4/30/2016
Craft3	SWR Loan Origination/Loss Fund	Portland	305,000	8,850	296,150	6/1/2014	6/30/2015
Energy Market Innovations, Inc.	Lighting Controls Savings Est	Seattle	305,000	35,867	269,133	10/1/2014	9/30/2015
Craft3	Loan Agreement	Portland	300,000	100,000	200,000	6/1/2014	6/20/2025
CLEAResult Consulting Inc	2015 HES WA PMC	Austin	277,600	46,231	231,369	1/1/2015	12/31/2015
J. Hruska Global	Quality Assurance Services	Columbia City	260,000	246,610	13,391	1/1/2013	5/31/2015
EnerNoc, Inc.	Commercial SEM curriculum	Boston	216,915	179,478	37,437	6/27/2014	5/30/2015

For contracts with costs
through: 4/1/2015

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Home Performance Contractors Guild of Oregon	Existing Homes Program Support	Portland	215,000	188,583	26,417	1/1/2012	3/31/2015
ICF Resources, LLC	2015 BE NWN WA PMC	Fairfax	196,984	52,920	144,064	1/1/2015	12/31/2015
The Cadmus Group Inc.	NBE Program Impact Evaluation	Watertown	196,000	192,513	3,487	1/15/2014	4/30/2015
Northwest Energy Efficiency Alliance	Product Funding Agreement	Portland	171,851	171,851	0	6/5/2014	12/31/2015
Navigant Consulting Inc	CORE Improvement Pilot Eval	Boulder	140,000	133,850	6,150	9/1/2012	12/31/2015
ICF Resources, LLC	2015 BE DSM PMC	Fairfax	119,627	15,390	104,237	1/1/2015	12/31/2015
Abt SRBI Inc.	Fast Feedback Surveys	New York	118,000	67,992	50,008	1/31/2014	2/29/2016
CLEAResult Consulting Inc	QA Reinspection Services	Austin	106,316	82,987	23,329	4/28/2014	3/30/2015
Ecotope, Inc.	Gas Hearth Study	Seattle	105,104	105,096	8	10/10/2013	9/1/2015
ICF Resources, LLC	OSU CHP Performance Monitoring	Fairfax	100,000	54,458	45,543	7/1/2013	6/30/2016
1000 Broadway Building L.P.	Pay-for-Performance Pilot	Portland	88,125	0	88,125	10/17/2014	11/1/2018
The Cadmus Group Inc.	Commercial Op Pilot Eval	Watertown	85,000	85,000	0	7/1/2011	9/1/2015
The Cadmus Group Inc.	PE SEM Evaluation	Watertown	80,000	50,187	29,813	10/1/2014	8/31/2015
Research Into Action, Inc.	SWR OnBill Repmt Pilot Eval	Portland	73,000	4,857	68,144	11/1/2014	6/30/2016
KEMA Incorporated	Impact Evaluation NBE '11-'14	Oakland	70,000	0	70,000	3/2/2015	11/30/2015
Pivotal Energy Solutions LLC	License Agreement	Gilbert	64,500	31,974	32,526	3/1/2014	12/31/2015
SBW Consulting, Inc.	Path to Net Zero Impact Eval	Bellevue	60,000	0	60,000	3/19/2015	12/31/2015
PWP, Inc.	SEM Intro Pilot Evaluation	Gaithersburg	40,000	21,490	18,510	10/28/2013	10/2/2015
Research Into Action, Inc.	C&I Qualitative Research	Portland	40,000	39,859	141	10/1/2014	4/30/2015
Evergreen Economics	Gas Hearth Mrkt Transformation	Portland	37,840	11,550	26,290	1/1/2015	7/31/2015
David Lineweber	Heat Pump Study	Tigard	35,250	33,745	1,505	3/20/2014	5/30/2015
Apex Analytics LLC	Delphi Panel Study	Boulder	30,000	22,620	7,380	9/1/2014	5/31/2015
Apex Analytics LLC	Gas Thermostat	Boulder	30,000	7,930	22,070	10/20/2014	12/31/2015
Btan Consulting	ESP Cert Boot Camp Evaluation	Madison	30,000	18,788	11,213	2/1/2014	4/30/2015
Research Into Action, Inc.	MPower Pilot Evaluation	Portland	30,000	4,147	25,853	2/1/2015	4/1/2016
Issues & Answers Network Inc	Energy Payback Estimator tool	Virginia Beach	28,420	28,420	0	12/5/2014	4/30/2015
LightTracker, Inc.	CREED Data	Boulder	26,000	26,000	0	10/3/2014	8/1/2015
Energy Center of Wisconsin	Billing Analysis Review	Madison	25,000	0	25,000	3/15/2015	12/31/2016
Evergreen Economics	Air Sealing Pilot Evaluation	Portland	25,000	1,155	23,845	10/15/2014	12/31/2015
Northwest Food Processors Association	NW Industrial EE Summit 2015	Portland	25,000	10,000	15,000	11/30/2014	12/31/2015
Portland General Electric	2015 Workshop Sponsorship	Portland	25,000	25,000	0	1/1/2015	12/31/2015
Sustainable Northwest	Klamath PAC Ag Program Aware	Portland	24,992	18,744	6,248	10/1/2014	6/10/2015
CLEAResult Consulting Inc	Professional Services/Trans	Austin	22,588	17,314	5,274	10/15/2014	10/15/2016
Earth Advantage, Inc.	New Homes Code Change Analysis	Portland	22,275	7,443	14,833	1/1/2015	5/15/2015
Pivotal Energy Solutions LLC	EPS New Home dbase construct	Gilbert	22,000	21,000	1,000	7/1/2014	6/30/2016

For contracts with costs
through: 4/1/2015

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MetaResource Group	Pay-for-Performance Pilot Eval	Portland	20,000	2,250	17,750	8/5/2014	12/31/2015
WegoWise Inc	benchmarking license 2015	Boston	20,000	7,856	12,144	6/15/2014	12/31/2015
Consortium for Energy Efficiency	Membership Dues - 2015		18,736	0	18,736	1/1/2015	12/31/2015
Abt SRBI Inc.	NH Gas Fireplace Survey	New York	16,500	0	16,500	2/11/2015	4/30/2015
Energy 350 Inc	Professional Services	Portland	14,920	14,920	0	12/10/2014	12/10/2016
PWP, Inc.	NBE Satisfaction Survey 2014	Gaithersburg	14,000	13,980	20	1/1/2015	4/30/2015
Evergreen Economics	Builder Interviews	Portland	13,000	12,950	50	12/1/2014	4/30/2015
Triple Point Energy Inc.	SEM Materials Review	Portland	10,500	0	10,500	2/11/2015	8/31/2015
EnerNoc, Inc.	SEM Materials Review	Boston	10,000	2,719	7,281	2/13/2015	8/31/2015
Research Into Action, Inc.	Professional Services	Portland	9,590	9,570	20	9/1/2014	8/31/2016
Bridgetown Printing Company	January 2015 Bill Insert	Portland	9,517	9,517	0	1/1/2015	12/31/2015
City of Portland Bureau of Planning & Sustainability	Sponsorships - 2015	Portland	8,000	8,000	0	1/1/2015	12/31/2015
Northwest Energy Efficiency Council	BOC 2015 Sponsorship	Seattle	7,900	0	7,900	1/1/2015	12/31/2015
Northwest Environmental Business Council	Future Energy Conference 2015	Portland	7,650	7,650	0	3/25/2015	12/31/2015
Apose Pty Ltd	Aspose.NET Words Software Lice	Lane Cove	5,045	5,040	5	12/3/2014	12/3/2015
PWP, Inc.	SEM Claimed Savings Review	Gaithersburg	5,000	1,110	3,890	3/1/2015	8/31/2015
Northwest Earth Institute	NWEI Course License Agreement	Portland	4,000	2,000	2,000	2/23/2015	6/30/2015
Conservations Services Group, Inc.	DSE&SWR Estimator Tool Updates	Portland	3,240	2,430	810	11/11/2014	11/11/2016
Energy Efficiency Total:			132,353,948	56,819,892	75,534,056		

Joint Programs

Portland State University	Technology Forecasting		120,132	89,914	30,218	11/7/2011	12/31/2015
E Source Companies LLC	E Source Service Agreement	Boulder	74,900	74,900	0	2/1/2014	1/31/2016
The Cadmus Group Inc.	Evaluation Consultant	Watertown	39,045	38,960	85	6/20/2013	2/28/2016
Watkins and Associates, Inc.	EPS & Solar Valuation Study	Portland	38,000	38,000	0	2/1/2014	4/30/2015
Research Into Action, Inc.	EH Attic Air Sealing Pilot Eva	Portland	30,000	7,081	22,919	10/8/2014	9/30/2016
CoStar Realty Information Inc	Property Data	Baltimore	26,420	23,855	2,565	6/1/2011	6/28/2015
Research Into Action, Inc.	Fast Feedback Analysis	Portland	25,000	25,000	0	9/1/2014	4/30/2015
Navigant Consulting Inc	P&E Consultant Services	Boulder	22,530	22,530	0	1/15/2014	12/30/2015
American Council for and Energy Efficient Economy	ACEEE Sponsorship - 2015		12,500	12,500	0	1/1/2015	12/31/2015
Bruins Analysis and Consulting	Fast Feedback Reporting	Bremerton	6,000	6,000	0	6/1/2014	4/30/2015
Joint Programs Total:			394,527	338,741	55,786		

Renewable Energy

Clean Water Services	Project Funding Agreement		3,000,000	0	3,000,000	11/25/2014	11/25/2039
JC-Biomethane LLC	Biogas Plant Project Funding	Eugene	2,000,000	1,000,000	1,000,000	10/18/2012	10/18/2032
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	1,550,000	1,550,000	0	9/11/2012	9/11/2032

For contracts with costs
through: 4/1/2015

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Central Oregon Irrigation District	COID Juniper Phase 2	Redmond	1,281,820	0	1,281,820	7/19/2013	7/19/2033
Farm Power Misty Meadows LLC	Misty Meadows Biogas Facility	Mount Vernon	1,000,000	500,000	500,000	10/25/2012	10/25/2027
Three Sisters Irrigation District	TSID Hydro	Sisters	1,000,000	700,000	300,000	4/25/2012	9/30/2032
Farmers Irrigation District	FID - Plant 2 Hydro	Hood River	825,000	0	825,000	4/1/2014	4/1/2034
Tioga Solar VI, LLC	Photovoltaic Project Agreement	San Mateo	570,760	570,760	0	2/1/2009	2/1/2030
City of Medford	750kW Combined Heat & Power	Medford	450,000	450,000	0	10/20/2011	10/20/2031
City of Pendleton	Pendleton Microturbines	Pendleton	450,000	150,000	300,000	4/20/2012	4/20/2032
RES - Ag FGO LLC	Biogas Manure Digester Project	Washington	441,660	441,660	0	10/27/2010	10/27/2025
RES - Ag FGO LLC	Biogas Manure Digester - FGO	Washington	441,660	183,289	258,371	10/27/2010	10/27/2025
Oak Leaf Solar VI LLC	BVT Sexton Mtn PV	Beltsville	355,412	0	355,412	5/15/2014	12/31/2034
City of Gresham	City of Gresham Cogen 2		330,000	165,000	165,000	4/9/2014	7/9/2034
Farmers Conservation Alliance	Irrigation Collaboration Initi	Hood River	312,876	28,000	284,876	1/2/2015	12/31/2016
K2A Properties, LLC	Doerfler Wind Farm Project	Aumsville	230,000	224,253	5,747	5/20/2010	5/20/2030
Confederated Tribes of the Umatilla Indian Reservation	Small Wind Project Funding	Pendleton	170,992	170,992	0	7/25/2013	12/31/2028
Henley KBG, LLC	Henley Proj Dev Assistance	Reno	150,000	43,683	106,318	4/10/2014	12/31/2015
City of Astoria	Bear Creek Funding Agreement	Astoria	143,000	0	143,000	3/24/2014	3/24/2034
Klamath Basin Geopower Inc	Poe Valley Proj Dev Assistance	Reno	112,874	63,000	49,874	4/10/2014	12/31/2015
Clean Power Research, LLC	PowerClerk License	Napa	104,278	102,408	1,870	7/1/2014	6/30/2015
Gary Higbee DBA WindStream Solar	Solar Verifier Services	Eugene	100,000	34,115	65,885	8/1/2014	7/31/2016
Wallowa Resources Community Solutions, Inc.	Upfront Hydroelectric Project		100,000	17,290	82,710	10/1/2011	10/1/2015
Deschutes Valley Water District	Early Development Assistance	Madras	68,373	0	68,373	7/23/2013	6/30/2015
Mapdwell LLC	Mapdwell Account	Boston	66,381	48,195	18,186	3/17/2014	3/31/2016
Mariah Wind LLC	Development Assistance Funding	Victor	65,300	0	65,300	10/25/2013	9/30/2015
Solar Oregon	2015 Outreach Agreement	Portland	43,800	6,900	36,900	1/1/2015	2/29/2016
State of Oregon Dept of Geology & Mineral Industries	Lidar Data	Portland	40,000	0	40,000	11/7/2014	12/1/2015
Clean Energy States Alliance	CESA Year 12 (2015)		39,500	39,500	0	7/1/2014	6/30/2015
Bonneville Environmental Foundation	REC policy analysis	Portland	25,000	12,474	12,526	6/15/2014	5/30/2015
Wallowa Resources Community Solutions, Inc.	Hydroelectric Pipeline		25,000	16,000	9,000	6/26/2014	6/30/2015
University of Oregon	UO SRML Contribution - 2015	Eugene	24,999	24,999	0	2/11/2015	3/8/2016
Robert Migliori	42kW wind energy system	Newberg	24,125	17,037	7,088	4/11/2007	1/31/2024
Solar Oregon	Education & Outreach Services	Portland	24,000	24,000	0	1/1/2014	12/31/2015
Solar Oregon	Website Upgrade Grant	Portland	20,000	0	20,000	12/8/2014	12/31/2015
Warren Griffin	Griffin Wind Project	Salem	13,150	9,255	3,895	10/1/2005	10/1/2020
Lewis & Clark	Solar Soft Cost Analysis	Portland	10,000	2,175	7,825	12/5/2014	4/30/2015

**Energy Trust of Oregon
Contract Status Summary Report**

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OSEIA-Oregon Solar Energy Industries Assoc	OSEIA 2015 Conf Sponsorship	7,500	7,500	0	1/1/2015	12/31/2015
Clean Energy States Alliance	CESA ITAC Sponsorship	5,000	5,000	0	1/1/2015	12/31/2015
RHT Energy Solutions	Solar Marketing Consulting Medford	4,500	4,500	0	10/15/2014	10/15/2016
Renewable Energy Total:		15,626,960	6,611,984	9,014,976		
Grand Total:		159,628,888	69,422,123	90,206,765		

Financial Glossary

(for internal use) - updated April 16, 2014

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.

Reserves

- 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.

Committed Funds

- 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; 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

Tab 5

Policy Committee Meeting

April 28, 2015, 3:30–5:00 pm

Attending by teleconference

Roger Hamilton, Ken Canon, Alan Meyer, John Reynolds, Eddie Sherman

Attending at Energy Trust offices

Amber Cole, Fred Gordon, Jed Jorgensen, Betsy Kauffman, Margie Harris, Steve Lacey, Debbie Menashe, John Volkman, Peter West

Policies for Review

1. Balanced Competition Policy

The Balanced Competition policy is up for routine, three-year review. However, the board did review this policy last year in connection with the CLEAResult acquisition of PECI's program management contracts. As a result of that acquisition, CLEAResult is the program management contractor (PMC) for three program management contracts which is contrary to the current policy. Staff sought, and the board granted, an exemption from the Balanced Competition policy through 2015 thereby permitting CLEAResult to be the PMC for more than two program management contracts. At the time it granted the exemption, the board asked staff to consider any industry consolidation trends in its upcoming review of the policy. Staff undertook an extensive review of the policy and industry trends, prepared and distributed a briefing paper for the Policy Committee, and proposed revisions to revise the policy by increasing the limit of program management contracts from two to three and eliminating the current subcontractor limitations. The Policy Committee discussed the proposal and recommended approval of staff's proposed revisions to the full board. The committee recommended that the policy be presented for board approval on the consent agenda.

2. Renewable Energy Credit (REC) Policy

The REC policy was up for routine, three-year review in May 2014. At that time, staff and committee members agreed that a review of the REC market would be appropriate in order to inform possible changes to the REC policy. Staff engaged Bonneville Environmental Foundation (BEF) to prepare a market review, and a written report and presentation was prepared by Patrick Nye of BEF and staff members. Patrick also presented "RECs 101" to the full board at its April 1, 2015 meeting. The presentation was intended to provide the full board with shared knowledge and understanding of RECs, the REC market, and how Energy Trust works with customers and RECs in anticipation of full board review of a REC Policy revision proposal.

Staff prepared a briefing paper for the Policy Committee describing challenges in implementing the current REC Policy and identifying some possible policy considerations for the future to address these challenges. At the committee meeting, staff described the range of possible policy revisions, including retiring the REC policy altogether and reported on the OPUC staff's comments about possible policy changes. Committee members expressed strong concern about eliminating the policy in its entirety and the committee wants to consider additional input from the OPUC staff. At a coordination meeting earlier in the day, OPUC staff advised Energy Trust staff that RECs could be important for possible EPA Rule 111D compliance and requested that Energy Trust delay final policy revision decisions until more information about Rule 111D is available. Final rule announcements on Rule 111D are expected at the end of June. Committee members shared OPUC staff's interest in the possibility of a connection between RECs and Rule 111D compliance. Committee members also expressed

interest in more information on internal analytics on numbers of RECs claimed by Energy Trust, types of RECs claimed (e.g., net metered solar and other) and resources expended. Staff will return to the Policy Committee at its next meeting with more specific policy revision proposals intended to address current challenges. At that time, staff will also present information on RAC engagement on the topic. Since the next Policy Committee meeting is scheduled before final promulgation of Rule 111D implementation regulations, staff will not have full information about the relationship of RECs to those regulations. A final recommendation on policy revision is not, therefore, expected at the next committee meeting, but specific policy revision proposals will provide the committee with a starting point for discussion toward such recommendations for later in the year.

Energy Trust Performance Measures Adopted by the OPUC

The OPUC adopted Energy Trust's 2015 performance measures in a public meeting on April 14, 2015. Staff described the changes between the 2014 and 2015 performance measures. Specifically, two additional performance measure categories were added: a staffing measure and specific direction for NEEA activity reporting. In addition, the administrative support cap was reduced from 9% of total revenues to 8%.

Annual Review of Report on Contractors Receiving More than \$500,000

The Board policy on contract execution provides that "[n]ot less than annually, Staff shall report to the Policy Committee all instances in which Energy Trust has paid more than \$500,000 to an individual contractor in a given calendar year." In accordance with this policy, a report was provided to the committee for review. The committee reviewed the report and found no issues.

Consent to Appointment of Members to the Conservation Advisory Council (CAC) and the Renewable Energy Advisory Council (RAC)

In accordance with CAC and RAC and board rules, Policy Committee consent is required for formal membership on Energy Trust's advisory councils. Staff recommended two candidates, and requested committee consent for appointment of Julia Harper to the CAC and Shaun Foster to the RAC. Committee members reviewed the qualifications of each of the candidates and approved staff's recommendation for each.

Brief Updates

Staff provided brief updates to the committee on the current status of UM 1713, the OPUC Docket regarding the Large Customer Cap, UM 1622 regarding a possible "incentive cap" for certain weatherization measures not otherwise cost-effective and eligible for incentives, and possible Program Management Contractor contract extension recommendations to be presented to the full board at its next board meeting if the board approves the committee's recommended changes to the Balanced Competition policy.

The meeting adjourned shortly before 5:00 pm. The next meeting of the Policy Committee is scheduled for June 23, 2015.

Tab 6

Strategic Planning Committee Meeting

April 14, 2015, 3:00 pm

Attending at Energy Trust offices Mark Kendall, Eddie Sherman, Fred Gordon, Margie Harris, Ana Morel, Debbie Menashe, John Volkman

Attending by teleconference Ken Canon, Susan Brodahl, John Reynolds, Warren Cook, Kevin Hiebert

1. Review and confirm Draft Agenda for June Strategic Planning Board Workshop

Committee members reviewed the current draft of the agenda for the June workshop. Committee chair, Mark Kendall, urged members and staff to make sure that the proposed agenda permits time for the board to engage in discussion and dialogue on Strategic Plan implementation monitoring.

Staff noted that the current draft agenda reflects some adjustment in timing of discussion topics, but that only one significant change was made since the committee's last review. The significant change is to remove the lunch with Energy Trust customers from the retreat agenda. Staff suggests instead that a similar lunch be scheduled before a future board meeting. Committee members expressed their interest in hearing directly from customers of Energy Trust, and agreed generally that scheduling such a lunch in the future would be appropriate. Staff will begin planning for a future lunch and will report back to the committee at its next meeting.

Committee members requested that staff prepare a list of key questions for which answers from the board would be useful. Presenting questions in this way will aid discussion at the retreat, and staff agreed to list these out.

Margie advised the committee that the location of the retreat will again be in the Vollum Center, with lunch and smaller group, world café discussions to take place in the campus College Center. Ana and Kevin, retreat facilitator, will work together to make sure Kevin is familiar with the spaces.

2. Review and Decide on Retreat Speaker

At the last committee meeting, the committee discussed engaging a speaker to make a presentation regarding executive director search processes and asked staff to research possible speakers on this topic. Staff presented a number of options to the committee at the meeting, and the committee selected Ann Kohler. Ann has a diverse background in private and public sector organizations with extensive experience in support of organizations in leadership transition. Committee members discussed the range of questions of interest to them for a speaker such as Ann. Staff and Kevin will work with Ann to make sure her speech is relevant and of use to the board as the executive director transition process kicks off. Committee members suggested that Ann attend the board's next full board meeting, and staff agreed to invite her.

3. Other Topics

Ken announced that an executive director transition committee will be formally appointed by the board at its next meeting, but before that, the committee will meet informally to begin discussions and to outline expectations for the Strategic Planning Workshop, which will be the board's first full discussion of the process. Kevin will participate in that informal committee meeting yet to be scheduled.

The meeting adjourned before 5:00 pm.

The next meeting of the Strategic Planning Committee is scheduled for May 12, 2015.

Tab 7

Renewable Energy Advisory Council Meeting Notes

March 11, 2015

Attending from the council:

Jason Busch, Oregon Wave Energy Trust
Elizabeth McNannay, Oregon Solar Energy Industries Association
Michael O'Brien, Renewable Northwest
Dick Wanderscheid, Bonneville Environmental Foundation
Peter Weisberg, The Climate Trust

Peter West

Others attending:

Hillary Barbour, Renewable Northwest
Rob Del Mar, Oregon Department of Energy
Cindy Dolezel, Oregon Public Utility Commission
Shawn Foster, Portland General Electric
Matt Hale, Oregon Department of Energy
Diane Henkels, Henkels Law, LLC
Linda Irvine, Northwest Sustainable Energy for Economic Development, SEED
Wendy Koelfgen, Clean Energy Works
Nick Lawton, Green Energy Institute at Lewis & Clark Law School
Alan Meyer, Energy Trust board
Kathleen Newman, Oregonians for Renewable Energy Progress
John Reynolds, Energy Trust board
Matt Shane, Portland State University student

Attending from Energy Trust:

Justin Buttles
Chris Dearth
Matt Getchell
Hannah Hacker
Jennifer Hall
Betsy Kauffman
Dave McClelland
Dave Moldal
Gayle Roughton
Lizzie Rubado
Jay Ward

1. Welcome and introductions

Betsy Kauffman convened the meeting at 9:30 a.m. The agenda, notes and presentation materials are available on Energy Trust's website at: www.energytrust.org/About/public-meetings/REACouncil.aspx.

Betsy announced that the University of Oregon Department of Architecture will host the John Reynolds Sustainability Symposium on Sunday, May 17 in Eugene. In addition, the Oregon Future of Energy Conference, organized by the Northwest Environmental Business Council, will be held on Wednesday, April 16 in Portland.

2. Northwest Solar Communities Solar Ready Toolkit

Rob Del Mar and Matt Hale of the Oregon Department of Energy, and Linda Irvine of Northwest Sustainable Energy for Economic Development, SEED, discussed efforts to develop standardized tools for making solar installations simple, fast and cost-effective for customers, jurisdictions and utilities. This effort is part of the U.S. Department of Energy SunShot Initiative.

Rob Del Mar, Matt Hale and Linda Irvine: A 2.5-year Northwest Solar Communities Solar Ready Toolkit effort managed by NW SEED, with 16 partners including the Oregon Department of Energy, is underway with funding from the Washington Department of Commerce. The approach is to review what is happening at a national level, and apply what makes sense locally in Oregon and Washington. The goal is to provide a solar-friendly corridor for more than 2

million customers in Oregon and Washington, continue growth of solar installations and recognize successes.

The effort has created a more streamlined incentive process for the Oregon Department of Energy, resulting from the Oregon Department of Energy adopting PowerClerk for tax rebate applications, the same system as Energy Trust. The Oregon Department of Energy is also planning to move utility interconnection applications into PowerClerk. Additionally, a standardized permitting toolkit for residential rooftops has been created. Support will be provided for adoption of the new process and recognition of contractor progress.

The Northwest Solar Communities Solar Ready Toolkit effort is focused on spreading solarize to Washington and Idaho through mini-grants and training. An interconnection best practices guide for utilities, which includes a combination of engineering and administration procedures, is now available. There are also free interconnection workshops for utility engineers.

Michael O'Brien: How have interconnection support meetings been received?

Rob Del Mar: Generally speaking, attendees have been very engaged. The content provided is very technical and the training style is interactive.

Shawn Foster: The trainings have high value, especially for municipalities and smaller utilities that are concerned with how solar affects total load.

John Reynolds: Will permitting jurisdictions align their processes with one another?

Linda Irvine: Jurisdictions do want to maintain control, but they're willing to look at the time- and money-saving potential of aligning processes, and are moving toward a template process.

Kathleen Newman: Has there been any development in solar access rules, such as in regards to a complaint about a neighbor planting trees that block a solar installation and reduce solar potential?

Cindy Dolezel: There are laws regarding solar access at the local government level.

Linda Irvine: We have no concrete answers at this time. This is a hot topic that will be addressed by the planning group.

3. Solar soft cost survey

Jennifer Hall provided an update on soft cost survey analysis and Energy Trust's upcoming efforts to reduce the soft costs of installing solar systems.

Jennifer Hall: The goal of Energy Trust's 2014 solar soft cost survey was to compare local numbers with national trends captured most notably in the National Renewable Energy Laboratory Solar Soft Cost Reduction Roadmap. Energy Trust's survey instrument was modeled off of the National Renewable Energy Laboratory surveys used to create its solar soft cost roadmap.

Comparing Energy Trust's survey results with the National Renewable Energy Laboratory forecast for 2014 indicates that Oregon is ahead of the curve. The findings from the "other" soft costs portion of the report led to the realization that the "other" soft costs category is not well understood by contractors. Additionally, results indicate that individual cost metrics may not be the best possible way to measure success, and other ways to gauge success are being considered.

Energy Trust is working with the Green Energy Institute at Lewis & Clark Law School to compare the Oregon solar market to other states. Once the Green Energy Institute comparison and the soft costs survey analysis are published, we will conduct a request for proposals for a contractor to create an Oregon solar soft costs road map. Energy Trust plans to publish the final Energy Trust soft costs survey analysis in May 2015.

John: In other states, sales tax may be part of the “other” costs category. Does the absence of sales tax in Oregon mean Oregon contractors have lower “other” costs than contractors in other states?

Jennifer: This is certainly not the driving factor. There are several components to the “other” costs category.

Nick Lawton: It’s worth noting that many states now exclude taxes on solar installations.

Alan Meyer: Does cost mean what was charged to the consumer?

Jennifer: The cost reflects the median cost per watt charged to the customer as reported by survey respondents.

David McClelland: Costs to the contractor were captured in the “hardware” category. Markup or profit should have been captured in the “other” costs category, not the “hardware” category.

Kathleen Newman: Does the report take system size into account?

Jennifer: Yes, for Energy Trust, the median system size closely matched National Renewable Energy Laboratory modeled system size at 5 kilowatts.

Michael: Is it possible to measure the cost of parts constructed in U.S. compared to parts manufactured in other countries?

Dave McClelland: The analysis accounted for this by looking at the exact manufacturer and models of modules and inverters installed to create a weighted average model price which was used to adjust the surveyed data.

Dave McClelland: Do Renewable Energy Advisory Council members have any feedback on the cost categories? Our perception is that the “other” category is not well defined, and the remaining categories are getting buried.

Alan Meyer: Including profit as a soft cost may be an issue. For example, if a contractor has very low equipment costs, they’ll have a higher percentage of soft costs by comparison.

Dave McClelland: The main intent is to reduce costs for the contractors. By reducing Energy Trust incentives, we’re hoping to provide pressure for contractors to decrease their price for their customers.

Elizabeth McNannay: Are there contractors who really understand their customer acquisition costs and others who don’t?

Jennifer: Defining and attributing customer acquisition costs was a challenge for contractors. For some, it was their first time considering such costs. Customer acquisition costs are hard to pin down.

Dave McClelland: Additionally, some contractors should probably be spending more on customer acquisition.

4. Update on 2015 legislative session

Hillary Barbour from Renewable Northwest updated the council on what’s happening in Oregon’s 2015 legislative session that may affect the renewable energy market.

Hilary Barbour: There are several relevant bills addressed in the 2015 legislative session. SB 324 relates to reducing greenhouse gas emissions from transportation fuels. SB 324 would

repeal a sunset on provisions related to low carbon fuel standards. HB 2941 would establish qualifications for community solar projects such as community gardens. HB 2745 would extend the feed-in tariff-pilot program. HB 2632 would direct Oregon Department of Administrative Services to establish a program to incentivize generation of electricity derived from utility-scale solar projects. HB 2447 would extend the sunset date for residential energy tax credit for alternative energy devices. This didn't pass initially and has been rescheduled. HB 2729 would require electric companies to reduce allocation of electricity from coal-derived generating resources to zero by January 1, 2025. This involves a 10-year transition to replace 90 percent of current coal load with cleaner energy, emphasizing renewables developed in Oregon.

Jason Busch: SB 319 is a wave energy bill. It requires proprietary authorization from Department of State Lands to construct or operate ocean renewable energy facilities in Oregon's territorial sea.

Jason Busch: Regardless of HB 2729, what percentage of coal will come offline through 111d?
Michael: Pacific Power is required to comply with 111d by closing existing coal.

Betsy: Are there any updates for the Biomass Producer or Collector Tax Credits?

Dave Moldal: HB 2449 would extend the sunset for tax credits for biomass collection or production. There's been little opposition to this proposal.

Bonneville Environmental Foundation's community solar work

Dick Wanderscheid shared an update on a Washington state law that created incentives for community solar projects. The law is aimed at utilities with a higher feed in tariff. All projects are utility owned, utility net metered and provide opportunity for ratepayer investment.

Dick: Projects supported through Bonneville Environmental Foundation's community solar efforts include two 75-kW systems installed by Seattle City Light; a 75-kW system in Vancouver, Washington; three 10-kW systems installed on San Juan Island schools by Orcas Power and Light; a 50-kW system installed through Peninsula Light on a museum in Gig Harbor, Washington; a 200-kW system in Redmond, Oregon through Central Electric Cooperative, Inc.; a 25-kW system in Eugene through Lane Electric; one 200-kW system and one small system through Flathead Electric Cooperative, Inc.; a 50-kW system through Missoula Electric Cooperative, Inc.; and a 3-MW project in Portland through PNGC Power. In addition, the city of Jackson, Wyoming has raised \$2 million for renewable energy through self-instated taxes.

Michael: Are these projects virtually net metered at retail rates?

Dick: Yes, but we advised the utilities to provide customers with credits annually rather than monthly using an annual true up process.

John: Has Central Oregon opened the option for investment?

Dick: Not yet, but they will soon.

Betsy Kauffman: Are these projects focused on doing anything to enhance the non-energy benefits for people who invest in community solar, such as public recognition?

Dick: Not yet. They're still working to sell the investments, and will later focus on rewards. This is a test, as there are low electric rates and the economics aren't great. These projects are attempting to replicate the net-metered systems. Additionally, people have been found to agree to purchase for reasons other than the investment.

Michael: What are utilities doing with Renewable Energy Certificates?

Dick: We've advised retiring the credits to the investors. The utilities tend to agree.

5. Public comment

There was no additional public comment.

6. Meeting adjournment

The meeting adjourned at 11:40 a.m. The next Renewable Energy Advisory Council meeting is scheduled on April 29, 2015.



Northwest Solar Communities

Making solar simpler, faster, more cost-effective

March, 11 2015

Energy Trust of
Oregon
RAC Meeting

Rob Del Mar
ODOE

Matt Hale
ODOE

Linda Irvine
Northwest SEED

Powered by
SunShot
U.S. Department of Energy

CHALLENGE: CUT SOFT COSTS



Permitting



Inter-connection



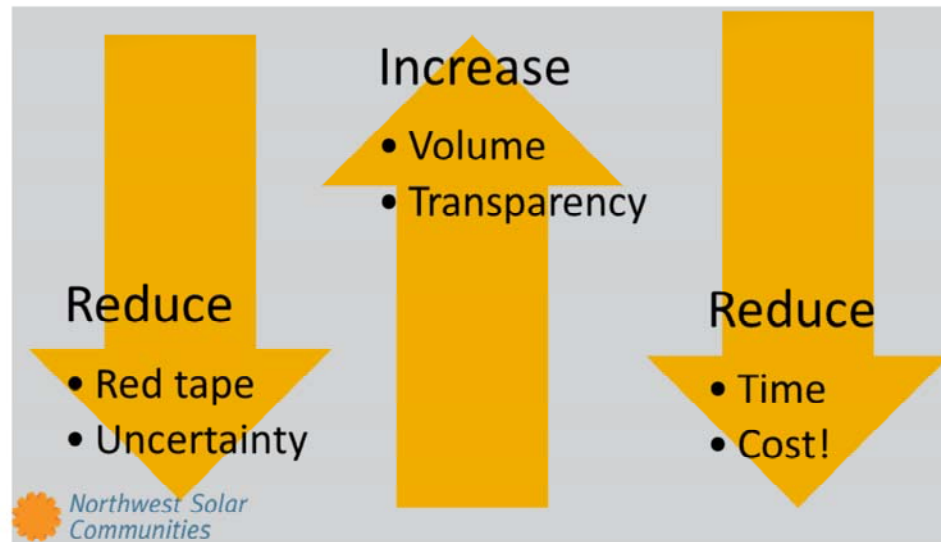
Financing

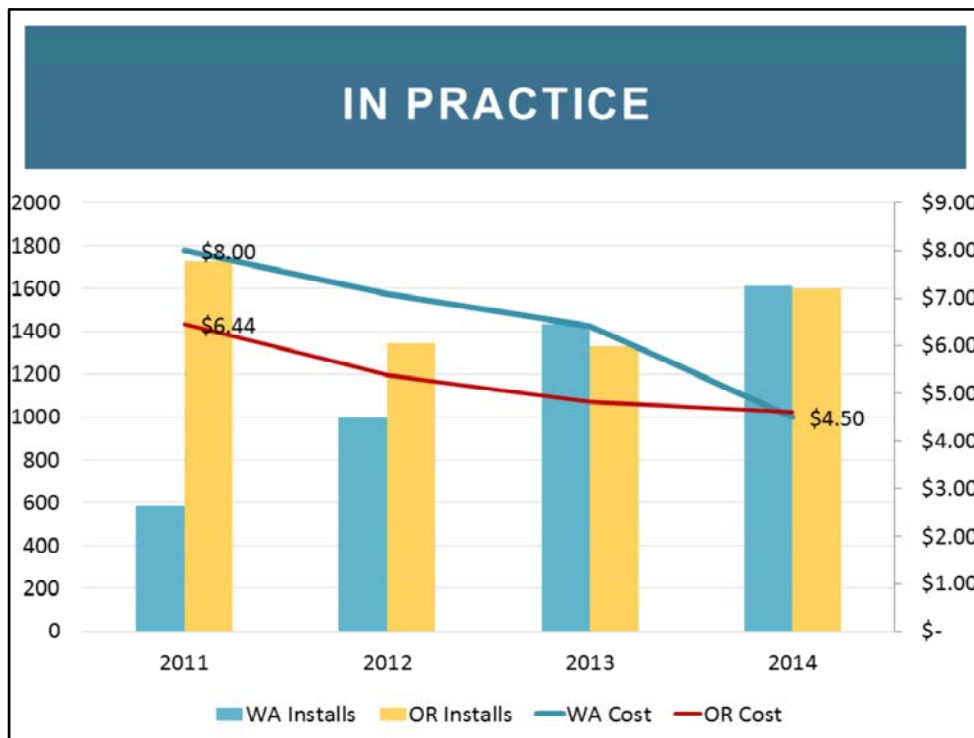


Planning &
Zoning

← National Best Practices - Local Implementation →

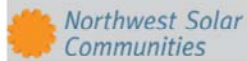
IN THEORY...





OUR APPROACH

- Convene Work Groups
- Share Best Practices
- Create Tools & Templates: “Toolkit”
- Support Adoption
- Recognize Progress



TOOLS & TEMPLATES



 Northwest Solar
Communities

PERMITTING PACKET



Best Practices

Screening Checklists

Standard 1-line diagram



Solar: Simple, Fast, and Cost Effective

Making Solar Permits Easy for Oregon

In Oregon, rooftop solar photovoltaic (PV) installations are growing at a rate of providing an ever increasing number of jobs and becoming a more common sight for homeowners. As residents and businesses increasingly choose to install solar, jurisdictions are searching for new systems to efficiently meet increased out permits. Responding to this challenge, Northwest Solar Communities (NSC) jurisdictions, industry partners, and citizen groups to develop standardized the process of going solar simple, fast, and cost effective for customers and to serve them.

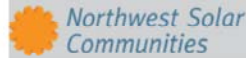
The Solar Permit Packet was developed by the NSC participating jurisdictions work group sessions and consultation with building code officials, solar industry advocates. This packet is intended to present solutions that can be adopted by ensure all of Oregon is open for solar business. Solutions include:

1. Adopt a permit checklist for solar installations
2. Establish reasonable building permit fees
3. Provide solar permit information online
4. Train permit staff in solar
5. Implement online or e-permitting system

Oregon Solar Installation Specialty Code

The Oregon Solar Installation Specialty Code was implemented in October first statewide solar energy code in the nation. The code is intended to reduce inconsistencies in both the technical aspects of installing a solar PV system's aspects of obtaining a building permit. The code defines minimum structural installation of PV components and support systems and prescribes how process building permit applications and determine fees.

1. Residential Bulk Installations



OVER-THE-COUNTER BUILDING PERMIT CHECKLIST FOR RESIDENTIAL SOLAR PHOTOVOLTAIC SYSTEMS: ROOFTOP MOUNTED

Contractors can apply for an Over-The-Counter (OTC) permit where the PV system meets the requirements listed in this Checklist. All project plans and supporting documentation must be provided on site for the inspector.

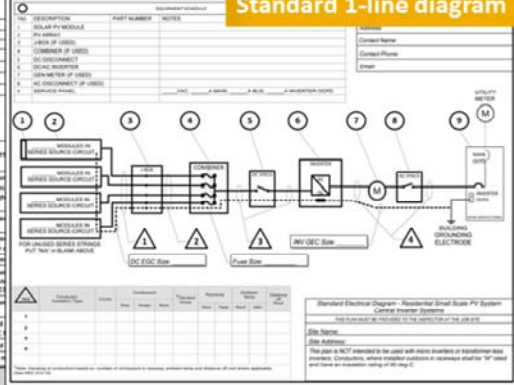
— TO BE COMPLETED BY THE APPLICANT —

1. Project Information

Property Owner Name:	
Project Address:	
City:	
Day Phone:	
Contractor Name:	
Contractor License #:	
Contractor Day Phone:	

2. Determine if your project qualifies

1. PV system is designed and proposed for single-family detached dwellings not more than three stories in code compliant to setbacks and height solar modules. [ORC 90A.02]
2. Modules on pitched roofs do not exceed the roof pitch.
3. Roofing is made from lightweight metal, metal roofing, lightweight masonry, or concrete.
4. The installation shall comply with the required electrical permit(s) must be all administered the electrical code. [ORC 90A.02]
5. The installation shall meet the requirements by BIA State. [ORC 90A.02]
6. The PV system is designed for the use of the manufacturer's specifications. [ORC 90A.02]
7. The ground snow load does not exceed 30 psf.
8. The ground snow load does not exceed 30 psf.
9. Taper down load of modules, supports, and racking shall not exceed 30 psf.



Standard Electrical Diagram - Residential Small Scale PV System

THIS DIAGRAM IS PROVIDED TO BE A GENERAL GUIDE ONLY.

Site Name:

Site Address:

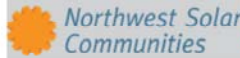
This plan is NOT intended to be used with other standards or transformer load profiles. Contractors, when installed outdoors in coverage shall be "10" rated and have an insulation rating of 600Vdc.

STREAMLINED INCENTIVES



- PowerClerk for Tax Credit
- Next Up: Interconnection Application?

The screenshot shows the Oregon Department of Energy's PowerClerk web application. The header includes the Oregon Department of Energy logo and the PowerClerk logo. A navigation bar contains links for Applications, My Settings, and various application steps: Tax Credit Technician, System Owner, Tax Credit Request, Project Site, Project Components, Application Review, Paperwork Record, Electronic Signatures, and Submit Application. The main content area is titled 'New Tax Credit Application' and includes a success message: 'Application Data Copy Successful'. Below this, it displays application details: 'Application Copy Date: 10/17/2014 4:37 PM UTC', 'Application Copy User Name: odepowerparticipant@depower.com', and 'Application Copy Source Application Number: 06495'. A yellow box prompts the user to 'Enter information about the Tax Credit Technician and Electrical contractor installing the system.' Below this, there are input fields for 'Tax Credit Technician' (with a dropdown menu showing 'Domestic Circuits' and 'Smith, Bob'), 'Company (or name) of the Electrical Contractor' (with a dropdown menu showing 'Sunlight Solar Energy, Inc.'), 'Phone Number' (with a text input field containing '5412221910'), and 'License Number' (with a text input field containing 'C306').



Saves contractors 2 hours per customer

GRANTS & TRAINING



The 500th Solarize installation in Washington!



Northwest Solar
Communities

PLANNING SUPPORT



- White Papers
 - Solar in Condominiums
 - Solar & Development Regulations
 - Solar in Comprehensive Plans
 - Solar Ready Construction
- Presentations by Work Group members
 - Regional Planner Meetings
 - Regional Collaborations



*Northwest Solar
Communities*

HOMEOWNER ASSOCIATION HELP



Northwest Solar
Communities

Sample HOA Resolution

HOMEOWNERS' ASSOCIATION [DESIGN / ARCHITECTURAL] REVIEW [BOARD/COMMITTEE]
RESOLUTION OF BOARD OF DIRECTORS RECOMMENDING RESOLUTIONS FOR SOLAR ENERGY SYSTEMS
[RESOLUTION NO. _____]

State of
County of _____

A. The
need and desire to
photovoltaic ("PV")
technology is
increasing.
B. The
order to balance the
architecture and the
C. The
and that all such are
be necessary or des
D. The
guidelines for the
Community member
NOW, THE
advised the follow



Official Notice to HOAs

TEL: 503.751.2222 FAX: 503.751.2666
www.oregon.gov/energy

October 18, 2014

Some homeowners have recent guidelines about Home Owners' Associations (HOAs) prohibiting
homeowners from installing solar on their homes. This has become a very common problem in Oregon
as most HOAs prohibit solar energy because random solar installations look cheap and professional and
property values decrease as a result of the system.

A study published by the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy
(EERE) confirms that solar homes have higher appreciation rates. According to the study homes with
solar energy systems experience faster home sales and faster appreciation rates when compared to non-
solar homes in the same neighborhood. This study can be found on the U.S. Department of Energy Web
site at: <http://ere.eere.energy.gov/ee/pdfs/01323.pdf>

Pursuant to ORS 400.010 (2)(c) it is "the policy of Oregon that development and use of a diverse array of
renewable energy resources be encouraged to the highest degree possible to the
private sector of our free enterprise system." In support of that policy, Oregon adopted a statute that
protects a homeowner's right to install a solar energy system on their property, which is set out below.

100.000 Conveyance prohibiting use of solar energy systems void. (1) No person

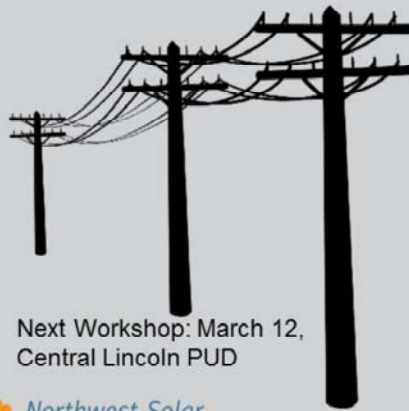
Northwest Solar
Communities



INTERCONNECTION SUPPORT



Workshops for Engineers



Next Workshop: March 12,
Central Lincoln PUD



Northwest Solar
Communities

Best Practices

Northwest Solar Communities

Solar: Simple, Fast, and Cost Effective

Utility Interconnection and Inspection

Northwest Solar Communities (NSC) maintains a growing list of over 300 utility companies in the Pacific Northwest, providing local data and easily accessible information to utility customers. As residents and businesses increasingly choose to install solar, utilities are searching for new processes to efficiently meet or exceed customer requests for interconnection. Responding to this challenge, Northwest Solar Communities (NSC) continues to work to develop interconnection practices that make the process of going solar as pain-free, and cost-effective for customers and the utilities that serve them.

Best Practices

The following best practices are recommended for interconnection with a residential customer of 20kW or less. Some practices are already in place in Oregon or Washington, in which case we offer each step of the practice in action.

1. Metering Policy

- For utilities that are not already required to do so, consider how the costs of the interconnection are shared with monthly utility fees. If a meter is required, it should be installed at the customer's expense.
- Provide customers with access to their own historical demand and monthly electricity consumption data.
- For metered billing systems, clearly show the interconnection's impact on the utility and any energy or demand credits earned from the interconnection.
- Allow meter aggregation on a per-customer basis (e.g., a residential customer).
- For systems without meter, a production-based incentive, combine the application for interconnection with the application for a production credit or other net metering.

2. Meter Aggregation before the fact

Some customers have more than one utility meter or multiple properties. Meter aggregation allows the monthly expense generated from a net meter to be applied to a separate utility meter owned by the same customer. For example, a customer might aggregate their solar meter with a home's main meter, or aggregate the solar meter with the meter for a second property. The Northwest Solar Communities (NSC) provides a guide to help customers understand how to aggregate their meters.

3. Application Process

- Provide an on-line portal for customers to submit a net meter application.
- Keep the application simple. For a residential net meter application, the interconnection application should be no more than two pages (for forms and conditions).
- Make the application accessible to all customers.

Download templates and resources for free at: www.nwinterconnection.org



Step 1: Plan & Design

- Site assessment
- System design
- Permitting
- Interconnection agreement
- Net metering agreement
- Utility approval
- Construction
- Inspection
- Commissioning

Step 2: Install

- Site preparation
- Foundation
- Mounting system
- Panel installation
- Wiring
- Inverter installation
- Net meter installation
- System testing

Step 3: Monitor & Maintain

- Performance monitoring
- System maintenance
- Warranty
- Insurance
- Net metering
- Utility approval
- Construction
- Inspection
- Commissioning

Step 4: Decommission

- System shutdown
- Panel removal
- Mounting system removal
- Site restoration
- Net meter removal
- Utility approval
- Construction
- Inspection
- Commissioning

Step 5: Closeout

- Final inspection
- System testing
- Net metering
- Utility approval
- Construction
- Inspection
- Commissioning

EXAMPLE: CITY OF HILLSBORO



✓ Checklist for expedited permit

✓ Waived permit fee (since 2007)

✓ Solar specific web page

✓ Piloting MapDwell

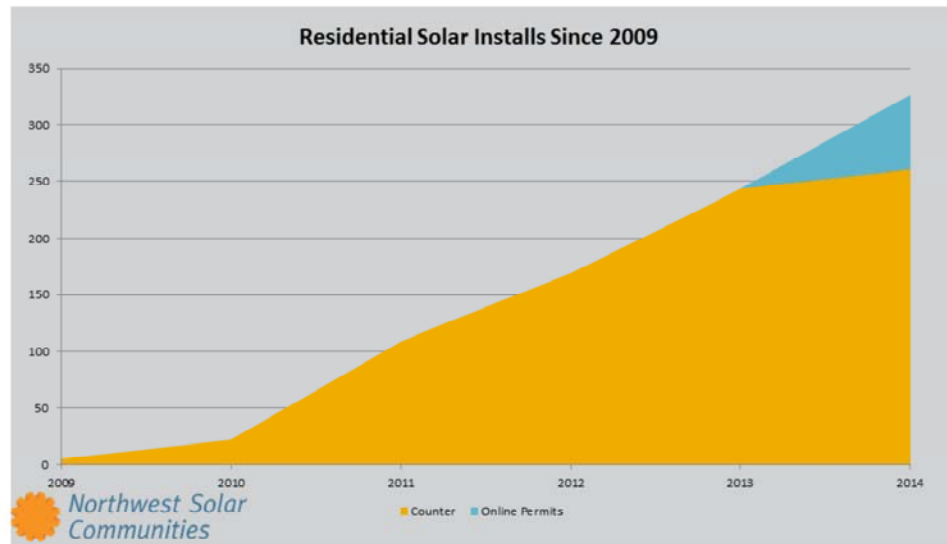
✓ Online permitting



Northwest Solar
Communities



OVER 300 RESIDENTIAL SOLAR PERMITS!



Slide 14

LI7

This information is from Edmonds, WA. Needs updating

Linda Irvine, 3/4/2015

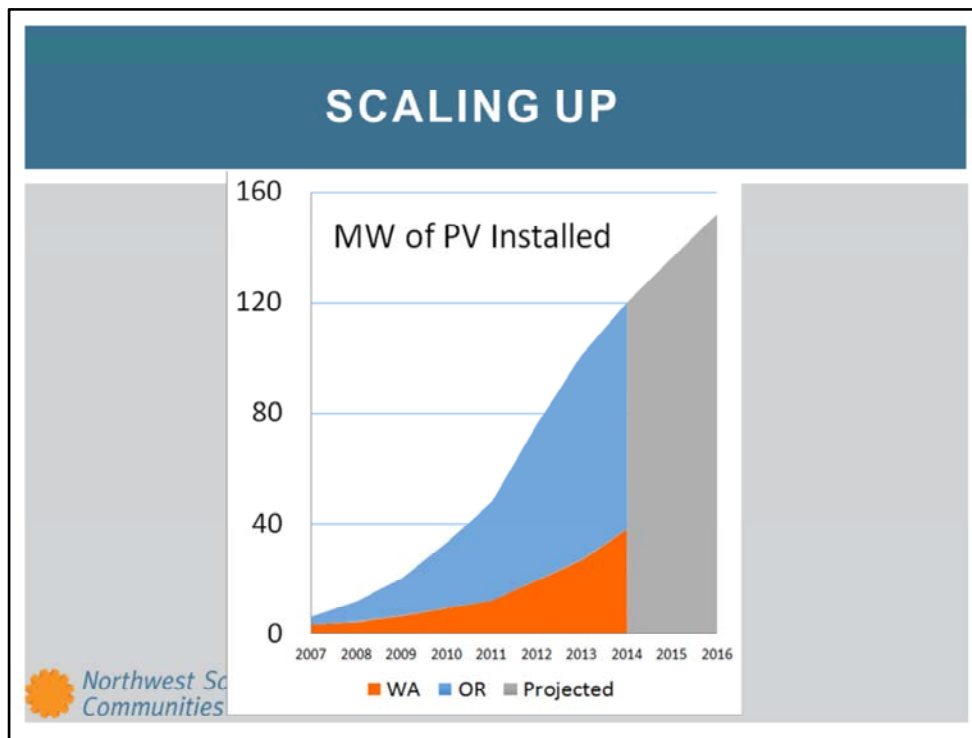


Matt: If your jurisdiction would like to copy Hillsboro, we have the tools to do it, all on our project website, nwsolarcommunities.org, you'll find tools for every area of soft cost reductions.

LOOKING AHEAD

Provide Solutions Online
Replicate
Recognize Success!

Solar
Friendly
Corridor
for 2 M
customers



Linda: As you can see in this graph of cumulative megawatts installed in Oregon (blue) and Washington (orange), we are on track to exceed our goal of doubling installed capacity between 2012 and 2016. Doubling the installed capacity will help bring installations to scale and drive down costs. We're at 120 MW, well on our way to exceed 152 MW by end of 2016.

Baseline 2012: 56 MW in OR and 20 MW in WA. (76 total) Now, 2015: 82 MW in OR and 38 MW in WA (120)

Does not count the industrial (large scale) installations.

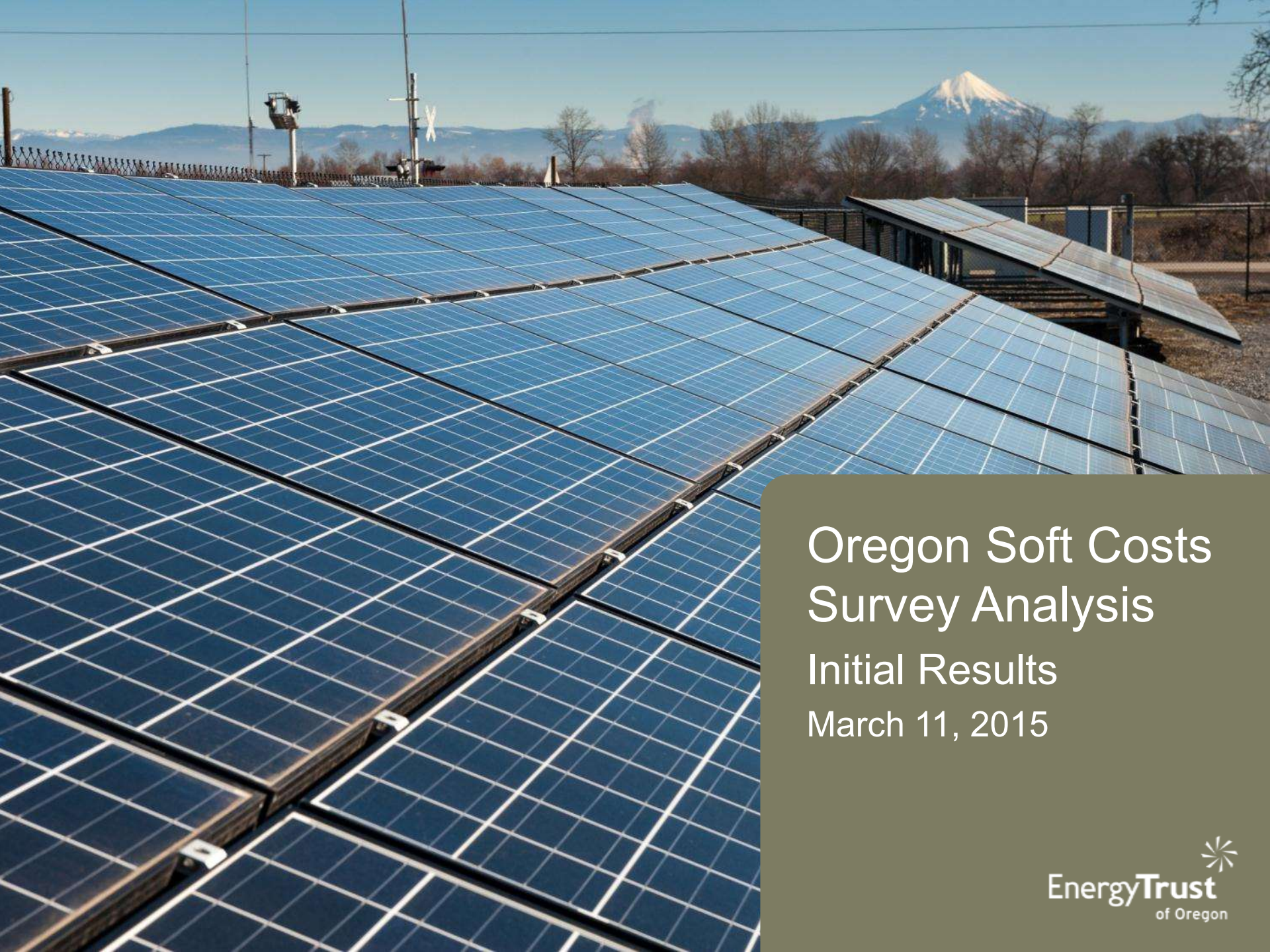
QUESTIONS? THANK YOU!

Matt Hale
ODOE
Matt.hale@state.or.us

Rob Del Mar
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robert.delmar@state.or.us

Linda Irvine
Northwest SEED
linda@nwseed.org





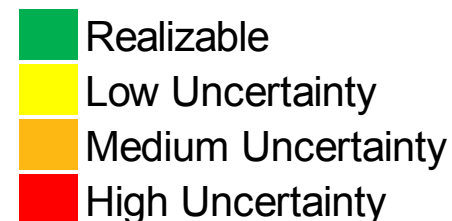
Oregon Soft Costs Survey Analysis

Initial Results

March 11, 2015

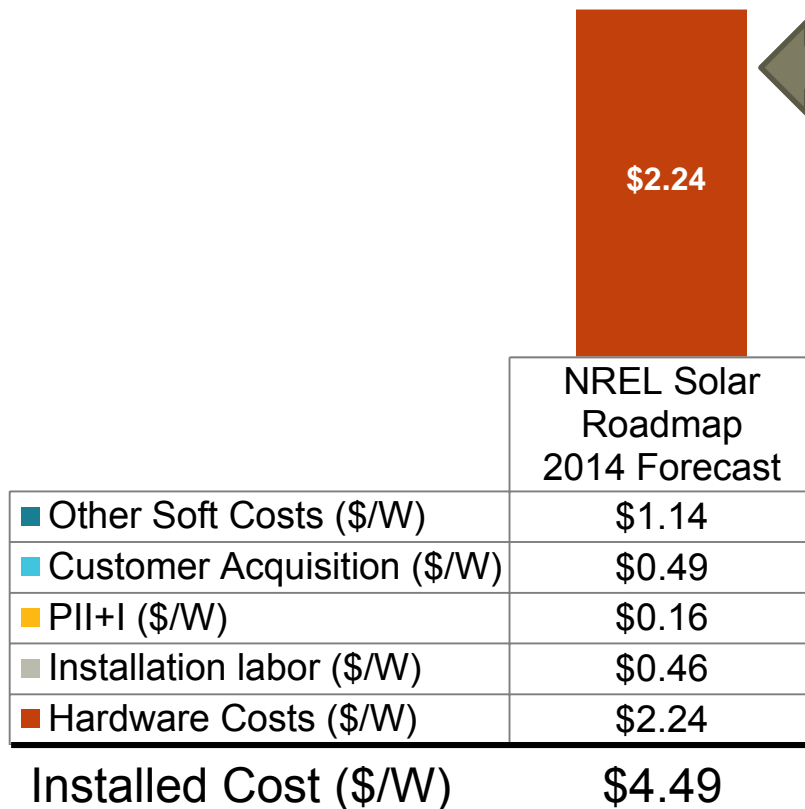
NREL Soft Costs Reduction Roadmap

Charts a pathway to achieve the DOE SunShot targets for installed system prices of \$1.50 per Watt for residential systems and \$1.25 per Watt for commercial systems by 2020. Published in August 2013



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Customer Acquisition (\$/W)	\$0.67	--	\$0.48	\$0.53	\$0.49	\$0.45	\$0.41	\$0.36	\$0.28	\$0.19	\$0.12
PII+I (\$/W)	\$0.20	--	\$0.19	\$0.18	\$0.16	\$0.15	\$0.13	\$0.11	\$0.10	\$0.06	\$0.04
Installation labor (\$/W)	\$0.59	--	\$0.55	\$0.51	\$0.46	\$0.42	\$0.36	\$0.30	\$0.24	\$0.19	\$0.12
Other Soft Costs (\$/W)	\$1.86	--	\$2.10	\$1.30	\$1.14	\$0.97	\$0.82	\$0.68	\$0.56	\$0.48	\$0.37
Total Soft Costs (\$/W)	\$3.32	--	\$3.32	\$2.52	\$2.25	\$1.99	\$1.72	\$1.45	\$1.18	\$0.92	\$0.65
Hardware Costs (\$/W)	\$3.28		\$1.90	\$2.47	\$2.24	\$2.00	\$1.77	\$1.55	\$1.32	\$1.08	\$0.85
Total System Costs (\$/W)	\$6.60	--	\$5.22	\$4.99	\$4.49	\$3.99	\$3.49	\$3.00	\$2.50	\$2.00	\$1.50

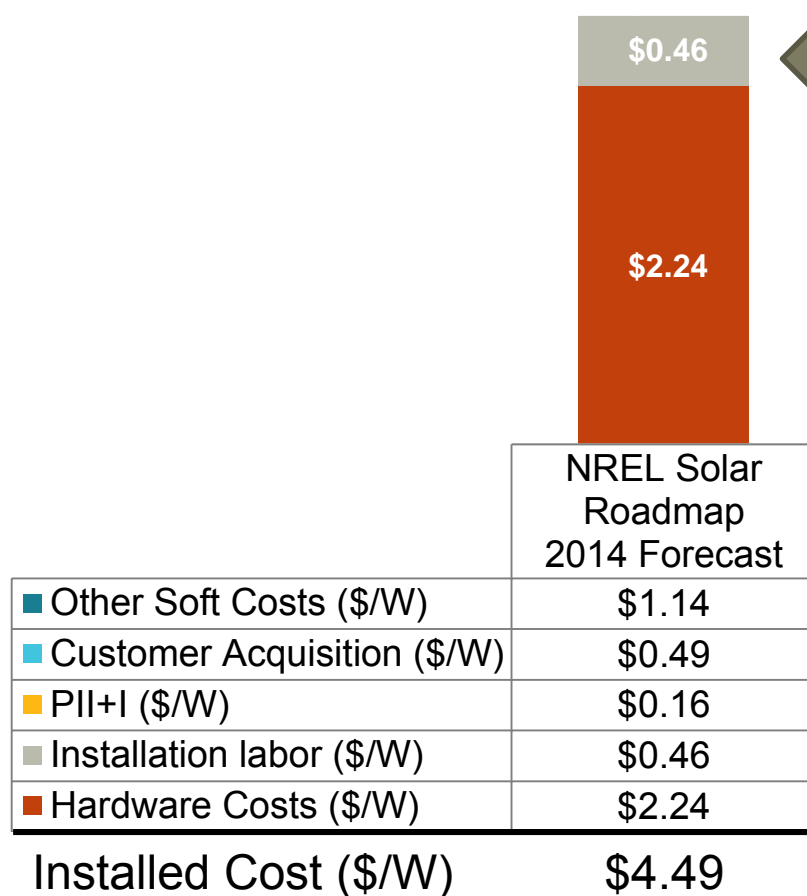
Solar Cost Categories



Hardware Costs

- Modules
- Inverter
- Racking
- Electrical Components

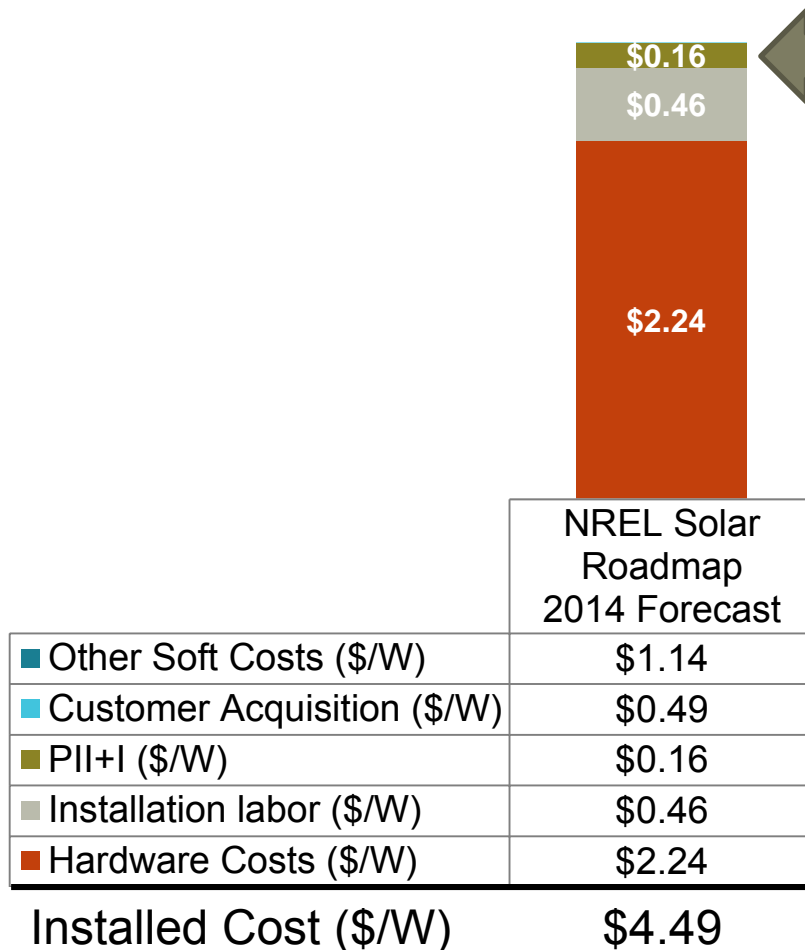
Solar Cost Categories



Installation Labor

- Licensed electrical and non-electrical installation labor hours

Solar Cost Categories



Permitting, Inspection, Interconnection & Incentive (PII+I)

- Preparing install packet
- Submitting packet to utility, ODOE, Energy Trust, and permitting agency
- Meeting inspector, utility technician or solar program verifier

Solar Cost Categories



Customer Acquisition

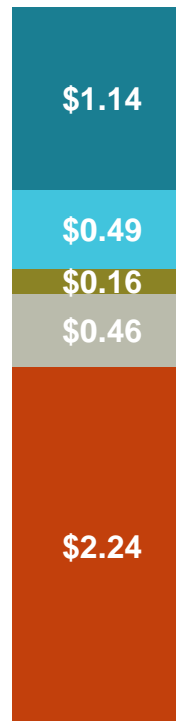
- Marketing & Advertising
- Lead generation
- Sales Calls
- Bid Preparation
- Contract Negotiation
- System Design

NREL Solar
Roadmap
2014 Forecast

■ Other Soft Costs (\$/W)	\$1.14
■ Customer Acquisition (\$/W)	\$0.49
■ PII+I (\$/W)	\$0.16
■ Installation labor (\$/W)	\$0.46
■ Hardware Costs (\$/W)	\$2.24

Installed Cost (\$/W) \$4.49

Solar Cost Categories



'Other' Soft Costs

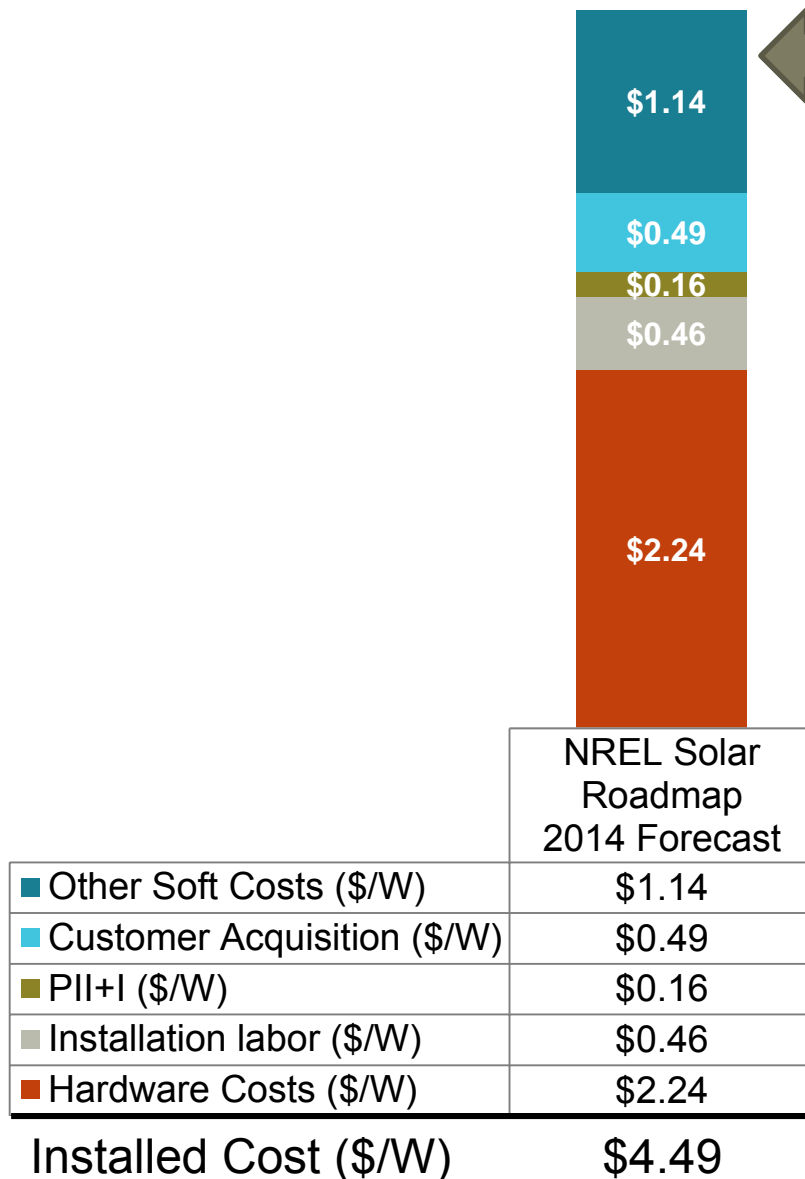
- Installer Profit
- Installer Overhead
- Transaction Costs
- Supply Chain Costs
- Sales Tax

NREL Solar
Roadmap
2014 Forecast

■ Other Soft Costs (\$/W)	\$1.14
■ Customer Acquisition (\$/W)	\$0.49
■ PII+I (\$/W)	\$0.16
■ Installation labor (\$/W)	\$0.46
■ Hardware Costs (\$/W)	\$2.24

Installed Cost (\$/W) \$4.49

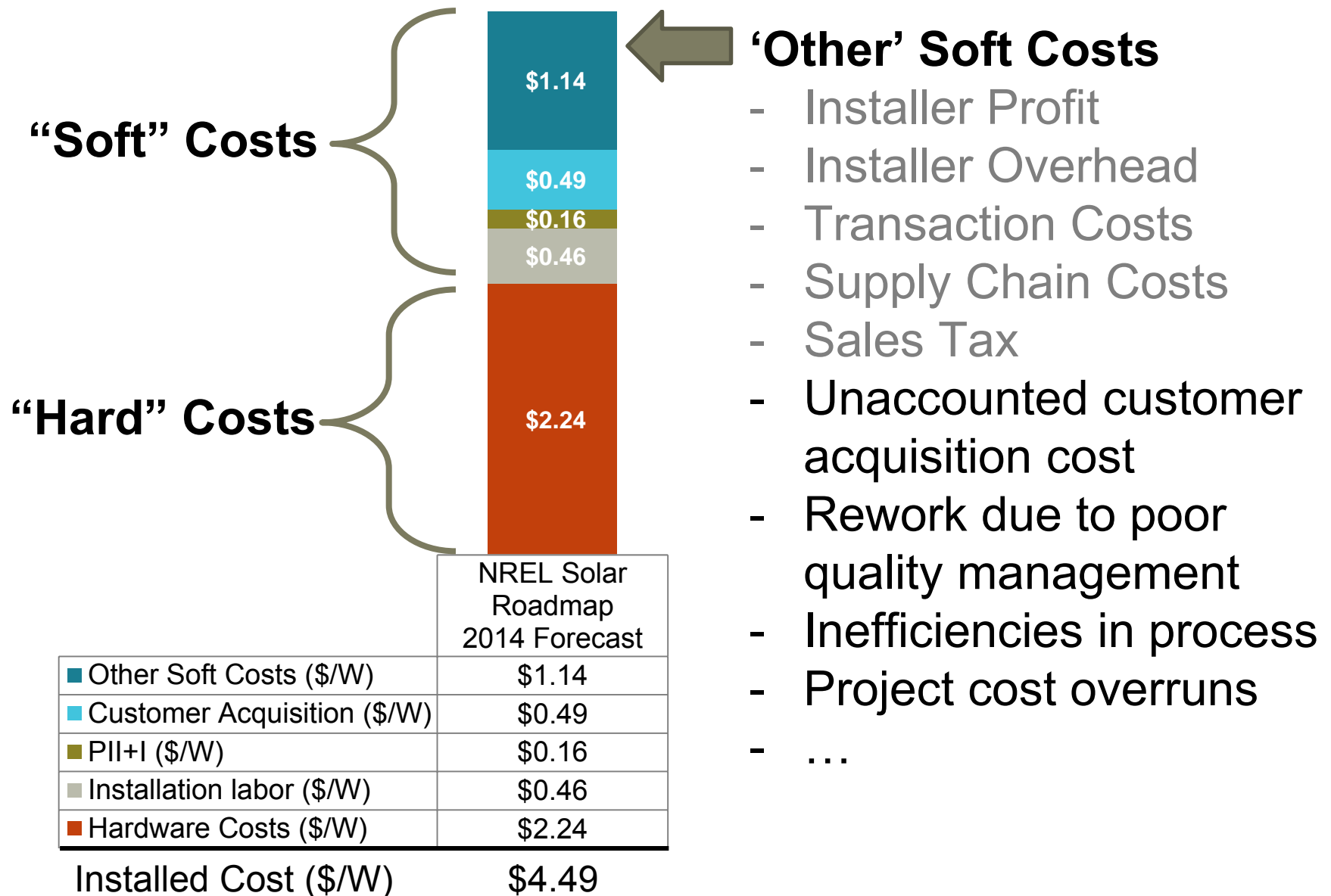
Solar Cost Categories



‘Other’ Soft Costs

- Installer Profit
- Installer Overhead
- Transaction Costs
- Supply Chain Costs
- Sales Tax
- Unaccounted customer acquisition cost
- Rework due to poor quality management
- Inefficiencies in process
- Project cost overruns
- ...

Solar Cost Categories

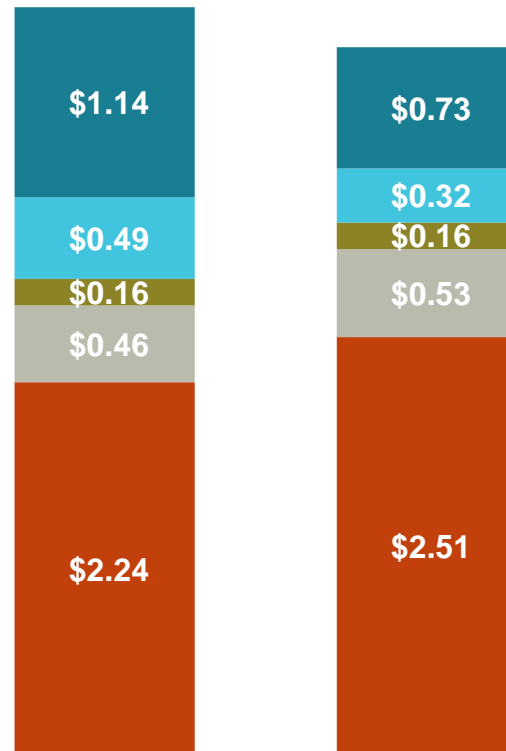


Oregon Solar Soft Costs Survey

- Modelled after NREL installer surveys
- Surveyed period - Q1 & Q2 2014
- 15 Trade Ally contractors responded
- 566 Installations over 26 Oregon counties
- Average survey completion time = 1 hour
- Support provided by Green Energy Institute, ODOE, and NREL throughout the process

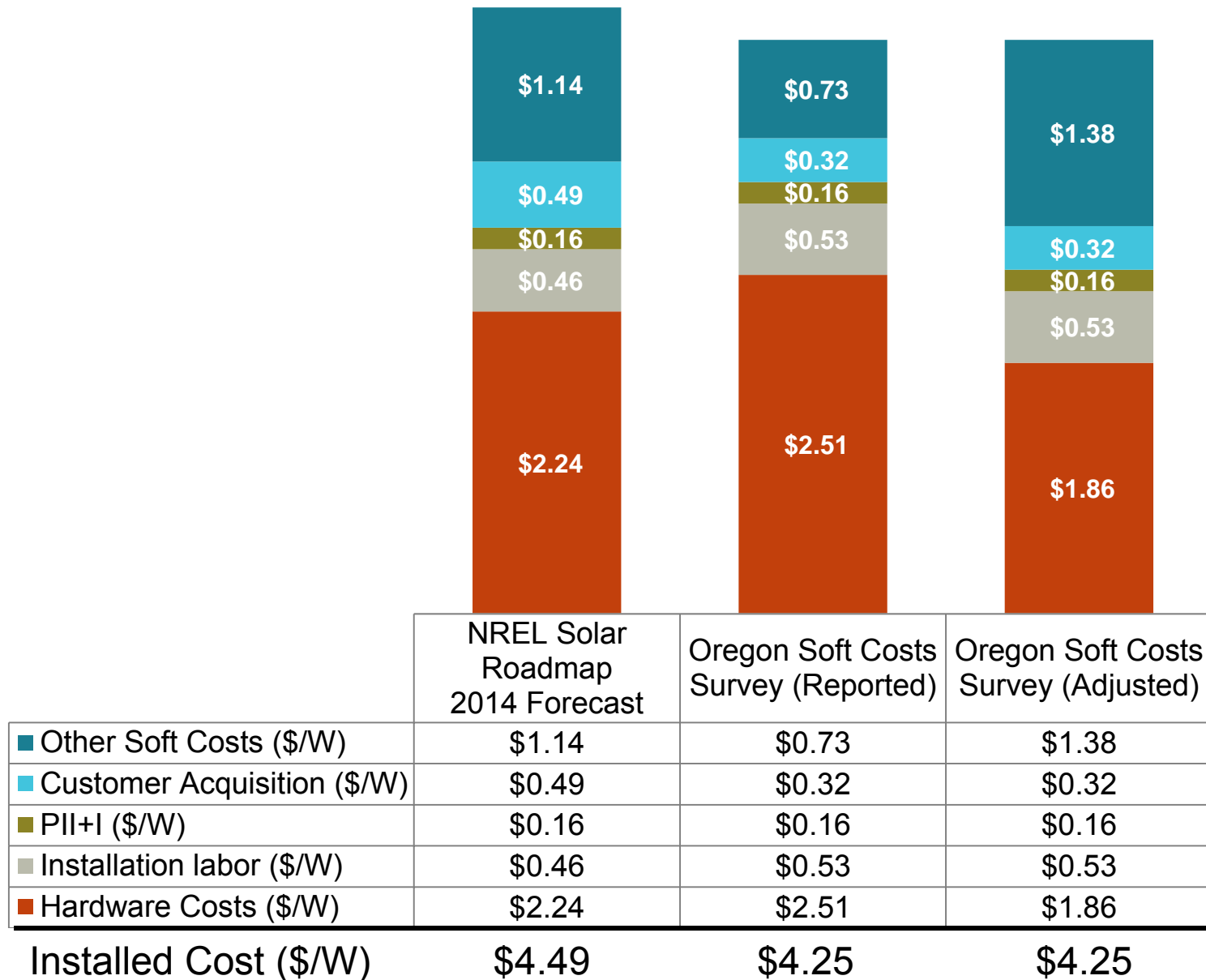


Survey data as reported



	NREL Solar Roadmap 2014 Forecast	Oregon Soft Costs Survey (Reported)
■ Other Soft Costs (\$/W)	\$1.14	\$0.73
■ Customer Acquisition (\$/W)	\$0.49	\$0.32
■ PII+I (\$/W)	\$0.16	\$0.16
■ Installation labor (\$/W)	\$0.46	\$0.53
■ Hardware Costs (\$/W)	\$2.24	\$2.51
Installed Cost (\$/W)	\$4.49	\$4.25

Survey data once adjusted



Key Takeaways

1. Oregon PII+I is in line with NREL forecast
2. Customer acquisition is the next largest defined category with realizable cost reduction opportunities
3. “Other” soft costs are not well understood or well defined
4. Individual solar cost categories may not be the best metric with which to gauge success



Next Steps

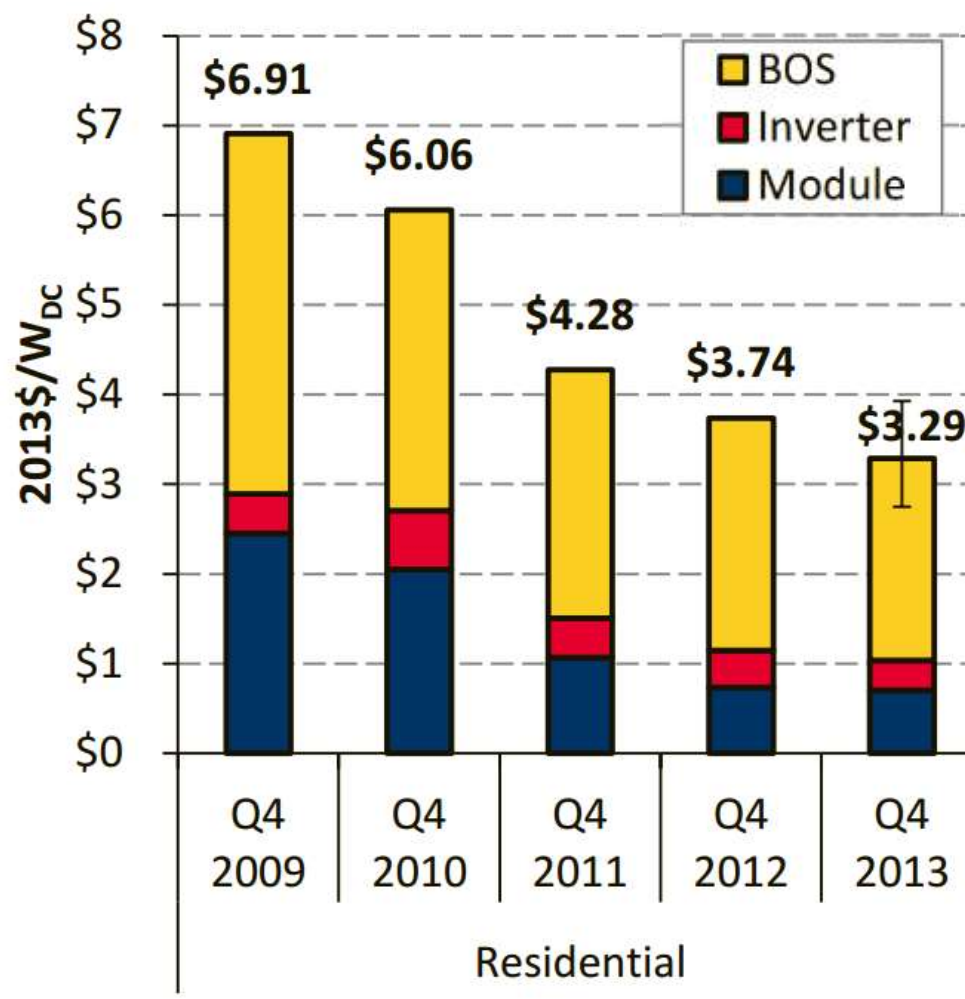
1. Continue working to decrease soft costs
2. Finalize analysis and publish survey report
3. Work with Green Energy Institute to compare Oregon solar market to other states
4. Advertise RFP for an Oregon specific Solar Soft Cost Roadmap





Questions?

Bottom-up Modeled System Price



- Since Q4 2009 modeled system prices have fallen between 16%-19% per year. (Largely due to module price reduction)
- Modeled PV system prices quoted in Q4 2013 and expected to be installed in 2014.

Conservation Advisory Council Meeting Notes

March 11, 2015

Attending from the council:

Jim Abrahamson, Cascade Natural Gas
Shanna Brownstein, NW Natural
Warren Cook, Oregon Department of Energy
Joe Esmonde, International Brotherhood of Electrical Workers
Garrett Harris, Portland General Electric
Scott Inman, Oregon Remodelers Association
Andria Jacob, City of Portland Bureau of Planning and Sustainability
Don Jones, Jr., PacifiCorp
Jason Klotz, Oregon Public Utility Commission
Don MacOdrum, Home Performance Guild of Oregon
Stan Price, Northwest Energy Efficiency Council

Sue Fletcher
Fred Gordon
Hannah Hacker
Mia Hart
Marshall Johnson
Oliver Kesting
Jessica Rose
Sam Walker
Jay Ward
Peter West

Others attending:

Scot Davidson, Clean Energy Works
Mark Duty, RMC
Sarah Fredrickson, CLEAResult
Alan Meyer, Energy Trust board
Todd Poehlman, Conservation Services Group
Chris Smith, Energy 350
Cindy Strecker, CLEAResult
Bob Stull, CLEAResult
Becky Walker, CLEAResult

Attending from Energy Trust:

Sarah Castor

1. Welcome and introductions

Oliver Kesting 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.

2. Old business

Oliver asked the council if there were any changes to the February 2015 Conservation Advisory Council notes.

Don Jones: In the Natural Gas Combined Heat and Power, CHP, discussion notes, move the comment, "Don Jones: At this point, Pacific Power will abstain until we consult with some internal folks," up to page 10, following: "The Conservation Advisory Council was tentatively supportive of an incentive increase when polled."

Oliver announced that a request for proposals for a Program Management Contractor for Energy Trust's multifamily offering will be released on March 23.

3. Expected topics for 2015 Conservation Advisory Council meetings

Oliver reviewed the draft annual schedule for potential and known agenda items for Conservation Advisory Council meetings in 2015. He asked members for input and suggestions.

Don Jones: It's nice to know ahead of time when there are guest speakers. How much notice should members give when suggesting guest speakers or agenda items?

Peter West: Agendas are developed four weeks prior to meetings. About two meetings ahead is an ideal time to suggest topics.

4. Residential weatherization incentive cap update

Fred Gordon provided an update about two residential incentive concepts sent to the Oregon Public Utility Commission in response to a request for ideas for offering non-cost-effective weatherization incentives under an incentive cap. The first concept is to continue providing non-cost-effective weatherization incentives for selected audiences, such as for renters, moderate-income homeowners and multifamily properties. The second concept is to continue offering these incentives for a broader audience with lower incentive amounts. The OPUC is considering both incentive concepts.

Jason Klotz: There have been a few challenges at the OPUC delaying our consideration. It took time to come up to speed and understand the logic of both proposals after Juliet Johnson left. A draft decision is circulating for OPUC management, and we expect a final draft by end of next week. The decision will be announced before April 30, 2015.

Fred: On a related issue, there is a gas Integrated Resource Plan, IRP, order. The OPUC is looking at gas pipeline restraints in Salem. The OPUC is looking at demand-side alternatives to reduce loads. The commission ordered that the current efficiency program be available in the Salem area. This is another area where the decision to eliminate certain measures might be modified.

Jason: Language was requested to be inserted in the NW Natural IRP about continuing weatherization programs in the Salem area. Whether or not the incentive caps are approved, UM 1622 will not affect offerings in Salem. We are looking to NW Natural to pick up the discussion about what offerings will be available in the Salem area.

Fred: The measures in question will likely be offered in the Salem area in some form.

Jim: This could also shine some light on the issue of gas avoided costs from an infrastructure standpoint. The Bonneville Power Administration Non-Wires program is a good example. There are avenues for looking at natural gas energy efficiency rather than purchasing additional pipeline.

Shanna Brownstein: Should I bring this back to Holly?

Fred: NW Natural is already aware.

Jason: The main contact for NW Natural should stay the same.

Fred: To clarify, the value of the pipeline is \$25 million. A delay produces a value of about a few million dollars. Demand-side management options are not restricted to efficiency, so this is unlikely to have a huge impact on our overall program.

Jim: Are these discussions just between Energy Trust and the OPUC staff?

Jason: We are looking at how to address the issue now, and then we will come up with a procedure.

Jim: This could be very positive.

5. New Buildings market strategies

Jessica Rose provided an overview of two new market solutions incentives packages, focusing on driving deeper savings in small commercial projects. Jessica summarized a new market solutions offering for large multifamily buildings.

Alan Meyer: It seems this offering would provide value to residents. Do we offer a sticker for units to display to demonstrate their participation?

Jessica: The “Hey Buildings” campaign makes the connection between the building and tenant, exhibiting the “Hey Buildings” sticker and creating the association with Energy Trust.

Construction signs are posted sometimes, setting the standard for building energy efficiency.

Uptake is better than expected with out-of-state developers and early engagement with owners.

Alan: What is the incentive for achieving a higher savings tier from good, better to best? Does participation in market solutions allow owners to increase rent or attract tenants?

Jessica: There is a lot of traction in the marketplace for energy efficiency. People see the value in achieving the “better” building requirements, and it conveys comfort for tenants.

Oliver: There are so many labels and awards in the market already. It’s not the best fit for the program to introduce a new award. The good, better and best tiers primarily help the customers and design teams in setting targets and understanding what we can provide with design assistance and incentives.

Warren Cook: We could use this as an opportunity for disclosure when new construction buildings are 30 percent above baseline.

Garrett Harris: Are ductless heat pumps eligible for market solutions incentives?

Cindy Strecker: Ductless heat pumps are not eligible. Market solutions offerings only apply to dwelling areas, not common spaces.

Jessica: The new, large multifamily offering is similar to current market solutions packages. This new offering could have a big impact in the large multifamily market, which is not easily addressed through modeling solutions.

Stan Price: What is the size threshold for large multifamily?

Jessica: Eligible buildings can be from 20,000 to 70,000 square feet, about four to twelve stories.

Jessica summarized the new office tenant improvement market solutions offering, and presented on enhanced market engagement strategies and a revised offering for data centers. Since the launch of the data center offering in 2011, the program saved a total of 107 million kilowatt hours through data center projects. Many past projects were at enterprise level, and we are expecting large to mid-size data centers in the future. Incentive caps are changing for early design, technical assistance and installation.

Alan: What is the reason for limiting installation incentives to \$499,999?

Oliver: The \$499,999 incentive is within the authority of the program. A customer could still pursue more incentives, but we would bring that project to the Energy Trust board for approval.

Alan: With the service incentives, the project could qualify for incentives above the \$500,000 mark?

Oliver: Service incentives are not included in the cap since they are targeted for the service providers.

Alan: It would be good to communicate to the board about how the cap is being handled, for full disclosure.

Don Jones: Are there standard energy-efficiency practices for data centers? I expect that they would be fast tracking sales shares.

Jessica: Yes, IT equipment changes frequently.

Garrett: Are there any past data center participants who later made additional upgrades?

Jessica: No, we're not aware of any overlap between the two.

Jessica provided an overview of the two upstream strategies for uninterrupted power supplies, UPS: a midstream incentive influencing purchasing decisions and a calculated incentive to the owner.

Alan: UPS came up at the last board meeting. Can it only be used if the power is interrupted? Is the power running all the time?

Cindy: UPS is not regulated by code, so we use standard practice as the baseline for UPS units, with efficiencies depending on the type of unit. Power runs continuously through the UPS units, thus the energy savings is the difference between the baseline efficiency compared to the proposed efficiency.

Alan: The power is running all the time and there are losses due to the power transformations?

Cindy: Yes.

Don Jones: What is the size of midstream incentive? .

Jessica: 25 cents per kWh for midsize UPS.

Jason: Is the midstream incentive only effective in Energy Trust territory?

Jessica: I have to figure this out. We would have to capture information about the site and how we are qualifying that incentive.

Jason: Would that fall under Northwest Energy Efficiency Alliance's work?

Jessica: There is a coordination opportunity with NEEA here. NEEA is looking at other data-type strategies, but not necessary the co-location strategies.

Fred: NEEA has a few market transformation focuses. New construction is in the early planning stages. There are no big initiatives for data centers right now.

6. EPS and solar electric valuation study

Sarah Castor presented on preliminary results from a study estimating the contributory market value of solar electric systems and EPS™ in residential home sales in the Portland and Bend areas.

Results show that the average contributory market value of solar electric systems is almost \$14,000, or 3.6 percent of the average home value, based on the 14 homes analyzed. In Portland, the value of a certification for a new home, such as ENERGY STAR® or Earth Advantage, is about \$9,000, or 3 percent of the average home value.

Don MacOdrum: Is there data on installed costs of solar electric systems?

Sarah: The final version of the report will include a table with the total installed costs, tax credits and incentives for each system. We will be able to see the out-of-pocket system costs as well.

Garrett: Were the solar electric systems owned or leased?

Sarah: All systems were owned, except for two third-party owned systems that were discovered after the fact. We may pull them from the study.

Warren: How were there Home Performance with ENERGY STAR® certified homes that did not have an EPS? How could you tell the home did not have an EPS?

Sarah: All new homes that go through the Energy Trust program have an EPS. New homes that do not go through the program do not have an EPS. So homes could have a certification, including ENERGY STAR, and not receive an EPS, although most ENERGY STAR homes also have an EPS.

Stan: The end game is interesting. As you are quantifying the non-energy benefits of EPS? Is that a strategy or is the focus to encourage adoption of EPS?

Fred: EPS allows us to encourage builders to construct homes that are more efficient than the ENERGY STAR specification. It allows us to recognize the value and help drive sales. If homeowners pay more for an EPS home, that does not necessarily mean there are non-energy benefits. Buyers may be paying for future energy savings. If you can find a value for the non-energy benefits, that would be worth considering. This is about creating a market to drive non-energy programs.

Peter: We plan to move EPS deeper into the existing homes market in 2015. We experimented with doing this through the Home Performance with ENERGY STAR track to good effect. We are looking for evidence that the investments result in a higher value for the house. There is not enough statistical evidence here yet, but we are moving in the right direction. We can work with real estate agents and builders and try to increase visibility.

Andria Jacob: The format of the Regional Multiple Listing Service, RMLS, does not provide a lot of context for EPS and may generate confusion. Many people could assume the score is out of 100.

Warren: There is potential for confusion in the market between a certification and a metric. An existing home can receive an EPS, but the score does not necessarily indicate any improvements were made. Certifications are for improvements. This is a challenge to be worked out regarding EPS as a certification or a metric.

Peter: There are still opportunities for education about EPS. A positive outcome of this study was the strong feedback that people are willing to receive more education about EPS.

Don MacOdrum: One of the biggest takeaways from the study was that we need volume, more EPS, and to have it listed correctly in the RLS. We need a standardized method for displaying information.

Fred: If there continues to be multiple green brands for new homes, it is going to be confusing for a study to try and put a value on an EPS.

Alan: The value of a certification is determined by people. The value of EPS will grow as people become more sophisticated. Since most people do not buy homes often, new homebuyers are not going to have that level of sophisticated knowledge of EPS. Training and context are needed.

7. Legislative update

Hannah Hacker provided an overview of energy bills before the state legislature. Energy Trust does not lobby or take a position on potential or proposed legislation, but does track and monitor legislation that may intersect with program offerings. So far in the 2015 state legislative session, staff is tracking on about 80 of the 2,600 bills introduced. Hannah gave an overview of those bills, including bills related to the public purpose charge, state tax credits, energy efficiency, greenhouse gas emissions regulation and studies, the return on investment of state energy efficiency, renewable energy and carbon reduction programs, and renewable energy.

Jason: SB 456 does not allow utilities to propose additional incentives for emissions reductions programs. It clarifies the original intent of SB 844 by giving the OPUC the authority to incentivize utilities to invest in projects that reduce greenhouse gas emissions.

Hannah: Thank you for that clarification.

Don Jones: Which bill is most concerning to you?

Hannah: We pay close attention to any bill that relates to public purpose charge funding.

8. Public comment

Sarah Fredrickson: The EPS expansion plan is scheduled to be discussed at the Conservation Advisory Council meeting in June.

9. Meeting adjournment

The meeting adjourned at 3:30 p.m. The next Conservation Advisory Council meeting is scheduled on April 29, 2015.

Tab 8

Briefing Paper

2015 State Legislation Update

May 20, 2015

Summary

- The February and April briefing memos highlighted the bills we are watching in the 78th Oregon legislative session. This paper updates you on those bills. A comprehensive listing with links to the bills themselves (in the “Bill Number” column) is attached.
- Proposed bills that have not yet been passed out of the originating house or assigned to a rules, revenue or ways and means committee are not eligible to be considered for further action at this point in the session and are, therefore, identified as “failed.”
- Depending on its “relating clause,” a bill that has cleared its originating body is a potential vehicle for amendments that may or may not have made it through a committee process so we continue to monitor throughout the session.

Legislative action:

- **Public purpose charge/large customer funding:**
 - **HB 2946** would have allowed the Oregon Public Utility Commission (OPUC) to develop a rule authorizing electric utilities to include in rates the cost of cost-effective energy conservation for large electricity consumers above the 3 percent rate now allowed. **Failed**
 - **SB 431** would have capped public purpose charges paid to nongovernmental entity at \$100 million per year. **Failed**
 - **SB 499** would have required nongovernmental entity to be assessed by independent third party in order to receive public purpose charge money. **Failed**
- **Energy-efficiency tax credit programs:**
 - **HB 2627** would require the Oregon Department of Energy to study Oregon energy-efficiency tax credit programs, not public purpose programs administered by Energy Trust. Preliminary findings due by February 1, 2016, with a final report February 1, 2018. **Do-pass recommendation**
 - **Energy-efficiency rating system: HB 3065** would have directed the Oregon Department of Energy to create an energy-efficiency rating system for use in tax credit certification, or adopt another “commonly used” system. **Failed**
- **Renewable Portfolio Standard:**
 - **SB 815** would have made hydroelectric energy generated by facility that became operational before 1995 eligible under renewable portfolio standard. **Failed**
- **Solar:**
 - **HB 2941** would (1) authorize electric utilities to offer a residential rate option for specific renewable energy options including solar photovoltaic, if the OPUC finds such a rate justified; and (2) direct the OPUC to evaluate solar photovoltaic incentive programs and make legislative recommendations. **Passed Senate committee**
 - **HB 3344** would modify the residential energy tax credit for some solar energy devices certified after September 1, 2015, and tax years beginning in 2015. **Do-pass recommendation**
 - **HB 2745** would have raised the cumulative capacity of the volumetric incentive rate program, and extend the program to 2021 or when the capacity cap is reached. **Failed**

- **Air emissions, clean fuels and carbon:**
 - **HB 3091** would establish a Greenhouse Gas Reduction Evaluation Framework Task Force, to report to legislature by September 15, 2016. **Do-pass recommendation**
 - **SB 456** would fix an ambiguity in a law allowing the OPUC to approve gas companies' voluntary greenhouse gas incentive programs (SB 844), by specifying that the OPUC has authority to create or allow such incentives. **Passed**
 - **HB 3250** would require the Environmental Quality Commission (EQC) to develop a carbon cap-and-dividend program, auctioning emission allowances and refunding proceeds to taxpayers and their dependents. **Failed**
 - **HB 3470** would require EQC to adopt 2020-2050 greenhouse gas emissions limits and a program and action plan to achieve them. **Do-pass recommendation**
 - **HB 2729** and **SB 477** would require electric companies to eliminate coal-derived generation for Oregon customers by 2025 and replace it with resources that are at least 90 percent cleaner than coal generation. **Failed**
 - **HB 2586** would require electric utility integrated resource plans to account for the external cost of carbon, taking into account Environmental Protection Agency (EPA) information on social costs. **Failed**
 - **Carbon fees and taxes: HB 2082, 2086, 2159 and SB 21**, which would authorize various fees and taxes on carbon-based fuel, or to study such mechanisms, are still alive.
 - **Federal carbon rules: HB 2191**, which would create a task force to recommend legislation necessary to respond to EPA rules under section 111(d) of the Clean Air Act regarding carbon emissions from existing power plants, is still alive.

Report Date: May 6, 2015

Bill Number	Relating Clause	Sponsor
<u>HB 2082 INTRO</u>	Relating to carbon tax; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	House Interim Committee on Revenue
<u>HB 2086 INTRO</u>	Relating to climate protection; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	House Interim Committee on Revenue
<u>HB 2092 A</u>	Relating to a tax credit for contributions; prescribing an effective date.	House Interim Committee on Revenue
<u>HB 2159 INTRO</u>	Relating to carbon-based fuel; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	House Interim Committee on Revenue
<u>HB 2187 A</u>	Relating to ocean energy; declaring an emergency.	House Interim Committee on Energy & Environment
<u>HB 2191 INTRO</u>	Relating to air pollution; declaring an emergency.	House Interim Committee on Energy & Environment
<u>HB 2193 A</u>	Relating to energy storage; declaring an emergency.	House Interim Committee on Energy & Environment
<u>HB 2198 A</u>	Relating to the Housing and Community Services Department.	House Rules House Interim Committee on Human Services and Housing
<u>HB 2216 INTRO</u>	Relating to facilities located in federal waters that use wind power to generate electricity.	Rep. MCKEOWN; Sen. ROBLAN
<u>HB 2272 INTRO</u>	Relating to motor vehicle fuels; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	House Interim Committee on Transportation & Economic Development
<u>HB 2400 A</u>	Relating to water policies; declaring an emergency.	At the request of the Governor
<u>HB 2442 A</u>	Relating to governance of the Housing and Community Services Department.	At the request of the Governor for Housing & Community Services Department
<u>HB 2447 A</u>	Relating to residential energy tax credits; prescribing an effective date.	At the request of the Governor for State Department of Energy
<u>HB 2448 A</u>	Relating to energy incentives programs; prescribing an effective date.	At the request of the Governor for State Department of Energy
<u>HB 2449 A</u>	Relating to tax credits for bioenergy; prescribing an effective date.	At the request of the Governor for State Department of Energy

<u>HB 2559 A</u>	Relating to solar access for residential real property.	Rep. GREENLICK; Reps. BARNHART, BUCKLEY, FREDERICK, GORSEK, HELM, LININGER, READ, REARDON, VEGA PEDERSON, WILLIAMSON at request of Jerry Weinert
<u>HB 2585 A</u>	Relating to electric vehicle charging stations; declaring an emergency.	Rep. BARNHART
<u>HB 2627 A</u>	Relating to the state's return on energy investments.	Rep. LININGER; Rep. NATHANSON
<u>HB 2632 A</u>	Relating to solar energy.	Rep. BENTZ and Sen. ROBLAN; Reps. GILLIAM, HUFFMAN, READ, VEGA PEDERSON, Sen. DEMBROW
<u>HB 2688 INTRO</u>	Relating to taxation; prescribing an effective date.	Rep. GOMBERG
<u>HB 2822 INTRO</u>	Relating to capital improvements income tax credit; prescribing an effective date.	Rep. DAVIS
<u>HB 2941 A</u>	Relating to solar energy; declaring an emergency.	Rep. HOLVEY
<u>HB 2987 INTRO</u>	Relating to compliance with green energy technology mandates for public buildings.	Rep. HOLVEY
<u>HB 3068 A</u>	Relating to energy source conversion programs; declaring an emergency.	Rep. JOHNSON
<u>HB 3082 INTRO</u>	Relating to nonprofit corporation low income housing	Rep. FREDERICK; Sen. SHIELDS
<u>HB 3091 A</u>	Relating to carbon emission reduction programs; declaring an emergency.	Reps. BENTZ, JOHNSON; Reps. ESQUIVAL, HACK, NEARMAN, SMITH, WHISNANT
<u>HB 3176 INTRO</u>	Relating to climate protection; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	Revenue Committee
<u>HB 3246 INTRO</u>	Relating to energy-related improvements to property; prescribing an effective date.	Rep. VEGA PEDERSON, Sen. HASS; Reps. DAVIS, JOHNSON, NOSSE, READ
<u>HB 3252 INTRO</u>	Relating to carbon-based fuel; prescribing an effective date; providing for revenue raising that requires approval by a three-fifths majority.	House Energy & Environment
<u>HB 3257 INTRO</u>	Relating to low-income electric bill payment assistance, declaring an emergency.	House Energy & Environment

<u>HB 3329 INTRO</u>	Relating to geothermal standard for green energy technology in public improvement contracts for public school buildings; prescribing an effective date.	Rep. WHITSETT
<u>HB 3344 A</u>	Relating to solar energy.	Reps REARDON, HUFFMAN, Sen. DEMBROW; Reps. HOLVEY, WHISNANT, Sen. BOQUIST
<u>HB 3353 INTRO</u>	Relating to energy-related improvements; prescribing an effective date.	Rep. EVANS
<u>HB 3415 A</u>	Imposes 10-year moratorium on use of hydraulic fracturing for oil and gas exploration and production.	Rep. HELM; Rep BARNHAR, Sens DEMBROW, PROZANSKI, RILEY, SHIELDS, STEINER HAYWARD
<u>HB 3470 A</u>	Relating to greenhouse gas emissions.	Rep. BARNHART
<u>HB 3492 INTRO</u>	Relating to taxation of solar projects; prescribing an effective date.	Rep. HUFFMAN; Reps. BENTZ, HELM, READ, REARDON, Sen. ROBLAN
<u>HJR 10 INTRO</u>	Proposes amendment to Oregon Constitution allowing Legislative Assembly to impose taxes on carbon.	House Interim Committee on Revenue
<u>HJR 11 INTRO</u>	Proposes amendment to Oregon Constitution removing limitation of six percent of market value on rate of taxes imposed on oil or natural gas.	House Interim Committee on Revenue
<u>SB 20 INTRO</u>	Relating to minimum energy efficiency standards.	Senate Interim Committee on Environment & Natural Resources
<u>SB 21 INTRO</u>	Relating to the Task Force on Clean Air Fee or Tax Implementation; declaring an emergency.	Senate Interim Committee on Environment & Natural Resources
<u>SB 32 INTRO</u>	Relating to natural gas; declaring an emergency.	Senate Interim Committee on Rural Communities and Economic Development
<u>SB 98 INTRO</u>	Relating to audits; declaring an emergency.	Sen. THATCHER; Rep. STARK
<u>SB 105 INTRO</u>	Relating to state agencies; declaring an emergency.	Sen. THATCHER; Rep. STARK
<u>SB 259 A</u>	Relating to energy facility siting process cost recovery.	At the request of the Governor for State Department of Energy
<u>SB 304 INTRO</u>	Relating to energy resource supplier assessment.	Sen. JOHNSON at request of Oregon People's Utility District Association
<u>SB 319 A</u>	Requires proprietary authorization from Department of State Lands to construct or operate ocean renewable energy facility in Oregon's territorial sea.	Sen. ROBLAN; Sens. JOHNSON, KRUSE, WHITSETT, Reps. BOONE, GOMBERG, MCKEOWN

SB 324 ENROLLED	Relating to reducing greenhouse gas emissions from transportation fuels; declaring an emergency.	Sens. BEYER, GELSER, DEMBROW; Sens. BATES, EDWARDS, MONNES ANDERSON, PROZAN-SKI, ROBLAN, ROSENBAUM
SB 456 EN	Relating to the voluntary emission reduction program for natural gas utilities; declaring an emergency.	Sen. BEYER
SB 541 INTRO	Relating to the Sunset Advisory Committee; declaring an emergency.	Sen. WINTERS
SB 571 INTRO	Relating to data centers; prescribing an effective date.	Senate Committee on Finance & Revenue
SB 611 EN	Relating to central assessment; prescribing an effective date.	Senate Committee on Finance & Revenue
SB 730 INTRO	Relating to energy.	Sen. GIROD, Rep. WITT; Sens. BAERTSCHIGER JR, JOHNSON, Rep. CLEM



ENERGY TRUST OF OREGON EMPLOYEE SUSTAINABILITY AND ENGAGEMENT REPORT

PROVIDED BY ENERGY TRUST OF OREGON'S
ENERGY, ENVIRONMENT AND ENGAGEMENT TEAM, E3

April 22, 2015

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A Note From our Executive Director

Energy Trust of Oregon is a mission-driven organization dedicated to helping customers and utilities meet their energy needs with low cost energy efficiency and clean renewable energy generation. We do this by sharing energy expertise and providing cash incentives to accelerate investment in energy-saving improvements and adoption of renewable energy technologies. Our actions have one purpose—to benefit the 1.5 million utility customers we serve. This includes delivering our programs and conducting our operations in the most efficient way we can.

This is our inaugural Employee Sustainability and Engagement Report, produced by our volunteer Energy, Environment and Engagement Team, E3. The document highlights how our employee efforts and strategies minimize Energy Trust's own environmental impact while also helping our community. As stewards of the utility customer dollars we invest, it is incumbent upon us to carefully look at our internal operations and be sure we deliver valuable services in an effective and cost-conscious manner. So where did we start?

- By renovating our leased office space with energy-efficient lighting, heating and server room technologies, we kept office costs low and created a demonstration space for others to see what's possible with a limited budget.
- Just as we encourage our customers to do, we set our energy use baseline and tracked use over time, identifying where to make changes to reduce consumption.
- By setting goals and implementing energy-saving tactics, we drove down energy use and costs with innovative actions like temperature management strategies in our IT server room and electric hand dryers in our bathrooms.
- And by inspiring participation, employees engaged in friendly energy-saving competitions and also volunteered their personal time to contribute to our community through special sustainability projects like volunteering at the Oregon Food Bank.

Following the Strategic Energy Management curriculum we offer our customers, Energy Trust is applying our expertise to ensure continuous improvement in our own internal practices and operations. This report is about more than "walking our talk," it's about acknowledging the passion, creativity and commitment of our employees who consistently strive to minimize their own personal environmental impacts.

This Employee Sustainability and Engagement Report lays the groundwork for continued future improvements to deliver even greater environmental and social benefits while creating a high quality of life, a vibrant economy and a healthy environment and climate for Oregonians today and tomorrow.

Thank you for your ongoing interest and commitment to these efforts!

A handwritten signature in black ink, reading "Margie Harris". The signature is fluid and cursive, with the first name "Margie" written in a larger, more prominent script than the last name "Harris".

Margie Harris

About Energy Trust of Oregon

Energy Trust is an independent nonprofit organization dedicated to helping utility customers benefit from saving energy and generating renewable power. Our services, cash incentives and solutions have helped participating customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas save \$1.7 billion on their energy bills.

We help homeowners, renters, multifamily property owners, farmers, ranchers, businesses of all sizes and types, school districts, cities and counties use less energy, generate renewable power, and protect the environment.

By working together with customers, we are helping to keep energy costs as low as possible and building a sustainable energy future.

Our Purpose

To provide comprehensive, sustainable energy efficiency and renewable energy solutions to those we serve.

Our Vision

A high quality of life, a vibrant economy and a healthy environment and climate for generations to come, built with renewable energy, efficient energy use and conservation.

Our Values

- Transparency
- Achievement
- Collaboration
- Integrity
- Mission-focused

Introduction

Building on our national reputation for innovation and success, Energy Trust is committed to demonstrating environmental leadership in our office space and beyond. The Energy Trust Energy, Environment and Engagement Team, E3, is a group of Energy Trust staff members who volunteer their time to improve the organizations' internal environmental, economic and social sustainability practices. E3 seeks to influence work habits, build community involvement and encourage employees to seize energy-efficiency, sustainability and community engagement opportunities—all while keeping Energy Trust values in focus.

This first ever Employee Sustainability and Engagement Report will help benchmark progress toward Energy Trust's internal employee sustainability goals for years to come, and acknowledges widespread employee efforts.

Measuring and Tracking our Environmental Profile

We measure our environmental profile based on consumption in seven different categories: Office Indoor Environmental Quality, Energy, Water, Waste Reduction and Recycling, Purchasing, Travel and Carbon. Each category features metrics and standards to track and evaluate achievement of our internal goals to improve sustainability and reduce costs for the organization. Here is a summary of our efforts and result in each category.

Office Indoor Environmental Quality

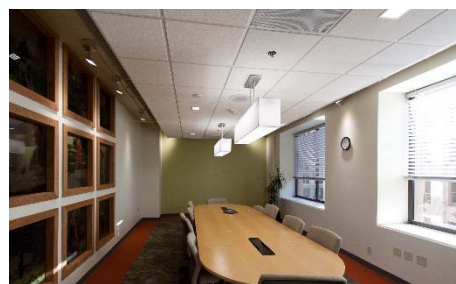
In 2011, Energy Trust moved its office to the 120-year-old Lincoln Building in Portland. When tenant renovations for the Class B office space were in planning stages, staff saw an opportunity to include energy-efficiency and sustainability improvements. The goal was to make a productive and engaging space for employees and guests with lower operating costs, and to demonstrate how cost-effective energy-efficiency improvements can be integrated into a renovated space with a modest budget. Energy Trust and its property management company incorporated a wide range of sustainable features.

Indoor Air Quality

- Outdoor air intake is well above American Society of Heating, Refrigerating and Air-Conditioning Engineers standards
- More than 70 percent of cleaning products used in the office meet sustainability criteria that support indoor air quality

Materials

- Flooring is sustainably sourced
 - Cork floors have adhesives with low volatile organic compounds, VOC
 - Linoleum flooring has 47 percent recycled content and 23 percent rapidly renewable materials, such as linseed oil and jute
 - Carpet has 44 percent recycled content and is 100 percent recyclable at the end of its life
- Vinyl wall coverings and paint on walls are low VOC
- Decorative wood in the reception area is 100 percent reclaimed wood—a recycled byproduct of fast-growing poplar used in furniture and pulp manufacturing
- Herman Miller workstations have 54 percent recycled content; at the end of their useful life, 69 percent of materials can be recycled
- Kitchens include compost receptacles and built-in bins for separating recyclable materials—and no garbage disposals



Energy Trust's office space features energy-efficient lighting and sustainable materials

Energy

Like many tenants who lease only part of a building, a complete picture of the organization's energy use is difficult to create. Meters on the floor we occupy track some of our electricity use while single utility meters capture the electric and natural gas usage for the building as a whole, including the building systems that we share with other tenants. Still, we were able to implement the following key energy-saving accomplishments.

Lighting and Appliances

Energy Trust worked with architects, electrical engineers, lighting designers and product specialists to select the most efficient and cost-effective lighting for the office space. The new lighting system includes LEDs, occupancy controls and daylighting technologies that are 35 percent more efficient than Leadership in Energy and Environmental Design®, LEED, baseline. As a result, our office earned LEED Gold certification.

Energy Trust has implemented additional energy-saving improvements, many of which were suggested by employees:

- Timers on coffee makers reduce energy use from water heating
- Dyson hand dryers in bathrooms use 80 percent less energy than other warm air hand dryers
- Power-saving mode on all printers and copiers
- LED desk lamps for task lighting
- ENERGY STAR® refrigerators in office kitchens
- Direct digital controls for the heating, ventilation and air conditioning, HVAC, system to support more accurate temperature readings and automatic settings

Server Room Energy Use

Electronic and computer systems make up an increasing portion of energy consumption and resource costs in any organization, particularly when considering product life-cycle and the externality costs of production and disposal. Given their high energy use, computers and servers offer significant opportunities for efficiency improvements.

Data centers and server rooms account for the majority of IT energy consumption. While considerable energy consumption by appropriately sized server systems is unavoidable, assessing and optimizing temperature regulation can reduce energy use.

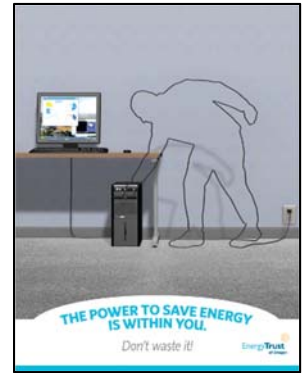
New information on hard drive functionality at high temperatures has opened the door to less stringent climate controls in the Energy Trust server room, which means that the organization can save energy on server room cooling. Based on these looser temperature control requirements, a specialized HVAC system uses the central building atrium for air exchange and leverages the natural temperature changes throughout the day.

During regular business hours, server room exhaust is expelled through the building's exhaust system. The exhaust chimney is closed after business hours, and the server room exhaust is then released into the building's atrium. Because it is coolest overnight and also the least trafficked area of the building, the atrium serves as an ideal heat sink. During the day, when the temperature in the atrium is still lower than the ambient temperature outside, air is brought in utilizing the HVAC fan.

The HVAC compressor only comes online when the intake air temperature exceeds approximately 84 degrees Fahrenheit.

Workstation Energy Usage

Staff are encouraged to turn off computer monitors when stepping away from their desks for extended periods and to turn off computers at night. Energy Trust also provides staff with energy-saving tools for their workstations. Monitors and task lamps may be powered through a motion sensor activated power strip, called a Watt Stopper, so that they turn off when employees leave their desks and turn back on when they return. Additionally, non-user assigned workstations such as conference and training room systems have strict power-saving settings for sleep/hibernate modes and hard drive/monitor shutoff idle timers.



Renewable Energy Certificates

To ensure that our day-to-day operations match our organization's commitment to a cleaner future, all of our energy purchases are offset through Renewable Energy Certificates, RECs, through the Bonneville Environmental Foundation. Energy Trust purchases RECs based on the previous year's annual consumption. The purchase of RECs helps replace fossil-fuel based electricity generation with renewable generation.

Water

Energy Trust minimizes water use through the following water-saving technologies:

- Low-flow faucet aerators in the kitchens (2.2 gallons per minute, GPM) and bathrooms (0.5 GPM)
- Automated water flow time for bathroom faucets reduced from 20 seconds to eight seconds
- Bathrooms are equipped with low-flow, no-flow and dual-flush toilets that use up to 40 percent less water compared to standard models
- ENERGY STAR high-efficiency dishwashers in office kitchens

Water Restoration Credits

Our remaining water usage is offset with the purchase of Water Restoration Credits through the Bonneville Environmental Foundation. These credits are certified by the National Fish and Wildlife Foundation and support in-stream water restoration to account for our office water usage. Each year, Energy Trust purchases 588 credits, based on the square footage of the office floor.

Waste Reduction and Recycling

Strategies to reduce waste and promote sustainable behavior include:

- Dyson hand dryers in bathrooms produce up to 80 percent less carbon dioxide, CO₂, than other hand dryers and up to 76 percent less CO₂ than recycled paper towels
- Cloth towels available in kitchens reduce paper towel and napkin use
- Built-in water filters installed in kitchens discourage plastic water bottle use
- Composting available for coffee grounds and food scraps
- A variety of recycling options available for glass, plastic, aluminum and plastic clam shell to-go containers
- Reusable silverware, dishes and to-go mugs available for employee use instead of disposable dishes or cups
- Reusable containers, called GO Boxes, are provided for employees to use for takeout lunches
- Toner and plastic ink cartridges in small printers and wax ink in large printers are recycled
- Shared trash cans to reduce plastic bag disposal and encourage proper disposal of compostable and recyclable materials
- Print settings on all printers default to double-sided printing
- Single-sided printed paper is reused as notebooks for employee use

Waste Audit

In February 2015, a waste audit conducted by volunteer E3 members found that 38 percent of garbage in the Energy Trust office could have been avoided. The most frequently found avoidable items were plastic and paper coffee cups, tea bags and plastic clam shell to-go containers. The E3 Team shared these results with staff and provided guidance on what can be recycled, composted or avoided.

Electronic Waste Management and Recycling

All consumer batteries (AA, AAA, 9-Volt) used in Energy Trust equipment are rechargeable, limiting unnecessary waste. Hazardous electronic components that have failed or have become obsolete are sent back to their manufacturers (using programs such as Dell Business Recycling) or recycled through certified electronic recyclers. These items include hard drives, power supplies, memory modules and expansion cards that contain hazardous materials such as lead, cadmium, mercury, beryllium, hexavalent chromium, antimony, brominated flame-retardants, PVCs and PCBs.

Donations to Free Geek

When computer systems and equipment reach the end of their lifecycle, they are donated to Free Geek. The nonprofit organization accepts these electronics to use in job training and educational programs, donate as grants to individuals or organizations or resell to fund community computer classes. Free Geek recycles electronics that cannot be refurbished or otherwise reused.

Purchasing

In June 2007, Energy Trust adopted a sustainable procurement policy encouraging products and services to be purchased in the most efficient, cost-effective and environmentally responsible manner when possible. In addition to our standard practice of obtaining multiple product and service bids and selecting the lowest-cost option that meets our needs, Energy Trust's procurement policy allows for spending of up to 10 percent more for products that are made locally and contain recycled and/or organic content. The following are some of our purchasing decisions made within these cost parameters.

Equipment

When replacing copy machines that had reached the end of their useful life in 2015, Energy Trust selected new copy machines that reduce electricity consumption and paper use. In addition to cost-effectively serving Energy Trust's operational needs, the new copiers achieve the following efficiency gains:

- Power-save mode during downtime reduces electricity use by 18 percent
- Reduction of 7.5 hours of run-time per week with a shorter warmup period
- Expected reduction in re-printing based on improved notifications for low ink and paper jams



Employees are encouraged to shut down machines at the end of the day and when not in use

Paper

For our in-house printing, we select recycled paper that contains post-consumer waste. For professional printing needs, we choose to work with print houses that use sustainable practices and print with vegetable-based inks.

Products

We purchase coffee that is organic, fair-trade and delivered by a local vendor that received an Innovation in Sustainability Award from the Portland Business Journal in 2015.

Travel

When employees need to travel outside of the office, Energy Trust supports a variety of efficient and sustainable options:

- All full-time employees receive TriMet passes for travel on bus, streetcar and light rail, purchased by Energy Trust at a discounted rate
- Zipcar memberships are available for employees to use when work-related travel by car is needed; use of hybrid vehicles is encouraged
- Carpooling is encouraged and used for travel to conferences and events
- A bicycle, helmet and lock are available to employees for local travel
- Long-distance travel to conferences is kept to a minimum, and state or regional conference attendance is prioritized over out-of-state conferences

Bicycling

Many Energy Trust employees are passionate bike commuters, and the organization supports this sustainable commuting option. Since 2006, Energy Trust has entered the Bicycle Transportation Alliance annual Bike Commute Challenge and has finished in the top 10 every year, motivated by carbon reduction and team-building opportunities.



Energy Trust employees meeting at a neighborhood bakery before riding to work together during the Bike Commute Challenge

In 2014, 74 percent of employees participated in the Bike Commute Challenge, with nearly one-half of participating employees biking for 100 percent of their commutes. Energy Trust came in fifth place in the Businesses and Non-Profits category with a 42 percent commute rate (percentage of commutes by bike) and 7,669 total miles logged.

Informal competition has become tradition between staff, with employees teaming up to see who can commute the most miles and trips throughout the month. In addition, Energy Trust now tracks running and walking commutes as an option for those who choose not to bike.

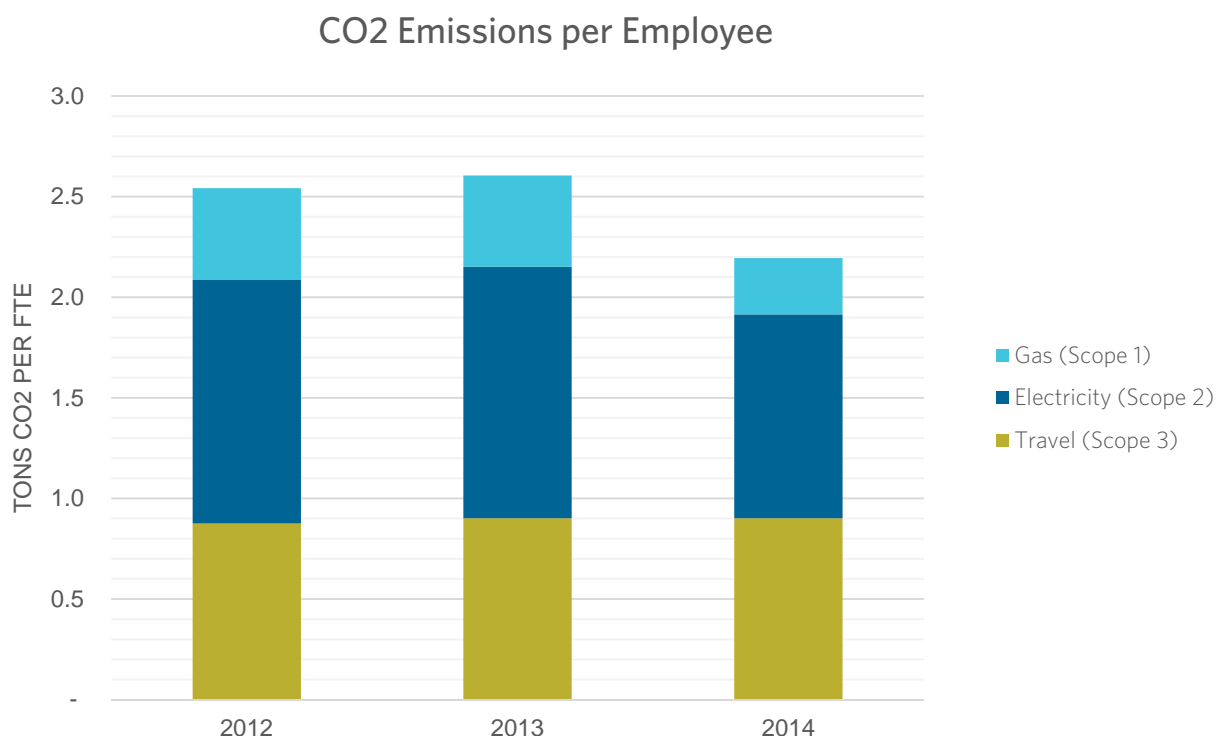
At the end of the challenge, employees are invited to meet and review the results. New riders, riders with the highest mileage and those who biked 100 percent of their commutes are recognized.

Carbon

To track carbon emissions, E3 started by quantifying emissions associated with Energy Trust's electricity and natural gas usage, as well as business travel and staff work commutes. This translates to our Scope 1 and 2 emissions, and some of our Scope 3 emissions. Scope 1 represents direct emissions from natural gas. Scope 2 represents indirect emissions, such as those from electricity use. Scope 3 represents all other indirect emissions such as commute and travel.

Emissions associated with Program Management Contractors, Program Delivery Contractors, trade ally contractors, program allies and other contracted resources are not included. The carbon emissions effects of our energy-efficiency and renewable energy programs are omitted from this report, as those are much larger in scope and reported separately in quarterly and annual reports to the Oregon Public Utility Commission and Energy Trust Board of Directors.

This chart represents the total tons of CO₂ emitted per full-time employee by Scopes 1, 2 and 3. From 2013 to 2014, tons of CO₂ per employee dropped from 2.6 tons to 2.2 tons, showing how our sustainability efforts made have made an impact to reduce our carbon footprint.



Employee Engagement and Outreach

Employee Engagement

Every year since 2005, Energy Trust has conducted an employee engagement survey to gauge employee satisfaction and identify opportunities for improvement. Year after year, staff have reported that they understand the mission and values of Energy Trust. The organization strives to increase response rates and engagement by providing follow-up plans for improvement areas to staff. In 2014, Energy Trust was ranked third among the 100 Best Nonprofits to Work for in Oregon by *Oregon Business* magazine. Some of the voluntary employee-supported engagement activities at Energy Trust include:

Health Activities Managed By Volunteer Staff

Staff volunteer their personal time to initiate and maintain engaging, healthy group activities and amenities such as a weekly yoga class, a workout group called “boot camp,” a co-ed softball league and seasonal delivery of fruits and vegetables through Community Supported Agriculture with a local farm.

Pit Stop Newsletter

The internal newsletter is posted monthly to provide updates to staff about program and operations information, project milestones, staff birthdays, profiles of staff members and humorous stories to promote team connections. E3 often contributes sustainable tips for home, office and other areas of life and promotes fun challenges for employees.



Useful Stuff Swap

E3 has hosted Useful Stuff Swaps where staff are invited to bring an item they no longer use or need to exchange with other employees. The unclaimed items are then donated to Goodwill.

Office Challenges

E3 has leveraged techniques used in our Strategic Energy Management programs to engage staff through friendly competition. Examples include challenging staff to turn off lights and computers and to take the stairs.

Earth Day Sustainability Fair

In 2014, E3 and staff volunteers held the inaugural Sustainability Fair for all tenants of the Lincoln Building, featuring activities and information on Energy Trust programs, gardening, bike maintenance, recycling, beekeeping, sustainable jeopardy and many other fun activities. The fair is a great way to inspire other building tenants to incorporate sustainability efforts at their businesses and homes. The E3 Team is excited to continue hosting this annual fair.



E3 hosted an Earth Day-themed Jeopardy game at the 2014 Sustainability Fair

Northwest Earth Institute's Eco-Challenge

The Eco-Challenge is an annual event led by the Northwest Earth Institute that challenges people to choose one action to reduce their environmental impact and stick with it for two weeks. Individuals and teams pick a category—water, trash, energy, food, transportation or civic engagement—and set a goal that makes a difference for individuals and the planet. Each member of the E3 Team commits to the challenge and participation from staff is encouraged.

Employee Outreach and Volunteering

E3 encourages employees to volunteer their personal time to connect with the local community through outreach projects, and arranges varied events and engagement opportunities to appeal to the many interests of staff. We also encourage volunteering as a way for staff to get to know each other outside of work.

DePave

In 2013, Energy Trust employees volunteered to beautify a parking lot by lifting asphalt and concrete to eliminate runoff and allow native plants and trees to be planted.

Community Energy Project

Over the past several years, Energy Trust has collaborated with Portland General Electric to help the nonprofit Community Energy Project with its weatherization activities in low-income households.

Volunteer Challenge

In September 2014, the E3 Team held a volunteer challenge to reach 100 collective hours of volunteer outreach. Employees volunteered their personal time in many ways:

- At a children's book bank cleaning and repairing books
- At local schools painting and cleaning up grounds
- Weeding invasive plants at Mt. Tabor Park
- Building a wheelchair ramp
- Tutoring children
- Helping with the Bicycle Transportation Alliance bike count
- At a meditation center
- At a farmers market
- At a local animal shelter

Oregon Food Bank

In December 2014, E3 held a food drive to collect 125 pounds of food to Oregon Food Bank and organized a volunteer opportunity to bag food at Oregon Food Bank's main warehouse. Energy Trust employees donated more than 170 pounds of food, exceeding the goal. Several employees also volunteered personal time at Oregon Food Bank. Collectively, the group bagged 39,000 pounds of vegetables, the equivalent of 2,460 meals. The combined effort of the volunteer challenge and Oregon Food Bank got us past our monthly goal of 100 hours volunteered by 36 percent.



Staff donated more than 170 pounds of food for a food drive supporting Oregon Food Bank



Energy Trust volunteers removing invasive ivy at Marquam Nature Park

Goals for the Future

After successful implementation of a variety of sustainability practices at Energy Trust, we continue to look for even more ways to improve. Some of our goals for the future include:

- Conduct a survey to set a baseline and goal to reduce paper use in meetings
- Purchase carbon offsets for necessary air travel to conferences by 2016
- Reduce takeout food container waste by providing additional GO Box tokens and reusable coffee mugs for staff and visitors
- Reduce electricity and water consumption through continued awareness activities
- Ensure all copy paper meets a 30 percent recycled content minimum
- Explore whether to purchase only 100 percent recycled paper, which could reduce our carbon footprint by 1,200 pounds of CO₂ annually without substantially increasing costs.

About E3

The E3 Team is a group of Energy Trust staff members who volunteer their time to improve the organizations' internal environmental, economic and social sustainability practices. The cross-organizational team draws on skills in commercial, residential and industrial energy-efficiency program management, renewable energy program management, finance, legal, planning, IT, communications and marketing.











E3's goal is to ensure that Energy Trust remains a leader in sustainability performance by using the tenets of continuous improvement to review our internal operating practices, weigh their impact on the environment and act in innovative, cost-conscious ways to reduce that impact.

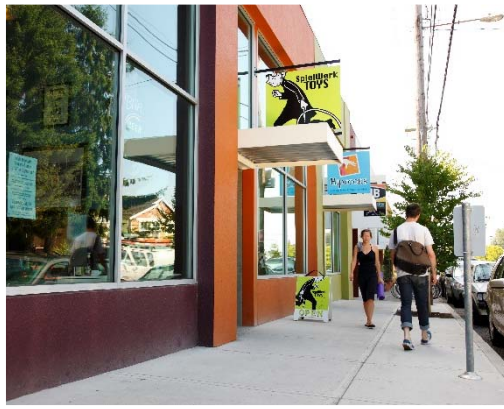
E3 Objectives

The E3 Team aims to create a sustainable workplace by:

- Creating an organization-wide focus on our social, environmental and economic impact
- Conducting regular reviews of our current business practices, analyzing their environmental impact and improving our performance
- Engaging employees through environmental and social efforts that will enhance their experience with the organization through participation in E3 initiatives
- Regularly providing updates to staff
- Establishing baseline resource use, setting reduction goals and reviewing performance annually
- Educating employees on how they can incorporate sustainability practices at work and at home

Meet the E3 Team members who created this Employee Sustainability and Engagement Report:

Name and Department		Motivation for Joining E3
	Kathleen Belkhat, Commercial Sector	I work with business customers who want to engage employees and manage their energy use, so E3 is a good way to share ideas from both directions. I really enjoy the teamwork and creativity involved!
	Katie Wallace, Residential Sector	I joined the E3 Team to engage with my peers and be more deeply involved with Energy Trust, to help keep myself accountable to the goals I set, to have fun planning challenges and engagement opportunities both internally and externally, and to learn more about sustainability and what I can do to help!
	Kati Harper, Industry & Agriculture Sector	I want to help do what we do. I like the idea of “think globally, act locally”—at home and at work. Plus, who doesn’t love continuous improvement and sustainability?
	Robert Wyllie, Industry & Agriculture Sector	I participated in the “Lights Off Challenge,” the Earth Day Sustainability Fair and some of the volunteer events last year. I really enjoyed them and was inspired to join E3 to help keep up the good work.
	Brigid Gormley, Legal Group	I want to learn more about sustainability, and to help team members motivate and assist the organization to be more sustainable in its practices.
	Juliatt Eck, Finance Group	E3 helps me connect with folks across the organization in a fun and creative way.
	Ted Light, Planning Group	Energy Trust does a lot of great things already, but we can still learn and do more to be better corporate citizens.
	Gayle Roughton, Renewable Energy Sector	I joined to help others experience and practice everyday sustainability.
	Seth Bestulic, IT Group	I have a Bachelor of Applied Science in Sustainability Management, and one of my primary motivations for coming to work at Energy Trust was to contribute to the mission of improved energy sustainability and to work in a field that decreases greenhouse gas emissions. Joining E3 is just a continuation of that goal.
	Michael Fritz, Communications and Customer Service Group	I work on the E3 Team for the same reason I joined Energy Trust. I get to work and interact with a great group of people, and change the way people think about energy efficiency.
	Steve Lacey, Director of Operations	As the liaison to Energy Trust’s internal Management Team, my goal is to provide guidance and mentoring to staff on interfacing energy conservation with fundamental sustainability practices. I am in a unique position to see across the organization and advocate for organizational adoption of sustainability initiatives led by the team.



Tab 9

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 2014.

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 nondifferentiated 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.

Enthalpy

Enthalpy is the useful energy or total heat content of a fluid. Ideally, the total enthalpy of a substance is the amount of useful work that substance can do. Enthalpy is used in fluid dynamics and thermodynamics when calculating properties of fluids as they change temperature, pressure and phase (e.g. liquid to liquid-vapor mixture). In HVAC, refrigeration and power cycle processes, enthalpy is used extensively in calculating properties of the refrigerant or working fluid. Additionally, in HVAC applications, enthalpy is used in calculations relating to humidity. An enthalpy economizer is a piece of HVAC equipment that modulates the amount of outdoor air entering into a ventilation system based on outdoor temperature and humidity.

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 power approximately one typical PGE or Pacific Power household for one month. (Based on an average of 11,300 kWh consumed per household per year.)

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 semiconductor 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	Association 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

		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
EPS	Energy Performance Score	
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
EWB	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
OEFC	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	