Energy Trust Board of Directors Meeting

February 22, 2017

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Tab 1

148th Board Meeting

Wednesday, February 22, 2017
421 SW Oak Street, Suite 300, Portland, Oregon

	Agenda	Tab	Purpose
10:30 a.m.	**PNCA Building Tour** 511 NW Broadway, Portland, OR 97209		
12:15 p.m.	**Board Meeting—Call to Order** (Debbie Kitchin) • Approve agenda		
	General Public Comment *The president may defer specific public comment to the appropriate agenda topic.*		
	Consent Agenda ..... *The consent agenda may be approved by a single motion, second and vote of the board. Any item on the consent agenda will be moved to the regular agenda upon the request from any member of the board.* • December 15, 2016 Board meeting minutes • Program Approval Policy 4.22.000-P–R791	**1**	Action
12:20 p.m.	**Board Nominating Committee** (John Reynolds)..... • Election to New Terms of Office–R792 • Election of Officers–R793	**Resolution distributed at meeting**	Action
12:35 p.m.	**President's Report** (Debbie Kitchin)…… • Committee Assignments–R794	**Resolution distributed at meeting**	Action
12:45 p.m.	**Residential Sector Change Presentation**…….	**2**	Info
1:15 p.m.	**Break**		
1:30 p.m.	Committee Reports		
	• Evaluation Committee (Alan Meyer).....	**3**	Info
	• Finance Committee (Dan Enloe) ……...	**4**	Info
	○ Cascade Natural Gas Funding Temporary Adjustment–R795…..	*4*	Action
	• Policy Committee (Roger Hamilton) ….....	**5**	Info
	○ Contract Execution and Oversight Policy–R796……...	*5*	Action
	• Strategic Planning Committee (Mark Kendall).....	**6**	Info
2:00 p.m.	**Staff Report** • Preliminary 2016 Results (Mike Colgrove) • Legislative Update (Jay Ward, Hannah Cruz)…….. • Diversity Initiative Update (Debbie Menashe)	**7**	Info
3:30 p.m.	**Adjourn**		

The next meeting of the Energy Trust Board of Directors will be held
<u>Friday, April 5, 2017,</u> at 10:30 a.m.
at Energy Trust of Oregon, 421 SW Oak Street, Suite 300, Portland, OR 97204

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Board Meeting Minutes—147th Meeting

December 16, 2016

Board members present: Steven Bloom (OPUC ex officio), Ken Canon, Melissa Cribbins, Roger Hamilton (by phone), Lindsey Hardy, Mark Kendall (by phone), Debbie Kitchin, Alan Meyer (by phone), John Reynolds, Eddie Sherman

Board members absent: Susan Brodahl, Warren Cook (Oregon Department of Energy special advisor), Dan Enloe, Heather Buesse Eberhardt, Anne Root

Staff attending: Mike Bailey, Scott Clark, Amber Cole, Michael Colgrove, Hannah Cruz, Phil Degens, Sue Fletcher, Fred Gordon, Mia Hart, Marshall Johnson, Jed Jorgensen, Betsy Kauffman, Corey Kehoe, Steve Lacey, Scott Leonard, Debbie Menashe, Thad Roth, Dan Rubado, Sloan Schang, Mariet Steenkamp, Julianne Thacher, Jay Ward, Mark Wyman, Peter West

Others attending: Whitney Rideout (Evergreen Consulting), Greg Stiles (Ecova), Bob Stull (CLEAResult)

Business Meeting

Debbie Kitchin called the meeting to order at 12:15 p.m and reminded board members that consent agenda items can be changed to regular agenda items at any time.

General Public Comments

The president may defer specific public comment to the appropriate agenda topic.

There were no public comments.

Consent Agenda

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

MOTION: Approve consent agenda

Consent agenda includes:

1. November 2, 2016, Board meeting minutes
2. Authorize the executive director to Approve a Contract with Affiliated Media, LLC—R787

Moved by: Ken		Seconded by: John
Vote:	In favor: 9	Abstained: 0
	Opposed: 0	

President's Report

Mark Kendall joined by phone at 12:17.

Debbie Kitchin described recent travels to China and Vietnam through the Portland Business Alliance. The air quality in both countries was poor, and so was visibility. In Beijing, that's due to a lot of coal generation. In Vietnam, the air quality was poor on the street due to motorcycle and car fumes. In Oregon, air quality standards and Energy Trust's efficiency and renewable energy work prevents these problems. The Portland Business Alliance representatives assured Vietnam officials that Oregon remains committed to energy efficiency.

The board discussed an option for meetings to start and end earlier to help members located outside of the Portland metro area avoid evening travel. Several board members were in favor, and Debbie will request additional board feedback through an online survey.

Final Proposed 2017 Annual Budget & 2017-2018 Action Plan

Executive Director Michael Colgrove (Mike) presented Energy Trust's Final Proposed 2017 Budget and 2017-2018 Action Plan. Energy Trust expects to meet all 2016 efficiency goals at very low levelized costs. Mike reiterated context for the 2017 budget and factors driving the majority of expenditures, including a strong economy contributing to greater project volume, a strong residential and commercial new construction market, and a more challenging business case for investing in energy efficiency for some customers, such as rural customers and customers who have already participated.

Mike summarized budget outreach activities completed from July through November 2016, including outreach with utilities, advisory councils, the OPUC and the public. This outreach ensures an inclusive and transparent budget process.

Themes from stakeholder budget comments included support for acquiring all cost-effective savings, concern about revenue resulting from low reserves and high savings opportunities, desire for more detail about revenue and reserves in the draft budget, and desire for planning assumptions to be more prominent in draft budget materials. Full comments are available in the final budget.

The board ask about comments regarding the budget process, which Mike will address later in the presentation.

The OPUC requested several improvements for the 2017 budget, including earlier stakeholder communications, continued focus on demand management, assessment of strategies and structure needed to handle future challenges and opportunities, assessment of staffing, and continued engagement in OPUC dockets.

The final budget includes investing $198.6 million to save 56.4 average megawatts, save 7.41 million therms and generate 2.86 aMW. Energy Trust will continue to deliver cost-effective energy at 3.0 cents/kWh levelized and 31.3 cents/therm levelized. Overall renewable generation is expected to decline by 30 percent due to timing of large renewable projects. Two large renewable projects are expected to complete in 2017.

Overall spending is up 5 percent due to increased project volume. The increased need for revenue is because Energy Trust successfully drew down reserves from prior years. Staffing costs are at 6.6 percent of total organization expenditures, well below the OPUC performance measure of 7.75 percent. Administrative and program support costs are 5.8 percent of annual revenue, also below the OPUC performance metric.

Adjustments to the draft budget included reducing expenditures by $2.6 million by adjusting administration, program support and other costs not directly tied to short-term savings. All changes focused on reducing costs, not savings. Very small reductions in electric and gas savings were due to updated forecasts. There was a small reduction in the solar budget for Pacific Power. Strategies, tactics and areas of emphasis remain unchanged from the draft budget. Expenditure cuts were allocated roughly proportionally across utilities.

Action plan highlights include driving efficiency in new construction, supporting new markets and approaches, serving new Avista customers, reaching rural customers, expanding informational resources

for customers, focusing on cost-savings process improvements, increasing use of data and analytics, expanding renewable project development support and preparing for residential program changes.

Customer benefits following 2017 investments will include $713 million in future bill savings from energy improvements made in 2017, improved air quality by avoiding 4 million tons of carbon dioxide, enough energy to power 46,000 homes and heat 14,000 homes, expanded participation statewide, and training and support for 2,400 local businesses.

Mike described Energy Trust's reserves practices. Reserves have been a significant part of Energy Trust's budget for the past few years, following identification of lower reserve targets in collaboration with utilities and the OPUC. Energy Trust used reserves to cover part of revenue needs in 2015 and 2016. This successful effort resulted in reducing reserves faster than anticipated. In 2017, revenue will increase to fill the gap filled by reserves in 2015 and 2016. Staff do not anticipate a similar buildup of reserves in the future. Going forward, Energy Trust staff will work with OPUC to ensure revenue needs will be communicated to utility stakeholders as soon as possible.

The board asked about Portland General Electric's budget comment that revenue needs changed substantially in a three-week period. Staff explained that Energy Trust provided PGE with the quarter two forecast a few weeks prior to availability of the quarter three forecast, per a request from PGE. The quarter three forecast was provided to PGE three weeks after the quarter two forecast.

The board observed that savings growth from 2013 through 2017, and asked about continued growth in 2018. Energy Trust expects savings to grow slightly in 2018 and drop-off in 2019 and beyond.

The board discussed impacts on PGE rates, and Mike confirmed that PGE was interested in reducing rate impacts for 2018.

The board discussed potential for reserves to increase in the future, and noted that a recession could cause reserves to increase again. The board appreciated the table showing utility rate increase details.

Mike shared projections for 2018, including a 12.5 percent increase in electric savings, an 8 percent increase in gas savings and a 9 percent decrease in renewable generation. These estimates will be revised in the 2017 budget process. A very large efficiency project is expected to complete in 2018.

The board asked if renewable generation is expected to increase in 2019. Staff responded that a large Opal Springs hydropower project is expected to come online in 2019. Staff cannot predict standard solar installations for 2018 and 2019 due to uncertainty about the Residential Energy Tax Credit and OPUC dockets.

The board asked about the OPUC's request for budget process improvements. Mike noted that the OPUC is open to rethinking Energy Trust's budget process, which is labor-intensive for both staff and stakeholders.

Following a board question, Mike noted that the legislature did not provide any budget comments.

The board asked about the OPUC's request to revise the staffing performance metric. Mike responded that if Energy Trust's sees a temporary drop in savings, it would impact this staffing metric. Energy Trust will address this comment as part of its organizational assessment project. A coordination meeting is scheduled with OPUC staff in January to talk through the organizational assessment, budget forecast and staffing metric comments.

The board noted that Energy Trust has achieved significant and inexpensive savings from a few key technologies in the past ten years, such as CFLs and LEDs. It's unknown if new sources of savings will emerge in the near future. New savings may be more expensive and require more labor to acquire. This is a success story about having acquired the most cost-effective savings.

The board observed that there could be upward pressure on staffing costs even if Energy Trust doesn't add staff, such as new requirements and health insurance costs. Mike responded that when the OPUC instituted this staffing performance metric two years ago, it stated that the metric would be revisited in a few years.

RESOLUTION 788
ADOPT 2017 BUDGET, 2018 PROJECTION AND 2017-18 ACTION PLAN

BE IT RESOLVED That Energy Trust of Oregon, Inc. Board of Directors approves the Energy Trust 2017 Budget, 2018 Projection and 2017-18 Action Plan as presented in the board packet.

Moved by: John
Seconded by: Ken
Vote: In favor: 10
Abstained: 0
Opposed: 0

The board took a break from 1:20 to 1:40.

Mark arrived in person at 1:37.

Committee Reports

Evaluation Committee, Alan Meyer

The committee reviewed four evaluations, including Heat Pumps in Manufactured Homes Pilot Evaluation, Solar Impact Evaluation, Commercial Strategic Energy Management Impact Evaluation and Existing Homes Process Evaluation. Dan Rubado, evaluation project manager, and Phil Degens, evaluation manager, summarized the evaluations.

For the Heat Pumps in Manufactured Homes Pilot Evaluation, Energy Trust found high customer uptake with 110 units installed within two months and high customer satisfaction results. The next step in the evaluation is to analyze energy savings after the 2016/2017 heating season. Roughly 80,000 forced air heating systems are in manufactured homes in Oregon, including outside of Energy Trust's territory.

Following a board question, staff explained that Energy Trust did not offer on-bill financing for these heat pumps because it was a small pilot. Some contractors offered financing, but no customers participated.

The board noted that 19 of the participants also installed Nest Thermostats. Staff explained that as a sub-pilot, Nest Thermostats were used to test the feasibility of remote quality control of heat pump operations. Nest Thermostats could be a viable and less expensive way to provide quality control for heat pump installation, and are estimated to work in 90 percent of manufactured homes.

For the Solar Impact Evaluation, Energy Trust surveyed commercial and residential solar customers through email. For commercial customers, systems had a 104 percent realization rate. Residential systems had 117 to 124 percent realization rates for third-party owned and customer owned systems, respectively. The average realization rate for all system types was 111 percent. Energy Trust will use the results to true up data from previous years, and will revamp its methodology for claiming generation in future years.

The board asked if the updated methodology will close the gap between estimated and realized generation. Staff responded that it will close most of the gap, but Energy Trust will still err on the conservative side of generation estimates.

The board discussed the value of using the most up-to-date version of typical meteorological year (TMY) data, TMY3, and staff clarified that TMY3 data does not account for elevation.

For the Commercial Strategic Energy Management Impact Evaluation, Energy Trust determined that the overall program gas and electric realization rates were 91% and 103%, respectively, for 2012-2014. Savings increased and realization rates became more accurate from 2012 to 2014, indicating improvement in the SEM program over time.

The board discussed similarities between commercial and industrial SEM participants, and staff clarified that Energy Trust's models are much more complex for industrial customers.

The board asked how energy champion turnover impacts success of commercial SEM participants, and staff responded that committed organizations were able to find replacements and maintain momentum.

For the Existing Homes Process Evaluation, the objective was to get feedback and recommendations for more effective Existing Homes program delivery. Recommendations were to improve communications with gas utilities, remind trade allies about availability of marketing support, and expand work with distributors. The evaluation also determined installation rates for Energy Saver Kits, which are 75 percent for LED A-lamps (compared to 72 percent for CFLs in 2011) and 50 percent for showerheads (compared to 62% in 2013). A recommendation is to better communicate to customers that water-saving devices are optional in Energy Saver Kits.

Finance Committee, Debbie Kitchin (for Dan Enloe)
Revenues are close to budgeted amounts, and the year-to-date variance decreased from September to October to 1.1 percent lower than budget. Reserves decreased by $2 million in October. In the past 12 months, Energy Trust reduced reserves by $31.5 million. October expenditures exceeded budget by 1.4 percent. Year-to-date incentives exceeded budget by $5.5 million, and overall spending is close to budget. At year-end, staff will move investments to shorter-term options.

The board noted that Existing Buildings is exceeded budget, even more than New Buildings.

Policy Committee, Roger Hamilton
The policy committee will support Energy Trust's diversity work by development of a board level diversity policy. Noting that SB 1149 funding will sunset in 2025, the policy committee also discussed external funding sources for consideration in Energy Trust's next strategic plan.

Staff Report

Three Month Report Out, Michael Colgrove
Mike reflected on his first three months at Energy Trust and shared his vision for the future, including business needs and proposed key projects for 2017. In his first 90 days, Mike attended 30 orientation meetings with staff, 32 meetings with stakeholders, 17 meetings with board members and a dozen conferences and events. He also explored urban and rural parts of the state, and got to know 46 staff members at 16 informal lunches.

Resulting from these experiences, Mike made several observations. Staff bring incredible talent and a range of experiences to the organization, and staff development should be a greater focus. There are opportunities for greater standardization at Energy Trust. Energy Trust is supported by a wide range of

stakeholders, especially the OPUC. Significant savings opportunities still exist in Oregon. While effective and transparent, the budget process is onerous and labor-intensive for Energy Trust staff and external stakeholders. There is room for additional systems improvements at Energy Trust.

Mike will continue learning about Energy Trust, including through the strategic planning cycle, NEEA board membership, meetings with Program Management Contractors and Program Delivery Contractors, engagement with trade allies, legislative session and interactions with customers.

Mike envisions a future for Energy Trust that includes flexibility, reliability, diversity and resiliency. He characterized business needs as four categories: retention, resiliency, redundancy and robustness. Mike shared some results of Energy Trust's 2016 employee engagement survey, including opportunities for improving employee retention. The highly technical and relationship-oriented nature of Energy Trust's work means that every lost employee comes at a very high cost.

The board discussed benchmarking employee survey results against other nonprofits, which is difficult because Energy Trust is high-performing and unique.

The board asked about staff expectations regarding the promotions process, and Mike explained that survey results indicate that staff are not clear whether or not there are opportunities for advancement.

Energy Trust needs to explore ways to enhance redundancy to prevent delays of important work when employees leave the organization or are absent. Redundancy would help Energy Trust become more resilient, and could also support staff growth such as through job shadow opportunities.

Energy Trust needs to be resilient in the face of a changing political and policy landscape, an unknown pipeline of future energy efficiency and renewable energy solutions, and uncertainty of future funding. Integrated Resource Plans illustrate the uncertainty of energy savings in recent years, and the board noted that Energy Trust has predicted savings declines for the past few years that have not materialized.

Drivers of greater resiliency are also drivers of greater robustness. Staff report that Energy Trust's systems and processes can be challenging to learn, and Energy Trust can benefit from better and more documentation of how and why to use them. The organization's project management process is an example of robustness.

Energy Trust's success depends on its adaptability. The organization's strength is not what it does, but how it does it. Staff know how to design and operate successful programs.

Mike proposed five key projects to enhance Energy Trust's retention, redundancy, resiliency and robustness, including an Organizational Review Project, a Diversity Initiative, a Market-Back Customer Development Project, Budget Process Reassessment Project, and Systems and Process Enhancements Project. These projects may be started in 2017, but will not all complete in 2017.

The Organizational Review Project will include reviewing Energy Trust's organizational structure to explore opportunities to enhance retention, improve redundancy and create greater resiliency. This project will start in 2017 with a scoping exercise. This work will inform the board strategic planning retreat in May 2018, when the next five-year strategic planning process will begin. The board recommended that staff consider Energy Trust's five-year management review requirement when scheduling this project.

The Diversity Initiative will create a culturally attentive organization, develop a supportive culture for diverse employees and expand service to diverse customers. A Diversity Initiative project manager is already on board and leading this initiative. Current efforts include evaluating language in the Existing

Buildings request for proposals, compiling customer data from focus groups and evaluating the careers web page through an equity lens.

The Market-Back Customer Development Project will provide staff with tools and skills to design and implement more effective programs, starting with a task force of 14 employees to learn about the approach and determine if it should be applied to Energy Trust. Mike will follow up with a 30-minute overview of market-back customer development for the February or March board meetings. The board discussed how to set up measurable goals to determine success of the market-back approach, which will include quantifying how much Energy Trust learns from the exercise.

The Budget Process Reassessment Project will explore options to streamline and improve the budgeting process while maintaining transparency and stakeholder engagement. Currently, finance staff are analyzing how Energy Trust's second-year budget forecasts compare to actuals. This will help determine if a two-year budget process should be considered.

Alan left (by phone) at 3:15.

The System and Process Enhancements Project will facilitate program use of utility customer information (UCI) data, including development of customer leads and opportunities. In addition, Energy Trust will build a Stakeholder Relationship Management (SRM) tool to track interactions and relationships with stakeholders. Energy Trust will revisit its approach to Business Intelligence (BI) and data reporting, conduct outreach to internal users to better match reporting tools with needs, adopt visualization tools, adopt real-time reporting, improve the measure development process, migrate computing resources to the cloud for greater resiliency, and evaluate and revise the organization's file sharing approach.

For all projects, efforts in 2017 will inform the board strategic planning retreat in May 2018.

The board acknowledged that taking on all five projects will require significant staff time, and suggested noting which projects are already in progress and which are entirely new efforts. It's difficult to estimate how new projects will impact staff time, and some of these projects may need to be adjusted and moderated. Mike responded that staff expect to begin these conversations in January.

The board commended Mike on his thoughtful approach to identifying opportunities for improvement while also learning about Energy Trust.

Steven Bloom left at 3:28.

Residential Sector Update (Thad Roth)

Thad Roth, residential sector lead, presented an update on the residential sector assessment project. The project includes three phases: assessment and recommendation, transition planning and transition. The project goal is to assess the challenges, engage stakeholders and propose a new program design. This presentation includes a preliminary recommendation, and the February board meeting will feature a presentation on the full recommendation.

Project timing is driven by the expiration of the Existing Homes PMC contract at the end of 2017.

Energy Trust staff engaged stakeholders this fall through presentations and meetings, including the board, Conservation Advisory Council, utilities and OPUC staff.

In early December, staff received direction on an initial proposal from Management Team, and will flesh out the proposal with stakeholder feedback.

The current residential program structure includes three programs served by three PMCs: Existing Homes, New Homes and Products. These three programs are largely organized by how customers access offerings, which is through trade allies, builders and retail stores, respectively.

The residential sector is facing two sets of challenges: structural challenges and market challenges. Market challenges include the successful transformation of the lighting market with LEDs and market saturation for showerheads.

Structural challenges include difficulty developing strategies that coordinate across three residential programs. Some technologies are offered by more than one program. For example, water heaters are installed by trade allies through the Existing Homes program, installed by builders through the New Homes program, and purchased by customers in stores through the Products programs. This means three PMCs are working in tandem to deliver the same technology.

To address these and other challenges, staff propose that Energy Trust consolidate the three residential programs into one program with one PMC contract. In addition, Energy Trust could deliver additional offerings through PDCs that bring subject matter expertise and increase flexibility. Staff propose the transition to a single PMC take place on January 1, 2018.

Benefits of this proposal include consolidating strategy at the sector level, targeting technologies across all market channels, and consolidating program management and administrative work that could increase efficiency and potential reduce costs.

The board asked if these concepts were presented at recent trade ally forums. Proposed changes were not shared, but market trends and challenges were presented. Staff will continue to engage trade allies and builders prior to determining changes, including through a workshop in January.

Thad explained that proposed changes will improve Energy Trust's internal program management and operations, but they will not impact trade allies and customers. Energy Trust will move to a midstream incentive model for some measures, like water heaters, but that will happen regardless of program structure changes. Energy Trust can drive more business to trade allies through this midstream approach. Thad further explained that program changes will not impact or be visible to customers.

The board asked if the proposal is for three small PMC contracts to become one large PMC contract. Thad responded that this is true, however the overall residential sector will get smaller because of market challenges. The proposed single program will be smaller than the sum of the three existing programs.

The board requested a written summary of proposed changes, including examples of how some residential measures would work before and after the changes, such as heat pump water heaters. The summary should also explain the benefits of the changes.

Thad will return to the board in February with proposed changes. While the board will not officially approve the changes, it will approve the new contract for a single Program Management Contractor in mid-2017.

Thad clarified that the Existing Homes PMC contract will expire at the end of 2017 with no possible contract extensions. New Homes and Products PMC contracts will complete two-year terms at the end of 2017.

The board asked about the level of engagement with the Conservation Advisory Council in this decision making process, and Thad responded that Conservation Advisory Council members received a presentation and provided initial feedback in November. Members requested a more detailed proposal,

and staff will offer an optional workshop for Conservation Advisory Council members and other stakeholders on January 10, 2017.

Update on New Website (Sloan Schang)
Sloan Schang, senior web manager, presented a preview of Energy Trust's new website that will launch on January 3, 2017. Sloan summarized a usability study conducted in 2015 that informed the new website design in 2016. Users wanted clear direction, including less detailed information and more visual orientation. As part of the website redesign, staff cut the total number of web pages down by 300 to 400 total pages. Redesign objectives were to simplify the website, optimize it for all mobile devices and streamline access to actionable and educational content.

The board praised the new website and asked about staff reactions, which have been positive. Sloan noted that links for high-level pages will remain the same as the existing website.

Board Update on Intercultural Effectiveness Scale Results (Michael Colgrove)
Mike shared the average results of the board's Intercultural Effectiveness Scale results, which were relatively high. Survey results are a great starting place for engaging in Energy Trust's diversity initiative and board policy development. Individual reports are available to board members on request.

Adjourn

The meeting adjourned at 4:20 p.m.

The next regular meeting of the Energy Trust Board of Directors will be held Wednesday February 22, 2017, at 12:15 p.m. at Energy Trust of Oregon, Inc., 421 SW Oak Street, Suite 300, Portland, Oregon.

_____
Alan Meyer, Secretary

PINK PAPER

Board Decision
Amending Program Approval Policy
February 22, 2017

Summary

Amend the Program Approval Policy to clarify that the Board's review of programs applies to all programs, not just "existing" programs, and that Board involvement in program-related contracts is governed by the Policy on Contract Execution and Oversight.

Background

- Before 2005, programs were authorized in detailed board resolutions establishing program parameters, goals, funding, reporting and other terms. The pre-2005 practice required staff to seek board authority before altering program details.
- The Board changed this practice in the 2005 Program Approval Policy. Under this policy, the Board oversees programs and program modifications largely through the budget and contract processes rather than through program-specific board resolutions.
- The policy has been applied to all programs, and the Board's review of program management contracts has been governed by the Policy on Contract Execution and Oversight.
- The policy is now up for regular three-year review.

Discussion

- Read strictly, the policy applies only to "existing" programs. The Policy Committee suggested deleting "existing" to clarify that the policy applies to all programs, including any new programs, which is consistent with ongoing practice.
- The policy also says that the Board will continue to review and approve program "management" contracts. The Policy Committee suggested deleting "management" to clarify that the Board reviews all program-related contracts, whether management contracts or not, in accordance with the Policy on Contract Execution and Oversight.

Recommendation

Amend the Program Approval Policy as shown in Attachment 1, to clarify that the policy applies to all programs, new and existing, and the Board's review of program-related contracts is governed by the Policy on Contract Execution and Oversight.

RESOLUTION 791
AMENDING PROGRAM APPROVAL POLICY

WHEREAS:

1. **The Board Policy on Program Approval, read strictly, applies only to "existing" programs. In fact, Energy Trust follows the policy for all programs, new and existing.**
2. **The policy also says that the Board will review program "management" contracts. In fact, the Board reviews all program-related contracts, whether management contracts or not, consistent with its Policy on Contract Execution and Oversight.**

To clarify the policy in these respects, it is RESOLVED that the Board of Directors of Energy Trust of Oregon, Inc. amends the Program Approval Policy as shown in Attachment 1, so that the policy applies to all programs, new and existing, and Board review and oversight is governed by the Policy on Contract Execution and Oversight.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

ATTACHMENT 1

History			
Source	**Date**	**Action/Notes**	**Next Review Date**
Board Decision	February 16, 2005	Approved (R319)	February 2008
Policy Committee	April 15, 2008	No changes	April 2011
Board Decision	December 19, 2008	Amended (R498)	December 2011
Board Decision	March 7, 2012	Amended (R620)	March 2014
Board Decision	September 19, 2012	Amended (R646)	September 2015
Board Decision	September 30, 2015	Amended (R753)	September 2018

Purpose:

1. Initially, the Board ~~has~~ approved programs in resolutions that specified projected energy savings and cost/aMW and estimated budget allocations for such items as incentives, marketing, administration and evaluation. Specific terms of program management were addressed in separate resolutions authorizing program management contracts.

2. Experience ~~has~~ demonstrated that if staff and contractors adhered to the original terms and conditions identified in Board resolutions authorizing programs, the programs lost momentum while staff ~~seeks~~ sought approval to change program parameters.

3. In 2005, the Board revised this process to make it more efficient.

~~It is therefore RESOLVED~~Policy:

1. ~~The Energy Trust of Oregon, Inc., Board of Directors hereby authorizes a~~All ~~existing~~ programs ~~to~~shall:
   a. Operate under a not-to-exceed budget cap established by the Board in the annual budget approval process or by special resolution; staff is authorized to manage the program within this budget until the next annual budget review; staff may move budgeted funds from one program to another within the same program sector (residential, commercial, industrial and renewable energy) without board approval.
   b. Be managed to achieve annual board-approved goals.

2. The Board will continue to review and approve program ~~management~~ contract terms consistent with the Board's Contract Execution and Oversight Policy.

3. Staff will provide the Board with quarterly status reports based on energy savings by program and sector (not individual contract). Reports would identify issues regarding program performance, such as:
   a. a program's long-term cost-effectiveness is trending in a negative direction.
   b. the program is not expected to achieve significant savings over its life.
   c. a quarterly report shows that a program is trending below its goal, the Board may call for an action plan to address the short-fall.

4. Staff will provide an update to the board on any movement of funds from one program to another at the next board meeting following such movement.

5. The Board retains discretion to modify or discontinue a program if it is not meeting expectations.

6. The Board will use the budget and action plan process to review, modify and adjust program goals and budget caps.

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History			
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Board Decision	September 19, 2012	Amended (R646)	September 2015
Board Decision	September 30, 2015	Amended (R753)	September 2018

Purpose:

4. Initially, the Board approved programs in resolutions that specified projected energy savings and cost/aMW and estimated budget allocations for such items as incentives, marketing, administration and evaluation. Specific terms of program management were addressed in separate resolutions authorizing program management contracts.

5. Experience demonstrated that if staff and contractors adhered to the original terms and conditions identified in Board resolutions authorizing programs, the programs lost momentum while staff sought approval to change program parameters.

6. In 2005, the Board revised this process to make it more efficient.

Policy:

7. All programs shall:
   a. Operate under a not-to-exceed budget cap established by the Board in the annual budget approval process or by special resolution; staff is authorized to manage the program within this budget until the next annual budget review; staff may move budgeted funds from one program to another within the same program sector (residential, commercial, industrial and renewable energy) without board approval.
   b. Be managed to achieve annual board-approved goals.

8. The Board will continue to review and approve program contract terms consistent with the Board's Contract Execution and Oversight Policy.

9. Staff will provide the Board with quarterly status reports based on energy savings by program and sector (not individual contract). Reports would identify issues regarding program performance, such as:
   a. a program's long-term cost-effectiveness is trending in a negative direction.
   b. the program is not expected to achieve significant savings over its life.
   c. a quarterly report shows that a program is trending below its goal, the Board may call for an action plan to address the short-fall.

10. Staff will provide an update to the board on any movement of funds from one program to another at the next board meeting following such movement.

11. The Board retains discretion to modify or discontinue a program if it is not meeting expectations.

12. The Board will use the budget and action plan process to review, modify and adjust program goals and budget caps.

PINK PAPER

Board Decision
Terms of Office

February 22, 2017

RESOLUTION 792
ELECTING SUSAN BRODAHL, KEN CANON,
MELISSA CRIBBINS, DAN ENLOE AND ROGER HAMILTON
TO NEW TERMS ON THE ENERGY TRUST BOARD OF DIRECTORS

WHEREAS:

1. **The terms of incumbent board members Susan Brodahl, Ken Canon, Melissa Cribbins, Dan Enloe and Roger Hamilton expire in 2017.**
2. **The board nominating committee has recommended that five of these members' terms be renewed.**

It is therefore RESOLVED that the Energy Trust of Oregon, Inc., Board of Directors elects Susan Brodahl, Ken Canon, Melissa Cribbins, Dan Enloe and Roger Hamilton, incumbent board members, to new terms of office that end in 2020.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

PINK PAPER

Board Decision
Election of Officers

February 22, 2017

RESOLUTION 793
ELECTING OFFICERS OF
ENERGY TRUST OF OREGON, INC.

WHEREAS:

1. **Officers of the Energy Trust of Oregon, Inc. (other than the Executive Director and Chief Financial Officer) are elected each year by the Board of Directors at the board's annual meeting.**
2. **The Board of Directors Nominating Committee has nominated the following directors to renew or be appointed to terms as officers:**
   - **Debbie Kitchin, President**
   - **Ken Canon, Vice President**
   - **Alan Meyer, Secretary**
   - **Susan Brodahl, Treasurer**

It is therefore RESOLVED that the Board of Directors hereby elects the following as officers of Energy Trust of Oregon, Inc., for 2017:

- **Debbie Kitchin, President**
- **Ken Canon, Vice President**
- **Alan Meyer, Secretary**
- **Susan Brodahl, Treasurer**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

PINK PAPER

Board Decision
Committee Assignments

February 22, 2017

RESOLUTION 794
BOARD COMMITTEE APPOINTMENTS

WHEREAS:

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

It is therefore RESOLVED:

1. **This resolution supersedes Resolution 765, adopted by the board at its February 24, 2016, meeting.**
2. **That the Board of Directors hereby appoints the following directors to the following committees for terms that will continue until a subsequent resolution changing committee appointments is adopted:**

Audit Committee
Ken Canon, Chair
Melissa Cribbins
Mark Kendall
Heather Buesse Eberhardt
Karen Ward, outside expert
Debbie Kitchin *(ex officio)*
Board Nominating Committee
John Reynolds, Chair
Roger Hamilton
Alan Meyer
Anne Root
Eddie Sherman
Steve Bloom, OPUC *(ex officio)*
Debbie Kitchin *(ex officio)*
Compensation Committee *(formerly 401(k) Committee)*
Dan Enloe, Chair
Melissa Cribbins
Mark Kendall
Debbie Kitchin *(ex officio)*
Executive Director Review Committee
Melissa Cribbins, Chair
Ken Canon
John Reynolds
Debbie Kitchin *(ex officio)*
Finance Committee
Susan Brodahl, Chair
Dan Enloe
Anne Root
Debbie Kitchin *(ex officio)*

Policy Committee
Roger Hamilton, Chair
Ken Canon
Alan Meyer
John Reynolds
Eddie Sherman
Debbie Kitchin *(ex officio)*
Program Evaluation Committee
Alan Meyer, Chair
Susan Brodahl
Heather Beusse Eberhardt
Lindsey Hardy
Anne Root
Ken Keating, expert outside reviewer
Debbie Kitchin *(ex officio)*
Strategic Planning Committee
Mark Kendall, Chair
Susan Brodahl
Ken Canon
Lindsey Hardy
John Reynolds
Eddie Sherman
Warren Cook, ODOE *(ex officio)*
Steve Bloom, OPUC *(ex officio)*
Debbie Kitchin *(ex officio)*

3. **The executive director, general counsel, or chief financial officer are authorized to sign routine 401(k) administrative documents on behalf of the board, or other documents if authorized by the Compensation Committee.**
4. **The board also acknowledges that the following board members have committed to attend advisory council meetings:**
    a. **Conservation Advisory Council: Lindsey Hardy and Alan Meyer**
    b. **Renewable Energy Advisory Council: Alan Meyer and John Reynolds**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

Tab 2

Briefing Paper
Residential Program Delivery Structure Changes
February 22, 2017

Summary

In response to market changes, declining savings and challenges of current program delivery structure, staff recommend that Energy Trust consolidate its three residential programs into one program delivered through a single Program Management Contractor (PMC) contract. Staff are planning the transition from three programs to a single program by January 1, 2018, including a transition to a single PMC.

The consolidated residential program will align the cost of program delivery to the value of expected energy savings resource in the next five years, maintain Energy Trust's third-party program management approach, and increase management and delivery flexibility to reach more customers and respond to new opportunities.

The single residential program enables Energy Trust to maintain cost-effective offerings in the market for customers and trade allies, despite market changes and declining savings opportunities. Energy Trust's internal program structures will remain invisible to customers and program allies, and Energy Trust will continue to provide incentives and resources for residential customers.

Background

Current Residential Program Delivery Structure

Energy Trust serves residential customers through its residential sector comprising three programs: Existing Homes, New Homes and Products. These three residential programs are currently brought to market through three separate PMC contracts: CLEAResult for Existing Homes, CLEAResult for New Homes and Ecova for Products. PMCs are companies contracted with to manage and deliver Energy Trust programs; contracted functions include management of program operations, program development, forecasting, marketing, program implementation, outreach and customer service. PMC contracts are rebid on a regular basis, reviewed by a committee with internal staff and external representatives, competitively selected and approved by the board.

Each program engages discrete market channels and delivers a core set of technologies and offerings that have provided stable and substantial sources of energy savings for more than a decade:

- The **Existing Homes program** offers energy-efficient lighting and water conservation devices delivered by mail through Energy Saver Kits, and achieves weatherization, HVAC and water heater upgrades through trade ally contractors.
- The **New Homes program** offers incentives for energy-efficient new home construction to builders through EPS™, a home energy performance score, and drives new home market transformation based on influence to building codes.
- The **Products program** promotes efficient lighting and appliances sold in retail stores, and engages manufactured home dealerships to promote efficient new manufactured homes.
- Energy Trust invests in **Northwest Energy Efficiency Alliance (NEEA)** to deliver market transformation savings on behalf of the residential sector. NEEA savings are included in residential sector savings for reporting purposes, and are in addition to savings from Existing Homes, New Homes and Products programs.

Challenges Facing the Residential Sector

In Energy Trust's 2015-2019 Residential Sector Strategic Plan, staff recognized that key measures delivering gas and electric savings are expected to decline. In addition, staff identified challenges of the current program structure that limit Energy Trust's ability to quickly and efficiently respond to rapidly changing markets.

Challenges facing the residential sector include:

- **Savings are expected to decline.** The 2015-2019 Residential Sector Strategic Plan outlined a range of challenges facing the current residential measure portfolio, including measures not meeting cost-effectiveness requirements, measure saturation, rising standards and accelerated market transformation. The plan anticipated these challenges to impact Energy Trust, but on a smaller scale and longer timeline than is expected today. In 2016, staff determined that electric savings are expected to decline by 50 percent and gas savings are expected to decline by 12 percent from known technologies over the next three years.
- **Sources of savings are expected to shift.** As some measures are expected to decline, other measures are expected to increase and new measures will emerge.
- **Specific technologies are delivered concurrently by multiple programs.** Each program has developed and implemented a separate go-to-market strategy for some of the same technologies based on the market channels it serves. To ensure a consistent strategy and message across programs, coordination across multiple PMCs is required. For example, showerheads are currently delivered through kits in the Existing Homes program, installed in newly constructed homes through the New Homes program and purchased in stores and delivered through kit giveaways through the Products program.
- **Coordination is required to align individual program strategies.** Because each program has individual performance contracts and targets, go-to-market strategies for measures are devised within program boundaries and corresponding market channels. PMCs may adjust strategy mid-year to achieve individual program contract goals. The

current program structure requires coordination among PMCs and related program staff to ensure consistent alignment with sector goals.

- **Developing new measures across programs is complex.** Because technologies are delivered by multiple programs, time and coordination are required to develop new measures across programs. This adds complexity to the new measure development process and challenges innovation.

Discussion

Modified Program Delivery Structure

Staff are planning to consolidate the three current residential programs into a single program spanning technologies and markets to be delivered by a single PMC through a performance-based contract. By consolidating three programs into one residential program, the residential sector will be able to develop initiatives and strategies targeting dedicated energy-efficient technologies across all market opportunities.

By removing program boundaries, the single program will have more latitude and flexibility to pursue savings across market channels. This means that any campaign oriented by technology is positioned to drive adoption across all market channels, and any effort organized by market channel can be leveraged to include all technologies delivered through that channel. This supports Energy Trust's plans to broaden engagement across market channel, such as by engaging water heater distributors and retailers.

In addition to one PMC, staff may pursue flexibility by adding one or more additional contracts with Program Delivery Contractors (PDCs). PDCs are companies contracted with to implement a specific program offering. PDCs have smaller contracts focused on program implementation, not program management. PDC contracts are rebid on a regular basis, reviewed by a committee with internal staff and external representatives, competitively selected and approved by the board.

PDCs could be effective at driving certain technology or market channel specific offerings where specialization is needed or a unique opportunity to collaborate with non-traditional program partners arises. The benefit of working with PDCs is that Energy Trust can work directly with market actors who may not be traditional implementers and who may offer a high level of technical, supply chain or business model expertise. In addition, the PDC approach enables Energy Trust to leverage expertise of program implementers without having to contract for a parallel suite of administrative and support services.

Transition Plan and Timing

All residential program PMCs will complete their existing contracts in 2017. The current PMC contract for the Existing Homes program will expire at the end of 2017, following a two-year initial contract term plus three one-year extensions.

PMC contracts for New Homes and Products programs will reach the end of their first one-year contract extension at the end of 2017, with the option remaining to extend for two additional one-year terms, potentially through the end of 2019. **Staff are planning a full transition to a single PMC to deliver one residential program beginning in 2018.**

During this transition, a variety of stakeholders have been and will continue to be informed and engaged, each with different interests. As part of this transition, regular communications will be targeted and customized to specific audiences.

Benefits of the Proposed Program Delivery Structure

Having one residential program will allow Energy Trust to respond effectively to expected declines in savings sources; increase effectiveness and flexibility to identify, test and develop future savings opportunities; reduce program delivery costs and increase internal staff capacity to lead new strategies.

The proposed single program delivery structure will result in streamlined program development and increased effectiveness in the following ways:

- **Simpler process for developing new measures across market channels.** Coordination across programs will no longer be needed to develop new measures and determine how savings are allocated across programs.
- **Increased ability to set and guide strategies across market channels.** Less coordination will be needed to ensure consistent strategy across technologies and market channels.
- **Increased internal (Energy Trust) capacity.** Increased internal capacity is expected when staff manage fewer PMC contracts. This capacity can be directed toward identifying and/or developing new sources of savings.

With those improvements, we expect the following benefits will flow from the single program delivery structure:

- **A more robust, diversified portfolio of measures.** The current structure has resulted in savings coming from a small number of measures within individual programs. As savings decline, the current structure challenges the viability of certain programs (Products) in savings and cost-effectiveness and slows development of new cost-effective measures. Consolidating the current three programs into one program will result in a more diversified gas and electric portfolio, improving savings performance and cost-effectiveness.
- **Flexibility to adapt to future savings opportunities.** As market conditions and savings opportunities change rapidly, this new structure allows Energy Trust to respond more effectively by improving the ability to quickly and effectively develop, test and adapt new approaches in the market.
- **Potential cost reductions.** Program consolidation provides an opportunity to look for cost reductions in the areas of management, marketing and performance compensation.
- These efficiencies are likely to emerge over time as the sector and PMC gain experience, and may not occur in the first year.

- **Cost-effective offerings maintained for customers and trade allies.** Proposed changes will impact Energy Trust internal operations only and will not be visible to customers and trade allies. Nevertheless, the structural changes will enable Energy Trust to maintain more cost-effective offerings for customers and trade allies over time.

Next Steps

Staff will issue a Request for Proposals in spring to provide PMC and PDC services beginning January 1, 2018. A recommendation will be made to the board at the July 26, 2017, board meeting.

Tab 3

Evaluation Committee Meeting

December 19, 2016 10:00 am-1:00 pm

Attendees

Evaluation Committee Members
Alan Meyer, Board Member, Committee Chair
Jennifer Light, Expert Outside Reviewer
Ken Keating, Expert Outside Reviewer

Energy Trust Staff
Michael Colgrove, Executive Director
Steve Lacey, Director of Operations
Fred Gordon, Director of Planning and Evaluation
Mike Bailey, Engineering Manager, Planning
Jackie Goss, Planning Engineer
Kenji Spielman, Planning Engineer
Phil Degens, Evaluation Manager
Sarah Castor, Evaluation Sr. Project Manager
Dan Rubado, Evaluation Project Manager
Erika Kociolek, Evaluation Project Manager
Andy Griguhn, Planning and Evaluation Data Analyst
Spencer Moersfelder, Planning Manager
Andy Eiden, Planning Project Manager
Sue Fletcher, Sr. Manager, Communications and Customer Service
Peter West, Director of Programs
Jay Olson, Program Manager, Existing Buildings
Kate Scott, Program Manager, Multifamily
Faith Rogers, DLS Intern

Other Attendees
Lucinda Gilman, CLEAResult
Joe Marcotte, Lockheed Martin

1. 2013-2014 Existing Buildings Impact Evaluation

Presented by Sarah Castor

Background: The last impact evaluation of the Existing Buildings program covered the 2012 program year; this evaluation covered two program years, 2013-2014, in an effort to catch up. ADM Associates was the evaluator, and began work on this impact evaluation in February 2016. The purpose of this impact evaluation was to estimate program gas and electric savings and realization rates, and to make observations and recommendations to help improve future estimates of energy savings and program effectiveness.

Methods: ADM developed the evaluation sample, and then reviewed project documentation. They conducted site visits for most of the sampled projects. ADM collected data and interviewed facility managers. Then they took this information and performed analysis to estimate project savings and develop realization rates by measure category. These were then rolled into program-level realization rates that represent the population of EB projects for the 2013 and 2014 program years.

To develop the sample, ADM used stratified random sampling, which is a way of selecting a small number of measures that represent the greatest proportion of program savings. ADM did this by looking at track, fuel, and project size. The three tracks included in the evaluation were custom, lighting (which includes both standard and custom lighting projects) and standard. Within the custom track, the program wanted to look closely at building controls and HVAC measures, which tend to have large savings and more variation in realization rates from project to project. This was done as part of the 2012 impact evaluation as well.

ADM used estimated error ratios for each track and measure type to select the sample so that measures with higher variation in realization rates were selected more often, and measures with lower variation in realization rates were selected less often. Lighting and standard track measures tend to have realization rates close to 100%, so those were down-weighted to focus on projects with larger savings and higher variation in realization rates. ADM aimed to, and achieved, 90/10 confidence/precision for each program year. We hoped to achieve 90/10 for custom controls and HVAC; we got close, but did not meet that level of confidence/precision.

The table below shows the sample compared to the population. As the table shows, we are only sampling 2% of projects and measures, but this represents 20-25% of electric savings and 32-40% of gas savings in each year.

EB impact evaluation sample compared to the population

	# of Projects	# of Measures	Ex ante Electric Savings (kWh)	Ex ante Gas Savings (therms)
2013 Population	2,696	5,699	90,673,022	1,365,946
2013 Sample	59	120	18,572,110	544,034
Percent of 2013 Population in Sample	**2%**	**2%**	**20%**	**40%**
2014 Population	3,145	6,182	102,559,554	1,349,209
2014 Sample	66	117	25,792,780	430,560
Percent of 2014 Population in Sample	**2%**	**2%**	**25%**	**32%**

The table below compares the sample to the population in terms of building types. Offices, colleges/universities, and hospitals are over-represented in the sample; this makes sense, as these tend to be the types of facilities that implement custom projects. There are not many restaurants, retail stores, or grocery stores in the sample; this also makes sense, as these tend to be the types of facilities that implement standard or lighting measures.

Building types (top 8) in EB impact evaluation sample compared to population

Building Type	Measure Count		Portion of Total Savings*	
	Population	Sample	Population	Sample
Office	1,795	105	19%	31%
Retail	3,189	29	14%	3%
Other	1,081	18	11%	6%
College/ University	496	24	9%	20%
Warehouse	1,138	23	9%	10%
Restaurant	1,380	6	8%	1%
Hospital	191	20	6%	12%
Grocery	579	10	4%	0%

In reviewing the project files, ADM was looking at the documentation on measures implemented (descriptions of equipment and operating conditions). They were also looking at savings calculation methodologies and related assumptions. In some cases, ADM looked at energy simulation models and calculation workbooks. All of this information was used to develop site-specific evaluation plans. Energy usage data was provided to ADM for each site.

Site Visits and Data Collection: ADM verified the installation and operation of equipment, including measure counts. ADM collected a variety of data on operating conditions, including through observation, interviews with facility staff, and downloading data from energy management systems. Data on operating hours, schedules, settings and other parameters was collected. Trend data from energy management systems was collected if available.

Engineering Analysis: Analysis was done referencing standard protocols, such as International Performance Measurement and Verification Protocol (IPMVP), Uniform Methods Project (UMP), and American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE). For standard track measures, ADM verified that the measures were installed and operating as assumed by the program. For custom measures, ADM adjusted simulation models to reflect actual conditions and calibrated the models to energy usage data. Finally, for lighting measures, ADM used the same procedures described for standard and custom measures, and they applied heating and cooling interactive factors (HCIFs) taken from the Regional Technical Forum (RTF) for lighting measures.

HCIFs: HCIFs account for the impact that lighting system improvements have on facility heating loads (efficient lighting increases the heating load because the lighting is no longer heating the space) and decreases cooling loads (efficient lighting decreases the cooling load because the lighting is no longer heating the space). Energy Trust does not factor HCIFs into savings estimates for lighting measures because these measures cover a wide range of situations, heating systems, fuels, etc., into which the lighting contractor does not always have visibility. The evaluator argued that including these factors provides a more accurate estimate of overall energy savings of these measures and the program. Excluding HCIFs allows for an apples-to-apples comparison of program-estimated savings versus evaluated savings. Previous EB impact evaluations excluded HCIFs from reported realization rates. The evaluator that performed the 2008-2011 EB impact evaluations, SBW, recommended including HCIFs, as did ADM.

Ken commented that he understands why HCIFs are not included for standard measures, since you may not know the type of heating or cooling for the site. However, he agrees with the evaluator in that when you can, you should calculate them. The problem is, when you use the term realization rate, you have a numerator and denominator. If you only calculate HCIFs in the numerator, which is ex post (evaluated) and they aren't included in ex ante (program-estimated), then the term realization rate is slightly misleading, because you are realizing something in the numerator that is not in the denominator to begin with.

Fred commented that there are two purposes for realization rates. The first is understanding the quality of estimation methods (ignoring the HCIFs) for technical purposes. The second is reporting what the program saved, which should include everything we know, including our best estimates of interactions. Part of why we do not have estimates for everything is some things are variable. The question is whether it is material enough to include in engineering calculations or not. If the variability is as big as the savings, it is not useful to include on the front end. However, on the back end, it's a reality that we need to deal with. Sarah noted that it seems to be sizable – almost half a million therms.

Sarah noted that what is presented excludes HCIFs, so we can look at how the measures performed relative to program-estimated savings. HCIFs seem to have a sizable effect on gas usage. Steve asked if the effect was observed (based on data) or calculated. Sarah responded that the evaluator used fairly accepted values. For all standard measures, not a lot of billing analysis was done; the evaluator used calculated values.

Alan asked, if we thought this was sizable enough to address for the standard program, would it be possible to account for these factors. Sarah responded that accounting for these factors would move standard measures out of the "standard" category into the semi-prescriptive category. Jackie commented that accounting for these factors would quadruple the number of measures Energy Trust has for each lamp type. Fred commented that the judgment we made is, the measures pass the benefit-cost test by a large enough margin that HCIFs don't drive terribly many decisions.

Ken noted that the evaluator spent a lot of time on these factors in the report. Phil commented that it would be better to make adjustments at the portfolio level rather than add thousands of additional measures.

Jennifer noted that the RTF did update interaction factors based on building models that Bonneville Power Administration BPA put together; these could be adapted to look at Oregon.

Overall Findings: The evaluator noted that the project files are generally well-organized and complete, and contain the necessary documentation. This was the first program year where all of the files were electronic, and staff did not have to scan project files. ADM noted that simulation files or calculation spreadsheets were missing or the version provided was not the final version for 20% of custom projects; this makes it more difficult to estimate project savings. The program is constantly working to improve the completeness of project files. ADM also noted that in a few cases, the savings estimates were clearly overestimated based on the overall building energy consumption.

The table below shows the overall savings and realization rates by program year. On the electric side, the realization rate was 88% in 2013 and 81% in 2014, and the rates are the same if HCIFs are included versus excluded. On the gas side, including versus excluding the HCIFs

had a big impact. If HCIFs are not included, the realization rate was 67% in 2013 and 72% in 2014. Including them reduces the 2013 realization rate to 49% and the 2014 realization rate to 45%.

Evaluated savings and realization rates

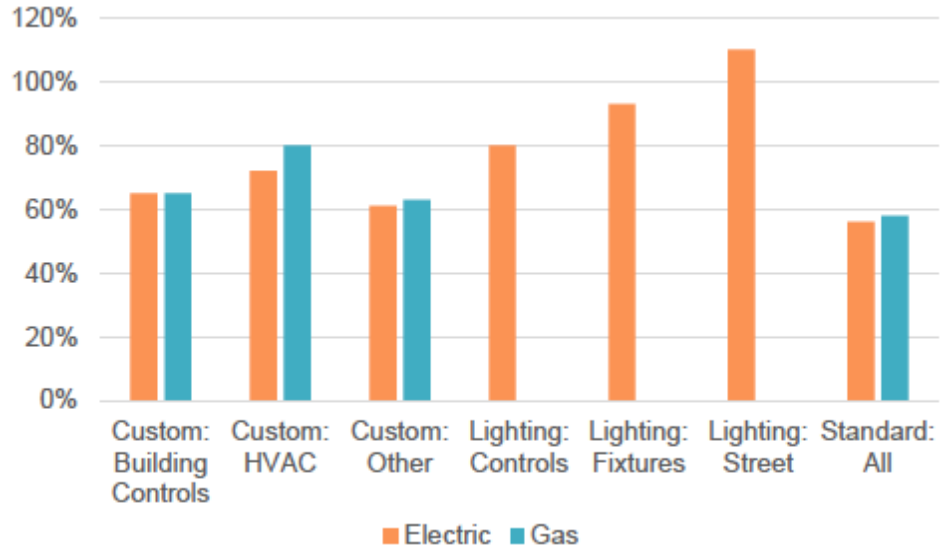
Program Year	# Projects	# Measures	Electric Impacts		Gas Impacts	
			kWh	RR	Therms	RR
2013	2,696	5,699	79,398,738	88%	669,200	49%
2013*			79,612,150	88%	911,922	67%
2014	3,141	6,182	82,823,727	81%	607,962	45%
2014*			82,698,659	81%	973,143	72%

* Excludes HCIFs.

Fred commented that for the residential sector, the gas impacts are considered to be a side effect of the electric program. It's an "other energy" effect. The gas realization rates without HCIFs in the table above tells us how we are doing at estimating savings. The gas realization rates with HCIFs in the table above tell us about the effect of the electric program on gas.

The chart below shows realization rates by fuel and measure category. As is shown in the chart, realization rates were fairly consistent across fuels; the largest difference is a ten percentage point difference for custom HVAC.

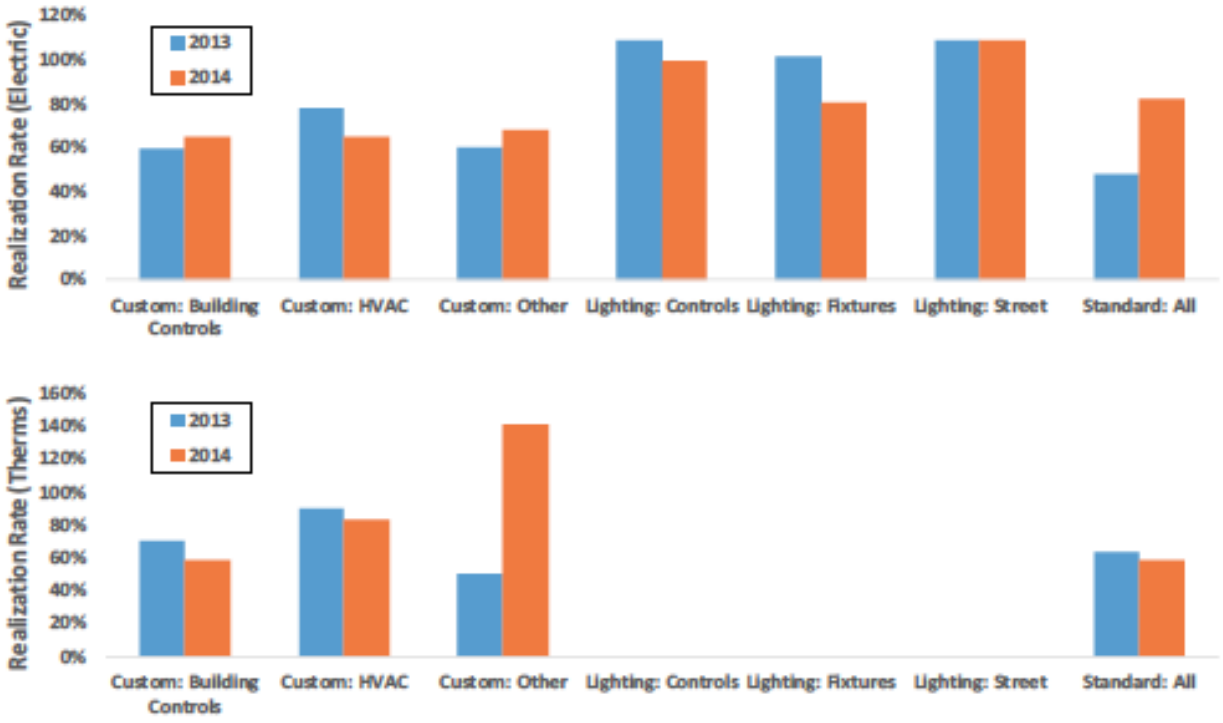
Realization rates by fuel and measure category



The chart below shows realization rates by year, fuel, and measure category. As is shown in the chart, realization rates were mostly consistent between 2013 and 2014, with a few exceptions. One of the larger differences was for lighting fixtures; one project in 2014 significant overestimated the hours of use, which caused the 2014 realization rate to be lower than 2013.

The standard electric category also had a large difference; there was one project in 2013 where the heating fuel was incorrectly specified, which caused the 2013 realization rate to be a lot lower (the 2013 and 2014 realization rates were consistent if the project is removed). On the gas side, the custom "other" category had a very high 2014 realization rate; the initial energy model for one project in 2014 was not calibrated to energy data, and resulted in a 400% realization rate for the project, which increased the overall realization rate.

Realization rates by year, fuel, and measure category



Jackie asked if rooftop units were excluded from the impact evaluation sample. Sarah responded that they were excluded from the sample for this impact evaluation, since we did a separate impact evaluation of rooftop unit tune-ups.

Findings - Custom: ADM compiled a list of the most common reasons for differences between program-estimated and evaluated savings. They include: operating conditions being different than assumed, issues with energy model calibration, lack of accounting for measure interactions (for example, between controls and HVAC systems), savings being unreasonable relative to building use overall (more of an ancillary finding rather than a cause), use of older weather data for normalizing energy use, and the scope of the project being different than expected. Regarding issues with energy model calibration, ADM found that a third of the energy models were not calibrated at all, were only calibrated for one fuel, or the calibration was done incorrectly. Spencer asked about the prevalence of these issues. Sarah noted that there are tables in the report with that information, but to give a general sense, the issues listed first occurred in about 50% of measures, the issues with energy model calibration occurred in 30-40% of measures, and the issues listed last were fairly rare.

Steve asked if this is a training opportunity for ATACs. Sarah responded that this does represent an opportunity to train ATACs, and the evaluator recommended providing modeling

guidelines. Peter commented that this issue with ATACs should be much easier to solve now that we have usable utility customer information (UCI) data. In 2014, we didn't have that data. Sarah commented that internal staff are just getting access to the data; it's unclear whether ATACs will ever have access to the data, and if they do, what that will look like.

Findings - Lighting: The most common reasons for differences between program-estimated and evaluated savings include the hours of use being different than assumed, the controls factors used were different from RTF estimates, and small differences in fixture counts (which is not uncommon). Regarding the controls factors issue, we have been discussing internally whether RTF estimates should supersede our estimates. The evaluator suggested that the RTF estimates should be used as a matter of course, but we may have good reason for using different information; this is an area we will be discussing with ADM. Fred commented that there are cases where we have reviewed RTF estimates and work, and come up with a different opinion. Jennifer commented that the RTF estimates have a very large confidence interval (± 100%). So if Energy Trust thinks they have better information, it makes sense to use that information. Mike B. commented that the evaluator may be used to working in other jurisdictions where the RTF estimates are the required default, which is not the case for us. Fred commented that Energy Trust is close to publishing a lighting controls study; those findings may be incorporated into a future report.

Findings - Standard: The primary reason for differences between program-estimated and evaluated savings was a difference in assumptions used for measures. The evaluator preferred to use RTF, ENERGY STAR, and some other sources in cases where there was a difference with Energy Trust's measure approval document (MAD). It's not clear if this is warranted or if our estimates should supersede those. Again, this is an area we will be discussing with ADM. One large project that included many aerators and showerheads caused a large reduction in savings because the heating fuel was incorrectly noted in the project file as electric resistance, but the correct fuel was geothermal. This had a very large impact on the 2013 realization rate. The evaluator also noted that there appears to be an error in the measure approval document for gas steam cookers; the savings seem to be overstated by a factor of 10. We will be checking on this as well. There were no issues with measure counts for standard measures.

The table below shows realization rates for the EB program between 2008 and 2014. The 2013 and 2014 realization rates are among the lowest we have seen for this program. Note that this table excludes HCIFs for 2013-2014 realization rates so we can compare to realization rates from past years. Some of the results from 2013 may have been impacted by the fact that some of the projects, especially custom projects, started out under Lockheed Martin (the prior EB PMC) and were closed out by ICF when they became the EB PMC. The 2014 realization rates are more reflective of ICF's implementation.

Other Findings: ADM found that some of the MADs were inconsistent, either internally or with other sources such as the RTF, etc. There was one specific formula error found in the lighting tool (this only applied to limited cases of lighting installations). Also, the program assumes that hours of use for exterior lighting are 50% of all hours (4,380 hours); ADM suggests using dusk-to-dawn hours, which are slightly lower (4,112 hours). Finally, there is a lag between project implementation and evaluation, which presented some challenges (customers asking why we want to evaluate projects from 2013 in 2016). From a customer perspective, this lag seems strange. We do this because we want to give the projects a little time to settle in; also, we are running slightly behind our normal schedule of a one-year lag and are working to catch up.

Recommendations: ADM recommends that the program develop and implement a modeling guidelines document laying out requirements and best practices for calibration methods and savings estimation, which could be used by ATACs and others. In addition, ADM recommends implementing "sanity checks" (a recommendation made in the prior impact evaluation) for custom track projects – e.g., checking savings against total site energy usage to catch large errors, for either the census of custom projects or for custom projects above a certain savings threshold.

ADM also recommended considering reviewing savings for a number of standard track measures – specifically, nine that represent the majority of savings in the standard track: controls, lighting, food equipment, ceiling insulation, floating head and suction pressure controls for refrigeration, heat pumps, motors, boilers, and radiant heat. Jackie asked if the evaluator was looking at how the measures looked in 2013 and 2014, or how the measures look now (at the time of the evaluation). Fred asked if we gave the evaluator the MADs that were on file a year or two ago, or the ones on file at the time of the impact evaluation. Sarah responded that we likely provided the MADs on file in the spring of 2016. So there is a chance these are slightly different than what was used in the program years evaluated. We tried to find the version of the MADs used during these program years, but our archiving of past versions of MADs is not great, so they mostly received current MADs.

Alan commented that we should be doing sanity checks, and asked if that was happening now. Jay responded that ICF said they are implementing these recommendations already. Spencer noted that this recommendation was first made in the 2012 EB impact evaluation, which occurred in 2015, so the recommendations were not implemented in 2013-2014. However, ICF has instituted new policies with engineering staff, so we should expect to see this reflected in the 2015-2016 impact evaluation results.

ADM also recommended that Energy Trust review the lighting calculator and address the specific error in one cell of the lighting calculator that affects certain types of projects. Sarah noted that the lighting calculator is almost always undergoing QC. ADM recommended updating the hours of use assumption for exterior lighting, and conducting impact evaluations closer to implementation. Moving to simultaneous evaluation (evaluating as projects are being implemented) or within several months of project implementation would be a big change for Energy Trust, and require different types of resources (such as continuous, close communication between program and evaluation staff). For now, we will be trying to catch up and do evaluations within a year of project implementation and explore the possibility of implementing more of a "real-time evaluation" approach later if needed.

Steve commented that the recommendation to reduce the hours of use for exterior lighting when the realization rates for street lighting are close to 100% seems counterintuitive. Sarah responded that exterior lighting includes more than just street lighting. ADM's recommendation to align with dusk-to-dawn hours is based on the fact that most exterior lighting measures are on timeclocks, not daylight sensors. Mike B. commented that regarding timeclocks, the use of 50% of hours was a compromise, since a few projects may end up being on for a few more hours, while a few other projects may end up being on for less. Mike B. also noted that with Portland's weather (and the gray skies) lighting may actually be on more than half the time, so the 50% estimate may be conservative. Sarah noted that there are arguments to be made on both sides. Alan commented that we don't want to move in the wrong direction.

Next Steps: Energy Trust will incorporate 2013 and 2014 realization rates into the 2017 True-Up. As noted, we are still working with ADM to nail down the final realization rates. The program

will be working to document the recommendations that have been implemented, and what they are considering for the future. In 2017, Energy Trust will complete an impact evaluation of the 2015 and 2016 program years.

Alan asked how the HCIFs will be handled. Sarah commented that in the past, we have not made negative corrections to gas savings for lighting projects in our database. It's been our policy to ignore them. Fred commented that in the residential sector, we have not ignored HCIFs, but have not penalized the gas program. Gas loads do increase but not because of the gas program. Mike B. added that there are lots of assumptions related to interactive effects; interactive effects are relevant but can be hard to estimate accurately. Mike B. also noted that as programs move upstream, we have less site information on hand, which would make including HCIFs more challenging to implement. Fred noted that we will have a longer conversation about whether an estimate of HCIFs to incorporate into cumulative savings is more valuable than no estimates.

2. Short Take: Process for Evaluating New Buildings Large Projects

Presented by Dan Rubado

Dan noted that he, Jessica Iplikci (New Buildings Program Manager), Oliver Kesting (Commercial Sector Lead), Sarah Castor (Evaluation Sr. Project Manager), and staff from the New Buildings PMC have been working to develop a process to evaluate the savings of very large or complex commercial new construction projects that don't fit into the current evaluation process all that well.

The need for such a process stemmed from challenges evaluating certain projects as part of prior impact evaluations. Impact evaluations occur at a specific point in time, and the goal is to evaluate the whole program for one program year. This may not be perfect for projects that are being built-out, are in the process of being fully occupied, or for other reasons. In addition, there have been a few cases where large customers have been surprised by some of the evaluation requirements and associated data requests. It is worth noting that Energy Trust's forms and incentive applications do contain a short section outlining what is required for evaluation, but it is not detailed. As noted before, in some cases, customers have been surprised by what evaluators have asked them to provide, and in other cases, the data requested is difficult or impossible to collect by the time the evaluation happens. The goal of this process is to set expectations with customers upfront (when the project is being implemented) and for everyone to agree to an evaluation plan at the beginning of the project.

The process involves the PMC screening projects in the pipeline on a quarterly basis. The criteria for projects to be considered for this special evaluation process are:

- Large projects (those with estimated savings of more than 2.5 million kWh or more than 40,000 therms)
- Projects with a new central utility plant
- Projects with district heating and cooling
- Projects with complex waste heat recovery
- Projects that will not achieve full loading or occupancy for several years
- Other complex projects that may not fit into the typical impact evaluation process

If a project meets any of the criteria outlined above, the PMC will send the project to Energy Trust Evaluation staff, and together, the PMC and Evaluation staff will decide (on a case-by-case basis) if the project is a good candidate for the large and complex projects evaluation

process. We do not foresee this happening all that often; looking at current data, we think this would amount to three or four projects per year.

Once a project has been selected for this process, Energy Trust will hire an evaluator to develop an evaluation plan. The PMC will provide project files, introduce the evaluator to the customer, and facilitate a site visit at or near project completion.

Steve asked how evaluation firms would be selected. Dan responded that Energy Trust will be setting up a special pool of evaluators with expertise in commercial new construction and we will draw on that pool for evaluating these projects.

Alan asked if this process is happening early enough in the project lifecycle to get the data that is needed for evaluation. Dan responded that we will be engaged with the customer early enough to identify and discuss with the customer what data are needed for evaluation. Steve added that this process should ensure that the customer understands what is expected of them when they sign the project incentive agreement.

Dan noted that the next step in the process (after an evaluator is hired) is for the selected evaluator to come up with an evaluation plan that outlines exactly what data will be collected by the evaluator, and if needed, what parameters the customer needs to provide. The plan will also outline any site visits that are needed, and the timing of all evaluation activities. The PMC will work with the evaluator to facilitate communication with the customer throughout. In cases where customers have an energy management system or building automation system but these systems are not collecting crucial data that are needed for the evaluation, Energy Trust will offer to pay for additional metering. Energy Trust will also work with the customer to ensure that trending capabilities are enabled on any and all systems that will be used to provide data for the evaluation.

Before the final incentive check is delivered to the customer, the customer and the PMC will review the evaluation plan and agree to it in writing. When it is time for post-project completion evaluation activities to start, Energy Trust will either re-engage the same evaluator that developed the evaluation plan, or hire another firm to do the work. They will perform the evaluation activities outlined in the evaluation plan, and the PMC will help re-engage the customer. After the evaluation activities are finished, the evaluator will calculate the energy savings and estimate a realization rate for the project, and summarize these findings in a report that Energy Trust will review. Once the results are final, they will be used to true-up the energy savings for that project.

Michael C. asked about whether or not the agreement is transferrable. Phil responded that it is difficult to do that in practice. Peter commented that for renewable projects, the agreements are transferrable.

Alan asked for more details about the written agreements with customers. Dan responded that the details have not yet been worked out, but one idea is to append the evaluation plan to the incentive agreement. Mike B. commented that programs often comment that every form is a barrier to customer engagement. How do we balance the need for evaluation with the need to make working with us easy? Dan commented that for large projects with large incentives, there is more money on the line, which could increase customer appetite to sign another form.

Andy E. asked if this process is related to having the program incrementally claim savings over time. Sarah responded that it does not relate to that. Ken commented that transparency is the

starting point to get customers to participate in evaluation. Dan agreed, and commented that setting expectations early is key.

3. Existing Multifamily Showerhead and Shower Wand Study

Presented by Mike Bailey

Background: This study was done by the Existing Multifamily program. It's what we are calling a field study – a study that is done internally, without a third party evaluator. Field studies are distinct from pilots; their goal is to gather information about a specific measure. This study aimed to look at assumptions used in showerheads and shower wands, which are common measures used across multiple programs. One of the drivers for the study was a lack of good data for shower wands. The program wanted to gather performance data for baseline and efficient, newly installed shower wands. Prior to this study, the only other data we had was from the 2011 Residential Building Stock Assessment (RBSA). Kate mentioned that another driver was that the showerhead and shower wand measures used two different assumptions from two different studies regarding the baseline. The program wanted to see if they could use a single assumption for both measures. Mike B. continued, mentioning that CLEAResult (a subcontractor to Lockheed Martin, the Existing Multifamily PMC) identified that a study had been done in New York regarding tub spout leakage, and proposed using this study as an opportunity to assess the potential for a new measure.

The study was done earlier this year, between April and July 2016. The program gathered data for the study from 10% of all units visited for direct-install (the units were randomly selected, and the program developed a method for randomly selecting the units). The program gathered data from all units with shower wands except for those in assisted living facilities (where almost all units had shower wands). The program collected data from a total of 150 units.

Protocol: The program randomly selected a list of units from which to gather data; if a randomly selected unit was not available for any reason, staff went on to the next unit. While in the unit, staff collected the gallons per minute (GPM) of the baseline fixture, and used a set temperature. The fixture was then changed, adjusted to a set temperature, and the GPM of the new replacement fixtures was measured. If tub spout leakage was observed, this was measured as well.

Typically, a bag and stopwatch is used to estimate GPM. However, CLEAResult determined that this was prone to operator judgment, meaning very different results could be obtained. To eliminate this source of variation, microweirs and nanoweirs were used. These are essentially pitchers with holes drilled in one side and a float sitting in the pitcher. When water flows into the microweir or nanoweir, as the flow increases, the float goes up, and water spills out of the holes in the side until an equilibrium is reached. This method is not as dependent on operator judgment. CLEAResult was able to confirm that there was not a bias between measurement teams when using the microweirs and nanoweirs. As mentioned earlier, CLEAResult also used a standardized temperature – it was decided that this measurement was easier to do at warmer temperatures. CLEAResult determined that temperature did not impact the results.

Results: The table below compares the results from the study to the current assumptions used in the 2016 measure approval document (MAD) for showerheads and shower wands. Another reference point is the flow rate estimated from the 2011 residential building stock assessment (RBSA) - 2.1 GPM. The study found that the flow rate of baseline equipment was significantly

less than what was assumed in the 2016 MADs. However, the flow rate of the replacement equipment was close to the MAD assumption. These results led to a reduction in savings.

Summary of flow rates for showerheads and shower wands

	1.5 GPM Showerhead		1.5 GPM Shower Wand	
Fixture Type	2016 MAD	Field Test (n=96)	2016 MAD	Field Test (n=54)
Baseline GPM flow rate	2.82	2.22	2.75	1.59
Replacement GPM flow rate	1.35	1.32	1.5	1.21
GPM Change	-1.47	-0.9	-1.25	-0.39

Alan asked if there were any theories as to why there was such a big difference between the MAD assumption and the results of the study. Mike B. responded that Planning is digging into this – we know that the estimated flow rate from RBSA was 2.1, which is a lot closer to the flow rates estimated as part of the study. We are not sure why the MAD was using a much higher assumed baseline flow rate. Kate commented that the program has a minimum requirement for replacing showerheads and shower wands (those with a certain GPM). The RBSA estimate was based on an average of all showerheads and shower wands. We may have tweaked the data we had and adapted it to account for the program requirements. Why shower wands flowed less than assumed may be due to flow restrictions resulting from the hose or fittings.

Alan asked if the study data was only collected for those that the program would have replaced. Mike B. confirmed that this is the case.

Michael C. asked if shower wands were only being installed in units that previously had shower wands. Mike B. confirmed that the program does only like-for-like replacement.

Sarah commented that at a recent RTF meeting, there was a discussion about the differences between rated flow, in-situ flow, and in-use flow. Many different factors reduced observed flow. These results are not surprising based on the RTF discussion. Mike B. commented that pressure compensation valves were one of the reasons for the study – to confirm if that was actually taking place.

Tub spouts were identified as a potential opportunity based on a study from New York. The table below compares the results from the New York study and this study. This study found a much smaller number of leaky spouts, and those leaky spouts leaked a lot less than those in the New York study. So, in sum, the problem was not common enough and the savings were not significant enough to merit further development. This was a good outcome in that the program had an idea, collected data, and ultimately determined that this did not have enough potential to merit further development.

Summary of prevalence and flow rates of leaky tub spouts

Study	Tub spouts measured	Percent of leaky spouts – (leaking ≥ 0.1 GPM)	Average GPM of leaky spout
New York Study (n=120)	120	34%	0.8
Oregon Field Test (n=106)	106	17%	0.3

Michael C. asked if this measure was examined from a water savings and cost perspective. Would the building owner recognize significant savings? Kate responded that the cost of water savings is included as a non-energy benefit for direct-install measures. Water savings and cost would definitely be a talking point when engaging with building owners and property managers. Ken commented that no documentation about costs and benefits were reported. Fred noted that we typically do not ask evaluators to do cost-benefit analysis; here, the program had the tools to do that analysis, but they did not do a ton of documentation.

Key Findings: As noted in the report, the program considered changing the program requirements to only address fixtures with a flow rate of more than two gallons. Most of the showerheads found were two gallons; eliminating them would make the threshold to participate so high that much of the savings would be lost. So, solving this issue by changing the program requirements was not an option.

The program looked at elevation (e.g., the floor the unit was on) and its impact. The program did not go to any high-rise apartments since the program serves a small number of these buildings and to figure out the pressure was complicated due to high-rise booster pumps. This study included units in 2- and 3-story complexes. There was no difference in performance (flow rate) depending on whether the unit was on the first, second, or third floor. Finally, the study confirmed that even though both showerheads and shower wands were rated at 1.5 GPM, the actual performance differed between showerheads and shower wands.

Conclusions: The program is continuing to deliver the measures, which are still cost-effective as direct installs. The program design is not changing, however, the assumptions for the 2017 measure regarding baseline flow rates are being reduced. The program is not creating a new measure for replacing leaky tub spouts.

These changes did have a significant impact on the program budget and forecasted savings for 2017. Looking only at the direct-install portion of the program, overall, this had a 24% decrease in electric savings and a 40% decrease in gas savings (there are significant program gas savings related to water heating). Looking at the entire multifamily program, this was a 12% decrease in electric savings and a 27% decrease in gas savings. Kate added that this translates to approximately 3 million kWh and 57,000 therms. Alan asked if any action would be taken to true-up results. Mike B. said Energy Trust would likely true-up 2015 and 2016 savings.

Mike B. commented that although these results reduced savings, we hope to work with programs to implement similar studies in the future, as this study was high quality, relatively inexpensive, was timely (took only four months in 2016), and the data was directly relevant to

measures and programs. We are trying to figure out ways to do this type of study more often in the future.

Fred commented that there are differences between single family and multifamily. We are determining whether more research is needed to get similar information for single family homes. In terms of doing these types of studies in the future, we are working at how to coordinate with programs to make sure the methods are sound and the studies are documented, but that these studies are streamlined. We are open to feedback on whether or not these studies are working, and if they should be reviewed by the Evaluation Committee. They are used similarly to how formal evaluations are used, and we plan to post them publicly. Ken commented that this is a great example of how Energy Trust programs, Planning, and Evaluation are on the same side, doing this in a transparent way, and looking for accuracy. It seems to be a real plus that programs are doing this work, and the results were well-written.

Mike B. commented that a lot of credit for the study needs to go to Kate (Energy Trust Multifamily program manager), Lockheed Martin, and CLEAResult. This study required quite a bit of coordination and communication with Planning and Evaluation, and the planning and analysis were very well done. CLEAResult was a subcontractor to Lockheed Martin; they laid out a plan, brought it to Energy Trust, and then implemented on the plan.

Jennifer commented that the RTF does not do studies. She is glad to see this study; it is very valuable. Jennifer commented that an open question is how long it takes for showers to warm up and the length (duration) of showers. Mike B. commented that the behavioral component of shower length makes it difficult to study. This study was focused on equipment; we did not explore whether lower flow rates led to people taking longer showers. Thermostatic shower restriction valves are a potential measure; they are equipment, but have a significant behavioral component. Research would be needed to determine whether or not the frequency and duration of showers are constant or different before and after the installation of this equipment.

4. Short Take: Planned 2017 Evaluation Activities

Presented by Phil Degens

Phil summarized the major process and impact evaluations that will start in 2017. A process evaluation will be conducted for the Production Efficiency program. Impact evaluations will be conducted for Production Efficiency (2013-2014), Existing Buildings (2015-2016), New Buildings (2014-2015), industrial Strategic Energy Management, and the residential sector (various billing analyses).

Pilot projects that will involve evaluation work in 2017 include MPower, advanced power strips, multifamily ductless heat pumps, variable refrigerant flow, Nest Seasonal Savings, and the impact evaluation portion of the manufactured homes heat pump pilot.

Other evaluations happening in 2017 include evaluating industrial megaprojects, gas fireplace survey for the New Homes program, Fast Feedback results, a persistence study of operations and maintenance projects, a study focused on strategic energy management practices, a study focused on commercial and industrial non-participants, research with Portland State University, a study of solar soft costs, and an evaluation focused on diversity in Energy Trust contracting.

Wrap-Up & Next Steps

We are thinking about scheduling another evaluation committee meeting in February. Erika will send out a Doodle poll to see what days would work best for folks.

PINK PAPER

Energy Trust of Oregon: Solar PV Evaluation Report

January 12, 2017

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

Prepared by:
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Cadmus

Executive Summary

Energy Trust of Oregon (Energy Trust) contracted with Cadmus to assess the true production of electricity from solar photovoltaic (PV) systems that received Energy Trust incentives between 2011 and 2015.

Objectives

The overall study goals and objectives are listed below:

- Estimate realization rates using customer-reported meter readings and third-party daily production data, including extrapolation to the full program population.
- Assess trends in realization rates by sector, system age, region, equipment type, and total solar resource fraction (TSRF).
- Provide information and evidence for updating Energy Trust's annual energy production calculation method, if applicable.

Methodology

In 2016, Cadmus administered an online survey to collect meter readings of customers' electricity production. The survey targeted customers with direct- and third party-owned residential systems and direct-owned commercial systems. Energy Trust also provided daily meter readings from third party-owned systems for the program's two largest solar installers. Cadmus calculated realization rates by comparing actual production with pre-installation estimates and normalizing the results for actual solar irradiance during the systems' performance periods. Cadmus summarized realization rates in many ways, including by sector (residential or commercial), ownership type, geographic location, installation year, equipment type, TSRF, and combinations of the aforementioned factors. Based on Cadmus' preliminary findings from the customer survey, Energy Trust conducted supplemental site visits at commercial PV installations as a means to clarify, or confirm, apparent meter reading anomalies reported in the initial online survey. The results of the commercial site visits were ultimately used in place of the survey readings.

Findings

Table 1 shows the final results of the 2011-2015 realization rate analysis. Commercial sites yielded 106% of expected production (from site visits), whereas the residential sites generally produced 117% to 124% of expected production, depending on the group.

Table 1. 2011-2015 Realization Rates

Evaluation Group	Data Collection Method	Count	Sum of Meter Reading kWh	Sum of Energy Trust Expected kWh	Realization Rate
Direct-Owned Commercial	Site Visits	38	4,624,447	4,349,925	106%
Direct-Owned Residential	Surveys	180	2,301,277	1,897,967	121%
Third-Party Residential	Surveys	144	1,914,839	1,550,442	124%
Third-Party Residential Production Data	Production Data	1,401	19,901,081	16,987,464	117%

The evaluated realization rates shown above (106% for commercial, 121% for direct-owned residential, and 117% for third-party residential[1]) were applied to the entire 2011-2015 program population, yielding an average realization rate of 112%. Overall, the systems incentivized by the program between 2011 and 2015 are producing nearly 64 million kWh on an annual basis, as shown in Table 2.

Table 2. 2011–2015 Evaluated Annual Program Savings

Sector	Quantity	Expected Savings (kWh per year)	Realization Rate	Evaluated Savings (kWh per year)
Commercial	407	31,981,092	106%	33,899,958
Direct-Owned Residential	2,570	11,681,789	121%	14,134,965
Third-Party Residential	2,753	13,602,688	117%	15,915,145
Total	**5,730**	**57,265,569**	**112%**	**63,950,068**

The following is a brief summary of key findings:

- PV systems incentivized by Energy Trust are generating more electricity than expected, even after accounting for the variability in the solar resource. Residential systems generate more electricity relative to program estimates than commercial installations.
- Production readings reported by third party-owned residential customers through an online survey resulted in a realization rate of 124%, while residential systems' production reported through trade ally automated systems resulted in a realization rate of 117%. While both values are in line with results from evaluations of similar programs elsewhere, the cause of the difference in realization rates between the two groups is not known.
- Systems with low estimated TSRF tend to have higher realization rates, particularly for third party-owned systems. This may indicate that the existing production estimation methods, which require using the worst case shading measurement for the site in estimating production, are overly conservative with respect to the impact of shading on PV system electricity production.

[1] The third-party owned residential systems yielded a realization rate of 117% from the production data, and 124% from the surveys. Due to the much greater sample size, and to be conservative, the 117% is applied to the population.

- Nearly 40% (15 out of 38) of commercial systems produced over 100,000 kWh since their installation and exhibited signs of meter registers rolling over and resetting to zero. This impacted some customers' self-reported meter readings and, as a result, Energy Trust had to collect supplemental information by conducting a series of site visits to obtain more accurate production histories from inverter logs.
- Six commercial site visits exhibited evidence of additional roll-over that was not being captured on the initial site visit reading. Roll-overs ranged from one to three times (at 99,999 kWh each). In several cases, the inverters were able to capture the full production without roll-over issues.
- Realization rates varied significantly between systems using string inverters and those using microinverters. Systems with string inverters achieved a realization rate of 112%, while those using microinverters achieved an average realization rate of 125%. Partial mitigation of the impacts due to shading has historically been a marketing claim made by microinverter manufacturers and these results suggest that there may be some performance improvements attributable to the use of microinverters, though further analysis would be required to draw a definitive conclusion about the impact of inverter technology on realization rate.

Recommendations

- **Consider less conservative input assumptions** to calculate estimated electricity production for residential systems. In particular, the use of a "worst case" value for TSRF from the most shaded roof area may be unnecessarily conservative. Other programs stipulate a shading measurement approach based on approximating the center point of the array, which will be slightly less conservative than using the most shaded portion of the array as the basis for estimating production for the entire system.
- For future evaluations, **do not ask commercial customers for meter readings, but instead, ask for inverter readings**. The most preferable method is to obtain ongoing system output from a data acquisition system,[2] if available.
- **Future evaluations can rely on meter (or inverter) readings from residential surveys** to obtain production data for use in calculating realization rates (all three residential realization rate estimates occur around 120%).
- **Incorporate TMY3, rather than TMY2, irradiance data** into future performance predictions to better reflect current weather conditions.
- **Consider additional analysis on inverter type** to determine if it would be appropriate to adjust production estimates and associated tools to account for additional productivity from some inverter types.

[2] A data acquisition system consists of sensors, measurement hardware, and a computer with programmable software.

MEMO

Date: January 26, 2017
To: Board of Directors
From: David McClelland, Program Manager – Solar
Sarah Castor, Evaluation Sr. Project Manager
Subject: Staff Response to the Solar PV Impact Evaluation

Energy Trust undertook an evaluation of the Solar PV program to assess the true production of systems installed between 2011 and 2015, and to determine if any changes were needed to methods used to estimate annual energy production.

Results of the evaluation show that PV systems incentivized by Energy Trust consistently produce more energy than claimed, by about 6% for commercial systems and close to 20% for residential systems. In particular, the evaluator noted that Energy Trust's practice of using the total solar resource fraction (TSRF) value from the most shaded portion of the array results in overly conservative generation estimates.

Going forward, the Solar program is allowing contractors to use approved remote shading analysis tools to measure shade and calculate the TSRF. Three tools – Bright Harvest, Aurora Solar and Helioscope – have been approved based on analysis of their accuracy relative to on-site shading measurements.

The program is also evaluating new models for estimating performance, which can be implemented during an upgrade to PowerClerk, the program's project application software. Energy Trust anticipates making this upgrade later in 2017.

Based on the actual generation results from this evaluation, Energy Trust plans to adjust claimed solar PV production for 2011-2015 projects during the next true-up of savings and generation, to occur in 2017. Moving forward, the program also will also incorporate the higher generation assumptions into its evaluations of solar above-market costs and adjust incentives as needed.

Further analysis of the data collected is planned within the following three focus areas:

1) Analysis of system production by inverter type to identify the increase, if any, in production for systems equipped with module- or string-level power electronics.
2) An update of system production capacity coefficients to provide solar trade ally contractors a standard method for quickly and accurately estimating system production.
3) Assessment of how closely solar production matches customer usage profiles in order to identify the impact of solar on customer loads.

PINK PAPER

ILLUME

PROCESS EVALUATION

Of Energy Trust of Oregon's Existing Homes Program

December 2016

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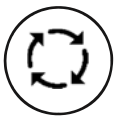
ILLUME Advising is a forward-thinking consulting company at the rare intersection of insight and execution. Founded in 2013 by industry thought-leaders Anne Dougherty and Sara Conzemius, the company has quickly grown to include a deep bench of quantitative and qualitative research experts. ILLUME uses cutting edge research strategies to help build a resilient energy future to enrich lives, improve global health, and ensure a more secure and sustainable future.

EXECUTIVE SUMMARY

Energy Trust of Oregon (Energy Trust) contracted with ILLUME Advising LLC (ILLUME) to provide a process evaluation of their Existing Homes program (Existing Homes, or "the program"). The Existing Homes program, Energy Trust's largest residential program, delivers a broad set of energy-efficiency offerings to customers of its four funding utilities – Portland General Electric (PGE), Pacific Power, NW Natural, and Cascade Natural Gas. This evaluation reviews processes related to four components of the program: 1) incentives for Oregon homes who install energy-efficient electric or gas measures, 2) incentives for NW Natural customers in SW Washington who install gas measures, 3) the implementation of New Homes and Products programs in SW Washington, and 4) Energy Saver Kits (ESK) which includes LED lightbulbs[1], showerheads, and faucet aerators. Energy Trust collaborates with its funding utilities, the program management contractor (PMC) CLEAResult, and key residential market actors (trade ally contractors, distributors, retailers, and SW Washington new homes verifiers) to achieve program participation and energy savings.

The goal of this process evaluation was to obtain feedback from program staff, program participants, and market actors on program design and implementation. This feedback will be used by Energy Trust program staff to more effectively and efficiently deliver the Existing Homes Program and the New Homes and Products programs in SW Washington. As the Existing Homes program has evolved over time, this process evaluation focused on the program's current structure, while documenting the effects of recent program changes.

This report presents the key findings and recommendations from this process evaluation, conducted between March and August of 2016. This evaluation focused on four core objectives:



DOCUMENT PROGRAM DELIVERY & COORDINATION PROCESSES

EVALUATE THE EFFECTS OF RECENT PROGRAM CHANGES

ASSESS ENERGY SAVER KIT EFFECTIVENESS

CONDUCT STRATEGIC PORTFOLIO REVIEW

Our evaluation was informed by a thorough review of program documents, as well as in-depth interviews with program and implementer staff, utility representatives, three groups of market actors (trade allies, distributors, and new home verifiers), and one program manager from a leading state in energy efficiency (Massachusetts). In addition, we conducted a survey of 2015-2016 Energy Saver Kit recipients.

[1] Beginning in 2015, Energy Trust no longer provided CFLs in Energy Saver Kits, replacing them with LEDs.

In this Executive Summary, we provide our most salient findings, organized by core objective. Recommendations accompany key findings where relevant.

CORE OBJECTIVE 1 – DOCUMENT PROGRAM DELIVERY & COORDINATION PROCESSES

A variety of market actors engage in this program, including four funding electric and gas utilities, the PMC, and trade allies. All parties are key for program delivery and success. Below we provide key findings related to engagement with these groups.

Conclusion – Utilities, market actors, and the program management contractor (PMC) all regard Energy Trust positively overall, although some utility representatives and market actors expressed a desire for more frequent and effective communication. Most entities working with Energy Trust's Existing Homes program expressed satisfaction with communication and collaboration. The electric utilities, in particular, appear to have a strong working relationship with Energy Trust and PMC staff. However, the gas utilities expressed frustration at a lack of available measure options for their customers, as well as a perceived need for more proactive communication from Energy Trust.

> **Recommendation – Consider refreshing Energy Trust's communication approach with the gas utilities to ensure they feel heard and included in program processes.** Although the gas companies are aware that natural gas measures are currently facing cost-effectiveness challenges that Energy Trust cannot control, more intentional communication and explanation to utilities around these issues may help to alleviate the gas utilities' feelings of being left out of the process.

CORE OBJECTIVE 2 – EVALUATE THE EFFECTS OF RECENT PROGRAM CHANGES

Similar to many residential energy efficiency programs across the country, Energy Trust's Existing Homes program has seen its portfolio of measures become increasingly constrained by economic, regulatory, and market conditions in recent years. Cost-effectiveness thresholds have become more difficult to meet due to fuel costs, new codes and standards, and market changes. To address these challenges and continue to provide relevant energy efficiency programs to the customers of its funding utilities, Energy Trust has steadily evolved its program approach to the residential existing homes market.

Recent program changes include:

Increased Midstream Engagement – A shift in implementation approach to focus more on midstream engagement, particularly with respect to heating systems, water heating, and thermostats, with the intent to influence stocking practices by distributors, increase the availability of affordable, qualified models in the supply chain, ensure these products are offered to consumers, and remove the administrative burden of completing forms, which has been a barrier to customer participation. Program efforts to increase midstream engagement include direct distributor support, detailed next.

Distributor Support – Created new mechanisms for engaging distributors, including:

> SPIF – Began offering Sales Performance Incentive Fund (SPIF) to distributors for sales of qualifying equipment receiving an Energy Trust incentive;
>
> Information sessions – Coordinated with distributors to offer information and training sessions on Energy Trust incentive offerings to contractors;

Online Home Energy Review – Discontinued the in-home Home Energy Review (HER) home audit program, while continuing to offer online HER;

Energy Saver Kits (ESK) – Replaced CFLs with LEDs in Energy Saver Kits;

Rental Measures – Began offering a gas furnace incentive, as well as increased insulation incentives for single-family rentals;

Savings Within Reach – Expanded income eligibility levels for moderate-income incentives

Trade Ally Support – Created new and/or updated processes and tools, including:

> Account management model – A single point of contact who provides program guidance, mentorship and support for trade allies;
>
> Instant incentives – A process by which contractors deduct the incentive amount directly from a customer's bill, carrying the cost of the incentive until receiving reimbursement from Energy Trust;
>
> Web forms – The option for trade allies and customers to submit incentive forms online;
>
> Trade ally portal – A web-based repository of information where trade allies can log in and view project details for all of the active and completed projects they have submitted for an incentive, as well as access program forms;
>
> Newsletter/blog – An information source called *Insider* that provides both general information to all trade allies, as well as specific information on program offerings, market-related topics, tips and education;

Introduction of EPS to New Homes program in Washington – Transitioned from a program based around ENERGY STAR and Earth Advantage certifications to the Energy Trust's EPS™ (energy performance score), in alignment with the New Homes program in Oregon.

Desk Quality Assurance (QA) – A new approach to project QA that, among other things, includes a decrease in the number of on-site inspections by program staff, and the implementation of a desk review process for some projects. In addition, the New Homes program in SW Washington transitioned to a more direct, in-depth QA process, where previously Energy Trust had relied on the Northwest Energy Efficiency Alliance (NEEA) and their ENERGY STAR® Homes QA process.

Conclusion – The program's decision to shift focus toward midstream market actors and trade allies is still relatively nascent; our evaluation revealed evidence of early successes as well as continued opportunity for enhancement. Although trade allies have responded positively to the more focused attention they have received through the account management model, there is still opportunity to further engage and train trade allies to effectively be the "face of the program." For example, some of the less active or lower-rated trade allies we interviewed expressed an interest in becoming more active.

> Recommendation - Consider further tailoring communications to reflect trade allies' unique businesses, level of program activity, star rating, geography, and/or target market. For example, consider reaching out to trade allies with lower star ratings and/or level of program activity and determining a) their individual interest in more focused support, and 2) their unique needs, such

as basic program orientation, introduction to marketing opportunities, and mentorship on outreach strategies based on geographic location.

Conclusion – Although Energy Trust provides a variety of marketing tools to assist trade allies in selling efficient equipment through the program, trade allies are not consistently using or aware of the tools.

> Recommendation – Continue efforts to reach out individually with trade allies to raise awareness of the availability of marketing tools and information resources. Explore opportunities for expanded trade ally training and mentorship on the availability of tools such as cooperative marketing funds, the booklet of measure incentive information, and website development funds. While many trade allies take full advantage of the suite of offerings, others remain unaware of the tools, or do not utilize them.

Conclusion – Most trade allies who qualified to offer instant incentives had used them to varying degrees, but the perceived benefit of them was mixed. The program introduced the instant incentive with the hope that it would act as a tool to help trade allies make the sale of an efficient model of equipment over a standard efficiency model. In addition, the instant incentive structure requires the trade ally to submit complete project forms to receive reimbursement. Energy Trust hoped that by putting the onus on the contractors to fill out the forms, rather than the customer, the program would receive more complete and accurate program data. Of the trade allies we interviewed, most trade allies who were qualified to offer instant incentives did. However, the preference to use this incentive method over the traditional customer application appeared to be dependent on trade ally personal preference, with no evidence of fundamental concerns or process issues.

Conclusion – Although the program's attempts to engage distributors via the SPIF and sponsored contractor training events are still new and require further research to determine effectiveness, this evaluation found that these first efforts may be improved with modifications. Although the evaluation only spoke with two of the seven distributors currently working with Existing Homes, both expressed hesitation regarding the SPIF. While they felt it was a good concept, they perceived the administrative burden of meeting the SPIF requirements to be high. Only one distributor had offered contractor information sessions, and did not perceive them as effective.

> Recommendation – Continue to explore different incentive structures that will motivate distributors to sell more efficient equipment to their contractors while reducing administrative processes. Distributors interviewed were more receptive to the idea of an instant incentive, payable directly to the distributor as opposed to the customer or to their contractors, but it is not clear that this mechanism would reduce administrative burden, as incentive requirements also require details such as customer address.

Conclusion – The shift in quality assurance procedures to include a desk review option appears to be achieving its intent of reducing the number of field inspections while maintaining project quality. In 2015, QA home visits decreased significantly over the course of the year, while pass rates for QA inspections remained stable. Most trade allies interviewed did not notice the change, and those who did notice did not think it impacted their projects.

CORE OBJECTIVE 3 – ASSESS ENERGY SAVER KIT EFFECTIVENESS

Energy Trust provides free Energy Saver Kits to customers that include LED light bulbs, efficient showerheads, and faucet aerators. Customers request the kit by telephone, or via a web order form. Customers who order a kit online answer questions about their home. Based on home characteristics,

customers are given different numbers of items. The web form defaults to the highest number of items allowable within each home (e.g., two faucet aerators for homes that have two or more bathroom faucets), but customers have the option of reducing the number of items prior to submitting the form. The Energy Saver Kit was last evaluated in 2014. Most measures remained consistent during this evaluation, with the exception of the inclusion of LEDs and removal of CFLs.

Conclusion – Installation rates for water saving devices decreased since the last evaluation in 2014 whereas lighting measures stayed consistent. It is unclear from the survey and population data why the installation rates decreased between these two evaluation periods. One possible reason is that respondents may have received more water saving devices than they wanted or needed (perhaps a function of the "opt-out" nature of the online tool). Additionally, one motivating factor for obtaining the kits is to obtain LEDs, newly added to the kit in place of CFLs. Recipients may have been more interested in receiving the light bulbs, yet obtained all kit contents.

> Recommendation: Explore customers' experiences and decisions around the number of items received, without actual or intended installation, including experience with the online order form. The study did not directly assess customers' experiences and decision-making processes at the point of requesting the items, including their initial intent to install. Targeted exploration for why customers are requesting the water saving devices, then not installing those items, should be investigated more deeply to explain the installation rates (particularly for water saving devices) and provide further insight into potential options for maximizing the installation rate (including possible modifications to the Energy Saver Kit order form, described below).
>
> Recommendation: Consider changing the Energy Saver Kit order form to engage customers more directly on the number of items requested. The form automatically includes the maximum number of items allowed, which customers may then reduce if they desire. It may be that customers are not thinking about that choice. The following types of changes to the form may engage customers in thinking through their options: 1) adding photographs of measures and creating a more intuitive "shopping cart" interface similar to those of popular online stores; 2) changing from an opt-out to an opt-in order form to encourage customers to be more intentional about which items they request; and 3) including information about how to install the items, so customers can see what is involved.

Conclusion – Several Energy Saver Kit recipients reported that the kit influenced them to explore additional energy saving actions in their homes. Customers reported a variety of actions, with the most prominent being the purchase of additional LED bulbs after receiving their kit (nearly a third (29%) of respondents reported this action).

CORE OBJECTIVE 4 – CONDUCT STRATEGIC PORTFOLIO REVIEW

Existing Homes program staff articulated a key challenge facing the program – the loss of many measures from the portfolio due to cost-effectiveness declines in recent years, and the need for the program to "adapt quickly" in order to continue delivering savings and providing value to customers. Given this input, ILLUME conducted a strategic review of the Existing Homes measure portfolio to identify strengths, weaknesses and opportunities.

Conclusion - Given current economic conditions and regulatory constraints, Existing Homes has seen a reduction in the number of cost-effective measures available to its portfolio, highlighting a need for new mechanisms to drive additional program participation. The evolving market, which has resulted in increased

installation costs for some measures, as well as a reduction in avoided costs due to reductions in fuel prices, has resulted in decreased savings and cost-effectiveness, which limits measure offerings, particularly given Oregon's cost-effectiveness requirements. Energy Trust continues to identify opportunities to optimize process efficiencies, reduce program costs and increase participation (thereby maintaining cost-effectiveness); however, program staff and utilities expressed it is becoming increasingly difficult to do so.

> Recommendation – With the availability of cash incentives reduced, additional program and marketing approaches may need to be considered. Two specific tools we recommend exploring are 1) Low-interest financing, which becomes more attractive to customers as incentives become less available, and can be a valuable option for helping trade allies close sales of energy-efficient equipment; and 2) Employing sophisticated propensity modeling that goes beyond targeted marketing to more efficiently reach those customers most likely to take action.

MEMO

Date: January 26, 2017
To: Board of Directors
From: Marshall Johnson, Residential Sr. Program Manager
Sarah Castor, Evaluation Sr. Project Manager
Subject: Staff Response to the Existing Homes Process Evaluation

Since the last process evaluation was completed in early 2014, the Existing Homes program and Washington New Homes and Products programs have evolved their strategies and offerings in response to changes in the residential market. This evolution has taken the form of changes in incentive levels and measure offerings for residential customers, midstream market engagements, an increase in support for trade allies, and changes to program processes to increase efficiency and decrease delivery costs. The evaluation revealed that the challenges faced by Energy Trust in the residential sector with respect to cost-effectiveness and changes to the measure portfolio are also being faced and addressed, in various ways, by utilities and programs across the country. In 2017, the residential sector programs – Existing Homes, New Homes and Products – will prepare to adapt their structure to reduce costs, streamline delivery and create flexibility to align with future savings potential.

The evaluation findings indicate opportunity to improve our communications with NW Natural and Cascade Natural Gas, to provide more complete information about marketing efforts and their results, as well as what the program sees as opportunities for new gas-saving measures. The quality of relationships with our funding utilities is important, and Energy Trust has already begun to address these communication gaps, for both the residential and commercial sectors.

The results of the survey of Energy Saver Kit (ESK) recipients revealed that some customers may not recognize the opportunity in the current order form to select the specific products desired and decline lighting or water measures not needed. This may be reducing the installation rates, particularly for water measures. The program plans to change the webform in 2017 to improve customer ability to select items they want from a list of applicable measures, rather than being offered all applicable measures and then needing to opt out of ones they do not want. Energy Trust plans to do more research into customer practices around ESK ordering and measure installation after changes to the webform are complete, to determine if installation rates increase as a result.

The evaluation also documented an evolution in the approach to trade ally and distributor engagements. The corresponding recommendations indicated opportunity to further tailor outreach activities based upon individual trade ally needs, which maps well to the current account management approach. The program is working to expand upon tools which highlight trade ally performance, and continue to target trade allies for

outreach based on a combination of contractor requests, quality inspection results, and activity trends. Distributor engagements may be able to simplify paperwork requirements and program influence for water heaters, but the program needs to be able to verify that installations meet all the qualifications for an incentive. The program will continue to explore strategies to improve savings achievement through a combination of trade ally and distributor activities.

Tab 4

Board Decision

Cascade Natural Gas Funding Temporary Adjustment Using Contingency Reserves Account Organization Pool

February 22, 2017

Summary

Ratification of use of Energy Trust contingency reserves account organization contingency pool to provide for a shortfall in revenue for Cascade Natural Gas (CNG).

Background

- In 2013, Energy Trust's board of directors approved a revision to its Using Reserve Accounts Policy to establish two distinct reserve accounts, the Contingency Reserves Account and the Efficiency Program Reserves Account. The Contingency Reserves Account is divided into two pools, an emergency contingency pool and an organization contingency pool.

- The 2013 Using Reserve Accounts Policy revision also requires, among other things, Energy Trust staff to obtain prior board approval before utilizing the Contingency Reserves Account organization contingency pool. Under the policy, the organization contingency pool may be used "to respond to unusual circumstances, such as a shortfall in program reserves . . . and other unanticipated organization needs consistent with our mission."

- Beginning in 2006, CNG agreed to collect a specified public purpose charge from its ratepayers as part of a decoupling mechanism approved by the Oregon Public Utility Commission (OPUC), and entered into a contract with Energy Trust to provide energy efficiency programs.

- Energy Trust and CNG work together to determine annual budgets for funding and savings acquisition based on forecasted revenues and integrated resource planning. In fall of 2016, CNG and Energy Trust forecast that 2016 revenues would come in at less than budgeted.

- In November 2016, based on 2016 year-end revenue and savings forecast information reflecting lower than expected CNG revenues, a resolution was presented to and approved by the Energy Trust board of directors authorizing a transfer of up to $200,000 from the Energy Trust Contingency Reserves Account organization contingency pool to the CNG operations account.

- Actual CNG collected revenues for 2016 was $1.69 million, $206,000 lower than the forecast. Actual expenses were also lower than forecast by $61,000, creating a shortfall of $145,000 higher than the predicted shortfall of approximately $190,000. As a result actual year-end 2016 shortfall was $335,865 in the CNG operations account.

- Staff has transferred $335,865 from the Contingency Reserves Account organization contingency pool to the CNG operations account effective December 31, 2016.

This transfer consisted of $200,000 authorized by the board in November 2016, and an additional $135,865 transferred as a result of even lower than originally forecast CNG revenues.

- Energy Trust's board of directors Finance Committee met on February 13, 2017, to discuss the CNG transfer and recommended that the board ratify the amount of the transfer not previously approved. In addition, the Finance Committee recommended that the board of directors direct the Policy Committee to review the Using Reserves Policy to provide conditions for the ratification of transfers in circumstances where prior board action is not practicable.

Discussion

- Based on year-end actual results, an additional $135,865 was needed to replenish CNG operations accounts. Energy Trust transferred $335,865 from the organization contingency pool of the Contingency Reserves Account to cover temporarily the shortfall. The Energy Trust organization contingency pool has sufficient funds to cover temporarily the total CNG shortfall.

- Transfer of organization contingency pool funds prior to board authorization is inconsistent with Energy Trust's board adopted Using Reserve Accounts Policy which requires board action before such a transfer.

- In November 2016, Energy Trust's board of directors acted to authorize up to $200,000 be transferred temporarily from the Contingency Reserves Account organization contingency pool, but an additional $135,865 was transferred to cover the full amount of the CNG shortfall at the end of 2016.

- Energy Trust and CNG will work together to review revenue projections for 2017, and CNG has indicated that it will replenish the full amount transferred from the organization pool account by December 31, 2017, accomplished either through tariff adjustments, revenues, or some combination.

- Energy Trust's board of directors Finance Committee recommends that the full board of directors (1) ratify the transfer of $135,865 from the organization contingency pool to the CNG operations account; and (2) direct the Policy Committee review the Using Reserves Policy to provide conditions for the ratification of transfers in circumstances where prior board action is not practicable.

Recommendations

1. Ratify the transfer of up to an additional $135,865 from the Energy Trust Contingency Reserves Account organization contingency pool to the CNG operations account to be used for program implementation in 2016, with the understanding that CNG will fully replenish the organization pool no later than December 31, 2017.

2. Direct the Policy Committee to review the Using Reserve Accounts Policy and recommend changes to the Using Reserve Accounts Policy such that transfers from the Contingency Reserves Account organization contingency pool may be affected prior to board action under specified conditions and with ratification at the next regularly scheduled board meeting.

RESOLUTION 795
CASCADE NATURAL GAS FUNDING TEMPORARY ADJUSTMENT USING CONTINGENCY RESERVES ACCOUNT ORGANIZATION POOL

WHEREAS:

1. **Actual CNG 2016 revenues were $1.69 million, $206,000 lower than 4th quarter forecasts.**
2. **In November 2016, based on revenue and expense forecasts available at that time, Energy Trust's board of directors approved a transfer of up to $200,000 from the Contingency Reserve organization contingency pool to continue program implementation in 2016 and for program reserve replenishment.**
3. **Preliminary results indicate that Energy Trust achieved 111% of its goal in CNG territory in 2016. While actual expenses to achieve these results were less than forecast, actual revenues for 2016 were also less than projected, and Energy Trust transferred $335,865 from the organization contingency pool to cover the revenue shortfall, $135,865 more than authorized by board action in November 2016.**
4. **Energy Trust's Using Reserve Accounts Policy requires that the board acts prior to a transfer from the organization contingency pool, but because of the timing of the discovery of the full shortfall, prior board action could not be obtained if the shortfall was to be covered for year-end financial statements.**
5. **Energy Trust now requests that the board of directors ratify the temporary transfer of $135,865 from the Contingency Reserve organization contingency pool to the CNG operating account for 2016 CNG program implementation.**
6. **Energy Trust's Contingency Reserves Account organization pool of approximately $4.6 million is adequate to temporarily fund the shortfall.**
7. **CNG has committed to repay fully any amount taken on its behalf from the Energy Trust organization pool not later than December 31, 2017.**
8. **Energy Trust's Using Reserve Accounts Policy requires prior board approval before utilizing the Contingency Reserves Account organization contingency pool. Given timing between board meetings, Energy Trust's transfer of $135,865 to cover actual year-end shortfall was not the result of prior board action. Such transfer was not, therefore, in compliance with board policy. To address this situation in the future, the board of directors Policy Committee shall review the Using Reserve Accounts Policy in 2017 and shall recommend changes to the Using Reserve Accounts Policy. Such changes shall include specified conditions and provisions, including board ratification, for transfers from the organization contingency pool if prior board action is not practicable.**

It is therefore RESOLVED that:

1. **In November 2016, the board of directors authorized the Executive Director to transfer or up to $200,000 of Contingency Reserves Account organization contingency pool funds to the CNG operations account.**
2. **The Executive Director's transfer of an additional $135,865 of Contingency Reserves Account organization contingency pool funds to the CNG operations account is hereby ratified.**
3. **This transfer is authorized with:**
   a. **The express understanding that CNG will repay fully the funds transfer not later than December 31, 2017, and**
   b. **Direction to the Policy Committee to review the Using Reserve Accounts Policy and recommend changes to the Using Reserve Accounts Policy such that transfers from the Contingency Reserves Account organization contingency pool may be affected prior to board action under specified conditions and provisions including board ratification at the next regularly scheduled board or directors meeting.**

Moved by:

Vote:	In favor:	Seconded by:
	Opposed:	Abstained:

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Finance Committee Meeting Notes

February 13, 2017

Attendance

Board members: Debbie Kitchin (phone), Susan Brodahl (phone), Anne Root (phone)
Staff present: Michael Colgrove (phone), Mariet Steenkamp, Debbie Menashe

1. **Cascade Natural Gas (CNG) financial results**

   The 2016 Reforecast anticipated revenue for CNG of $1,894,000 for 2016 with expenses of $2,315,000. Actual revenue for 2016 was $1,688,000; $206,000 lower than forecasted and expenses $61,000 than forecasted. This resulted in a shortfall of $145,000 in excess of the forecasted shortfall of $190,000. The Board approved a resolution at the November 2016 meeting to authorize a transfer of up to $200,000. Management presented 3 options and recommended an option to ratify a transfer of $135,865 at December 31, 2016. The committee discussed the different options and accepted the recommendation and recommended the review of the Using Reserve Accounts Policy to allow for the approval of certain exceptions after the fact.

2. **Interim financial results for 2016**

   Staff gave an overview of the financial results for 2016 that show a deficit of $34,359,373, with a variance of $33,975 or 0.01% to budget.

   A warmer November negatively impacted the revenue received in December with revenue for the year $3,340,057 or 2.2% below budget. Total expenses of $185,685,617 was also lower than budget by $3,374,033 or 1.8%. Incentive spending of $110,276,518 was $2,139,894 higher than budgeted with positive variances in program subcontracts, salaries and professional services.

The next meeting will be May 4th from 3:00 – 4:30pm

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Notes on December 2016 Financial Statements

February 2, 2017

Revenue

Revenues ended up below budget, due in part to warmer weather in November (which was reflected in lower payments received in December). We did receive additional payments from NWN DSM and NWN Washington in December.

	YTD Actual	YTD Budget	YTD Var	YTD %	PY
PGE	77,246,163	79,185,651	(1,939,488)	-2.4%	79,088,817
PAC	53,149,641	53,566,583	(416,942)	-0.8%	48,093,051
NWN	18,551,534	19,496,178	(944,644)	-4.8%	17,367,078
CNG	1,687,981	2,114,889	(426,908)	-20.2%	1,294,913
Avista	156,000		156,000		
Investment Income	531,924	300,000	231,924	77.3%	551,531
Total	151,323,242	154,663,301	(3,340,057)	-2.2%	146,395,389

Reserves

Reserves decreased in December as planned. We succeeded in reducing our reserves by slightly more than 50% from last year's levels.

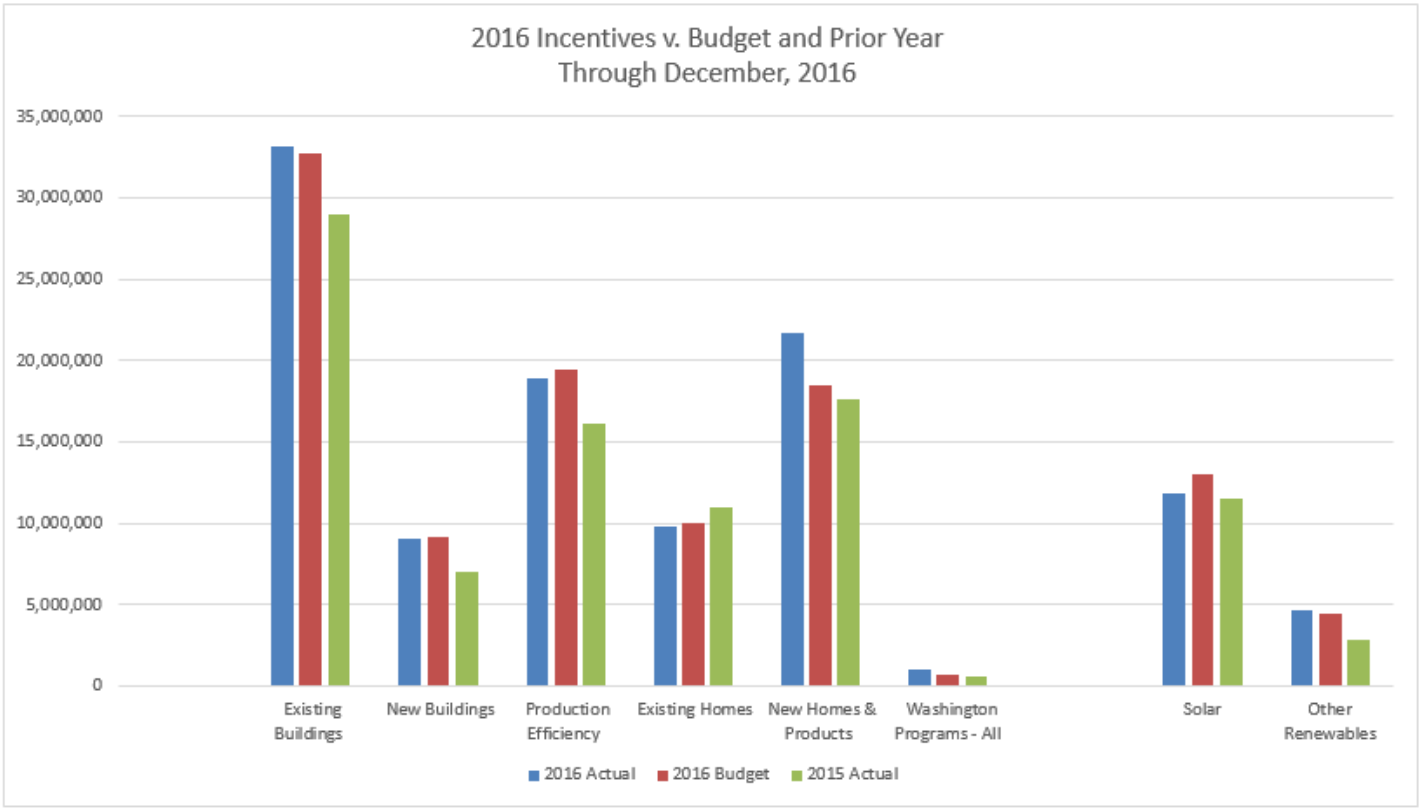
Reserves

	12/31/16 Amount	Actual 12/31/15 Amount	YTD % Change
PGE	6,507,279	23,006,282	-72%
PacifiCorp	644,839	7,481,735	-91%
NW Natural	1,485,656	6,430,002	-77%
Cascade	0	229,935	-100%
Avista	68,620	0	
NWN Industrial	1,028,150	1,032,752	0%
NWN Washington	283,171	257,872	10%
PGE Renewables	7,543,333	10,144,624	-26%
PAC Renewables	7,376,941	10,910,203	-32%
Program Reserves	24,937,989	59,493,405	-58%
Contingency Reserve	5,000,000	5,000,000	0%
Contingency Available	3,935,314	3,739,885	5%
Total	33,873,295	68,233,284	-50%

Expenses

Total expenses for December were $ 37 million, $1.4 million below budget. Incentives were only $0.3 million below budget for the month. Most of the variance was due to unearned performance compensation. Expenses for the year were within 2% of budget, which is closer than we have ever come before.

Year to date incentives ended up being above budget by $2.1 million (2%). We have spent $14.5 million more (15%) on incentives than we did at this time last year.



Total Incentives
Year-to-Date 2016

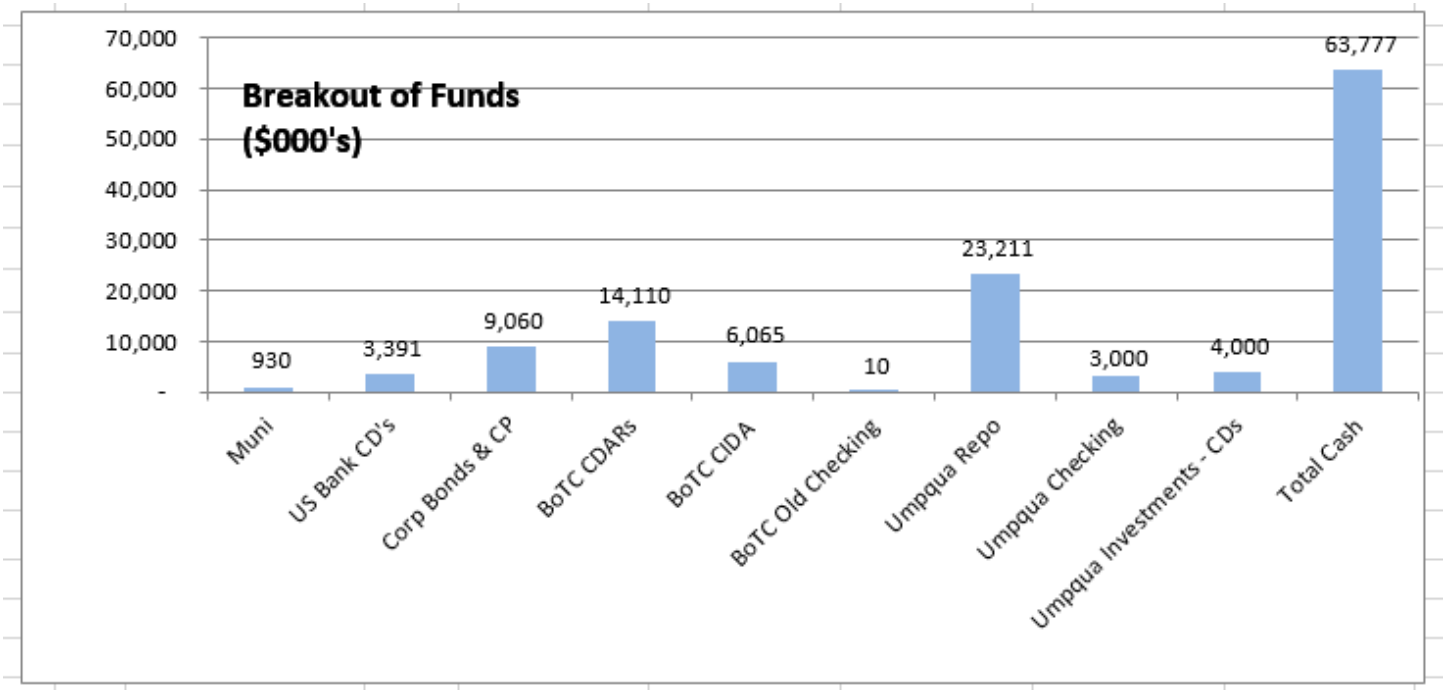
Incentives thru December 2016	Actual	Budget	Variance	Var %
Existing Buildings	33,193,191	32,758,309	(434,883)	-1%
New Buildings	9,098,122	9,143,625	45,503	0%
Production Efficiency	18,878,315	19,470,290	591,975	3%
Existing Homes	9,793,958	10,008,058	214,100	2%
New Homes & Products	21,740,373	18,509,877	(3,230,496)	-17%
Washington Programs - All	1,032,126	728,469	(303,657)	-42%
Solar	11,860,041	13,043,909	1,183,868	9%
Other Renewables	4,680,392	4,474,087	(206,305)	-5%
Total Incentives	110,276,518	108,136,624	(2,139,894)	-2%
Energy Efficiency Only	**93,736,085**	**90,618,628**	**(3,117,457)**	**-3%**

Total Incentives
Year-to-Year Comparison

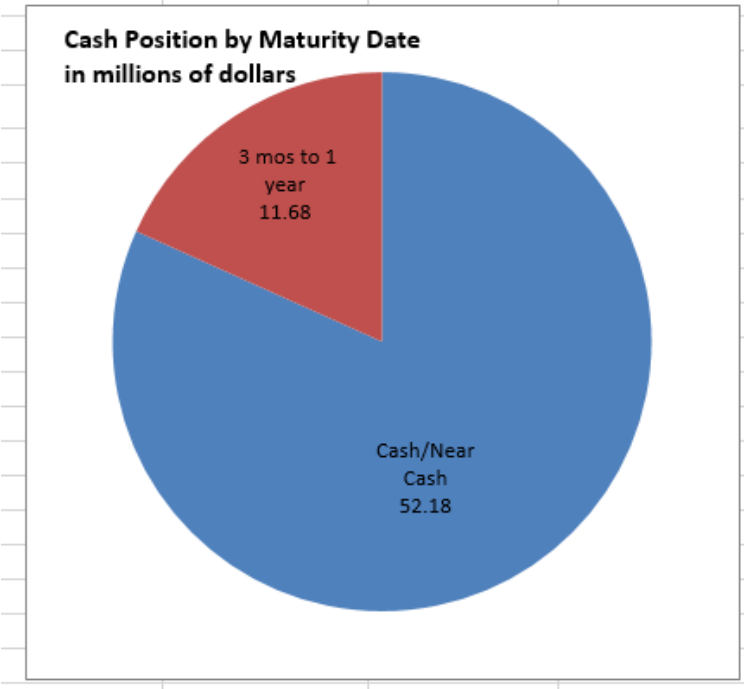
December 2016 vs. December 2015	Current Year	Prior Year	Variance	Var %
Existing Buildings	33,193,191	29,007,467	(4,185,724)	-14%
New Buildings	9,098,122	7,006,588	(2,091,534)	-30%
Production Efficiency	18,878,315	16,104,745	(2,773,569)	-17%
Existing Homes	9,793,958	10,972,946	1,178,988	11%
New Homes & Products	21,740,373	17,660,080	(4,080,293)	-23%
Washington Programs - All	1,032,126	633,612	(398,514)	-63%
Solar	11,860,041	11,549,720	(310,321)	-3%
Other Renewables	4,680,392	2,854,313	(1,826,080)	-64%
Total Incentives	110,276,518	95,789,471	(14,487,051)	-15%
Energy Efficiency Only	**93,736,085**	**81,385,438**	**(12,350,647)**	-15%

Investment Status

The graphs below show the type of investments we hold and the locations where our funds are held at the end of the year. We are well positioned to meet the January cash demands from year end incentive payments.



Average Days to Maturity:	33
Average Portfolio Yield:	0.45%



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Energy Trust of Oregon
BALANCE SHEET
December 31, 2016
(Unaudited)

	December 2016	November 2016	December 2015	Change from one month ago	Change from one year ago
Current Assets					
Cash & Cash Equivalents	44,471,035	37,584,349	27,186,505	6,886,685	17,284,529
Investments	19,350,134	28,885,645	63,884,187	(9,535,511)	(44,534,052)
Receivables	86,058	121,741	374,615	(35,683)	(288,557)
Prepaid Expenses	216,972	309,354	479,349	(92,383)	(262,378)
Advances to Vendors	2,050,126	747,682	2,049,018	1,302,444	1,108
Total Current Assets	**66,174,324**	**67,648,772**	**93,973,675**	**(1,474,447)**	**(27,799,350)**
Fixed Assets					
Computer Hardware and Software	3,696,232	3,696,232	3,509,829	-	186,403
Software Development in Progress	0	0	150,148	-	(150,148)
Leasehold Improvements	318,964	318,964	318,964	-	-
Office Equipment and Furniture	716,876	701,604	701,604	15,271.68	15,271.68
Total Fixed Assets	**4,732,072**	**4,716,800**	**4,680,545**	**15,271.68**	**51,526.76**
Less Depreciation	(3,598,867)	(3,527,790)	(2,672,098)	(71,077)	(926,769)
Net Fixed Assets	**1,133,205**	**1,189,010**	**2,008,447**	**(55,806)**	**(875,243)**
Other Assets					
Deposits	223,339	223,339	132,340	-	90,999
Deferred Compensation Asset	849,522	799,737	724,981	49,785	124,541
Note Receivable, net of allowance	260,891	288,909	85,609	(28,018.38)	175,282
Total Other Assets	**1,333,752**	**1,311,985**	**942,930**	**21,767**	**390,822**
Total Assets	**68,641,281**	**70,149,767**	**96,925,052**	**(1,508,486)**	**(28,283,771)**
Current Liabilities					
Accounts Payable and Accruals	32,525,398	9,768,396	26,910,003	22,757,002	5,615,395
Salaries, Taxes, & Benefits Payable	827,526	839,469	735,510	(11,943)	92,016
Total Current Liabilities	**33,352,924**	**10,607,865**	**27,645,513**	**22,745,059**	**5,707,411**
Long Term Liabilities					
Deferred Rent	559,253	545,262	314,472	13,992	244,781
Deferred Compensation Payable	853,072	802,537	727,781	50,535	125,291
Other Long-Term Liabilities	2,110	2,110	3,990	-	(1,880)
Total Long-Term Liabilities	**1,414,435**	**1,349,909**	**1,046,243**	**64,527**	**368,193**
Total Liabilities	**34,767,359**	**11,957,774**	**28,691,756**	**22,809,585**	**6,075,603**
Net Assets					
Unrestricted Net Assets	33,873,922	58,191,993	68,233,296	(24,318,072)	(34,359,374)
Total Net Assets	**33,873,922**	**58,191,993**	**68,233,296**	**(24,318,072)**	**(34,359,374)**
Total Liabilities and Net Assets	**68,641,281**	**70,149,767**	**96,925,052**	**(1,508,486)**	**(28,283,771)**

Energy Trust of Oregon
Cash Flow Statement-Indirect Method
Monthly 2016

	January	February	March	April	May	June	July	August	September	October	November	December	Year to Date
Operating Activities:													
Revenue less Expenses	8,446,762	6,323,151	300,614	(342,524)	(1,950,876)	(9,444,407)	699,656	(3,405,143)	(5,761,657)	(1,751,794)	(3,155,085)	(24,318,070)	$ (34,359,373)
Non-cash items:													
Depreciation	76,179	75,997	76,143	80,055	79,660	79,660	79,660	79,660	79,407	78,741	70,530	71,077	$ 926,769
Change in Reserve on Long Term Note	-	-	-	-	-	-		-	-	-	-	-	-
Loss on disposal of assets													-
Receivables	(0)	18,000	(9,000)	-	12,191	7,230	3,579	(2,008)	31,710	2,000	3,000	(9)	66,693
Interest Receivable	14,398	(18,742)	103,825	(31,503)	(33,151)	107,300	16,499	21,540	5,555	(1,968)	2,419	35,692	221,864
Advances to Vendors	626,135	626,136	(1,232,162)	644,727	676,296	(1,357,111)	620,573	688,325	(1,285,970)	613,704	680,683	(1,302,444)	(1,108)
Prepaid expenses and other costs	47,275	(241,163)	56,960	88,757	(60,342)	126,395	(79,437)	102,180	(13,115)	42,947	99,538	92,382	262,377
Accounts payable	(17,410,869)	(2,320,614)	303,039	1,936,464	(921,656)	5,642,030	(5,259,156)	(246,235)	674,449	204,210	255,115	22,757,001	5,613,778
Payroll and related accruals	54,950	24,319	119,657	(42,788)	26,784	26,125	(39,666)	(155)	(9,604)	(4,509)	25,210	(6,283)	174,040
Deferred rent and other	(15,317)	(20,616)	(98,216)	(10,318)	63,094	65,393	35,253	10,211	(186,990)	4,342	13,019	37,100	(103,045)
Cash rec'd from / (used in) Operating Activities	(8,160,486)	4,466,467	(379,140)	2,322,869	(2,107,999)	(4,747,385)	(3,923,039)	(2,751,625)	(6,466,215)	(812,327)	(2,005,571)	(2,633,554)	(27,198,005)
Investing Activities:													
Investment Activity (1)	3,750,021	45,768	4,263,600	(1,479,036)	2,021,989	3,578,771	2,010,266	765,751	5,018,964	10,521,335	4,501,113	9,535,511	44,534,053
(Acquisition)/Disposal of Capital Assets	(166)	-	(691)	(370)	(9,931)				-		(25,097)	(15,272)	(51,526)
Cash rec'd from / (used in) Investing Activities	3,749,855	45,768	4,262,909	(1,479,406)	2,012,058	3,578,771	2,010,266	765,751	5,018,964	10,521,335	4,476,016	9,520,240	$ 44,482,527
Cash at beginning of Period	27,186,505	22,775,874	27,288,109	31,171,878	32,015,382	31,919,401	30,750,789	28,838,017	26,852,144	25,404,894	35,113,903	37,584,349	27,186,505
Increase/(Decrease) in Cash	(4,410,631)	4,512,235	3,883,769	843,504	(95,981)	(1,168,614)	(1,912,773)	(1,985,874)	(1,447,251)	9,709,008	2,470,445	6,886,686	17,284,522
Cash at end of period	$ 22,775,874	$ 27,288,109	$ 31,171,878	$ 32,015,382	$ 31,919,401	$ 30,750,789	$ 28,838,017	$ 26,852,144	$ 25,404,894	$ 35,113,903	$ 37,584,349	$ 44,471,035	$ 44,471,035

(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 2016 - December 2017

	Actual											
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	14,818,951	15,914,519	13,829,079	13,092,884	10,950,974	10,292,719	11,760,638	11,451,085	12,300,458	12,884,839	10,825,024	12,670,150
Investment Income	110,687	28,809	180,066	11,289	24,534	136,120	58,610	45,180	43,182	32,243	26,726	56,342
From Other Sources		18,000			12,191	7,230	3,579	(2,008)	31,710	2,000	3,000	(9)
Total cash in	18,679,659	16,007,096	18,272,745	13,104,173	13,009,688	10,436,069	13,833,093	12,260,008	17,394,314	23,440,417	10,854,750	12,726,483
Cash Out:	(23,090,291)	(11,494,861)	(14,388,972)	(10,781,678)	(13,105,625)	(15,183,447)	(15,745,862)	(14,245,878)	(18,841,562)	(13,731,405)	(12,885,413)	(15,375,306)
Net cash flow for the month	(4,410,631)	4,512,235	3,883,773	843,459	(95,981)	(4,747,378)	(1,912,769)	(1,985,870)	(1,447,248)	9,709,011	(2,030,663)	(2,648,823)
Cash Flow from/to Investments											4,501,113	9,535,511
Beginning Balance: Cash & MM	27,186,505	22,775,874	27,288,109	31,171,882	32,015,382	31,919,401	30,750,789	28,838,017	26,852,144	25,404,894	35,113,903	37,584,349
Ending cash & MM	**22,775,874**	**27,288,109**	**31,171,882**	**32,015,382**	**31,919,401**	**27,172,018**	**28,838,017**	**26,852,144**	**25,404,894**	**35,113,903**	**37,584,349**	**44,471,035**
Future Commitments												
Renewable Incentives	15,000,000	16,800,000	14,900,000	13,400,000	12,300,000	12,000,000	12,000,000	11,300,000	13,700,000	12,900,000	13,400,000	7,500,000
Efficiency Incentives	67,200,000	65,600,000	70,700,000	65,900,000	59,200,000	54,800,000	77,100,000	77,100,000	78,600,000	70,000,000	68,400,000	68,300,000
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	87,200,000	87,400,000	90,600,000	84,300,000	76,500,000	71,800,000	94,100,000	93,400,000	97,300,000	87,900,000	86,800,000	80,800,000

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

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

Energy Trust of Oregon
Cash Flow Projection
January 2016 - December 2017

	2017 Projected Amounts											
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Cash In:												
Public purpose and Incr funding	18,600,000	22,100,000	16,300,000	15,100,000	13,600,000	12,700,000	15,800,000	14,100,000	14,300,000	17,800,000	14,500,000	17,700,000
Investment Income	30,000	30,000	30,000	20,000	20,000	20,000	10,000	10,000	10,000	10,000	10,000	10,000
From Other Sources												
Total cash in	18,630,000	22,130,000	16,330,000	15,120,000	13,620,000	12,720,000	15,810,000	14,110,000	14,310,000	17,810,000	14,510,000	17,710,000
Cash Out:	(30,100,000)	(10,600,000)	(13,100,000)	(13,300,000)	(13,700,000)	(17,700,000)	(14,200,000)	(13,200,000)	(16,200,000)	(15,400,000)	(16,400,000)	(19,100,000)
Net cash flow for the month	(11,470,000)	11,530,000	3,230,000	1,820,000	(80,000)	(4,980,000)	1,610,000	910,000	(1,890,000)	2,410,000	(1,890,000)	(1,390,000)
Cash Flow from/to Investments	-	-	-	-	-	-	-	-	-	-	-	-
Beginning Balance: Cash & MM	44,471,000	33,001,000	44,531,000	47,761,000	49,581,000	49,501,000	44,521,000	46,131,000	47,041,000	45,151,000	47,561,000	45,671,000
Ending cash & MM	**33,001,000**	**44,531,000**	**47,761,000**	**49,581,000**	**49,501,000**	**44,521,000**	**46,131,000**	**47,041,000**	**45,151,000**	**47,561,000**	**45,671,000**	**44,281,000**
Future Commitments												
Renewable Incentives	6,700,000	5,800,000	5,400,000	5,100,000	4,900,000	4,900,000	4,700,000	4,700,000	4,700,000	4,600,000	4,600,000	4,600,000
Efficiency Incentives	69,500,000	69,100,000	63,700,000	70,900,000	71,300,000	68,500,000	68,700,000	84,900,000	84,900,000	84,900,000	84,900,000	84,900,000
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	81,200,000	79,900,000	74,100,000	81,000,000	81,200,000	78,400,000	78,400,000	94,600,000	94,600,000	94,500,000	94,500,000	94,500,000

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

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

Energy Trust of Oregon
Income Statement - Actual and Budget Comparison
For the Twelve Months Ending December 31, 2016
(Unaudited)

	December				YTD			
	Actual	**Budget**	**Budget Variance**	**Variance %**	**Actual**	**Budget**	**Budget Variance**	**Variance %**
REVENUES								
Public Purpose Funds-PGE	2,832,677	2,882,271	(49,594)	-2%	36,233,250	36,660,651	(427,401)	-1%
Public Purpose Funds-PacifiCorp	2,235,054	2,722,584	(487,531)	-18%	27,593,801	27,664,181	(70,380)	0%
Public Purpose Funds-NW Natural	977,086	1,337,584	(360,498)	-27%	13,086,802	14,539,218	(1,452,416)	-10%
Public Purpose Funds-Cascade	233,314	350,872	(117,559)	-34%	1,687,981	2,114,889	(426,908)	-20%
Public Purpose Funds-Avista	15,600		15,600		156,000		156,000	
Total Public Purpose Funds	**6,293,730**	**7,293,311**	**(999,581)**	**-14%**	**78,757,834**	**80,978,939**	**(2,221,105)**	**-3%**
Incremental Funds - PGE	3,116,407	4,143,522	(1,027,115)	-25%	41,012,913	42,525,000	(1,512,087)	-4%
Incremental Funds - PacifiCorp	2,360,012	2,515,674	(155,662)	-6%	25,555,840	25,902,402	(346,562)	-1%
NW Natural - Industrial DSM	500,000		500,000		3,527,053	3,215,724	311,329	10%
NW Natural - Washington	400,000		400,000		1,937,679	1,741,236	196,443	11%
Revenue from Investments	20,650	25,000	(4,350)	-17%	531,924	300,000	231,924	77%
TOTAL REVENUE	**12,690,800**	**13,977,507**	**(1,286,708)**	**-9%**	**151,323,244**	**154,663,301**	**(3,340,057)**	**-2%**
EXPENSES								
Program Subcontracts	4,321,966	5,320,615	998,649	19%	53,080,565	56,275,209	3,194,644	6%
Incentives	30,783,359	31,065,674	282,315	1%	110,276,518	108,136,624	(2,139,894)	-2%
Salaries and Related Expenses	971,857	1,112,032	140,175	13%	12,076,244	12,870,778	794,534	6%
Professional Services	642,963	650,345	7,382	1%	7,251,929	8,419,415	1,167,486	14%
Supplies	5,154	3,871	(1,283)	-33%	32,612	46,450	13,838	30%
Telephone	4,819	6,267	1,447	23%	60,785	75,200	14,415	19%
Postage and Shipping Expenses	964	1,375	411	30%	10,488	16,500	6,012	36%
Occupancy Expenses	78,886	64,278	(14,608)	-23%	807,654	771,332	(36,322)	-5%
Noncapitalized Equip. & Depr.	91,553	113,081	21,528	19%	1,223,298	1,413,163	189,865	13%
Call Center	12,092	15,617	3,525	23%	157,483	187,400	29,917	16%
Printing and Publications	1,601	8,208	6,608	81%	10,109	98,500	88,391	90%
Travel	8,679	21,678	12,998	60%	189,481	211,800	22,319	11%
Conference, Training & Mtng Exp	19,666	28,802	9,136	32%	158,207	287,640	129,433	45%
Interest Expense and Bank Fees	46.39	708	662	93%	1,668	4,000	2,332	58%
Insurance	8,607	9,167	559	6%	102,176	110,000	7,824	7%
Miscellaneous Expenses	44,772	229	(44,543)	-19440%	130,672	2,750	(127,922)	-4652%
Dues, Licenses and Fees	11,888	13,109	1,221	9%	112,729	129,890	17,161	13%
TOTAL EXPENSES	**37,008,872**	**38,435,055**	**1,426,183**	**4%**	**185,682,617**	**189,056,650**	**3,374,033**	**2%**
TOTAL REVENUE LESS EXPENSES	**(24,318,072)**	**(24,457,548)**	**139,476**	**1%**	**(34,359,373)**	**(34,393,348)**	**33,975**	**0%**

Energy Trust of Oregon
Income Statement - Actual and Prior Year Comparison
For the Twelve Months Ending December 31, 2016
(Unaudited)

	December				YTD			
	Actual	Actual Prior Year	Prior Year Variance	Variance %	Actual	Actual Prior Year	Prior Year Variance	Variance %
REVENUES								
Public Purpose Funds-PGE	2,832,677	2,933,669	(100,992)	-3%	36,233,250	37,035,349	(802,099)	-2%
Public Purpose Funds-PacifiCorp	2,235,054	2,159,531	75,523	3%	27,593,801	27,089,268	504,533	2%
Public Purpose Funds-NW Natural	977,086	908,037	69,049	8%	13,086,802	12,853,131	233,671	2%
Public Purpose Funds-Cascade	233,314	181,402	51,912	29%	1,687,981	1,294,913	393,068	30%
Public Purpose Funds-Avista	15,600		15,600		156,000		156,000	
Total Public Purpose Funds	**6,293,730**	**6,182,639**	**111,091**	**2%**	**78,757,834**	**78,272,661**	**485,173**	**1%**
Incremental Funds - PGE	3,116,407	3,233,873	(117,466)	-4%	41,012,913	42,053,468	(1,040,555)	-2%
Incremental Funds - PacifiCorp	2,360,012	1,488,941	871,072	59%	25,555,840	21,003,782	4,552,058	22%
NW Natural - Industrial DSM	500,000		500,000		3,527,053	3,078,432	448,621	15%
NW Natural - Washington	400,000		400,000		1,937,679	1,435,515	502,164	35%
Contributions			0			1,550	(1,550)	-100%
Revenue from Investments	20,650	(21,149)	41,799	-198%	531,924	551,531	(19,607)	-4%
TOTAL REVENUE	**12,690,800**	**10,884,304**	**1,806,495**	**17%**	**151,323,244**	**146,396,939**	**4,926,304**	**3%**
EXPENSES								
Program Subcontracts	4,321,966	3,494,268	(827,698)	-24%	53,080,565	49,870,954	(3,209,612)	-6%
Incentives	30,783,359	28,578,220	(2,205,138)	-8%	110,276,518	95,789,471	(14,487,047)	-15%
Salaries and Related Expenses	971,857	901,104	(70,753)	-8%	12,076,244	10,728,978	(1,347,266)	-13%
Professional Services	642,963	464,250	(178,712)	-38%	7,251,929	6,291,065	(960,863)	-15%
Supplies	5,154	2,778	(2,376)	-86%	32,612	33,206	593	2%
Telephone	4,819	5,058	238	5%	60,785	58,711	(2,074)	-4%
Postage and Shipping Expenses	964	1,726	762	44%	10,488	12,968	2,480	19%
Occupancy Expenses	78,886	54,868	(24,018)	-44%	807,654	645,480	(162,174)	-25%
Noncapitalized Equip. & Depr.	91,553	94,251	2,698	3%	1,223,298	1,189,237	(34,061)	-3%
Call Center	12,092	11,705	(387)	-3%	157,483	149,063	(8,420)	-6%
Printing and Publications	1,601	1,959	358	18%	10,109	57,057	46,948	82%
Travel	8,679	18,137	9,457	52%	189,481	154,662	(34,819)	-23%
Conference, Training & Mtng Exp	19,666	9,122	(10,544)	-116%	158,207	133,830	(24,376)	-18%
Interest Expense and Bank Fees	46.39	113	67.03		1,668	1,887	220	12%
Insurance	8,607	8,486	(121)	-1%	102,176	103,862	1,686	2%
Miscellaneous Expenses	44,772	18,614	(26,158)		130,672	51,697	(78,975)	
Dues, Licenses and Fees	11,888	12,401	513	4%	112,729	118,636	5,907	5%
TOTAL EXPENSES	**37,008,872**	**33,677,059**	**(3,331,812)**	**-10%**	**185,682,617**	**165,390,765**	**(20,291,853)**	**-12%**
TOTAL REVENUE LESS EXPENSES	**(24,318,072)**	**(22,792,755)**	**(1,525,317)**	**-7%**	**(34,359,374)**	**(18,993,826)**	**(15,365,549)**	**81%**

Energy Trust of Oregon
Statement of Functional Expenses
For the Twelve Months Ending December 31, 2016
(Unaudited)

	Energy Efficiency	Renewable Energy	Total Program Expenses	Management & General	Communications & Customer Service	Total Admin Expenses	Avista Development	Total	Budget	Variance	% Var
Program Expenses											
Incentives	93,736,085	16,540,433	110,276,518					110,276,518	108,136,624	$ (2,139,894)	-2%
Program Management & Delivery	52,639,975	438,645	53,078,620				1,945	53,080,565	56,275,209	$ 3,194,644	6%
Payroll and Related Expenses	3,400,679	1,043,010	4,443,689	2,348,327	1,353,842	3,702,170	26,686	8,172,544	8,649,661	477,117	6%
Outsourced Services	4,423,336	874,753	5,298,089	351,539	1,099,537	1,451,077		6,749,166	8,008,915	1,259,749	16%
Planning and Evaluation	2,332,331	77,526	2,409,857	1,723		1,723		2,411,580	2,529,611	118,031	5%
Customer Service Management	479,377	123,380	602,757					602,757	502,418	(100,339)	-20%
Trade Allies Network	270,932	18,440	289,371					289,371	358,410	69,039	19%
Total Program Expenses	**157,282,715**	**19,116,187**	**176,398,901**	**2,701,590**	**2,453,379**	**5,154,969**	**28,631**	**181,582,501**	**184,460,848**	**2,878,347**	**2%**
Program Support Costs											
Supplies	8,114	2,760	10,874	8,329	4,161	12,490		23,363	33,973	10,610	31%
Postage and Shipping Expenses	2,493	849	3,342	2,977	1,214	4,191		7,532	10,581	3,049	29%
Telephone	2,761	940	3,702	1,515	1,094	2,609		6,310	17,249	10,939	63%
Printing and Publications	2,656	102	2,758	6,561	118	6,679		9,437	94,778	85,341	90%
Occupancy Expenses	241,400	82,175	323,576	132,473	95,595	228,068		551,644	526,539	(25,105)	-5%
Insurance	30,540	10,396	40,936	16,759	12,094	28,853		69,788	75,090	5,302	7%
Equipment	5,436	79,312	84,748	2,983	2,153	5,136		89,884	140,721	50,837	36%
Travel	48,249	23,681	71,930	35,104	51,026	86,130		158,060	170,200	12,140	7%
Meetings, Trainings & Conferences	30,300	14,554	44,854	53,229	17,265	70,495		115,349	225,240	109,891	49%
Interest Expense and Bank Fees				1,668		1,668		1,668	4,000	2,332	58%
Depreciation & Amortization	47,221	16,074	63,295	25,913	18,700	44,613		107,908	107,058	(850)	-1%
Dues, Licenses and Fees	68,951	11,715	80,666	9,041	13,377	22,418		103,084	98,370	(4,714)	-5%
Miscellaneous Expenses	117,320	169	117,489	273	12,384	12,656		130,145	1,877	(128,268)	-6834%
IT Services	1,803,182	237,869	2,041,051	405,662	279,230	684,892		2,725,943	3,090,126	364,183	12%
Total Program Support Costs	**2,408,623**	**480,597**	**2,889,220**	**702,487**	**508,410**	**1,210,897**	**-**	**4,100,116**	**4,595,802**	**495,686**	**11%**
TOTAL EXPENSES	**159,691,338**	**19,596,783**	**179,288,121**	**3,404,078**	**2,961,789**	**6,365,865**	**28,631**	**185,682,617**	**189,056,650**	**3,374,033**	**2%**

OPUC Measure vs. 8%	**6.2%**
Program Support Costs	2,889,220
l Administrative Expenses + Avista Development	6,394,496
Total Support and Administrative	9,283,716
Divded By	
Total Utility Revenue (without Int Income)	150,791,320
OPUC %	**6.2%**

ENERGY TRUST OF OREGON
Year to Date by Program/Service Territory
For the Twelve Months Ending December 31, 2016
Unaudited

	ENERGY EFFICIENCY									
	PGE	PacifiCorp	Total	NWN Industrial	NW Natural	Cascade	Avista	Oregon Total	NWN WA	ETO Total
REVENUES										
Public Purpose Funding	28,127,435	21,541,576	49,669,011	-	13,086,802	1,687,981	84,000	64,527,794	-	64,527,794
Incremental Funding	41,012,913	25,555,840	66,568,753	3,527,053				70,095,806	1,937,679	72,033,485
Contributions										
Revenue from Investments										
TOTAL PROGRAM REVENUE	**69,140,348**	**47,097,416**	**116,237,764**	**3,527,053**	**13,086,802**	**1,687,981**	**84,000**	**134,623,600**	**1,937,679**	**136,561,279**
EXPENSES										
Program Management (Note 3)	2,928,032	1,879,162	4,807,195	118,962	592,643	70,827	2206	5,591,832	94,854	5,686,686
Program Delivery	24,231,254	15,605,551	39,836,805	652,691	4,668,590	664,217	12692	45,834,996	490,088	46,325,084
Incentives	48,646,363	30,079,100	78,725,465	2,477,784	10,194,485	1,269,816	36407	92,703,959	1,032,126	93,736,085
Program Eval & Planning Svcs.	2,319,511	1,496,621	3,816,131	79,499	431,116	51,268	1465	4,379,481	67,313	4,446,794
Program Marketing/Outreach	2,627,398	1,733,928	4,361,326	28,577	854,687	67,853	1894	5,314,338	44,863	5,359,201
Program Legal Services	0	0	0	0	0	0	0	0	0	0
Program Quality Assurance	30,305	15,570	45,874	0	11,580	1,125	57	58,637	0	58,637
Outsourced Services	429,130	262,085	691,216	13,734	190,912	11,906	452	908,219	11,700	919,919
Trade Allies & Cust. Svc. Mgmt.	339,937	231,305	571,243	5,921	136,433	10,363	449	724,409	25,901	750,310
IT Services	857,339	578,510	1,435,849	22,377	279,588	23,005	936	1,761,754	41,428	1,803,182
Other Program Expenses - all	293,608	203,135	496,741	11,014	52,849	6,122	178	566,907	38,533	605,440
TOTAL PROGRAM EXPENSES	**82,702,877**	**52,084,967**	**134,787,845**	**3,410,559**	**17,412,883**	**2,176,502**	**56,736**	**157,844,532**	**1,846,806**	**159,691,338**
ADMINISTRATIVE COSTS										
Management & General (Notes 1&2)	1,570,248	988,918	2,559,166	64,754	330,611	41,324	1,076	2,996,935	35,065	3,032,000
Communications & Customer Svc (Notes 1&2)	1,366,227	860,429	2,226,656	56,342	287,655	35,955	937	2,607,547	30,509	2,638,056
Total Administrative Costs	**2,936,475**	**1,849,347**	**4,785,822**	**121,096**	**618,266**	**77,279**	**2,013**	**5,604,482**	**65,574**	**5,670,056**
TOTAL PROG & ADMIN EXPENSES	**85,639,352**	**53,934,314**	**139,573,667**	**3,531,655**	**18,031,149**	**2,253,781**	**58,749**	**163,449,014**	**1,912,380**	**165,361,394**
TOTAL REVENUE LESS EXPENSES	**(16,499,004)**	**(6,836,898)**	**(23,335,903)**	**(4,602)**	**(4,944,347)**	**(565,800)**	**25,251**	**(28,825,414)**	**25,299**	**(28,800,115)**
NET ASSETS - RESERVES										
Cumulative Carryover at 12/31/15	23,006,283	7,481,737	30,488,020	1,032,752	6,430,003	229,935		38,180,711	257,872	38,438,582
Net Assets Reattributed at 12/31/16						335,865	43,369	379,234		379,234
Change in net assets this year	(16,499,004)	(6,836,898)	(23,335,903)	(4,602)	(4,944,347)	(565,800)	25,251	(28,825,414)	25,299	(28,800,115)
Ending Net Assets - Reserves	**6,507,279**	**644,839**	**7,152,117**	**1,028,150**	**1,485,656**	**-**	**68,620**	**9,734,531**	**283,171**	**10,017,701**
Ending Reserve by Category										
Program Reserves (Efficiency and Renewables)	6,507,279	644,839	7,152,117	1,028,150	1,485,656	0	68,620	9,734,531	283,171	10,017,701
Operational Contingency Pool										
Emergency Contingency Pool										
TOTAL NET ASSETS CUMULATIVE	6,507,279	644,839	7,152,117	1,028,150	1,485,656	0	68,620	9,734,531	283,171	10,017,701

ENERGY TRUST OF OREGON
Year to Date by Program/Service Territory
For the Twelve Months Ending December 31, 2016
Unaudited

	RENEWABLE ENERGY					TOTAL			
	PGE	PacifiCorp	Total	Avista Development	Other	All Programs	Approved budget	Change	% Change
REVENUES									
Public Purpose Funding	8,105,815	6,052,225	14,158,040	72,000	0	78,757,834	80,978,939	($2,221,105)	-3%
Incremental Funding						72,033,485	73,384,362	(1,350,877)	-2%
Contributions									
Revenue from Investments					531,924	531,924	300,000	231,924	77%
TOTAL PROGRAM REVENUE	**8,105,815**	**6,052,225**	**14,158,040**	**72,000**	**531,924**	**151,323,244**	**154,663,301**	**(3,340,057)**	**-2%**
EXPENSES									
Program Management (Note 3)	504,732	544,278	1,049,010	28,631		6,764,327	8,514,742	1,750,415	21%
Program Delivery	250,913	181,732	432,645			46,757,729	48,594,740	1,837,011	4%
Incentives	8,913,241	7,627,192	16,540,433			110,276,518	108,136,624	(2,139,894)	-2%
Program Eval & Planning Svcs.	78,677	68,935	147,613			4,594,407	4,957,306	362,899	7%
Program Marketing/Outreach	113,358	83,547	196,904			5,556,105	5,778,031	221,926	4%
Program Legal Services	4,153	2,732	6,885			6,885	0		
Program Quality Assurance	0	507	507			59,144	50,000	(9,144)	
Outsourced Services	148,154	452,216	600,370			1,520,289	2,155,415	635,126	29%
Trade Allies & Cust. Svc. Mgmt.	85,212	56,608	141,819			892,129	850,828	(41,301)	-5%
IT Services	116,571	121,298	237,869			2,041,051	2,370,535	329,484	14%
Other Program Expenses - all	124,962	117,766	242,728			848,168	880,213	32,045	4%
TOTAL PROGRAM EXPENSES	**10,339,973**	**9,256,811**	**19,596,783**	**28,631**	**-**	**179,316,752**	**182,288,434**	**2,971,682**	**2%**
ADMINISTRATIVE COSTS									
Management & General (Notes 1&2)	196,321	175,756	372,076	-		3,404,078	3,614,463	210,385	6%
Communications & Customer Svc (Notes 1&2)	170,813	152,920	323,733	-		2,961,789	3,153,753	191,964	6%
Total Administrative Costs	**367,134**	**328,676**	**695,809**	**-**		**6,365,865**	**6,768,216**	**402,351**	**6%**
TOTAL PROG & ADMIN EXPENSES	**10,707,107**	**9,585,487**	**20,292,592**	**28,631**	**-**	**185,682,617**	**189,056,650**	**3,374,033**	**2%**
TOTAL REVENUE LESS EXPENSES	**(2,601,292)**	**(3,533,262)**	**(6,134,552)**	**43,369**	**531,924**	**(34,359,373)**	**(34,393,348)**	**33,975**	**0%**
NET ASSETS - RESERVES									
Cumulative Carryover at 12/31/15	10,144,625	10,910,203	21,054,828		8,739,885	68,233,295	65,564,916	2,668,379	4%
Net Assets Reattributed at 12/31/16				(43,369)	(335,865)	0			
Change in net assets this year	(2,601,292)	(3,533,262)	(6,134,552)	43,369	531,924	(34,359,373)	(34,393,348)	33,976	0%
Ending Net Assets - Reserves	**7,543,333**	**7,376,941**	**14,920,276**	**-**	**8,935,944**	**33,873,922**	**31,171,568**	**2,702,354**	**9%**
Ending Reserve by Category									
Program Reserves (Efficiency and Renewables)	7,543,333	7,376,941	14,920,276	0		24,937,981			
Operational Contingency Pool					3,935,944	3,935,944			
Emergency Contingency Pool					5,000,000	5,000,000			
TOTAL NET ASSETS CUMULATIVE	7,543,333	7,376,941	14,920,276	0	8,935,944	33,873,922	31,171,568	2,702,354	9%

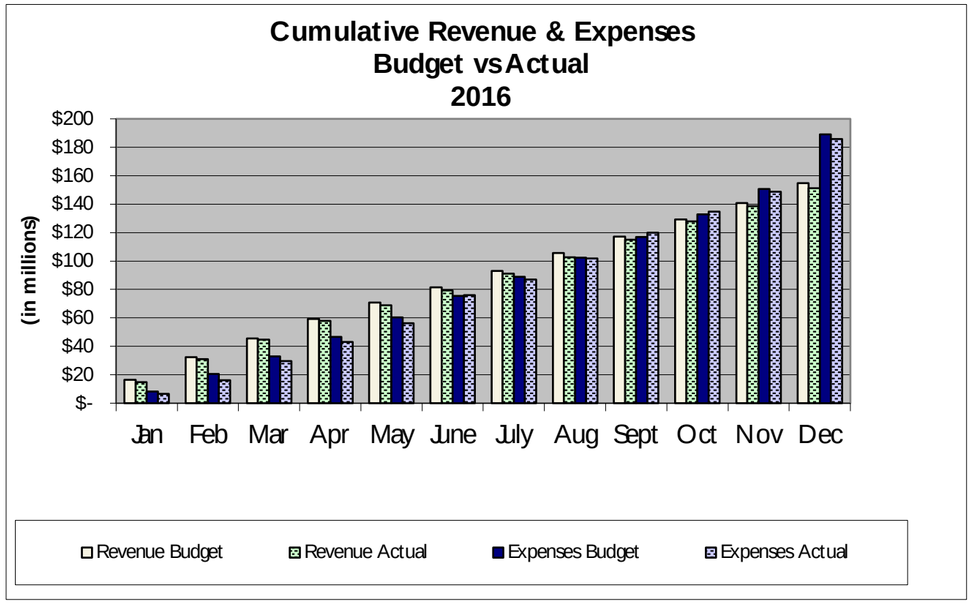
Energy Trust of Oregon
Program Expense by Service Territory
For the Twelve Months Ending December 31, 2016
(Unaudited)

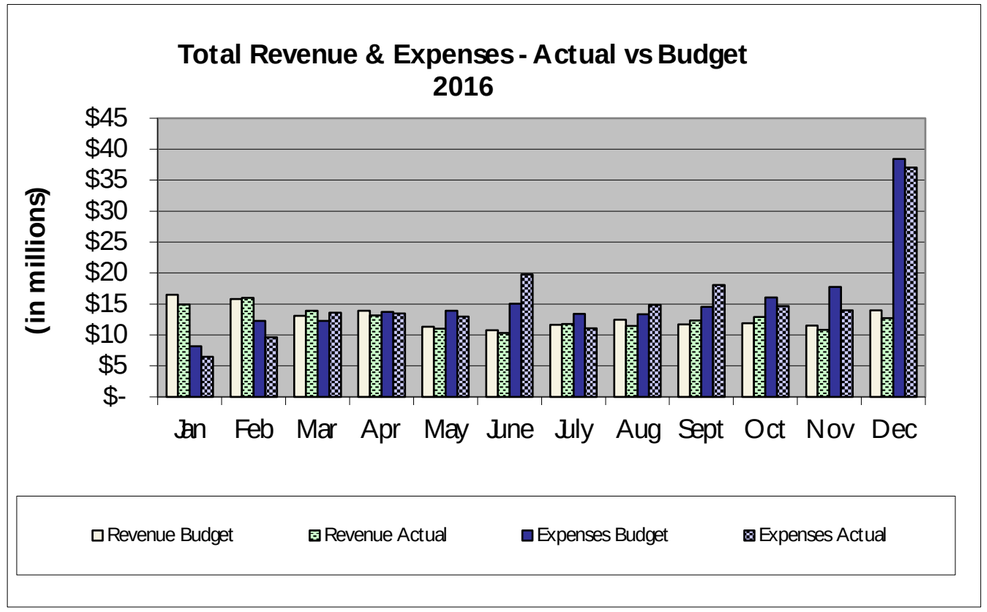
	PGE	Pacific Power	Subtotal Elec.	NWN Industrial	NW Natural Gas	Cascade	Avista	Subtotal Gas	Oregon Total	NWN WA	ETO Total	YTD Budget	Variance	% Var
Energy Efficiency														
Commercial														
Existing Buildings	29,258,142	18,859,082	48,117,224	1,981,133	3,841,928	850,898	-	6,673,960	54,791,184	610,012	55,401,196	58,008,382	2,607,186	4%
New Buildings	10,469,670	4,536,914	15,006,584	65,626	1,628,584	281,903	16,438	1,992,551	16,999,135		16,999,135	17,213,297	214,162	1%
NEEA	1,432,690	995,599	2,428,289		234,732	25,131		259,862	2,688,152	26,430	2,714,582	2,763,857	49,275	2%
Total Commercial	**41,160,503**	**24,391,594**	**65,552,097**	**2,046,760**	**5,705,244**	**1,157,932**	**16,438**	**8,926,373**	**74,478,471**	**636,442**	**75,114,913**	**77,985,536**	**2,870,623**	**4%**
Industrial														
Production Efficiency	17,964,846	12,231,739	30,196,585	1,484,896	504,271	232,068		2,221,235	32,417,820		32,417,820	33,824,141	1,406,321	4%
NEEA	178,399	123,972	302,371						302,371		302,371	454,918	152,547	34%
Total Industrial	**18,143,245**	**12,355,711**	**30,498,956**	**1,484,896**	**504,271**	**232,068**	**-**	**2,221,235**	**32,720,191**	**-**	**32,720,191**	**34,279,059**	**1,558,868**	**5%**
Residential														
Existing Homes	7,441,000	7,001,820	14,442,820	-	5,034,535	198,648	11,582	5,244,765	19,687,585	394,237	20,081,822	20,603,804	521,982	3%
New Homes/Products	16,257,567	8,352,669	24,610,236	-	6,190,918	601,308	30,732	6,822,958	31,433,194	814,572	32,247,766	29,681,112	(2,566,654)	-9%
NEEA	2,637,041	1,832,519	4,469,560		596,183	63,828		660,011	5,129,571	67,129	5,196,700	5,086,259	(110,441)	-2%
Total Residential	**26,335,608**	**17,187,009**	**43,522,616**	**-**	**11,821,636**	**863,784**	**42,314**	**12,727,734**	**56,250,350**	**1,275,938**	**57,526,288**	**55,371,175**	**(2,155,113)**	**-4%**
Energy Efficiency Costs	**85,639,352**	**53,934,314**	**139,573,667**	**3,531,655**	**18,031,149**	**2,253,781**	**58,749**	**23,875,342**	**163,449,014**	**1,912,380**	**165,361,394**	**167,635,770**	**2,274,378**	**1%**
Renewables														
Solar Electric (Photovoltaic)	8,612,989	5,665,540	14,278,529						14,278,529		14,278,529	15,581,783	1,303,254	8%
Other Renewable	2,094,120	3,919,945	6,014,065						6,014,065		6,014,065	5,839,097	(174,968)	-3%
Renewables Costs	**10,707,107**	**9,585,487**	**20,292,592**	**-**	**-**	**-**	**-**	**-**	**20,292,592**	**-**	**20,292,592**	**21,420,880**	**1,128,286**	**5%**
Program Cost Total	**96,346,464**	**63,519,800**	**159,866,264**	**3,531,656**	**18,031,151**	**2,253,784**	**58,751**	**23,875,342**	**183,741,606**	**1,912,380**	**185,653,986**	**189,056,650**	**3,402,664**	**2%**
Avista Development							**28,631**	**28,631**	**28,631**		**28,631**		**(28,631)**	
Cost Grand Total	**96,346,464**	**63,519,800**	**159,866,264**	**3,531,656**	**18,031,151**	**2,253,784**	**87,382**	**23,903,973**	**183,770,237**	**1,912,380**	**185,682,617**	**189,056,650**	**3,374,033**	**2%**

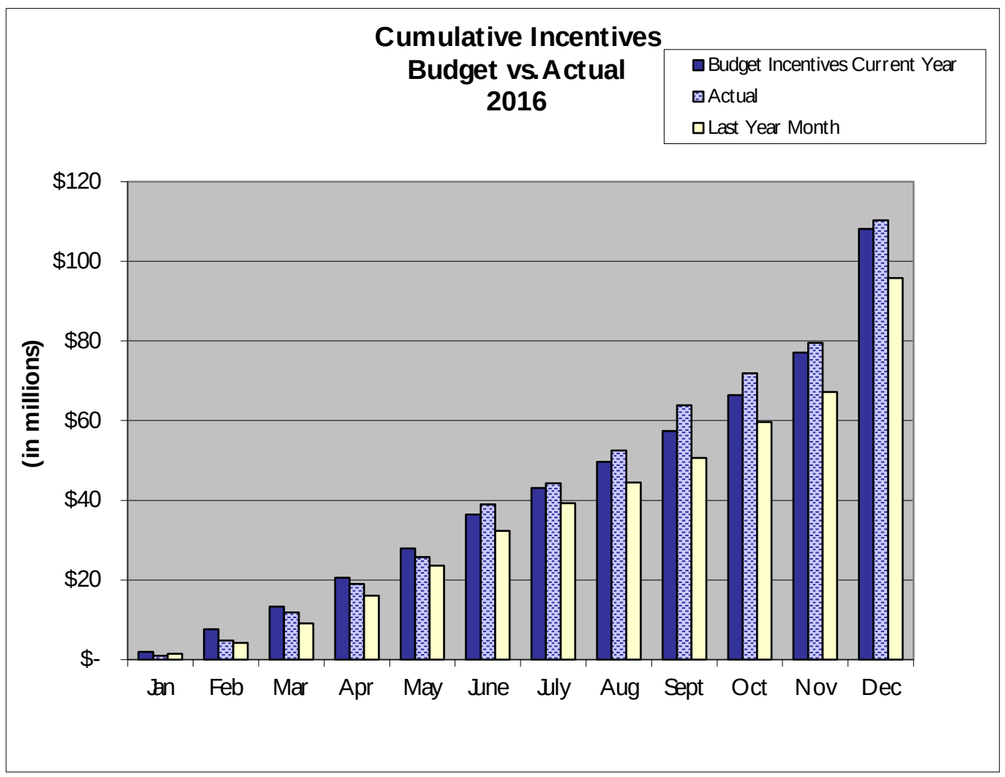
Energy Trust of Oregon
Administrative Expenses
For the Twelve Months Ending December 31, 2016
(Unaudited)

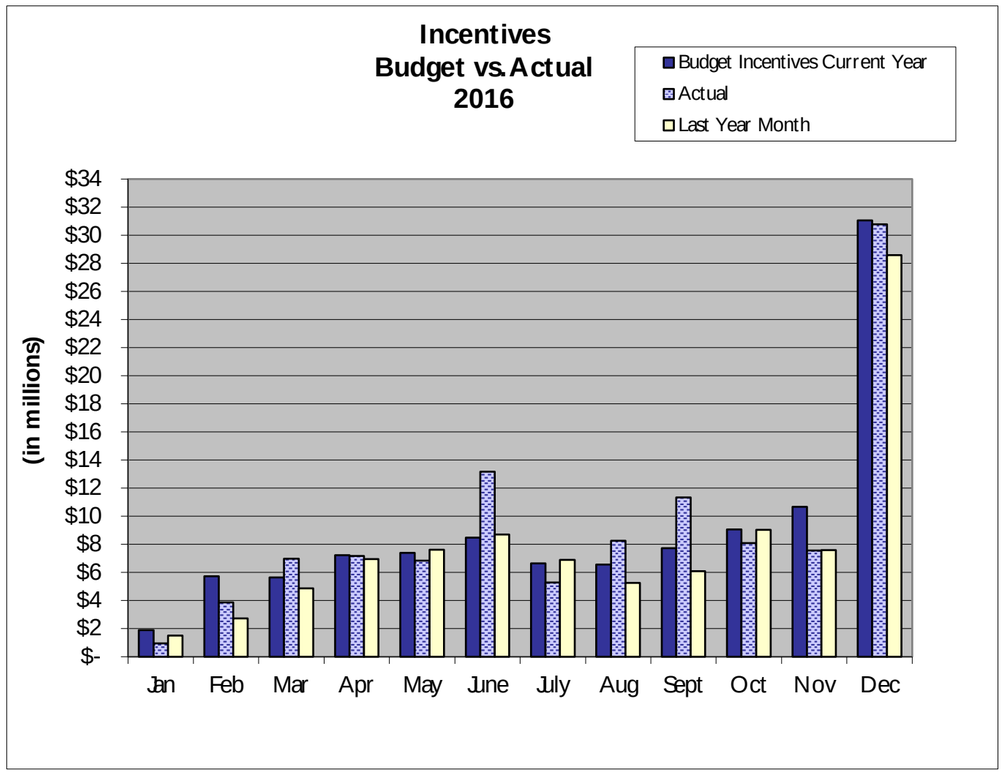
	MANAGEMENT & GENERAL						COMMUNICATIONS & CUSTOMER SERVICE					
	QUARTER			YTD			QUARTER			YTD		
	ACTUAL	BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE	ACTUAL	BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE
EXPENSES												
Outsourced Services	$67,219	$45,375	($21,844)	$342,683	$360,500	$17,817	$419,089	$261,125	($157,964)	$1,099,537	$1,093,000	($6,537)
Legal Services	6,767	2,500	(4,267)	8,857	10,000	1,143						
Salaries and Related Expenses	630,697	674,027	43,330	2,348,327	2,398,506	50,178	374,951	387,338	12,387	1,353,842	1,549,352	195,510
Supplies	683	1,337	655	3,880	5,350	1,470	115	250	134	950	1,000	50
Postage and Shipping Expenses	319		(319)	1,609		(1,609)				227		(227)
Printing and Publications	3,323	1,125	(2,198)	6,397	4,500	(1,897)		550	550		2,200	2,200
Travel	7,050	11,988	4,938	35,104	47,950	12,846	15,883	11,250	(4,633)	51,026	45,000	(6,026)
Conference, Training & Mtngs	17,669	44,610	26,942	53,197	143,790	90,593	4,860	4,000	(860)	17,242	16,000	(1,242)
Interest Expense and Bank Fees	46	2,125	2,079	1,668	4,000	2,332						
Miscellaneous Expenses							367		(367)	12,187		(12,187)
Dues, Licenses and Fees	1,279	2,175	896	9,041	9,880	839	4,746	4,000	(746)	13,377	16,000	2,623
Shared Allocation (Note 1)	49,972	47,985	(1,987)	185,930	201,487	15,557	39,030	32,938	(6,092)	134,171	138,306	4,135
IT Service Allocation (Note 2)	99,332	107,457	8,125	405,662	426,695	21,033	68,374	73,761	5,388	279,230	292,895	13,665
Planning & Eval	443	445	2	1,723	1,804	81						
TOTAL EXPENSES	**884,799**	**941,149**	**56,350**	**3,404,078**	**3,614,462**	**210,386**	**927,415**	**775,213**	**(152,202)**	**2,961,789**	**3,153,753**	**191,964**

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


Cumulative Revenue & Expenses
Budget vs Actual
2016
(in millions)
$200
$180
$160
$140
$120
$100
$80
$60
$40
$20
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Total Revenue & Expenses - Actual vs Budget
2016
(in millions)
$45
$40
$35
$30
$25
$20
$15
$10
$5
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Cumulative Incentives
Budget vs. Actual
2016
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$120
$100
$80
$60
$40
$20
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec


Incentives
Budget vs. Actual
2016
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$34
$32
$30
$28
$26
$24
$22
$20
$18
$16
$14
$12
$10
$8
$6
$4
$2
$-
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec

PINK PAPER

CONTRACTOR	Description	City	EST COST	Actual TTD	Remaining	Start	End
Administration							
		Administration Total:	**13,018,562**	**3,897,199**	**9,121,363**		
Communications							
		Communications Total:	**3,415,025**	**2,330,931**	**1,084,094**		
Energy Efficiency							
Northwest Energy Efficiency Alliance	Regional EE Initiative Agmt	Portland	33,662,505	14,850,935	18,811,570	1/1/2015	7/1/2020
ICF Resources, LLC	2016 BE PMC	Fairfax	10,592,349	9,527,212	1,065,137	1/1/2016	12/31/2016
CLEAResult Consulting Inc	2016 HES PMC	Austin	6,634,665	5,971,842	662,823	1/1/2016	12/31/2016
Northwest Energy Efficiency Alliance	Regional Gas EE Initiative	Portland	6,200,354	1,416,125	4,784,229	1/1/2015	7/1/2020
CLEAResult Consulting Inc	2016 NBE PMC	Austin	5,878,253	5,554,059	324,194	1/1/2016	12/31/2016
Lockheed Martin Corporation	2016 MF PMC	Grand Prairie	4,496,935	4,121,725	375,210	1/1/2016	12/31/2018
Ecova Inc	2016 Products PMC	Spokane	3,756,714	3,288,891	467,823	1/1/2016	12/31/2016
Energy 350 Inc	PDC - PE 2016	Portland	3,148,000	3,013,013	134,988	1/1/2016	12/31/2016
CLEAResult Consulting Inc	2016 NH PMC	Austin	2,868,582	2,626,360	242,222	1/1/2016	12/31/2016
Intel Corporation	EE Project Incentive Agmt	Hillsboro	2,400,000	0	2,400,000	11/13/2015	12/31/2019
Portland General Electric	PDC - PE 2016	Portland	2,153,000	2,133,883	19,117	1/1/2016	12/31/2016
Portland General Electric	PDC - PE 2017	Portland	2,017,000	0	2,017,000	1/1/2017	12/31/2017
Northwest Power & Conservation Council	RTF Funding Agreement		1,825,000	647,560	1,177,440	2/25/2015	12/31/2019
Cascade Energy, Inc.	PDC - PE 2016 Small Industrial	Walla Walla	1,699,518	1,595,482	104,036	1/1/2016	12/31/2016
RHT Energy Inc.	PDC - PE 2016	Medford	1,690,000	1,569,806	120,194	1/1/2016	12/31/2016
Evergreen Consulting Group, LLC	PE Lighting PDC 2016	Tigard	1,396,500	1,319,998	76,502	1/1/2016	12/31/2016
CLEAResult Consulting Inc	PDC - SEM 2016	Austin	1,356,564	714,971	641,593	1/1/2016	12/31/2016
HST&V, LLC	PDC - SEM 2016	Portland	1,231,076	1,191,172	39,904	1/1/2016	12/31/2016
Clean Energy Works, Inc.	EE Incentive & Services Agmt	Portland	492,570	405,550	87,020	7/1/2014	12/31/2016
Cascade Energy, Inc.	SEM Curriculum	Walla Walla	464,080	429,168	34,912	5/1/2014	12/31/2016
SBW Consulting, Inc.	PE Program Impact Evaluation	Bellevue	450,000	225,928	224,072	5/1/2016	4/30/2017
ADM Associates, Inc.	EB 2013/2014 Impact Evaluation	Seattle	422,000	410,008	11,992	1/1/2016	12/31/2016
Stillwater Energy LLC	Commercial SEM curriculum	Portland	360,101	360,101	0	6/27/2014	12/31/2016
Michaels Energy, Inc.	New Buildings '14 Impact Evalu	La Crosse	328,000	311,229	16,771	5/23/2016	5/31/2017
Craft3	SWR Loan Origination/Loss Fund	Portland	305,000	230,719	74,281	6/1/2014	12/31/2016
Craft3	Loan Agreement	Portland	300,000	100,000	200,000	6/1/2014	6/20/2025
CLEAResult Consulting Inc	2016 HES WA PMC	Austin	289,600	269,815	19,785	1/1/2016	12/31/2016
EnergySavvy Inc.	Optix Engage Online Audit Tool	Seattle	273,600	64,167	209,433	6/1/2016	5/31/2018

Pivotal Energy Solutions LLC	License Agreement	Gilbert	270,500	133,862	136,638	3/1/2014	12/31/2017
Alternative Energy Systems Consulting, Inc.	PE Mobile App Scoping Tool	Carlsbad	229,830	135,347	94,483	6/1/2016	5/31/2017
ICF Resources, LLC	2016 BE NWN WA PMC	Fairfax	200,724	181,188	19,536	1/1/2016	12/31/2016
ICF Resources, LLC	2016 BE DSM PMC	Fairfax	129,019	103,176	25,843	1/1/2016	12/31/2016
Alliance For Sustainable Energy, LLC	Technical Services Agreement	Lakewood	104,989	89,215	15,774	10/30/2015	12/31/2017
1000 Broadway Building L.P.	Pay-for-Performance Pilot	Portland	88,125	29,375	58,750	10/17/2014	11/1/2018
WegoWise Inc	benchmarking license	Boston	77,472	28,528	48,944	6/15/2014	12/31/2018
The Cadmus Group Inc.	Solar PV Impact Evalution	Watertown	76,587	76,587	0	10/26/2015	12/31/2016
CLEAResult Consulting Inc	Professional Services/Trans	Austin	70,613	59,735	10,878	10/15/2014	10/15/2017
Research Into Action, Inc.	Multifamily Process Evaluation	Portland	68,242	68,236	6	3/18/2016	2/28/2017
Abt SRBI Inc.	Fast Feedback Surveys 2016	New York	62,200	41,466	20,734	7/8/2016	4/15/2017
Apex Analytics LLC	Nest Seasonal Savings Eval	Boulder	59,000	10,369	48,631	8/29/2016	12/31/2017
The Cadmus Group Inc.	Existing Homes Pilot Eval	Watertown	53,000	41,321	11,679	2/18/2016	12/31/2017
Green Motors Practice Group	Green Motors Incentive Funding	Boise	50,000	0	50,000	1/1/2017	12/31/2017
KEMA Incorporated	O&M & SEM Persistence Research	Oakland	45,000	0	45,000	12/1/2016	5/31/2017
MetaResource Group	Intel DX1 Mod 1&2 Megaproject	Portland	45,000	22,940	22,060	4/1/2015	5/1/2017
Consortium for Energy Efficiency	Program Performance Benchmark		40,379	0	40,379	9/23/2016	12/31/2017
KEMA Incorporated	Billing Analysis Review	Oakland	35,000	2,146	32,855	3/15/2015	12/31/2017
KEMA Incorporated	SEM Model Review	Oakland	33,000	6,837	26,164	12/6/2016	2/10/2017
The Cadmus Group Inc.	Air Conditioning Measures	Watertown	32,950	15,662	17,289	8/22/2016	8/22/2018
Northwest Energy Efficiency Council	Tool Lending Lbry Sponsorship	Seattle	30,500	0	30,500	9/21/2016	12/31/2017
Abt SRBI Inc.	NH Gas Fireplace Survey 16-17	New York	25,697	0	25,697	4/12/2016	7/31/2017
Energy Center of Wisconsin	Billing Analysis Review	Madison	25,000	1,710	23,290	3/15/2015	12/31/2017
Northwest Food Processors Association	NW Industrial EE Summit 2017	Portland	25,000	0	25,000	1/1/2017	12/31/2017
Sustainable Northwest	Klamath Industiral/Ag Programs	Portland	24,992	0	24,992	1/1/2017	11/1/2017
Collaborative Efficiency, LLC	EECLP Utility Outreach	Spokane	20,000	11,144	8,856	6/1/2016	12/31/2016
Ecotope, Inc.	NB VRF Pilot Evaluation	Seattle	20,000	9,540	10,460	1/1/2016	5/31/2017
Michaels Energy, Inc.	NB '11-'12 Impact Evaluation	La Crosse	20,000	19,992	9	7/1/2016	4/30/2017
Clark Public Utilities	Living Wise Kits Coop Agmt	Vancouver	15,000	0	15,000	11/1/2015	12/31/2016
Portland General Electric	Workshop Payment Agreement	Portland	15,000	8,556	6,444	3/18/2016	12/31/2016
Energy 350 Inc	Professional Services	Portland	14,920	14,920	0	12/10/2014	12/10/2018
EES Consulting, Inc	Professional Services Agmt	Kirkland	14,800	2,340	12,460	10/1/2016	9/30/2018
PWP, Inc.	NBE Satisfaction Survey 2016	Gaithersburg	14,500	0	14,500	12/28/2016	3/31/2017
Flink Energy Consulting	Smart Grid Modeling	Portland	12,120	12,120	0	7/12/2016	7/30/2017
Earth Advantage, Inc.	2016 Sponsorship	Portland	10,250	10,250	0	3/1/2016	2/28/2017

Bridgetown Printing Company	2017 Bill Insert	Portland	9,764	0	9,764	1/18/2017	12/31/2017
Research Into Action, Inc.	Professional Services	Portland	9,590	9,570	20	9/1/2014	8/31/2017
Evergreen Economics	NH Gas Fireplace Survey	Portland	9,020	1,875	7,145	4/12/2016	7/31/2017
City of Portland Bureau of Planning & Sustainability	Sponsorhip - 2017	Portland	8,000	0	8,000	1/5/2017	12/31/2017
FMYI, INC	Subscription Agreement	Portland	5,150	5,150	0	4/25/2016	3/1/2017
CLEAResult Consulting Inc	CSEM 2017 Transition Agreement	Austin	3,000	0	3,000	1/1/2017	2/10/2017
HST&V, LLC	CSEM 2017 Transition Agreement	Portland	3,000	0	3,000	1/1/2017	2/10/2017
		Energy Efficiency Total:	**98,798,899**	**63,502,872**	**35,296,026**		

Joint Programs

E Source Companies LLC	E Source Service Agreement	Boulder	93,750	93,750	0	2/1/2014	1/31/2017
Portland State University	GIS Data Research		71,992	0	71,992	1/1/2017	9/30/2017
Structured Communications Systems, Inc.	ShoreTel Phone System Install		63,245	0	63,245	1/1/2017	12/31/2017
CoStar Realty Information Inc	Property Data	Baltimore	40,820	35,992	4,828	6/1/2011	5/31/2017
D&R International LTD	Better Data Project	Silver Spring	14,250	14,250	0	6/30/2016	12/31/2016
American Council for and Energy Efficient Economy	ACEEE Sponsorship - 2016		12,500	12,500	0	12/6/2016	12/31/2016
American Council for and Energy Efficient Economy	ACEEE Sponsorship - 2017		12,500	0	12,500	1/1/2017	12/31/2017
Navigant Consulting Inc	Resource Assessment Updates	Boulder	10,600	0	10,600	8/26/2016	8/26/2018
Bruins Analysis and Consulting	Fast Feedback Reporting	Bremerton	7,000	7,000	0	11/15/2015	2/28/2017
		Joint Programs Total:	**326,657**	**163,492**	**163,166**		

Renewable Energy

Clean Water Services	Project Funding Agreement		3,000,000	1,013,106	1,986,894	11/25/2014	11/25/2039
JC-Biomethane LLC	Biogas Plant Project Funding	Eugene	2,000,000	1,500,000	500,000	10/18/2012	10/18/2032
Steel Bridge Solar, LLC	Project Funding Agreement	Seattle	2,000,000	1,500,000	500,000	3/27/2015	12/15/2040
Oregon Institute of Technology	Geothermal Resource Funding	Klamath Falls	1,550,000	1,550,000	0	9/11/2012	9/11/2032
Farm Power Misty Meadows LLC	Misty Meadows Biogas Facility	Mount Vernon	1,000,000	750,000	250,000	10/25/2012	10/25/2027
Three Sisters Irrigation District	TSID Hydro	Sisters	1,000,000	900,000	100,000	4/25/2012	9/30/2032
Farmers Irrigation District	FID - Plant 2 Hydro	Hood River	900,000	900,000	0	4/1/2014	4/1/2034
Klamath Falls Solar 2 LLC	PV Project Funding Agreement	San Mateo	850,000	0	850,000	7/11/2016	7/10/2041
Deschutes Valley Water District	Opal Springs Hydro Project	Madras	750,000	0	750,000	12/5/2016	12/4/2036
Farmers Conservation Alliance	Irrigation Collaboration Initi	Hood River	633,000	632,983	17	1/2/2015	12/31/2016
Old Mill Solar, LLC	Project Funding Agmt Bly, OR	Lake Oswego	490,000	0	490,000	5/29/2015	5/28/2030
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	438,660	3,000	10/27/2010	10/27/2025
Clean Power Research, LLC	PowerClerk License	Napa	383,068	380,398	2,670	7/1/2014	6/30/2017
SunE Solar XVI Lessor, LLC	BVT Sexton Mtn PV	Bethesda	355,412	355,412	0	5/15/2014	12/31/2034
CIty of Gresham	City of Gresham Cogen 2		350,000	334,523	15,477	4/9/2014	7/9/2034
Farmers Conservation Alliance	Outreach Activities	Hood River	200,000	0	200,000	1/1/2017	12/31/2017
City of Astoria	Bear Creek Funding Agreement	Astoria	143,000	143,000	0	3/24/2014	3/24/2034
BSA Enterprises Inc	Solar Verifier Services	Sisters	100,000	34,910	65,090	8/1/2016	7/31/2018
Gary Higbee DBA WindStream Solar	Solar Verifier Services	Eugene	100,000	29,525	70,475	8/1/2016	7/31/2018
Luxurious Plumbing and Heating, Inc.	Solar Verifier Services	West Linn	100,000	43,680	56,320	8/1/2016	7/31/2018
RHT Energy Inc.	Verifier Services Agmt - Solar	Medford	100,000	37,083	62,918	8/1/2016	7/31/2018
SPS of Oregon Inc	Project Funding Agreement	Wallowa	75,000	75,488	(488)	10/15/2015	10/31/2036
Kendrick Business Services LLC	Solar TA Business Consulting	Albany	64,200	51,585	12,615	10/8/2015	12/31/2016
Kendrick Business Services LLC	Small Business Support Agmt	Albany	60,000	0	60,000	11/1/2016	6/30/2018
Clean Energy States Alliance	2017 CESA Sponsorship		39,500	39,500	0	7/1/2016	6/30/2017
ENERGYneering Solutions Inc	Biopower & Hydro Evaluations	Sisters	25,000	0	25,000	12/6/2016	11/30/2018
University of Oregon	UO SRML Contribution - 2016	Eugene	25,000	25,000	0	3/9/2016	3/8/2017
Wallowa Resources Community Solutions, Inc.	Renewables Field Outreach		24,999	7,426	17,573	2/1/2016	1/30/2018
Robert Migliori	42kW wind energy system	Newberg	24,125	22,352	1,773	4/11/2007	1/31/2024
Warren Griffin	Griffin Wind Project	Salem	13,150	9,255	3,895	10/1/2005	10/1/2020
Chaolysti LLC	Solar Trade Ally Summit	Alameda	11,650	0	11,650	1/1/2017	7/31/2017
Oregon Solar Energy Industries Association	Sponsorship 2017	Portland	7,500	7,500	0	1/1/2017	12/31/2017
Magneto Advertising, LLC	Irrigation Infographic	Portland	5,950	5,950	0	7/6/2016	12/31/2016
Bonneville Environmental Foundation	REC/WRC Purchase 2016	Portland	4,860	0	4,860	1/1/2016	12/31/2017
		Renewable Energy Total:	**18,168,734**	**11,828,993**	**6,339,741**		
		Grand Total:	**133,727,877**	**81,723,488**	**52,004,389**		

PINK PAPER

Financial Glossary

(for internal use) - updated May 31, 2016

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 unmodified or modified regarding specific items. Energy Trust strives for and has achieved in all its years an unmodified opinion.
- An unmodified 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 unmodified opinion regarding Energy Trust's financial statements.
- 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.

Project Tracking Projects Forecasting

Module developed in Project Tracking system (PT) 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 second 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 PT. 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 Strategic Energy Management programs, where some level of tracking of particular sites and participants is part of the program design.
- Lighting, hot water, and energy control devices through retailer buy down, on line fulfillment, and direct installation.

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 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

January 26, 2017, 3:30–5:00 p.m.

Attending by phone
Roger Hamilton, Ken Canon, John Reynolds, Eddie Sherman

Attending at Energy Trust offices
Michael Colgrove, Amber Cole, Fred Gordon, Steve Lacey, Debbie Menashe, Mariet Steenkamp, Peter West, Thad Roth

Preview of Board Presentation
Thad Roth and Julianne Thacher previewed a board presentation on changes ahead for the residential sector's program structure. In response to market changes, anticipated declines in savings potential, and challenges of current program delivery structure, staff has undertaken more than a year of study, analysis and stakeholder engagement to assess and identify proposals to optimize delivery of its residential program. At the February board meeting, staff will proposes that Energy Trust consolidate its three residential programs into one program delivered through a single Program Management Contractor (PMC) contract. Staff recommend the transition from three programs to a single program occur on January 1, 2018, including a full transition to a single PMC. Committee members suggested that Thad and Julianne provide additional explanation and examples of the anticipated benefits of this change and to illustrate why the change in approach is needed at this time.

Policies for Review

Program Approval Process 4.22.000-P
This policy was not up for its routine, three-year review until September 2018. However, in light of the new approach to management and delivery of the residential programs, staff wished to clarify the policy language application.
The Program Approval Policy was extensively revised in 2005 to clarify roles of the board and staff regarding program design and development. Prior to 2005, the board approved programs in resolutions that specific project energy savings and costs and estimated budget allocations. Any changes over the course of a year based on program and market changes required board approval.

In 2005, board and staff determined that it would be more efficient for board program oversight to be exercised through the annual budget process and in review and approval of program management contract terms. This approach has worked well. However, the current language of the Program Approval Process refers to "existing" programs. The board minutes adopting the revised Program Approval Process include no suggestion that the policy was to apply only to then-existing programs. Instead, the minutes reflect a discussion on clarification of roles and responsibilities to improve operations and efficiency with respect to program design and development. Staff recommended that the word "existing" be deleted from the current policy to be consistent with current practice and to remove any ambiguity about the policy's application to the upcoming revisions to the residential sector program design and future program design changes. Board oversight of programs will continue to be supported at the budget, financial reporting and program management contract level. Committee members support staff recommendation on the Program Approval Process, and recommend that the slightly revised policy be forwarded to the full board on the Consent Agenda.

Contract Execution and Oversight Policy 5.05.009-P
This policy was up for routine, three-year review. Staff proposes only clarifying changes to the dollar thresholds and to clarify that the policy applies to contracts involving Energy Trust expenditure of funds. Committee members proposed some additional revisions to ensure that the policy covers contracts for expenditures of over $500,000 and for $500,000 and less and contracts under which Energy Trust receives funding for over $500,000 and for $500,000 and less. Staff agreed to circulate additional language to committee members for review.

Upon approval by the committee members, the committee recommends that the revised policy be forwarded to the full board through the Policy Committee report at the next full board meeting.

Corporate Governance Policy 2.03.000-P
This policy is up for its routine, three-year review. Staff has found the policy useful since its approval and made recommendations for change only in ***Sections VII*** and ***VIII*** to clarify criteria for approved board member training and reimbursement for training. Committee members had some questions about the proposed revisions, and staff agreed to do additional work with Board president, Debbie Kitchin, on suggested changes to propose.

Discussion of Policy Development process for Diversity and Low Income Policies through Revision of Equity Policy
The Energy Trust Equity Policy 4.08.000-P is not yet up for its routine, three-year review, but will be in October 2017. Staff presented this policy to the committee for information purposes and to begin discussions on policy development to support Energy Trust's approach and delivery for the Diversity Initiative and for low income services. Studies have shown that board level policies are the foundation of successful diversity and inclusion programs in a variety of organizations. Staff is looking forward to working closely with the Policy Committee over the coming year to revise the current Equity Policy and develop a robust board level policy regarding diversity and inclusion and to document the organizational approach to low income services.

Brief Updates
Mike updated the committee on plans for the board tour of the PNCA Building and lunch plans for the next board meeting. Debbie updated the committee on staff plans for monitoring the legislative session that begins on February 1. Debbie also updated the committee on the Diversity Initiative workshop held on January 23rd.

Adjourn
The meeting adjourned before 5:00 p.m. The next meeting of the Policy Committee is scheduled for March 9, 2017.

PINK PAPER

Board Decision
To Clarify Executive Director's Authority to Execute Contracts for Receipt of Funds

February 22, 2017

Summary

Amend the board policy on contract execution authority to clarify that the Executive Director may sign contracts under which Energy Trust receives funds in any amount.

Background

- The Board Policy on Contract Execution and Oversight requires Board approval for large expenditures, currently for any Energy Trust commitment to expend more than $500,000. The policy does not address receipt of funds.
- The Executive Director has always signed contracts under which Energy Trust receives funds in any amount. Utility funding agreements, which are amended annually, are an example.

Discussion

- The Policy Committee proposes amendments clarifying the Executive Director's authority to sign contracts for receipt of funds in any amount (see Attachment 1).

Recommendation

Amend the Board policy on contract execution authority as shown in Attachment 1, to clarify that the Executive Director may sign contracts under which Energy Trust receives funds in any amount.

RESOLUTION 796

AMENDING CONTRACT EXECUTION POLICY

WHEREAS:

1. **The Board Policy on Contract Execution and Oversight requires Board approval for any Energy Trust commitment to expend more than $500,000.**
2. **The policy does not address receipt of funds. Historically, the Executive Director has signed contracts under which Energy Trust receives funds in any amount.**
3. **During routine review of the policy in 2017, the Policy Committee recommended that the policy be amended to reflect this established practice.**

It is therefore RESOLVED that the Board of Directors of Energy Trust of Oregon, Inc. amends the Board policy on contract execution authority as shown in Attachment 1, to clarify that the Executive Director may sign contracts under which Energy Trust receives funds in any amount.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:

5.05.009-P Contract Execution and Oversight Policy

History			
Source	**Date**	**Action/Notes**	**Next Review Date**
Board Decision	September 8, 2004		September 2007
Board Decision	October 3, 2007	Amended (R449)	October 2010
Board Decision	February 13, 2008	Amended (R465)	February 2011
Board Decision	February 9, 2011	Amended (R575)	February 2014
Policy Committee	January 28, 2014	No changes	January 2017
Policy Committee	January 26, 2017		

Purpose: *The Energy Trust Board of Directors has delegated to the Executive Director authority to execute all contracts on behalf of the organization consistent with the bylaws, PUC grant agreement and governing law. This policy regulates the implementation of this authority.*

Policy:

1. All contracts shall be consistent with the bylaws, PUC grant agreement and governing law.

2. The Energy Trust legal department shall review as to form all contracts before submitting them to the Executive Director.

3. Contracts for expenditure by Energy Trust of over the amount of $500,000:
   - No contract will be executed unless the Board of Directors has first reviewed and approved its basic terms.
   - When it approves basic contract terms, the Board may instruct the Executive Director to bring a final contract back to the Board for review and approval before the contract is executed.
   - The Executive Director shall not execute contract amendments that make major changes in contract terms (e.g., more than 10% change in funds obligated, more than 20% change in energy saved or produced, time by which savings will be achieved) unless the Board of Directors has first reviewed and approved the basic terms of the change.

4. Contracts for expenditure in the amount of $500,000 and less: The Executive Director or, if the Executive Director is unavailable, the General Counsel or corporate officer designated by the Executive Director, is authorized to execute contracts involving less than $500,000 without Board review or approval of basic terms. This authority includes instances in which two or more contracts involving less than $500,000 with a single contractor exceed $500,000 in the aggregate.

5. Contracts under which Energy Trust receives funds in any amount: The Executive Director or, if the Executive Director is unavailable, the General Counsel or corporate officer designated by the Executive Director is authorized to execute contracts under which Energy Trust will receive funds in any amount.

6. For programs managed directly by Energy Trust staff, incentive agreements that involve $500,000 and less, and are processed in accordance with standardized program forms and procedures that have been reviewed by the legal department may be approved by the relevant department director or management-level staff designated by the department director. This authority includes instances in which multiple incentive payments to a participant or contractor, processed in accordance with standardized program forms and procedures, exceed $500,000 in the aggregate.

7. Not less often 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.

8. Staff and in-house contractor employment agreements: The Executive Director or, if the Executive Director is unavailable, the General Counsel or corporate officer designated by the Executive Director, may execute staff and in-house contractor employment agreements without Board review or approval of basic terms.

9. Contracts not involving a dollar expenditure may be signed by the relevant director or his/her designated manager(s).

10. The Executive Director shall maintain contract records required for an independent audit.

Tab 6

Strategic Planning Committee

February 7, 2017
3:00 – 5:00 p.m.

Attendees: Mark Kendall, *Chair*, Susan Brodahl (phone), Ken Canon (phone), Mike Colgrove, Hannah Cruz, Lindsey Hardy (phone), Corey Kehoe, Debbie Menashe, Spencer Moersfelder, John Reynolds (phone), John Volkman

Strategic Planning Workshop – Agenda Review

The Committee reviewed the retreat agenda draft for May 18 – 19, 2017. Debbie Menashe said that Nick Viele will return this year to facilitate and that she and Mike Colgrove have had an initial meeting with him. The retreat will be structured in a small group breakout session format to allow for board conversation and open discussion.

Specific Agenda Items

The Committee engaged in discussion around the current strategic plan progress and building toward the next formal strategic plan. The proposed agenda includes less time for report out on current status as compared to last year's retreat. This retreat would provide the board and staff the opportunity to discuss topics that will begin to focus on future issues that might be expected to inform the next organizational strategic plan. Committee members encouraged staff to reconsider the time scheduled for reporting on current status. Board members pointed out that we are half way through the current plan, and that we should still be focusing on where things are as compared to goal and how and why goals and actual results might be different. That is also important information for informing the next plan. Staff will incorporate these comments in adjustments to the retreat agenda draft.

Hannah Cruz joined the meeting to give an overview of the current dashboard, which will be used provide information on where the organization is as compared to current strategic plan goals.The dashboard format is the same as what was presented last year. There are six major categories; four of which are static and include energy goals, generation, savings, and emerging technology through various pipelines (NEEA), new opportunities and staff engagement. It was noted that work from the Diversity Initiative should be incorporated to inform our list of accomplishments in expanding participation.

The Committee encouraged staff to provide time on the agenda to consider what the dashboard review reveals and to discuss challenges that will face Energy Trust in the next few years.This will give the board and staff an opportunity to discuss challenges that should be considered in getting ready to work on the next strategic plan.

Debbie asked the Committee to consider the keynote speaker and to identify individuals whose presentations would be beneficial to Energy Trust initiatives and focus. The Committee discussed several candidates who could engage the board and align their experiences with Energy Trust initiatives. The Committee advised staff that it wants to provide the speaker with clear direction so that the speaker can provide useful context for the retreat's discussions. Committee members discussed potential speakers and also discussed the possibility of inviting a customer to join the retreat during a certain portion to provide a unique perspective.

The Committee worked on ways to prioritize and structure the retreat format and discussion topics. Debbie noted that since the retreat is a public meeting and other industry colleagues will be in attendance, there is a need to consider how to provide for public engagement during the small group breakouts. The small group discussions will be designed to feed into larger group conversations. Staff will work with Nick to ensure that the logistics for the small group breakout sessions are well developed and organized.

Board Dinner Options

Staff notified that Committee that rooms have been reserved at The Benson for board members attending the retreat and requiring accommodation. Corey Kehoe has also been researching venues for the dinner following the first session on Thursday, May 18. She suggests a private dining room at a hotel near Mercy Corps and The Benson. Corey, Debbie and Mike Colgrove will conduct site visits of potential venues and confirm the location shortly.

Next Steps

Mark Kendall noted next steps:

- Reframe agenda to note that the retreat is a midpoint review of the strategic plan
- Put mechanisms in place to ensure that small groups are effective
- Work with Nick to make sure discussions result in clear next steps for both current strategic plan work and beginning work on the next strategic plan
- Continue to work on the initial list of topics to coincide with the flow of the existing strategic plan
- Upcoming Committee meeting dates are March 14, 2017 and May 9, 2017
- Determine final agenda at the March 14 meeting.
- Speaker options will be explored and a narrowed list will be circulated to the Committee prior to the March 14 meeting

Adjourn

The meeting adjourned at 4:36 p.m.

Tab 7

Briefing Paper
2017 State Legislation Update

February 22, 2017

Summary

This paper provides highlights of bills in the 2017 state legislative session. A fuller list is attached; clicking on a bill number in the fuller list will take you to the text of the bill.

Background

- The legislative session began in February and is expected to adjourn in July.
- Under our grant agreement with the OPUC, Energy Trust does not take positions on legislation or engage in political issues. We routinely brief legislators on Energy Trust programs and accomplishments. During legislative sessions, we also monitor bills that could impact Energy Trust and respond to legislative requests for information. We coordinate these activities with the OPUC.

Highlights

- **Public-purpose charge**
  - SB 539 (Thatcher): reassigns the portion of the 3 percent charge that is now authorized for energy conservation and market transformation (63 percent of the charge) to cities, counties and schools for energy conservation in areas where the funds are collected. The portion of the 3 percent charge that is now authorized for renewable energy (19 percent of the charge) would be for cost-effective energy conservation, market transformation and renewable energy.
  - SB 656 (Olsen) requires an independent management evaluation of the nongovernmental entity that administers public purpose funds every two years instead of every five years, as is required under current law.
  - SB 657 (Olsen) reduces the 3 percent charge to 2 percent, caps funding paid to a nongovernmental administrator at $250 million annually and requires an annual independent financial audit.
  - SB 659 (Olsen) requires the OPUC, on entering into an agreement with a nongovernmental entity to administer 3 percent charge funds, to be "annually assessed by an independent third party selected by the Oregon Department of Administrative Services at the nongovernmental entity's expense," to identify:
    - how the entity prioritizes projects for funding;
    - criteria the entity uses to select contractors;
    - the frequency with which the entity updates its pool of contractors;
    - how much the entity spends on marketing;

- the entity's internal overhead, including for salaries, benefits, equipment and supplies, and an accounting of each contractor selected by the entity, including aggregate number of customers referred to the contractor by the entity and any moneys received by the contractor from the entity;
- the return on investment for expenditures made by the entity;
- the degree to which funds received by the entity from the 3 percent charge promote short- and long-term economic growth;
- the number of jobs created and supported by funds; and
- the overall energy savings by Oregon residents, businesses and industries attributable to 3 percent-charge funds.

- **Extending energy tax credits to 2024**
  - HB 2074 and SB 170 for energy conservation projects
  - HB 2081, HB 2681 and SB 177 for residential energy conservation
  - HB 2079 and SB 175 for renewable energy projects
  - HB 2072 and SB 168 for biomass production and collector projects
- **Capital improvement tax credit:** SB 599 authorizes credit for capital improvements, including energy efficiency and renewable energy projects.
- **Building codes**
  - HB 2239 establishes a Task Force on Energy Efficient Building Codes to study how to improve energy efficiency and reduce net carbon impact of new buildings.
  - HB 2710 requires Department of Consumer and Business Services every three years to review codes and standards for Reach Code, adopt initial Reach Code by certain dates.
- **Renewable energy**
  - SB 427 replaces post-2024 renewable energy requirements with a 25 percent renewable energy requirement (current law gradually increases requirements to 50 percent by 2040); and eliminates requirements for consumer-owned utilities.
  - HB 2471: Utility acquiring another utility's territory has 10 years to comply with renewable energy requirements.
  - SB 322, SB 425 allows hydropower to count toward renewable energy requirements.
  - HB 2502: Department of State Lands study and make recommendations for organizing ocean power districts to permit, regulate, build and maintain infrastructure for ocean energy facilities; and authorizing entities to issue or sell bonds to build such facilities.
  - SB 424, SB 634 allow public construction contracts required to include 1.5 percent of budget for "green technology" to use hydropower, fuel cells or other hydrogen-based technology, wave energy, wind power or biomass.

- HB 2111 prohibits planned communities from prohibiting solar.

- **Changes in Clean Electricity and Coal Transition Act of 2016 (SB 1547)**
  - Current law (SB 1547) requires 8 percent of utilities' "aggregate electric capacity" to come from community-based renewables by 2025. Proposed HB 2136 would require an increasing share of retail electric sales (6 percent in 2020-2024, growing to 17 percent in 2040) to come from small renewable projects (20 megawatts (MW) and less) interconnected within the balancing authority's boundaries, which need not be community-based.
  - HB 2133 and SB 339 would allow up to 20 aMW from any single biomass project to count toward current 8 percent community-based energy requirement.
  - SB 328 makes biomass facilities eligible for renewable energy standard compliance if facility was registered in WREGIS in 2011 or later.
- **OPUC:** HB 2137 adds to the OPUC's public-interest obligations: (1) to ensure that utilities provide customers with safe and reliable services and infrastructure; (2) encourage diverse ownership of electric generation, enhance the environment, fulfill state energy policies, encourage a healthy economy; and (3) where possible, stimulate innovation and competition in energy, transportation, water and telecommunications.
- **Oregon Department of Energy:**
  - SB 99 and SB 376 would make the Oregon Department of Energy Director subject to Senate confirmation.
  - HB 2756 would transfer the small-scale local energy loan program from the Oregon Department of Energy to Business Oregon and repeal the Energy Efficiency and Sustainable Technology Act (EEAST) provisions.
- **Cannabis:** HB 2205 requires State Department of Agriculture to solicit proposals for development of cannabis energy and water efficiency standards.
- **Greenhouse gases (GHGs)**
  - SB 748: Requires Environmental Quality Commission (EQC) to adopt a carbon pollution permit program, including: an emissions cap that declines from 2021 to 2050, aligned with the state's GHG reduction goals; requiring emitters to have a DEQ permit for all emissions after the first 25,000 tons per year of CO_2; a third party to provide data and analysis of leakage risk from specific emitters; establishing various state climate funds to receive fee revenue from permit sales; and directing how such funds will be used.
  - HB 2478: EQC must assess GHG program impacts.
  - HB 2135, SB 557 (Edwards): (1) EQC must adopt GHG reduction goals of 20 percent lower than 1990 in 2025, 45 percent less in 2035 and 75 percent less in 2050; (2) EQC establish a carbon pollution market to begin 2021; (3) establishes funds for GHG reduction in transportation and disadvantaged communities; and (4) requires GHG sources to register and report.
  - HB 2468 (Holvey, Barnhart, Helm, Nosse and Power): EQC must adopt GHG reduction goals of 10% percent less than 1990 levels in 2020, 68 percent less in 2035 and 91 percent less in 2050; by 2018, adopt temporary rule requiring 8 percent annual reduction; and develop action plan.

- **Transportation**
  - HB 2704: (1) DEQ must hire or contract with a third party to administer a rebate program for low-emission vehicles and zero-emission buses, and a Charge Ahead Oregon program to increase use of battery-charged vehicles; (2) renames the Alternative Fuel Vehicle Fund as the Zero-Emission Incentive Fund (capped at $23 million per biennium) and authorizes it to be used for rebates and Charge Ahead Oregon program, (3) authorizes DEQ (the Oregon Department of Energy under current law) to auction up to $3 million per year in tax credits for alternative fuel vehicle contributions; and (4) extends sunset on tax credits for alternative fuel vehicle contributions.
  - HB 2083 extends tax credit for alternative fuel vehicles from 2018 to 2024.
  - HB 2510 and HB 2511 allow commercial and residential tenants to install electric vehicle chargers.
  - HB 2514 directs Business Oregon to develop a program providing a $250 per new electric vehicle sold, up to $1 million total.
  - SB 426 repeals low-carbon fuel standard.
  - HB 2481 requires gas receipts to show low-carbon fuel standard cost per customer.

Report (as of February 10, 2017)

HB 2072 INTRO

Relating to a tax credit for biomass. Extends sunset for tax credit for biomass production or collection for all types of biomass.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2074 INTRO

Relating to tax credits for energy conservation projects. Extends sunset for tax credit for energy conservation project.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2079 INTRO

Relating to tax credits for renewable energy development contributions. Extends sunset for tax credits for renewable energy development contributions.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2081 INTRO

Relating to residential energy. Extends sunset for construction or installation of alternative energy devices.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2083 INTRO

Relating to tax credits for transportation projects. Extends sunset for tax credits for transportation projects.

Bill Sponsor: Presession filed

Current Committee: Transportation Policy (H)

HB 2111 INTRO

Relating to solar access for residential real property. Prohibits inclusion of provisions prohibiting installation and use of solar panels for obtaining solar access in declaration or bylaws of planned community.

Bill Sponsor: Rep Greenlick; Rep Helm

Current Committee: Energy and Environment (H)

HB 2124 INTRO

Relating to wood smoke pollution. Specifies that Department of Environmental Quality may use moneys available in Residential Solid Fuel Heating Air Quality
Improvement Fund to provide rebates for replacement or removal of certain solid fuel burning devices.
Bill Sponsor: Rep Greenlick (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2132 INTRO

Relating to local government programs to finance improvements to real property; prescribing an effective date. Expands purposes for which improvements may be made under local government financing program to include energy storage, smart electric vehicle charging stations and water efficiency.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2133 INTRO

Relating to biomass. Caps electricity generated by any single biomass facility that may be used to meet requirement that certain percentage of electricity in this state be electricity generated by small-scale renewable energy projects or biomass facilities.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2134 INTRO

Relating to low-income electric bill payment assistance. Repeals sunset on collection of additional moneys for low-income electric bill payment assistance.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2135 INTRO

Relating to entities that contribute to greenhouse gas emissions; declaring an emergency. Repeals greenhouse gas emissions goals and requires Environmental Quality Commission to adopt by rule statewide greenhouse gas emissions goal for 2025, and limits for years 2035 and 2050.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2136 INTRO

Relating to small-scale renewable energy projects; declaring an emergency. Creates schedule by which certain percentage of electricity sold by electric company to retail electricity consumers must be electricity generated by qualifying small-scale renewable energy projects.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2137 INTRO

Relating to utilities. Redefines scope of Public Utility Commission's general duties and powers.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)
HB 2138 INTRO

Relating to diesel; declaring an emergency. Beginning January 1, 2018, requires certain public improvement contracts to reserve one percent of total contract price for performing repowers or retrofits of certain diesel engines used in course of performing contract.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)
HB 2139 INTRO

Relating to anhydrous ammonia. Directs State Department of Energy to study treating anhydrous ammonia as renewable energy source for purposes of renewable portfolio standard.
Bill Sponsor: Rep Boone (Presession filed.)
Current Committee: Energy and Environment (H)
HB 2146 INTRO

Relating to the use of energy-related tax credits by tax-exempt entities; prescribing an effective date. Prohibits tax-exempt entities from earning or transferring energy-related tax credits.
Bill Sponsor: Rep Johnson (Presession filed.)
Current Committee: Energy and Environment (H)
HB 2197 INTRO

Relating to cannabis; prescribing an effective date. Directs Oregon Liquor Control Commission to enter into agreement with nongovernmental entity that conducts or funds research on cannabis and cannabis-derived products.

Bill Sponsor: Presession filed
Current Committee: Marijuana Regulation (J)
HB 2205 INTRO

Relating to cannabis; declaring an emergency. Directs State Department of Agriculture to solicit proposals from third party vendors to create for producers of cannabis efficiency standards for energy and water consumption and certification protocols for meeting those standards.

Bill Sponsor: Presession filed

Current Committee: Agriculture and Natural Resources (H)
HB 2210 INTRO

Relating to affordable rental housing assistance. Directs Housing and Community Services Department to develop and implement Retaining Affordable Rental Housing Program to provide grants to owners of multifamily rental housing to rehabilitate and maintain housing at affordable rental rates.

Bill Sponsor: Rep Vial (Presession filed.)
Current Committee: Human Services and Housing (H)
HB 2239 INTRO

Relating to energy efficient building codes; declaring an emergency. Establishes Task Force on Energy Efficient Building Codes.
Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)
HB 2269 INTRO

Relating to air quality; declaring an emergency. Modifies fee schedule for sources subject to federal operating permit program under Title V of federal Clean Air Act.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2286 INTRO

Relating to administration of tax credits; prescribing an effective date. Requires that transfer of tax credit follow uniform transfer procedures.
Bill Sponsor: Presession filed
Current Committee: Revenue (H)

HB 2330 INTRO

Relating to charges for electricity delivered to the public for electrically powered motor vehicles; declaring an emergency. Permits, rather than requires, state agency to set price for using device that is located on agency premises and that provides electricity to public for motor vehicles that use electricity for propulsion at specific level.
Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2331 INTRO

Relating to state provision of compressed natural gas for motor vehicles. Extends until January 2, 2025, sunset for Oregon Department of Administrative Services program to make compressed natural gas available for use in motor vehicles.

Bill Sponsor: Presession filed

Current Committee: Energy and Environment (H)

HB 2343 INTRO

Relating to comprehensive energy reporting. Replaces requirements for State Department of Energy to complete biennial comprehensive energy plan and biennial energy forecast with requirement for department to complete biennial comprehensive energy report.

Bill Sponsor: Presession filed
Current Committee: Energy and Environment (H)

HB 2433 INTRO

Relating to colocation of low-income senior housing on school district property; declaring an emergency. Directs Housing and Community Services Department to establish pilot program in which department constructs low-income senior housing development on school district land and school district rents to low-income seniors at reduced rent in exchange for classroom assistance.

Bill Sponsor: Rep Parrish (Presession filed.)
Current Committee: Human Services and Housing (H)

HB 2468 INTRO

Relating to air pollution; declaring an emergency. Requires Environmental Quality Commission to adopt by rule certain statewide greenhouse gas emissions limits by no later than January 1, 2018.

Bill Sponsor: Rep Holvey; Rep Barnhart; Rep Helm; Rep Nosse; Rep Power (Presession filed.)

Current Committee: Energy and Environment (H)

HB 2471 INTRO

Relating to acquisition of service territory of electric utility; declaring an emergency. Extends period of time by which electric utility that acquires service territory of other electric utility without other electric utility's consent must comply with renewable portfolio standard that applies in that service territory.

Bill Sponsor: Rep Bentz; Rep Boone (Presession filed.)

Current Committee: Energy and Environment (H)

HB 2478 INTRO

Relating to greenhouse gas emissions; declaring an emergency. Requires Environmental Quality Commission to adopt by rule program for assessing net impacts of state policies and

programs for reducing greenhouse gas emissions.
Bill Sponsor: Rep Bentz (Presession filed.)
Current Committee: Energy and Environment (H)
HB 2481 INTRO

Relating to indicating the cost per gallon of gasoline of the low carbon fuel standards; declaring an emergency. Requires gas station owner or operator to print, on any receipt that owner or operator provides to customer after customer purchases gasoline, cost to customer per gallon of gasoline of low carbon fuel standards.

Bill Sponsor: Rep Bentz (Presession filed.)

Current Committee: Energy and Environment (H)
HB 2502 NTRO

Relating to ocean power districts. Directs Department of State Lands to study and develop recommendations for developing and organizing ocean power districts.

Bill Sponsor: Rep Nathanson; Rep Boone (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2510 INTRO

Relating to electric vehicle charging stations; declaring an emergency. Authorizes commercial tenant to install on premises and use electric vehicle charging station.

Bill Sponsor: Rep Barnhart; Rep Helm (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2511 INTRO

Relating to electric vehicle charging stations; declaring an emergency. Authorizes residential tenant to install on premises and use electric vehicle charging station for personal, noncommercial use.

Bill Sponsor: Rep Barnhart; Rep Helm (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2514 INTRO

Relating to electric motor vehicle incentives. Directs Oregon Business Development Department to develop and implement Electric Motor Vehicle Sales Incentive Program to provide per-vehicle sales incentive to salespersons employed by electric motor vehicle dealers for sales, leases or trade-in exchanges of new electric motor vehicles to residents of this state.
Bill Sponsor: Rep Barnhart (Presession filed.)
Current Committee: Energy and Environment (H)
HB 2532 INTRO

Relating to transportation. Directs Oregon Transportation Commission to adopt rules establishing quantitative system for scoring and ranking transportation projects that are being considered by commission for inclusion in Statewide Transportation Improvement Program.

Bill Sponsor: Rep Reardon; Rep Helm; Rep Keny-Guyer; Rep Nosse; Rep Sanchez; Sen Boquist (Presession filed.)

Current Committee: Transportation Policy (H)
HB 2568 INTRO

Relating to utilities; declaring an emergency.

Specifies, for purposes of exempting certain vehicles from overall allowable length of vehicles under Vehicle Code, that disruption in services provided by public utility, telecommunications utility, people's utility district or cooperative rural electrification district is emergency.

Bill Sponsor: Rep Witt (Presession filed.)

Current Committee: Transportation Policy (H)

HB 2570 NTRO

Relating to nonprofit organizations that provide financial assistance for affordable housing. Directs Housing and Community Services Department to establish Affordable Homeownership Grant Program to provide grants to eligible nonprofit organizations with affordable homeownership programs to provide opportunities for homeownership to persons in low income households.

Bill Sponsor: Rep Witt; Rep Nosse; Rep Whisnant; Rep Gomberg (Presession filed.)

Current Committee: Human Services and Housing (H)

HB 2680 INTRO

Relating to renewable energy development; prescribing an effective date. Defines systems that use waste heat to produce energy as renewable energy production systems for which applicants may receive grants from State Department of Energy to install or construct.
Bill Sponsor: Rep Nosse (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2681 INTRO

Relating to residential energy. Extends sunset for construction or installation of alternative energy devices.

Bill Sponsor: Rep Nosse; Rep Evans (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2704 INTRO

Relating to vehicle emission reductions; prescribing an effective date. Requires Environmental Quality Commission to establish program to provide rebates to persons that purchase and register certain low emission vehicles and zero-emission transit buses in this state.
Bill Sponsor: Rep Helm (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2710 INTRO

Relating to the reduction of energy use in buildings; declaring an emergency. Sets schedule for Director of Department of Consumer and Business Services to perform certain duties regarding energy efficiency standards and requirements for newly constructed buildings.
Bill Sponsor: Rep Helm (Presession filed.)
Current Committee: Energy and Environment (H)

HB 2725 INTRO

Relating to wood smoke pollution; declaring an emergency. Requires Environmental Quality Commission to adopt by rule grant program for providing funding to local service providers to develop and implement woodstove replacement rebate programs.

Bill Sponsor: Rep Helm; Sen Prozanski; Rep Keny-Guyer; Rep Marsh; Rep Nosse; Rep Power; Rep Sanchez; Sen Dembrow; Sen Steiner Hayward; Rep Malstrom; Rep Greenlick (Presession filed.)

Current Committee: Energy and Environment (H)

HB 2737 INTRO

Relating to construction standards for small homes. Requires Director of Department of Consumer and Business Services to establish special construction standards for homes that have floor area of not more than 250 square feet.

Bill Sponsor: Rep Barnhart
Current Committee: Business and Labor (H)

HB 2748 INTRO

Relating to the Residential Solid Fuel Heating Air Quality Improvement Fund. Modifies sources of moneys deposited in Residential Solid Fuel Heating Air Quality Improvement Fund.

Bill Sponsor: Rep Johnson
Current Committee: Energy and Environment (H)

HB 2755 INTRO

Relating to determination of values of transferable tax credits; prescribing an effective date. Requires value of transferable tax credit to be determined during calendar quarter in which agreement is reached to transfer credit.

Bill Sponsor: Rep Holvey; Sen Beyer
Current Committee: Revenue (H)
HB 2756 INTRO

Relating to small scale local energy projects; prescribing an effective date. Transfers duties, functions and powers of State Department of Energy related to issuance of loans for small scale local energy projects to Oregon Business Development Department.

Bill Sponsor: Rep Holvey; Sen Beyer
Current Committee: Business and Labor (H)
HB 2757 INTRO

Relating to energy facility siting; declaring an emergency. Modifies cost recovery formula for site certificate holders.

Bill Sponsor: Rep Holvey; Sen Beyer
Current Committee: Energy and Environment (H)

HB 2758 INTRO

Relating to residential energy conservation for oil-heated dwellings. Transfers administration of fuel oil dealer program from State Department of Energy to Housing and Community Services Department.

Bill Sponsor: Rep Holvey; Sen Beyer

Current Committee: Energy and Environment (H)
HB 2759 NTRO

Relating to state purchase of transferable tax credits; prescribing an effective date. Prohibits transfer of energy-related tax credit held by tax-exempt or governmental entity.

Bill Sponsor: Rep Holvey; Sen Beyer
Current Committee: Energy and Environment (H)

HB 2760 INTRO

Relating to the taxation of alternative energy systems; prescribing an effective date. Extends sunset for property tax exemption for alternative energy systems.
Bill Sponsor: Rep Holvey
Current Committee: Energy and Environment (H)
HB 2764 INTRO

Relating to minimum energy supplier assessment level. Changes calculated share of annual energy resource supplier assessment below which energy resource supplier is exempt from payment of assessment from $250 to $2,500.

Bill Sponsor: Rep Holvey; Sen Beyer
Current Committee: Energy and Environment (H)
HB 2765 INTRO

Relating to the taxation of alternative energy systems; prescribing an effective date. Extends sunset for property tax exemption for alternative energy systems.
Bill Sponsor: Revenue (H)
Current Committee: Energy and Environment (H)
HB 2775 INTRO

Relating to tax credits for biomass; prescribing an effective date. Limits total amount of biomass tax credit allowed for animal manure that may be claimed annually by all taxpayers.

Bill Sponsor: Revenue (H)
Current Committee: Revenue (H)

HB 2853 INTRO

Relating to tax credits for biomass. Limits availability of tax credit allowed for animal manure processed in digester to digester in operation by certain date.

Bill Sponsor: Revenue (H)
Current Committee: Agriculture and Natural Resources (H)

HB 5009 INTRO

Relating to the financial administration of the State Department of Energy; declaring an emergency. Limits biennial expenditures from fees, moneys or other revenues, including Miscellaneous Receipts, but excluding lottery funds and federal funds, collected or received by State Department of Energy.

Bill Sponsor: Presession filed
Current Committee: Ways and Means (J)

HB 5025 INTRO

Relating to the financial administration of the Oregon Business Development Department; declaring an emergency. Appropriates moneys from General Fund to Oregon Business Development Department for biennial expenses.
Bill Sponsor: Presession filed

Current Committee: Ways and Means (J)

SB 99 INTRO

Relating to the Director of the State Department of Energy. Requires Senate confirmation of Director of the State Department of Energy.

Bill Sponsor: Presession filed
Current Committee: Business and Transportation (S)

SB 100 INTRO

Relating to residential energy conservation for oil-heated dwellings; prescribing an effective date. Repeals fuel oil dealer program.
Bill Sponsor: Presession filed
Current Committee: Environment and Natural Resources (S)

SB 159 INTRO

Relating to household tax credit for household energy costs; prescribing an effective date. Creates refundable income tax credit to offset household energy costs for taxpayers meeting income requirements.

Bill Sponsor: Presession filed
Current Committee: Finance and Revenue (S)

SB 168 INTRO

Relating to a tax credit for biomass. Extends sunset for tax credit for biomass production or collection for all types of biomass.

Bill Sponsor: Presession filed

Current Committee: Environment and Natural Resources (S)

SB 170 INTRO

Relating to tax credits for energy conservation projects. Extends sunset for tax credit for energy conservation project.
Bill Sponsor: Presession filed
Current Committee: Business and Transportation (S)

SB 175 INTRO

Relating to tax credits for renewable energy development contributions. Extends sunset for tax credits for renewable energy development contributions.

Bill Sponsor: Presession filed
Current Committee: Environment and Natural Resources (S)

SB 177 INTRO

Relating to residential energy. Extends sunset for construction or installation of alternative energy devices.

Bill Sponsor: Presession filed
Current Committee: Business and Transportation (S)

SB 197 INTRO

Relating to dairy air contaminants. Requires Environmental Quality Commission to adopt by rule program for regulating air contaminant emissions from dairy confined animal feeding operations.

Bill Sponsor: Presession filed
Current Committee: Environment and Natural Resources (S)

SB 285 INTRO

Relating to state financial administration; declaring an emergency. Appropriates moneys from General Fund to Higher Education Coordinating Commission to provide matching funds for Northwest National Marine Renewable Energy Center at Oregon State University to receive federal funds for deepwater test facility for utility scale wave energy converters.

Bill Sponsor: Sen Roblan; Sen Kruse; Rep Gomberg; Rep McKeown; Rep Smith DB

Current Committee: Environment and Natural Resources (S)

SB 322 INTRO

Relating to the use of hydroelectric energy to comply with renewable portfolio standard. Specifies that electricity generated by hydroelectric facility or other equipment that generates electricity through use of hydroelectric energy may be used to comply with renewable portfolio standard.

Bill Sponsor: Sen Olsen

Current Committee: Business and Transportation (S)

SB 328 INTRO

Relating to registration of biomass facilities; declaring an emergency. Makes biomass facilities that registered with Western Renewable Energy Generation Information System on or after January 1, 2011, eligible for renewable energy certificates.

Bill Sponsor: Presession filed
Current Committee: Business and Transportation (S)

SB 334 INTRO

Relating to renewable natural gas. Requires State Department of Energy to develop and maintain inventory of biogas and renewable natural gas resources available to this state.

Bill Sponsor: Presession filed
Current Committee: Business and Transportation (S)

SB 339 INTRO

Relating to small-scale renewable energy projects; declaring an emergency. Caps electricity generated by any single biomass facility that may be used to meet requirement that certain percent of electricity in this state be electricity generated by small-scale renewable energy projects or biomass facilities.

Bill Sponsor: Presession filed

Current Committee: Business and Transportation (S)
SB 376 INTRO

Relating to Senate confirmation of appointments. Requires Senate confirmation of appointments by Governor of directors of Housing and Community Services Department and State Department of Energy.

Bill Sponsor: Sen Hansell; Rep Barreto
Current Committee: Rules (S)
SB 424 INTRO

Relating to allowable green energy technology in public improvement contracts; prescribing an effective date. Expands definition of "green energy technology" for purposes of public improvement contracts.
Bill Sponsor: Sen Ferrioli
Current Committee: Environment and Natural Resources (S)
SB 425 INTRO

Relating to the use of hydroelectric energy to comply with renewable portfolio standard. Specifies that electricity generated by hydroelectric facility or other equipment that generates electricity through use of hydroelectric energy may be used to comply with renewable portfolio standard.

Bill Sponsor: Sen Ferrioli

Current Committee: Business and Transportation (S)
SB 426 INTRO

Relating to complete repeal of low carbon fuel standards. Repeals low carbon fuel standards.
Bill Sponsor: Sen Ferrioli
Current Committee: Environment and Natural Resources (S)
SB 427 INTRO

Relating to elimination of requirements for which a public utility that supplies electricity may request from the Public Utility Commission an increase in rates. Amends certain provisions setting forth renewable portfolio standard requirements and acquisition processes to reinstitute requirements and processes in effect on March 7, 2016.

Bill Sponsor: Sen Ferrioli
Current Committee: Business and Transportation (S)
SB 539 INTRO

Relating to public purpose charge moneys; prescribing an effective date. Changes distribution of amounts collected as public purpose charge by electric companies and Oregon Community Power.

Bill Sponsor: Sen Thatcher
Current Committee: Business and Transportation (S)

SB 557 INTRO

Relating to entities that contribute to greenhouse gas emissions; declaring an emergency. Repeals greenhouse gas emissions goals and requires Environmental Quality Commission to adopt by rule statewide greenhouse gas emissions goal for 2025, and limits for years 2035 and 2050.

Bill Sponsor: Sen Beyer; Sen Manning Jr
Current Committee: Environment and Natural Resources (S)
SB 599 INTRO

Relating to a tax credit for capital improvements; prescribing an effective date. Creates income tax credit for capital improvements to business facilities or homes that are commenced prior to later of September 1, 2017, or effective date of Act.

Bill Sponsor: Sen Knopp
Current Committee: Business and Transportation (S)

SB 634 INTRO

Relating to using woody biomass as a green energy technology; prescribing an effective date. Adds woody biomass to list of types of energy generating technology that are green energy technology that must be included in constructing, reconstructing or renovating public buildings, and for which contracting agency must set aside 1.5 percent of contract price.

Bill Sponsor: Sen Knopp; Sen Ferrioli

Current Committee: Environment and Natural Resources (S)
SB 656 INTRO

Relating to increasing the frequency of conducting independent management evaluation of nongovernmental entity that receives public purpose charge moneys. Increases frequency of conducting independent management evaluation of nongovernmental entity's operations, efficiency and effectiveness, if public purpose charge moneys are transferred to nongovernmental entity for specified energy efficiency purposes.

Bill Sponsor: Sen Olsen
Current Committee: Business and Transportation (S)
SB 657 INTRO

Relating to reduction in expenditures allowed under public purpose charge. Reduces public purpose charge.
Bill Sponsor: Sen Olsen
Current Committee: Business and Transportation (S)
SB 659 INTRO

Relating to assessment by independent third party of nongovernmental entity that receives public purpose charges; prescribing an effective date. Requires nongovernmental entity, as condition of receiving public purpose charge moneys, to be assessed by independent third party.

Bill Sponsor: Sen Olsen
Current Committee: Business and Transportation (S)
SB 748 INTRO

Relating to entities that contribute to greenhouse gas emissions; declaring an emergency. Requires Environmental Quality Commission to adopt carbon pollution permit program by rule.

Bill Sponsor: Sen Beyer
Current Committee: Environment and Natural Resources (S)

Tab 8

Glossary of Terms Related to Energy Trust of Oregon's Work

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 current and comprehensive information. Last updated July 2015.

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 specifies the methodology for calculating above-market costs. *Reference the Board Cost-Effectiveness Policy and General Methodology*

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, efficient windows and weatherstripping, which reduce the amount of cold air entering or warm air escaping 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 (Btu)
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 and Power, 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. *Reference the Board Combined Heat and Power Policy*

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). 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. *Reference the Board Cost-Effectiveness Policy and General Methodology*

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 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. In Oregon, the pilot program was called the Volumetric Incentive Rate program and each investor-owned utility in the state ran separate programs. Solar systems receiving a feed-in tariff rate were not eligible for Energy Trust incentives or a state tax credit.

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 Certificates or RECs)
See the Renewable Energy Certificates entry.

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 reusing heat from the cold outdoors with an electrical system in the winter. Most systems use forced warm-air delivery systems to move heated air throughout the house.

Heating, Ventilation and Air Conditioning (HVAC)
Mechanical systems that provide thermal comfort and air quality in an indoor space. They 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 Btu. 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 a greenhouse gas.

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 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.

Oregon Public Utility Commission (OPUC)
Energy Trust operates under a grant agreement with the OPUC and reports quarterly and annually to the state agency. Reports include quarterly presentations to the commission and an annual update on progress to OPUC minimum annual performance measures.

Path to Net Zero (PTNZ)
The Path to Net Zero pilot was launched in 2009 by the 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. The offer demonstrates that a wide range of buildings can achieve aggressive energy goals using currently available construction methods and technology, as well as by testing innovative design strategies.

Photovoltaic
Direct conversion of sunlight to electric energy through the effects of solar radiation on semi-conductor materials. Photovoltaic systems are one type of solar system eligible for Energy Trust incentives.

Program Management Contractor (PMC)
Company Energy Trust contracts with to deliver and implement a program or major program track. PMCs keeps costs low for utility customers, draw from existing expertise and skills in the market, and allow Energy Trust to remain flexible and nimble as the market changes. PMC contracts are competitively selected, reviewed by a committee with internal staff and external representatives, and approved by the board.

Program Delivery Contractor (PDC)
Company Energy Trust contracts with to implement a specific program track. PDCs keeps costs low for utility customers, draw from existing expertise and skills in the market, and allow Energy Trust to remain flexible and nimble as the market changes. PDC contracts are competitively selected, reviewed by a committee with internal staff and external representatives, and approved by the board.

Public Purpose Charge
Established in SB 1149, the public purpose charge is a 3 percent charge from PGE and Pacific Power Oregon customers. Three fund administrators distribute the ratepayer dollars: Energy Trust of Oregon for energy efficiency, market transformation and renewable energy programs; the Oregon Department of Energy for energy efficiency in schools; and Oregon Housing and Community Services for low-income weatherization and housing assistance. Energy Trust is funded through the public purpose charge (SB 1149), supplemental funding (SB 838) and contracts with two gas utilities.

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 Certificates (RECs or Green Tags)
A Renewable Energy Certificate is a tradable commodity that represents the contractual rights to claim the environmental attributes of a certain quantity of renewable electricity. The environmental attributes include the reductions in emissions of pollutants and greenhouse gases that result from the delivery of the renewably-generated electricity to the grid.

Here's how emission reductions occur: When a renewable energy system 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, the renewable energy system causes them to generate fewer emissions of pollutants and greenhouse gases. These reductions in emissions are the primary component of RECs.

RECs 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. RECs 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.

RECs are bought and sold every day in the electricity market. They are measured in units, like electricity. Each kilowatt hour of electricity that a renewable energy system produces also creates a one-kilowatt hour REC. *Reference the Board Renewable Energy Certificate Policy*

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, including in Oregon, 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 for 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
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 through the Oregon Department of Energy and to low-income customers through Oregon Housing and Community Services. SB 1149 is one stream of funding for Energy Trust, which is also funded through SB 838 to deliver achievable energy efficiency above the 3 percent and identified in utility integrated resource planning processes, and individual contracts with NW Natural and Cascade Natural Gas to deliver natural gas efficiency programs.

SB 838
SB 838, enacted in 2007, augmented Energy Trust’s mission in many ways. It provided a vehicle for additional electric efficiency funding for customers under 1 aMW in load by allowing PGE and Pacific Power to fund cost-effective energy efficiency above the 3 percent, and restructured the renewable energy role to focus on renewable energy systems that are 20 MW or less in size. SB 838 is also the legislation creating the state’s Renewable Portfolio Standard and extended Energy Trust’s sunset year from 2012 to 2026.

SB 838 is often categorized as supplemental funding in Energy Trust budget documents.

Sectors
For energy planning purposes, the economy is divided into four sectors: residential, commercial, industrial and irrigation. At Energy Trust, programs are divided into four sectors: residential, commercial (including multifamily), industrial (including irrigation) and renewable energy.

Self-Directing Consumers
A retail electricity consumer that has used more than one aMW of electricity at any one site in the prior calendar year or an aluminum plant that averages more than 100 aMW 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.

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.

Strategic Energy Management (SEM)
A program offering for both commercial and industrial customers: commercial Strategic Energy Management and industrial Strategic Energy Management. Through SEM, customers engage with Energy Trust for a year or more in a systematic and ongoing approach to lowering energy usage. Energy Trust helps customers track and monitor energy use and performance, identify and implement no-cost and low-cost operations and maintenance changes, develop an energy management plan and more. SEM creates culture change around energy, training employees at all levels that energy use can be tracked, reduced and managed.

Therm
One hundred thousand (100,000) British thermal units (1 therm = 100,000 Btu).

Total Resource Cost Test
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. This test is central to how Energy Trust delivers on its mission. This test is the main test that determines whether Energy Trust can offer an incentive for a project. It also reflects the region's approach to long-term energy planning by prioritizing investment in low-cost energy resources. *Reference the Board Cost-Effectiveness Policy and General Methodology*

Tidal Energy
Energy captured from tidal movements of water.

Trade Ally Contractor (Trade Ally)
Energy Trust trade allies are valued ambassadors in the field. The network of independent contractors andother allied professionals helps homeowners, businesses, public and nonprofit entities, developers and others complete energy-efficiency and renewable energy projects across Oregon and in southwest Washington. Quite often, trade allies are the first, last and only Energy Trust representative a customer will see.

Trade Ally Network
Energy Trust statewide network of trained contractors and other allied businesses.

Utility Cost Test
This test is used to indicate the incentive amount for a project. It helps Energy Trust determine whether providing an incentive is cost effective for the utility system. *Reference the Board Cost-Effectiveness Policy and General Methodology*

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.

Acronyms Related to Energy Trust of Oregon's Work

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 organization
AFUE	Annual Fuel Utilization Efficiency	The measure of seasonal or annual efficiency of a furnace or boiler
AIA	American Institute of Architects	Trade organization
AOC	Association of Oregon Counties	
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
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	Former Oregon tax credit
BOC	Building Operator Certification	Trains and certifies building operators
BOMA	Building Owners and Managers Association	
BPA	Bonneville Power Administration	Federal power authority
BPS	Bureau of Planning and Sustainability	City of Portland government agency
CAC	Conservation Advisory Council	Energy Trust advisory council to the board
CCS	Communications and Customer Service	A group within Energy Trust
CCCT	Combined Cycle Combustion Turbine	
CEE	Consortium for Energy Efficiency	National energy efficiency group
CEW	Clean Energy Works	
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 ratio of heat output to electrical energy input for a heat pump
CR	CLEAResult	Program Management Contractor for Existing Homes, New Homes and New Buildings
CRM	Customer Relationship Management system	Energy Trust's system to capture information on program participants and non-participants that have communicated with us
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	
EA	Earth Advantage	
EASA	Electrical Apparatus Service Association	Trade association
ECM	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	
EMS	Energy Management System	See definition in text
EPA	Environmental Protection Agency	Federal agency
EPRI	Electric Power Resource Institute	Utility organization
EPS™	Energy Performance Score	Energy Trust rating that assesses a newly built or existing home's energy use, carbon impact and estimated monthly utility costs

EQIP	Environmental Quality Incentive Program	
EREN	Energy Efficiency and Renewable Energy Network	DOE program
ESS	Energy Services Supplier	
EUI	Energy Use Intensity	See definition in text
EWEB	Eugene Water & Electric Board	Utility organization
FCEC	Fair and Clean Energy Coalition	Environmental advocacy organization
FEMP	Federal Energy Management Program	
FERC	Federal Energy Regulatory Commission	Federal regulator
GHG	Greenhouse gas	
GP	Great Plains	Energy Trust's financial tracking system
HBA	Home Builders Association	
HER	Home Energy Review	Online review of a residential customer's home
HSPF	Heating Season Performance Factor	
HVAC	Heating, Ventilation and Air Conditioning	
IBEW	International Brotherhood of Electrical Workers	
ICNU	Industrial Customers of Northwest Utilities	Trade interest group
ICF	ICF International	Existing Buildings Program Management Contractor
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 Solution Implementation Project	
ISM	Instant-Savings Measure	See definition in text
ITC	Investment Tax Credit	Federal
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	
LM	Lockheed Martin	Existing Multifamily Program Management Contractor
LOC	League of Oregon Cities	Local government organization
MEEA	Midwest Energy Efficiency Alliance	Midwest Market Transformation organization, Alliance counterpart
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
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 energy efficiency and renewable energy organization funded by a systems benefit charge
OBA	Oregon Business Association	Business lobby group
OEFSC	Oregon Energy Facility Siting Council	Authority to site energy facilities in Oregon
ODOE	Oregon Department of Energy	Oregon state energy agency and one of three public purpose charge administrators
OHCS	Oregon Housing and Community Services	One of three public purpose charge administrator
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
OSEIA	Solar Energy Industries Association of Oregon	Volunteer nonprofit organization dedicated to education/promotion
P&E	Planning and Evaluation	A group within Energy Trust
PAC	Pacific Power	

PDC	Program Delivery Contractor	Company contracted with Energy Trust to identify and deliver industrial and agricultural services, and commercial Strategic Energy Management services, to Energy Trust customers
PECI	Portland Energy Conservation, Inc.	Portland nonprofit; former Energy Trust PMC
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
PNUCC	Pacific Northwest Utilities Conference Committee	
PPC	Public Power Council	National trade group
PPL	Pacific Power	Formerly Pacific Power and Light
PSE	Puget Sound Energy	Investor-owned utility
PT	Project Tracking	Energy Trust's database that tracks details on customer projects
PTC	Production Tax Credit	Federal incentive that provides financial support for the first 10 years of a renewable energy facility's operation
PTCS	Performance Tested Comfort Systems	Promotes the efficiency of air-systems in residential homes
PTNZ	Path to Net Zero	See definition in text
PUC	Public Utility Commission	
PUD	Public Utility District	
PURPA	Public Utility Regulatory Policies Act	See definition in text
QF	Qualifying Facility	
RAC	Renewable Energy Advisory Council	Energy Trust advisory council to the board
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	
RNW	Renewable Northwest	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
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
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
T&D	Transmission & Distribution	
TRC	Total Resource Cost	See definition in text
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
WUTC	Washington Utilities and Transportation Commission	
Wx	Weatherization	
W	Watt	