Energy Trust Board of Directors Meeting

September 28, 2016

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145th Board Meeting-REVISED

Wednesday, September 28, 2016
421 SW Oak Street, Suite 300
Portland, Oregon

	Agenda	Tab	Purpose
12:15 pm	**145th 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.* • July 20 Board meeting minutes • Bank signing resolutions	**1**	Action
12:20 pm	**NEEA Annual Activity Report** (Susan Stratton)		Info
12:50 pm	**President's Report** (Debbie Kitchin)		
1:20 pm	**Budget Action Plans Preview** (Peter West)		
1:50 pm	**Operations** • Authorize contract amendment with Pollinate—R782 (Sloan Schang)	**2**	Action
2:10 pm	**Energy Programs** • Contract extension for Program Delivery Contracts (Adam Bartini) ..... • Program Management and Program Delivery Contract Terms...	**3** **3**	Info Info
2:30 pm	**Break**		
2:45 pm	**Committee Reports** • Policy Committee (Roger Hamilton)..... • Amend Conservation Funding for Schools Policy (Oliver Kesting) ..... • Evaluation Committee (Alan Meyer) ..... • Finance Committee (Dan Enloe).....	**4** **4** **5** **6**	Info Action Info Info
3:15 pm	**Staff Report** • Highlights (Michael Colgrove)		
3:45 pm	**Adjourn**		

The next meeting of the Energy Trust Board of Directors will be held
Wednesday, November 2, 2016 at 12:15pm
at Energy Trust of Oregon, 421 SW Oak Street, Suite 300, Portland

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Tab 1

Board Meeting Minutes—144th Meeting

July 20, 2016

Board members present: Susan Brodahl, Heather Buesse Eberhardt, Ken Canon, Melissa Cribbins, Dan Enloe, Roger Hamilton, Lindsey Hardy, Debbie Kitchin, Alan Meyer, John Reynolds, Eddie Sherman, Stephen Bloom (OPUC ex officio), Warren Cook (Oregon Department of Energy special advisor)

Board members absent: Mark Kendall, Anne Root

Staff attending: Margie Harris, Hannah Cruz, Debbie Menashe, Lori Miller, Amber Cole, Jed Jorgensen, Peter West, Dave Moldal, Kim Crossman, Thad Roth, Chris Dearth, Lindsey Diercksen, Oliver Kesting, Steve Lacey, Tara Crookshank, Mariet Steenkamp, Jay Olson, Fred Gordon, Adam Bartini, Mark Wyman, Dan Rubado, Sarah Castor, Mike Bailey, Kathleen Belkhayat, Andy Hudson, Katie Wallace, Robert Wyllie, Matt Getchell, Eric Braddock

Others attending: Elaine Prause (OPUC), Wendy Gerlitz (NW Energy Coalition), Don Jones, Jr. (PacifiCorp), Jeff Schwartz (ICF International), Scott Broten (ICF International), Jim Abrahamson (Cascade Natural Gas), Roger Spring (Evergreen Consulting), Whitney Rideout (Evergreen Consulting), Aaron Leatherwood (Evergreen Consulting), Marcus Wilcox (Cascade Energy), Dave Zerr (Cascade Energy), Beth Glynn (Cascade Energy), John Charles (Cascade Policy Institute), Lydia White (Cascade Policy Institute), Jeff Bissonnette (Oregon Solar Energy Industries Association), Ed Pugh (Deschutes Water Valley District), Finley Anderson (Kleinschmidt Associates), BJ Moghadam (NEEA), Garrett Harris (Portland General Electric)

Business Meeting

Debbie Kitchin called the meeting to order at 12:20 p.m. Reminder 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. May 19 and 20 Board strategic planning retreat minutes
2. June 8 Board meeting minutes

Moved by: Roger Hamilton — Seconded by: Ken Canon
Vote: In favor: 11 — Abstained: 0
Opposed: 0

President's Report

Wendy Gerlitz announced the Northwest Energy Coalition is recognizing Margie with the nonprofit's Headwaters Award. The Headwaters Award is given to individuals whose work

exemplifies bringing clean and affordable energy to the Pacific Northwest. The award signifies the many years Margie has worked tirelessly to do so. Wendy noted staff at Energy Trust hold Margie in high regard for her leadership and so do people across the region. Margie consistently exhibits strength of character, wisdom and leadership, qualities that will be hard to replace. The NW Energy Coalition will formally present the award at its November 17 gala.

Debbie announced Margie is also receiving the Citizens' Utility Board of Oregon's inaugural Consumer Champion award at its October conference, and the American Council for an Energy-Efficient Economy's Champion of Energy Efficiency award at its August conference.

Margie thanked Wendy for the recognition. Margie said it has been a pleasure for her to be in the role of executive director, and that the awards recognize the work of the collective and the entire team at Energy Trust. These are shared recognitions and are about what the organization has achieved by working together.

The board said they are very proud of everything Margie has done.

Debbie introduced Resolution 780. Details of the agreements were discussed by the board earlier in executive session. The board corrected the board decision paper to add Margie Harris to the first clause of the summary statement, clarifying the amended employment agreement is between Energy Trust and Margie.

RESOLUTION 780

AUTHORIZING THE PRESIDENT TO SIGN AGREEMENTS WITH MARGIE HARRIS

1. **Energy Trust's current executive director, Margie Harris, is planning to retire.**
2. **On behalf of the full board, the Executive Director Transition Committee conducted a search for Energy Trust's next executive director and has entered into an employment agreement with Michael T. Colgrove for the position effective August 15, 2016.**
3. **In executive session, the President and Vice President of the board have engaged in discussions with the board regarding parameters of a proposed amendment to the current employment agreement between Energy Trust's current executive director, Margie Harris, and Energy Trust to ensure a smooth and effective transition of leadership for the organization. The board also discussed parameters of a separation and release agreement between Margie Harris and Energy Trust.**
4. **The President and Vice President of the board have engaged in negotiations with Ms. Harris consistent with those parameters.**
5. **The President and Vice President of the board recommend (i) entering into an amendment to the current employment agreement with Margie Harris consistent with discussions with the full board and Ms. Harris, (ii) entering into a separation and release agreement with Margie Harris consistent with discussions with the full board and Ms. Harris and (3) authorizing the president of the board to sign such agreements.**

It is therefore RESOLVED that the Energy Trust of Oregon, Inc. Board of Directors:

1. **Authorizes the President to sign an amendment to the current employment agreement with Margie Harris and a separation and release agreement with Margie Harris as discussed in connection with this meeting.**

Moved by: Alan Meyer Seconded by: John Reynolds

Vote: In favor: 11 Abstained: 0
Opposed: 0

Debbie noted today is Margie's last meeting as executive director. The September 28 board meeting will be Michael Colgrove's first board meeting. Debbie expressed appreciation to the board, the Executive Director Transition Committee, Ken Canon as the committee chair and Energy Trust staff for working on the transition.

Energy Programs

Authorize Funds for Opal Springs Hydropower Project—R776, Jed Jorgensen, Dave Moldal

Peter West introduced Resolution 776. The Opal Springs hydropower project is an example of a project that combines both energy benefits and complementary benefits that bring in co-funders. When the state energy tax credit changed a few years ago, the renewable energy sector strategy shifted to pursue projects with more co-funders as it became necessary for projects to be able to monetize benefits beyond the energy component to be viable in the absence of the state tax credits. This also led Energy Trust to providing more project development assistance to help projects move through the process to completion.

Jed Jorgensen said the Deschutes Valley Water District started with project development assistance in 2009, and he described Energy Trust's current hydropower project development assistance activity. There are a record 33 hydropower projects enrolled. Fourteen projects are directly related to Energy Trust's Irrigation Modernization program with Farmers Conservation Alliance. The program received a national award from the Clean Energy States Alliance earlier this year. Thirteen other projects are irrigation related and are either not yet part of the Irrigation Modernization program, are third parties working with irrigation districts or are farmers using irrigation water. The remaining six projects are on existing sites or projects on waterways, including the Deschutes Valley Water District's Opal Springs project.

There are two irrigation districts upstream of the Opal Springs project and if those districts move forward with piping and water conservation, additional water flows could lead to more generation for this project.

This project has multiple benefits, including fish passage. Energy Trust staff removed these additional costs from the hydropower above-market cost calculation unless the costs were intertwined with the generation component of the project. Capital costs and revenues related to fish passage were either excluded or reduced. Pacific Power updated its avoided costs recently, which led to minor changes to the above-market cost calculation. The briefing paper and board resolution in the board packet includes the updated figures.

Dave Moldal reviewed the project and incentive proposal. The project is on the Crooked River, a tributary of the Deschutes River. It includes installing inflatable weirs on the existing dam, raising the pool six feet, installing a fish ladder and increasing the head by six feet, which will generate on average an additional 3,227 megawatt hours (MWh) per year. The site has been generating about 28,000 MWh per year of hydropower since the mid-1980s. The district has a power purchase agreement with Pacific Power, which will expire at the end of 2020.

Dave noted the Pelton Round Butte dams downstream of Lake Billy Chinook were originally built without fish passage. When retrofitted in 2007 with fish passage, federally listed salmon, mid-Columbia steelhead and Bull trout started to pass over those dams. The Opal Springs dam is a barrier to those fish traveling upstream to spawn in the Crooked River watershed. With the

Federal Energy Regulatory Commission (FERC) license expiring in 2032, the district proactively addressed the issue, consulting with state and federal resource management agencies and nonprofits. The settlement agreement with those entities allows raising the height of the pool and adding fish passage. The district is applying for Low Impact Hydropower Institute certification to allow all the generation from the entire project to produce Renewable Energy Certificates (RECs). Once the project is installed, the RECs can count toward the state's Renewable Portfolio Standard.

Dave explained the technology being installed, including the inflatable weirs. Renewable Energy Advisory Council attendee Les Perkins is familiar with this reliable technology and mentioned it is commonly used by irrigation districts.

The board asked whether increasing the height of the dam is only for the hydropower project. Dave M confirmed it is also to accommodate fish passage and engineered to accommodate the fish ladder. The inflatable weirs could be lowered based on the flow of the river or for maintenance.

Dave clarified for the board that the dam is 21 feet high, rock filled and concrete capped. Seismic risks were not specifically studied since there are no buildings or people living in the area. There would be risk of dam failure if there was a seismic event but the probability of such an event is low.

The board asked if there are more barriers to fish after the Opal Springs dam. Dave said this project will open up many miles of high quality spawning habitat up to the Bowman Dam.

Dave summarized the project, which has a competent project team, secure site control, no permitting challenges at this time, existing interconnection with Pacific Power and an existing power purchase agreement. The project was also third-party reviewed by engineering expert Evergreen Energy.

The board asked whether FERC will approve modifying the existing dam license, which expires in 2032. Dave said the fish passage will be an amendment to the existing FERC license. It became clear to the district and articulated by resource management agencies that if the district does not move forward with fish passage, the FERC license renewal would be challenged. The process of amending the license is expected to be completed in 2017.

Dave reviewed the project's capital costs. The costs related to the generation component are approximately $3.5 million. The project is receiving non-energy grants from the Oregon Department of Fish and Wildlife and the Oregon Watershed Enhancement Board. These costs are not in Energy Trust's above-market cost assessment, while the prospective Pacific Power Blue Sky℠ funds are included in the assessment. The project has $834,549 in above-market costs. Staff proposes a $750,000 incentive paid in two equal payments, one at commercial operation and the second payment one year later based on meeting a generation threshold. The proposed incentives is 80 percent of overall above-market costs and Energy Trust will take 100 percent of all incremental RECs, approximately 64,650 RECs over five years. Construction is scheduled to start in spring 2017 and project commissioning is expected by Quarter 4, 2018.

The board asked how much land is being inundated with water when the dam is raised six feet. Dave said four additional acres of Bureau of Land Management land is expected to be inundated, and 10-15 additional acre feet of evaporation will occur, which is a fairly small amount.

Jed confirmed the previous project development assistance incentive was deducted from the above-market cost assessment.

The board commented on the multiple benefits of the project, and asked about the 8 percent discount rate. Dave said 8 percent has been used consistently over the years for public projects. At a recent renewable energy finance conference, higher discount rates are being used for solar projects. Staff is confident in the 8 percent discount rate, particularly with past municipal projects. Jed noted it's not necessarily apples to apples to compare the discount rate to the interest rates on municipal bonds. The discount rate is an area where staff strives for consistency and has received confirmation from the finance industry that the rate is appropriate, if not conservative, for municipalities.

The board discussed fish ladder technology. Board member Dan Enloe described a new technology being used in Washington State where a salmon cannon is used to transport fish above dams. He noted this technology could be used for a lower-cost fish transport system. Jed confirmed staff is familiar with the salmon cannon and while compelling, it is still in the research and development stage. The Washington State examples are test projects. The Deschutes Valley Water District's settlement agreement dictates installing a fish ladder. Dan Enloe stated he is opposed to the resolution because the project is installing fish passage technology he believes is more expensive compared to the fish cannon technology being used in Washington State.

RESOLUTION 776

APPROVING FUNDS FOR THE OPAL SPRINGS HYDROPOWER PROJECT

WHEREAS:

1. **The Deschutes Valley Water District proposes to increase the head on the existing Opal Springs Dam to increase generation by 3,227 MWh annually, an approximately 11 percent increase above existing average annual generation.**
2. **Staff and an independent contractor reviewed the project design and costs and found them to be standard and reasonable for what is proposed.**
3. **The project's above-market costs are $834,549 over a 20-year period on a present-value basis.**
4. **Staff proposes an incentive of $750,000 to be paid in two equal payments. The first payment would be made upon: 1) completion of construction and resumption of commercial operation; and 2) certification from the Low Impact Hydropower Institute**

(LIHI). The second payment would be made not sooner than twelve months later if the project meets generation performance milestones.

5. **Staff proposes that Energy Trust seek up to 64,540 RECs, representing 100 percent of the RECs estimated to be generated from the incremental additional generation.**
6. **At $2.04 million per average megawatt (aMW), the incentive is below the 2016 Other Renewables budget goal of $2.5 million/aMW**.

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

1. **Payment of up to $750,000 to be made in two payments to the Deschutes Valley Water District to offset the above-market costs of raising the height of the existing dam and cost of appurtenant facilities;**
2. **Energy Trust to take ownership of 64,540 RECs produced by the project; and**
3. **The executive director to enter into a contract(s) consistent with this resolution.**

Moved by:	John Reynolds	Seconded by: Melissa Cribbins
Vote:	In favor: 10	Abstained: 0
	Opposed: 1	

Authorize Existing Buildings Program Management Contract with ICF International—R777, Oliver Kesting

Peter introduced the resolution. Periodically, Energy Trust reviews and bids contracts for program management. Resolution 777 is the result of a recent Request for Proposals (RFP) rebidding for a Program Management Contractor (PMC) of the Existing Buildings program. Contracts have a five-year maximum, but this contract was rebid in year four to better stagger larger RFPs and potential contract transitions. This staggering of competitions for larger PMC contracts reduces impact on internal resources and staff.

Oliver Kesting reviewed the contract rebid process. The current Existing Buildings Program Management Contractor is ICF International, and in addition the program contracts separately for delivery of commercial Strategic Energy Management (SEM) and Pay for Performance. The contract that went out for rebid combined all three contracts into one. Energy Trust received six intents to respond and two proposals. The proposals included wide use of subcontractors, representing about a dozen energy-efficiency companies.

The board asked why more proposals weren't received. Oliver said the contract is large and many companies chose to be subcontractors. Peter described how the energy efficiency industry is experiencing a consolidation trend, with many smaller companies merging with larger companies. Energy Trust asks for multiple services, and in this case, saw an approach of more subcontractors in both proposals than there has been before. Peter said this affords more collaboration with several different companies.

The selection committee was made up of five staff and two external reviewers. The committee scored the proposals based on diversity, strength of proposal, strength and cohesiveness of team, cost and energy savings. It was a unanimous decision to recommend the incumbent, ICF International, to the board for approval.

ICF's proposal includes six subcontractors. ICF laid out a commitment to diversity at the customer and trade ally levels, and proposed bilingual marketing collateral plus a language line

for multilingual customer support. ICF brings a strong approach to marketing and trade ally engagement, and identified account managers to be located throughout Energy Trust territory. The proposal indicates a strong and cohesive team. There is a higher number of employees to be dedicated to the contract for deeper engagement with customers. The proposal includes a 3 percent increase in delivery costs, 1 percent increase in incentives, a 4 percent increase in electric savings and a 10 percent increase in natural gas savings compared to 2016.

ICF's current contract requires attaining mid-year goals. As of June 2016, ICF met every mid-year goal for each Oregon utility. Staff recommends the board authorize a contract with ICF to deliver the Existing Buildings Program Management Contract for three years with two optional one-year extensions.

The board noted appreciation for the diversity component in the proposal requirements. The board expressed a desire that the selection of the outreach staff is intentional to attract people from those communities they will be serving.

The board asked whether the complexity of the proposal advantages the incumbent company. Oliver said this can be a hurdle and it is not prohibitive. Energy Trust has historically made changes by not renewing an incumbent contract and instead selecting a new bidder.

RESOLUTION 777

AUTHORIZE A PROGRAM MANAGEMENT CONTRACT FOR THE EXISTING BUILDINGS PROGRAM

WHEREAS:

1. **With assistance from a selection committee including outside parties, staff has conducted a fair and open procurement process to select a program management contractor to manage Existing Buildings program services for the next 3-5 years;**
2. **ICF International, Inc. was selected and contract terms are being negotiated;**
3. **Staff has assumed and estimated a total first-year program management budget for 2017, including first-year incentives, contracted delivery, and possible performance compensation of approximately $41.97 million, which includes approximately $14.23 million in delivery, $27.74 in incentives; and**
4. **Actual savings and costs will be reviewed by the Energy Trust board as part of the annual budget and action plan process. Based on current assumptions, staff estimates the following program savings and fully loaded costs in 2017:**

	Electric	Gas
Savings	**122,036,243 kWh**	**2,178,195 therms**
$/Unit Savings	**$0.28/kWh**	**$3.35/therm**
Levelized Cost	**$0.029/kWh**	**$0.30/therm**

IT IS THEREFORE RESOLVED:

1. **Subject to determination of a final contract amount based on the board-approved 2017 budget, the executive director or his or her designee is authorized to enter into a**

contract with ICF International, Inc. to manage the Existing Buildings program for an initial term from January 1, 2017 through December 31, 2019.

2. **First-year contract costs and savings goals included in the contracts shall be consistent with the board-approved 2017 budget and two-year action plan. Thereafter, the contract(s) may be amended consistent with the board's annual budget and action plan decisions and the executive director or his designee is authorized to sign any such contract amendments.**
3. **The final contract may include a provision allowing staff to offer one-year extensions beyond the initial term if the program management contractor meets certain established performance criteria. In no event would the total term of the contract plus extensions exceed five years.**
4. **Before extending this contract beyond the initial term, staff will report to the board on the program management contractor's progress and staff's recommendation for any additional extension time periods. If the board does not object to extension, contract terms would remain as approved in the most recent action plans, budgets and contract at the time of extension, and the executive director or his designee is authorized to sign any such contract extensions.**

Moved by:	John Reynolds	Seconded by: Roger Hamilton
Vote:	In favor: 11	Abstained: 0
	Opposed: 0	

Authorize Streamlined Industrial Lighting Program Delivery Contract for Production Efficiency Program with Evergreen Consulting Group, LLC—R778, Kim Crossman and Lindsey Diercksen

Peter introduced this and the next resolution, which request the board authorize a Program Delivery Contract with Evergreen Consulting Group (Evergreen) to deliver industrial lighting for the Production Efficiency program, and then a Program Delivery Contract with Cascade Energy to deliver the streamlined industrial and agricultural track for the program.

Kim Crossman described the Request for Qualifications process. The Production Efficiency program has three tracks, streamlined, custom and industrial Strategic Energy Management. The program uses different Program Delivery Contractors (PDCs) to bring the program to market through different channels. The custom track serves end-use customers and works seamlessly with the streamlined track, which uses trade ally-delivered services because of its high volume. It is still important for customers to experience the opportunities as one, cohesive program. The program is seeking PDCs who can plug into this existing system, and the RFQ allowed the program to identify companies who can deliver services within this structured design. The qualifications process requires more upfront work from staff to accurately describe the RFQ scope of work while simplified responses is less work overall for bidders.

Lindsey Diercksen described the Production Efficiency streamlined track. The streamlined track has two Program Delivery Contractors, one who delivers the lighting track and the other who delivers the streamlined industrial and agriculture track. The overall streamlined track brings in the bulk of the program's project volume. In 2016, the streamlined track completed 1,200 of the 1,400 Production Efficiency projects.

Lindsey D reviewed the responsibilities of the industrial lighting PDC, which is to manage and train the industrial lighting trade allies, facilitate incentive form completion, and help develop measures and associated forms and tools. The current industrial lighting PDC is Evergreen. The

selection team received one intent to respond and one response to the RFQ that was issued in May. The response was from the incumbent firm, Evergreen. The review team screened the response for adherence to the qualifications, including program implementation, marketing, quality control and operations, Production Efficiency program experience and organizational experience.

Evergreen's response demonstrated strengths in all these areas, including delivering to the goals of the industrial lighting track, managing 250 trade allies, technical expertise, adapting to new markets and continuously evolving with changing markets.

The board asked what percentage of savings the streamlined track delivers for the program. Lindsey D said the streamlined track projects deliver 25 – 30 percent of overall program savings.

The board asked whether the Production Efficiency program has geographic spread of its lighting trade allies and has high quality trade allies in most population areas. Lindsey D said projects are roughly 40 percent rural and 60 percent Portland metro. The program is continually working to reach more rural communities, and provides onsite technical trainings and webinars for trade allies.

RESOLUTION 778

AUTHORIZE STREAMLINED INDUSTRIAL LIGHTING PROGRAM DELIVERY CONTRACT FOR THE PRODUCTION EFFICIENCY PROGRAM

WHEREAS:

1. **With assistance from a selection committee including an outside party, staff has conducted a fair and open procurement process to select a program delivery contractor to manage the Production Efficiency program's Streamlined Industrial Lighting Track services for the next 3-5 years.**
2. **Evergreen Consulting Group, LLC was selected and contract terms are being negotiated.**
3. **Staff has assumed and estimated a total first-year program delivery budget for 2017, including first-year incentives, contracted delivery, and possible performance compensation of approximately 6.2 million dollars.**
4. **Actual savings and costs will be reviewed by the Energy Trust board as part of the annual budget and action plan process. Based on current assumptions, staff estimates the following program savings and fully loaded costs in 2017:**

	Electric
Savings	32,356,500
$/Unit Savings	$0.041/kWh
Levelized Cost	$0.020/kWh

IT IS THEREFORE RESOLVED:

1. **Subject to determination of a final contract amount based on the board-approved 2017 budget, the executive director or his designee is authorized to enter into a contract with Evergreen Consulting Group, LLC to deliver the Streamlined Industrial Lighting Track for the Production Efficiency program for an initial term from January 1, 2017 through December 31, 2019.**
2. **First-year contract costs and savings goals included in the contracts shall be consistent with the board-approved 2017 budget and two-year action plan. Thereafter, the contract(s) may be amended consistent with the board's annual budget and action plan decisions and the executive director or his designee is authorized to sign any such contract amendments.**
3. **The final contract may include a provision allowing staff to offer one-year extensions beyond the initial term if the program delivery contractor meets certain established performance criteria. In no event would the total term of the contract plus extensions exceed five years.**
4. **Before extending this contract beyond the initial term, staff will report to the board on the program delivery contractor's progress and staff's recommendation for any additional extension time periods. If the board does not object to an extension, contract terms would remain as approved in the most recent action plans, budgets and contract at the time of extension, and the executive director or his designee is authorized to sign any such contract extensions.**

Moved by:	Ken Canon	Seconded by:	Heather Beusse Eberhardt
Vote:	In favor: 11 Opposed: 0	Abstained: 0	

Authorize Streamlined Industrial and Agriculture Program Delivery Contract for Production Efficiency Program with Cascade Energy—R779, Kim Crossman and Lindsey Diercksen

Lindsey D reviewed the RFQ for a streamlined industrial and agriculture Program Delivery Contractor. The review team used the same screening criteria as for the streamlined industrial lighting RFQ. The program received four responses and selected the incumbent Cascade Energy. Cascade Energy met or exceeded qualifications in program implementation, trade ally technical skillset and program delivery. Cascade Energy also has strategically placed outreach representatives in Eastern and Central Oregon.

The board asked what the budget will be for the contract. Kim said the RFQ included the 2017 budget approved by the board during the 2016 budget process. Because this is an RFQ, the program did not ask for a cost proposal as part of the process, and instead required respondents to submit cost exercises to see what rates and approaches the contractor would take to achieve savings and cost goals. The budget for this upcoming contract will be determined during the annual budgeting this fall.

The board discussed whether awarding contracts to incumbents will bring greater overall value to the organization. There was discussion on whether renewing with current contractors is a risk, and if companies will decline to bid in the future. Kim described the last custom PDC rebid three years ago, which resulted in a turnover of one of the incumbents and awarding to a new PDC. This had an impact on the small world of industrial contracting. For this rebid, the program received four high-quality bids. All four responses qualified. Staff then compared them for who was best qualified. The program shared targeted feedback with the other three companies, providing information on where they were not successful. Staff encouraged them to bid in the future.

The board questioned whether the bidding process is too complex and favors the incumbent. Peter explained contracts in other programs have regularly been awarded to new contractors. While this year is different, that has not been the case over the years. Energy Trust also addressed some contract complexity a few years ago by splitting New Homes and Products. By breaking the contract apart, there is a simpler program to bid and this also means more staff is needed to manage those additional contracts.

The board commended staff for debriefing with the companies who were not selected.

RESOLUTION 779

AUTHORIZE STREAMLINED INDUSTRIAL AND AGRICULTURE PROGRAM DELIVERY CONTRACT FOR THE PRODUCTION EFFICIENCY PROGRAM

WHEREAS:

1. **With assistance from a selection committee including an outside party, staff has conducted a fair and open procurement process to select a program delivery contractor to manage the Production Efficiency program's Streamlined Industrial and Agriculture Track services for the next 3-5 years.**

2. **Cascade Energy was selected and contract terms are being negotiated.**
3. **Staff has assumed and estimated a total first-year program delivery budget for 2017, including first-year incentives, contracted delivery, and possible performance compensation of approximately.**
4. **Actual savings and costs will be reviewed by the Energy Trust board as part of the annual budget and action plan process. Based on current assumptions, staff estimates the following program savings and fully loaded costs in 2017:**

	Electric	Gas
Savings	**17,747,050**	**437,500**
$/Unit Savings	**$.082/kWh**	**$.323/therm**
Levelized Cost	**$.033/kWh**	**$.159/therm**

IT IS THEREFORE RESOLVED:

1. **Subject to determination of a final contract amount based on the board-approved 2017 budget, the executive director or his designee is authorized to enter into a contract with Cascade Energy to deliver the Streamlined Industrial and Agriculture Track for the Production Efficiency program for an initial term from January 1, 2017 through December 31, 2019.**
2. **First-year contract costs and savings goals included in the contracts shall be consistent with the board-approved 2017 budget and two-year action plan. Thereafter, the contract(s) may be amended consistent with the board's annual budget and action plan decisions and the executive director or his designee is authorized to sign any such contract amendments.**
3. **The final contract may include a provision allowing staff to offer one-year extensions beyond the initial term if the program delivery contractor meets certain established performance criteria. In no event would the total term of the contract plus extensions exceed five years.**
4. **Before extending this contract beyond the initial term, staff will report to the board on the program delivery contractor's progress and staff's recommendation for any additional extension time periods. If the board does not object to an extension, contract terms would remain as approved in the most recent action plans, budgets and contract at the time of extension, and the executive director or his designee is authorized to sign any such contract extensions.**

Moved by: Dan Enloe — Seconded by: Melissa Cribbins
Vote: In favor: 11 — Abstained: 0
Opposed: 0

The board took a break from 1:40 p.m. to 1:55 p.m.

Committee Reports

Compensation Committee, Dan Enloe

After reviewing the performance of the mid-cap fund option in the 457(b) plan, the committee accepted The Standard's recommendation to replace the fund. Employees will see the change occur within the next three weeks. The committee discussed the implications of Brexit, the vote by British citizens to exit from the European Union.

Evaluation Committee, Alan Meyer

The board packet includes reports and notes from two committee meetings where nine evaluations were reviewed.

The 2015 New Homes Process Evaluation included interviews with verifiers. Energy Trust works with 17 companies to verify the energy performance scores on new homes. Two of the firms complete 87 percent of the verification work for the program and the work is concentrated in the Portland metro area. The evaluation recommends the program look at how to complete verifications more effectively throughout the state.

Dan Rubado commented the New Homes program team met yesterday and reported they are working to increase the percentage of verifiers outside the metro area.

The Savings Within Reach On-Bill Repayment Pilot Evaluation results show the pilot enables projects to complete that would otherwise not happen. Six of eight allies report customers would not have done projects without the loan. There are complexities to the offering and the program is looking at ways to address and streamline approaches used.

The board discussed the offering and is glad to see it available for customers. Even though the numbers aren't large, the offering serves a cross-section of homeowners and low-income homeowners that is already smaller in proportion to the overall market. The offering also provides another option for customers without upfront money to complete projects and who will benefit from lower energy consumption.

Sarah Castor clarified bill savings depend on the cost of the measures installed, and that is why 17 percent of customers experienced higher bills, even with reduced energy use. She confirmed a lien is added to the property.

The CORE Improvement Pilot Evaluation, Year 2, looked at whether Strategic Energy Management, SEM, concepts used with large industrial customers could be used with smaller firms. The results are the concepts are effective and the savings are smaller because the customers are installing smaller projects. The plan is to incorporate the offering for small firms into the regular SEM offering. It was noted larger firms often have established departments focused on energy use, and with smaller firms, it's often one person who is not strictly dedicated to energy.

Dan R said staff turnover was also a factor in SEM practices dissolving over a couple of years at the smaller firms. Even so, measures completed tended to save energy even after that happened.

The Gas Thermostat Pilot Evaluation resulted in Energy Trust offering an incentive for Nest smart thermostats and defining parameters for other thermostat manufacturers to qualify. Sarah noted the program has since incorporated a second thermostat product, the Ecobee 3 smart thermostat.

The Air Sealing Pilot Evaluation was completed, and did not indicate cost-effective savings. The program will no longer pursue this as a measure. (Note: this is reference to a specific approach to new home air sealing; Energy Trust is still encouraging other approaches.)

The Oregon Public Utility Commission (OPUC) asked Energy Trust to conduct a Pay for Performance pilot. The one project in the pilot exceeded energy-savings expectations. Pay for Performance will be offered through the Existing Buildings program and will be limited to four or five projects.
The committee was updated on the 2012 New Buildings Impact Evaluation. At the time of the evaluation, two projects had a large, negative effect on the results. Upon further study, it was determined the sites, a data center that was gradually filling up to capacity and a hospital that had a chiller capacity issue, were evaluated too early. The two projects will be re-evaluated in 2016 to determine a more accurate savings estimate. In the future, staff will undertake a new evaluation process for large and complex projects.

The Path to Net Zero Impact Evaluation measured actual savings compared to estimated savings for six projects. The recommendations included improving monitoring and reporting methods and encouraging participants to keep monitoring systems active. The pilot has moved forward as a standard program offering.

The committee also reviewed the Small Business Energy Savings Process Evaluation, which is working well and meeting savings goals.

Finance Committee, Dan Enloe
The board packet includes the May 2016 financials. Incentive spending year-to-date in Existing Buildings is lower than this time last year, while incentive spending in New Buildings, New Homes, Solar and Other Renewables is higher than this time last year.

The board reviewed the balance sheet, which shows total assets have gone down $20 million from last year. The spending down of reserves is following the strategy approved by the board. The June financials will be more informative as mid-year contract milestones come up for the PMCs and PDCs.

The board asked why all utilities but PGE are behind on year-to-date revenue. Steve Lacey said this is a function of different utilities having different phasing periods for rate adjustments.

Policy Committee, Roger Hamilton
The committee reviewed the Existing Buildings PMC contract recommendation and Opal Spring hydropower project, both discussed earlier during today's board meeting. Staff provided an update on the executive director transition plan, the plan to transition representation of the executive director to the NEEA board, board member training opportunities and conference attendance.

The committee discussed the potential for Energy Trust staff to testify at anticipated litigation between two former trade allies. Energy Trust is not a party to the contest. The committee also discussed legal considerations for adult recreational use cannabis projects due to federal versus state law issues. This is a work in progress, and the committee will receive more information from staff on how the program works, including current and past offerings for medical marijuana businesses. The board discussed the projected energy consumption at these sites.

Staff Reports

Highlights, Margie Harris
Margie highlighted the recently completed 2015 public annual report. The report is representative of the many different dimensions of what Energy Trust delivers. Communications Project Manager Julianne Thacher spearheaded the project and manages development of all reports submitted to the OPUC. The public annual report project includes a printed report, website, and targeted emails to stakeholders and 2015 program participants. The report received positive media pickup.

Steve Bloom left at 2:24 p.m.
Margie reported on a recent customer recognition event at Ireland Trucking in Myrtle Creek. The event attracted media, current and former elected officials, potential business customers and community members. Ireland Trucking installed a 35-kW solar system. The customer received an Energy Trust incentive, U.S. Department of Agriculture Rural Energy for America Program grant and Oregon Department of Energy Renewable Energy Development grant. This is an example of using a customer event to connect potential customers with incentive information and local outreach representatives, and a suggestion made by one of the board members to engage with the local company.

Margie reviewed recent and ongoing IT system improvements. The focus on improving systems came out of the 2014 Management Review. The IT projects include a Customer Relationship Management system upgrade, improvements to geospatial reporting for sites and improvements to Utility Customer Information data. Margie highlighted the benefits of these upgrades, including improved navigation and ability to query the data, visibility to the full population of potential customers, more specific geospatial data on sites for improved and more refined reporting, improved quality of participation data and automation features. Margie added a data sharing agreement is being finalized with Avista.

The 2017 annual budget and action plan development schedule kicked off yesterday and included initial meetings with each utility. Margie reviewed the full schedule, including the public comment period and public outreach to be conducted in October through November. The board will see the draft budget at its November 2 board meeting, and the final proposed budget at its December 16 board meeting. Mike will be entering this process at a good time.

As described at the May strategic planning board retreat, the residential sector analysis is underway. The Conservation Advisory Council will receive an update on July 27. The analyses are down to the individual measures for all residential programs. Structural program changes that may occur as a result of this assessment will be known at the end of October. If there are any shifts anticipated, the board will be informed at the November 2 board meeting.

Margie covered the transition plan to prepare for Mike's arrival on August 15. Margie will overlap initially with Mike to share information with him on key topics. The plan also includes introductions to and exchanges with board members, staff, OPUC and utility representatives and other stakeholders. Margie's retirement reception will be held September 15 in Portland. Board members and their significant others are invited.

E3 Update on Sustainability Report, Katie Wallace and Robert Wyllie, Margie Harris
The volunteer Energy, Environment, Engagement team (E3), a group of Energy Trust staff focused on internal sustainability and employee engagement efforts, released its second Employee Sustainability and Engagement Report. The report showed progress in various categories and is available on Energy Trust's website. In the energy category, electric consumption in the Energy Trust office space was reduced by 11,000 kWh in one year. The

largest effort was in the server room. In the recycling and paper use category, the team switched all office paper to 100 percent recycled content and achieved cost savings, started paperless invoicing with some accounts and continued focus on paper towel reduction. In the waste reduction category, the team encouraged staff to use reusable takeout containers for food carts and some restaurants, switched to biodegradable soap for dishwashers and conducted a waste audit to help staff identify how to sort trash, recyclables and compost. In the travel category, Energy Trust took fifth place out of more than 500 participants in the Bike More challenge and conducted an employee commuting survey. In the carbon category, results show Energy Trust staff have reduced their carbon footprint each year since 2013. In the engagement category, staff took part in volunteer activities throughout year. The report will move to an every-other year report to better track baselines.

Margie noted the team pays attention to all opportunities within the organization, and is always on the lookout for where to make improvements. Margie thanked the E3 Team for their contributions.

The board asked if the team has a five-year plan for energy efficiency in the office. Katie said there isn't a strategic plan for the team. Some setback in monitoring occurred due to team member transitions. Usually, energy use is tracked monthly for office space reporting for the Energy Trust office floor. The floor is sub-metered only for electricity. The team focuses on behavior changes, such as computer hibernation settings.

Adjourn

The meeting adjourned at 3:03 p.m.

The next regular meeting of the Energy Trust Board of Directors will be held Wednesday, September 28, 2016, at 12:15 p.m. at Energy Trust of Oregon, Inc., 421 SW Oak Street, Suite 300, Portland, Oregon.

_____

Alan Meyer, Secretary

Board Decision
Corporate Authorization
(Bank Signing Authority)

September 28, 2016

RESOLUTION 781

AUTHORIZING APPROVED BANK SIGNERS

WHEREAS:

1. **Umpqua Bank and Bank of the Cascades provide general banking services to Energy Trust (collectively, the "Banks").**
2. **Section 7.3 of the Energy Trust bylaws requires that the board of directors authorize officers or agents to sign checks, drafts, or other orders for the payment of money, notes and other evidences of indebtedness ("authorized bank signers") by way of resolution from time to time.**
3. **Effective August 15, 2016 Margie Harris retired as Executive Director of Energy Trust.**
4. **Effective August 15, 2016 Michael Colgrove became Executive Director of Energy Trust.**

It is therefore RESOLVED that,

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

2. **Michael Colgrove is to be added to the list of authorized bank signers for the Banks.**

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

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

4. **The Chief Financial Officer is authorized to execute all required documentation to implement this resolution.**

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

Tab 2

Board Decision
Authorize Executive Director to Amend a Contract with Pollinate, Inc.

September 28, 2016

Summary

Authorize the executive director to amend a contract with Pollinate, Inc. to add $60,000 for additional website development work in 2016, and extend the contract for a third year, at an additional cost of $260,000 through the end of 2017.

Background

- Energy Trust's website serves as a primary customer service and marketing channel, promoting services, programs, products and educational information. It is also increasingly used as a customer intake and self-service mechanism for program participation, primarily by way of web forms that integrate web services with Energy Trust's business information systems.
- Additionally, the website functions as a public information resource, archive, library and calendar for customers, staff, contractors and stakeholders. Lastly, the website is a resource center for Energy Trust's extensive Trade Ally Network of contractors and professionals who install energy-efficient and renewable power technologies.
- The original website was launched in 2002 with a limited number of pages. The current website has nearly 3,000 pages of content and interactive features for customers and trade allies, a blog, and several campaign microsites for new participants in residential and commercial programs. A redesigned version of the website is currently being developed and expected to launch in January 2017.
- The website hosts an average of 80,000 visits per month. Since the current version of the site was launched in 2009, visits have increased steadily by about 25% per year. The 2009 version of the site was developed by Pollinate Media, LLC, a Portland-based digital creative agency, and predecessor to Pollinate, Inc. (Pollinate)
- Pollinate's contract provides services not available in-house, like website hosting, security and server maintenance, front-end web design and development, web services support and online tool development, and advanced analytics reporting. Pollinate also provides maintenance and technical support for the website's content management system. In-house staff has full control over the content displayed on the website.
- Pollinate has provided web design and development services to Energy Trust since 2009, after being selected through a competitive RFP process to redesign the web site. Energy Trust subsequently issued competitive RFPs for web development services in 2010, 2012, and 2014, and selected Pollinate to continue these services.
- Pollinate has delivered a variety of web design and development projects and a comprehensive usability study. Pollinate is working on a website redesign that will feature a simplified and visually compelling user experience, a fully mobile-responsive design and a new content management system that will allow in-house staff to have

expanded control over changes to customer facing content. The redesign is on schedule for launch on January 3, 2017.

- In 2015, Energy Trust contracted with Pollinate for $267,600 to perform this work. In December, 2015, the contract was amended to add $232,200 for a two year total of $499,800 to provide services through the end of 2016.

Discussion

- The additional $60,000 for 2016: After the 2016 contract scope was finalized, staff identified additional work to be accomplished in 2016, including:
    - Development and enhanced analytics support for My Home and My Business campaign microsites for new customers participating in Existing Homes and commercial lighting measures
    - Development and support of the Irrigation Modernization Project microsite in coordination with Farmer's Conservation Alliance and Energy Trust's hydro program
    - Expansion of the Energy Trust blog to accommodate content previously only housed in Commercial sector email newsletters
    - Enhancement of the Insider trade ally email newsletter and blog to deliver content targeted to allies enrolled in individual programs
- Staff proposes that $60,000 be added to the 2016 Pollinate contract to cover this work through year-end.
- Proposed contract extension through 2017: The proposed 2017 scope of work continues work that Pollinate has previously done for Energy Trust and provides for enhancements identified through the 2016 web site redesign process:
    1. Maintenance and development support for Energy Trust's web site
    2. Development for campaign microsites in support of residential and commercial targeted marketing
    3. Development and maintenance of Energy Trust general and customer services content. Website enhancement projects identified during the 2016 web site redesign, such as promoting trade and program allies through an improved search function
    4. Expanded analytics and evaluation support for campaign microsites
- Staff proposes a $260,000 budget for this work.
- Increasing the 2016 contract price by $60,000 and extending the contract for a third year through 2017 at a cost of $260,000 would bring the total three-year contract amount to $819,800.
- Staff believe Pollinate is uniquely suited to do this work. Since 2009, Pollinate has consistently delivered high quality web development work, meeting and exceeding our expectations. Through multiple RFPs Pollinate has also consistently demonstrated that its expertise and billing rates are comparable to other providers in the market.
- Staff expects to issue a RFP for web design and development services in fall 2017.

Recommendation

Authorize the executive director to sign a contract amendment with Pollinate, Inc. adding $60,000 for additional website development work in 2016, and extending the contract for a third year at an additional cost of $260,000 through 2017.

RESOLUTION 782
AMENDING AND EXTENDING CONTRACT WITH POLLINATE, INC.

WHEREAS:

1. **Energy Trust's website is a primary customer service and marketing channel, promoting services, programs, products and educational information. It is also increasingly used as a customer intake and self-service mechanism for program participation, primarily by way of web forms that integrate web services with Energy Trust's business information systems. The website hosts an average of 80,000 visits per month. Since the current version of the site was launched in 2009, visits have increased by about 25% per year.**
2. **In 2014, Energy Trust conducted a competitive RFP process for a contractor to provide website development and maintenance services. Pollinate, Inc. (Pollinate), a Portland-based digital creative agency, was chosen to provide these services.**
3. **In 2015, Energy Trust contracted with Pollinate for $499,800 to perform work on the website in 2015 and 2016. After the 2016 contract scope was finalized, staff identified additional work to be accomplished in 2016, including:**
    - **Development and enhanced analytics support for certain microsites**
    - **Development and support for the Farmer's Conservation Alliance and Energy Trust's hydro program**
    - **Expansion of the Energy Trust blog**
    - **Enhancement of the Insider trade ally email newsletter and blog**
4. **Staff proposes to add $60,000 to the 2016 contract cost to accomplish this work.**
5. **Staff also proposes to extend the contract through 2017 to continue work that Pollinate has previously done for Energy Trust and undertake enhancements identified in the 2016 web site redesign process. The cost for this work is expected to be $260,000.**
6. **Staff believe Pollinate is uniquely suited to do this work, that since 2009, Pollinate has consistently delivered high quality web development work, and through multiple RFPs has consistently demonstrated expertise and billing rates comparable to other providers in the market.**

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

1. **Sign a contract amendment with Pollinate, Inc. adding $60,000 for additional website development work in 2016, and**
2. **Extend the contract for a third year, 2017, at an additional cost of up to $260,000.**

Moved by: John Reynolds Seconded by: Mark Kendall

Vote: In favor: 12 Abstained: 0

Tab 3

Briefing Paper: Contract Extensions for Three Production Efficiency Custom Track PDCs

September 28, 2016

Summary

Staff proposes one-year extensions of three custom track program delivery contracts of the Production Efficiency Program, through December 2017: RHT Energy, Inc. (RHT), Portland General Electric Company (PGE-CTS) and Energy 350, Inc. (Energy 350). Under the board resolution approving these contracts, the executive director is authorized to extend them for two one-year extensions if extension criteria are met and the board does not object. This would be the first extension for each of RHT, PGE-CTS and Energy 350.

Background

- The custom track of the Production Efficiency program targets all sizes of customers with a broad range of customized services and incentives, including capital projects, Operations and Maintenance and Strategic Energy Management. While the program is managed in-house, Program Delivery Contractors (PDCs) provide technical expertise and facilitation for firms participating in Energy Trust programs. As a reference point, the custom track was 62 percent of total Production Efficiency electric savings in 2015.
- RHT, PGE-CTS, and Energy 350 were selected as the result of a solicitation for custom track PDCs conducted in 2013. These contracts were established with an initial three-year term, with options for up to two one-year extensions.
- The board resolution authorizing the contracts required staff to report to the board on the PDCs' progress and performance before extending the contract. The contract extension metrics are:
    1. Annual savings goals
    2. Delivery budget management
    3. Project pipeline development
    4. Data management
    5. Customer service
    6. Marketing coordination
    7. Quality control
    8. Project reporting

Discussion

The 2016 and projected 2017 contract amounts for RHT, PGE-CTS and Energy 350 can be found below. Actual amounts obligated in the extended contract will be consistent with the 2017 board-approved budget.

	2016 Contract Amount	***2017 Est. Contract Amount***
RHT	$1,570,000	$1,570,000
PGE-CTS	$2,135,000	$2,135,000
Energy 350	$3,028,000	$3,028,000

The following sections detail the three PDCs' performance in each of the extension criteria. In the event that a specific PDC had exceptionally strong or weak performance in a particular area, these will be noted accordingly. In general, the PDCs have satisfactorily performed across the eight extension criteria.

1. Annual Savings Goals

   RHT and Energy 350 have performed quite well in acquiring energy savings over this current contract cycle, particularly on the electric side, as referenced in the table below. Gas savings in the industrial sector are typically acquired through a smaller number of sometimes quite large projects, which means that savings can be unpredictable from year to year. For example, in 2015, RHT had a large project, that would have more than doubled their gas goal, shift into the following year. Meanwhile, Energy 350 closed a large gas project in 2015 that helped to support gas savings acquisition across the organization.

   As identified in the table below, PGE-CTS energy savings acquisition is relatively lower during this contract cycle. In part, this may be due to aggressive electric goal setting in 2014 and also may be a result of shrinking resource potential in their territory. This latter issue is being explored while PGE-CTS simultaneously strives to improve their effectiveness in the field. PGE-CTS is taking to improve their performance in 2016 include assigning individual savings goals to field engineers, embedding more staff at key customer sites in order to help influence energy efficiency projects, providing sales training for staff and pursuing more comprehensive outreach strategies to reach more of their customer base.

   PGE-CTS' performance to date in 2016 has improved, with the PDC greatly surpassing their mid-year gas savings goal and positioning themselves for better performance on the electric side. PGE-CTS' performance will continue to be closely monitored during the 2016 close-out and throughout 2017.

RHT	**Electric** (million working kWh)			**Gas** (working therms)		
Year	Goal	Electric Actual	% of Goal	Goal	Gas Actual	% of Goal
2014	12.5	18.5	*148%*	300,000	391,315	*130%*
2015	13.0	12.2	*94%*	159,300	13,765	*10%*

PGE-CTS	**Electric** (million working kWh)			**Gas** (working therms)		
Year	Goal	Electric Actual	% of Goal	Goal	Gas Actual	% of Goal
2014	42.5	30.9	*73%*	212,000	131,030	*62%*
2015	33.25	20.4	*61%*	250,000	166,240	*66%*

Energy 350	**Electric** (million working kWh)			**Gas** (working therms)		
Year	Goal	Electric Actual	% of Goal	Goal	Gas Actual	% of Goal
2014	32.0	36.6	*114%*	210,000	230,905	*110%*
2015	37.5	35.1	*94%*	310,000	1.8 million	*571%*

2. Delivery Budget Management
   The PDCs continue to professionally manage their delivery efforts within contracted budget amounts, appropriately scaling effort at the end of the year when more time is needed to close out projects. Invoices are always submitted on time and follow-up questions or documentation requests are handled quickly and thoroughly.

3. Project Pipeline Development
   The PDCs have built a substantial project pipeline to help drive them toward 2016 and 2017 savings goals. The table below shows the current pipelines in relation to the 2016 electric goals by PDC. Note that the 2016 pipeline column also includes projects that have completed through September 2, 2016.

   Average project size has generally been decreasing across all program tracks in recent years. The custom PDCs are generally doing a good job of serving all sized customers and identifying many more small projects to help achieve consistent savings outcomes year over year.

	2016 Electric Goal	***2016 Electric Completed with Pipeline ****	***2017 Electric Pipeline ****
RHT	18,300,000	19,011,000	18,648,800
PGE-CTS	32,250,000	28,107,550	17,807,700
Energy 350	42,980,000	39,664,000	27,475,000

(* Named projects in working kWh as of 9/2/16.)

4. Data Management
   PDC efforts in providing weekly forecast updates from PDC systems into Energy Trust's Project Tracking database have been smoothly executed and have greatly enhanced the quality of our internal data. Individual project data and forms are managed well, as project reviews generally flow seamlessly.

   Data security protocols for information transmittals are adhered to and the PDCs have policies and procedures in place to protect sensitive information.

5. Customer Service
   Good cross promotion of all Production Efficiency offerings to customers has been a strength of all of the existing custom PDCs these last few years. Customer satisfaction, as measured through Fast Feedback surveys has been consistently high across PDCs.

   Each custom PDC has regular quarterly check-ins with the streamlined PDCs and leads are shared on an ongoing basis. This effort has helped to drive an enhanced customer experience, as well as positive savings outcomes through the streamlined track.

6. Marketing Coordination
   The PDCs have worked with the Energy Trust Marketing team to help us understand what types of marketing collateral is needed in the field, what collateral

needs updating and to help identify customer success stories or case studies, as appropriate.

7. Quality Control
   Technical analysis, study and verification report preparation are performed by PDC staff with professional quality across all three PDCs, even with the increasing project volumes and new staff joining the PDC teams. The quality of submitted deliverables is taken very seriously, and if errors are identified, the PDCs are timely in making corrections.

8. Project Reporting
   The PDCs have been responsive to requests for information from Energy Trust and monthly reports and strategic action plans are substantive and submitted on time.

Next Steps

Staff recommends that the contracts with RHT, PGE-CTS and Energy 350 be extended until the end of December 2017. If the board does not object, the executive director will sign each of these one-year contract extensions.

Briefing Paper
Program Management and Program Delivery Contract Terms

September 28, 2016

Summary

To provide context for contract extension and approval recommendations, staff has prepared a summary of Energy Trust's Program Management Contracts and Program Delivery Contracts, their possible durations, remaining extension term potential, and timing information about upcoming competitive RFP and/or RFQ processes. Staff will be available at the meeting to answer questions.

PMC	Program	End Date of Initial Term	Current Expiration Date	Possible Extensions to Initial Term	Extension Years Approved (Board Briefing Date(s))	Next Anticipated Extension Presentation	File #
CLEAResult Consulting, Inc.	Existing Homes	12/31/14	12/31/16	3 years	3/3 (7/30/14 for 1 yr) (7/29/15 for 1yr) (6/8/16 for 1yr)	NA	1806
ICF Resources, LLC	Existing Buildings	12/31/14	12/31/16	3 years	2/3 (7/30/14 for 1 yr) (7/29/15 for 1 yr)	N/A New contract approved for 2017	1778
CLEAResult Consulting, Inc.	New Buildings	12/31/15	12/31/17	3 years	2/3 (5/20/15 for 2 yrs)	2017	1962
Lockheed Martin Corporation	Existing Buildings - Multifamily	Through 12/31/18	12/31/18	2 years	0/2	2018	2366
Ecova, Inc.	Products	12/31/16	12/31/16	3 years	1/3 (6/8/16 for 1 yr)	2017	2181
CLEAResult Consulting, Inc.	New Homes	12/31/16	12/31/16	3 years	1/3 (6/8/16 for 1 yr)	2017	2182

PDC	Program	End Date of Initial Term	Current Expiration Date	Possible Extensions to Initial Term	Extension Years Approved (Board Briefing Date(s) if applicable)	Next Anticipated Extension Presentation	File #
Energy 350, Inc.	Production Efficiency	12/31/16	12/31/16	2 years	0/2	2016	1960
RHT Energy, Inc.	Production Efficiency	12/31/16	12/31/16	2 years	0/2		1957
Portland General Electric Company (PGE- CTS)	Production Efficiency	12/31/16	12/31/16	2 years	0/2		1959
Evergreen Consulting, LLC	Production Efficiency)	12/31/14	12/31/16	2 years	2/2 (5/14/14 for 1 yr) (5/20/15 for 1 yr)	N/A New contract approved for 2017	1576
Cascade Energy, Inc.	Production Efficiency	12/31/14	12/31/16	2 years			1575
CLEAResult Consulting, Inc.	Existing Buildings	12/31/16	12/31/16	3 years	No extensions will be requested	In rebid process: staff intends to include future Commercial SEM management and delivery under Existing Buildings PMC contract	2195
HSTV, LLC dba Strategic Energy Management Group (SEG)	Existing Buildings	12/31/16	12/31/16	3 years	No extensions will be requested		2214

PMC			
PMC	Program	Final End Date[1]	Anticipated RFP (if contract extended for all possible extensions)
CLEAResult Consulting, Inc.	Existing Homes	12/31/17	Spring 2017
ICF Resources, LLC	Existing Buildings	12/31/16	In process
CLEAResult Consulting, Inc.	New Buildings	12/31/18	Spring 2018
Lockheed Martin, Inc.	Existing Buildings – Multifamily	12/31/20	Spring 2020
Ecova, Inc.	Products	12/31/19	Spring 2019
CLEAResult Consulting, Inc.	New Homes	12/31/19	Spring 2019

PDC			
PDC	Program	Final End Date[2]	Anticipated RFP/Q (if contract extended for all possible extensions)
Energy 350, Inc.	Production Efficiency – Custom Track	12/31/18	Spring 2018
RHT Energy, Inc.	Production Efficiency – Custom Track	12/31/18	Spring 2018
PGE-CTS	Production Efficiency – Custom Track	12/31/18	Spring 2018
Evergreen Consulting, LLC	Production Efficiency – Streamlined Track	12/31/16	In process
Cascade Energy, Inc.	Production Efficiency – Streamlined Track	12/31/16	In process

[1] Assumes each of the possible extension years are offered and accepted by the PMC
[2] Assumes each of the possible extension years are offered and accepted by the PDC

Tab 4

Policy Committee Meeting

September 8, 2016, 3:30–5:00 p.m.

Attending by phone
Roger Hamilton, Ken Canon, John Reynolds

Attending at Energy Trust offices
Michael Colgrove, Amber Cole, Fred Gordon, Steve Lacey, Debbie Menashe, Mariet Steenkamp, Adam Bartini, Kim Crossman, Oliver Kesting, Sloan Schang, Mark Wyman

Policies for Review

Conservation Funding for Schools Policy
This policy is up for its routine, three-year review. Oliver Kesting, Commercial Sector Lead, presented information on Energy Trust's work with schools and the proposed changes to the policy. Oliver described how the review of the policy is timely. Over the last several months, Energy Trust staff and Oregon Department of Energy (ODOE) staff have been meeting to coordinate funding based on the allocation of public purpose funds as set forth originally in SB 1149 and then in SB 838. Oregon Public Utility Commission (OPUC) staff have also been engaged in these discussions.

Schools pay public purpose funding under both SB 1149 and SB 838 provisions, as well as customers of investor-owned gas utilities in Oregon, and ODOE is designated as the administrator of SB 1149 public purpose funds for schools. Energy Trust's SB 838 and gas funds may also be used to support eligible conservation projects for schools. Changes proposed for the schools policy outline a process by which Energy Trust may support school conservation projects with SB 838 and gas funds even in advance of the provisions of any ODOE funding for such projects. To ensure that projects do not receive more public purpose funding than they are entitled to, the revised policy sets a procedure for coordination and reporting between Energy Trust and ODOE.

Committee members asked several questions to clarify how the current work with schools will be changed by the proposed policy changes. Oliver explained that under the proposed revisions, Energy Trust could provide funding before ODOE does, with ODOE deducting amounts provided by Energy Trust to ensure projects receive no more funding than warranted under Energy Trust and ODOE cost-effectiveness and program requirements. In addition, committee members and staff discussed how, over time, this new sequence of providing funding will result in more Energy Trust funding to schools through SB 838 funds. Committee members suggested a few revisions to the proposed policy changes for consistency in terminology. Staff agreed and will make the revisions as suggested.

The committee recommends that the revised Conservation Funding for Schools Policy, revised as suggested by committee members, be approved by the full board at its next full board meeting. Because of the complexity and significance of the policy, the committee recommends that this policy revision recommendation not be included on the consent agenda.

Using Reserves Policy
The Using Reserves Policy is up for its regular review. Staff recommended no changes at this time. Mariet Steenkamp, Director of Finance, described staff's review of the policy. At the time the policy was amended to its current status in 2013, a working group recommended that Energy Trust set a maximum target of $8 million for the contingency reserve, and continue to treat it as unattributed to any specific utility. As of June 30, 2016, Energy Trust had a contingency reserve balance of $9,089,263, consisting of an emergency contingency pool of $5,000,000 and an operational contingency of $4,089,263.

Although the contingency reserve balance is more than the target currently set forth in the policy, Mariet reported that staff is researching benchmarks most appropriate for Energy Trust's size and

industry, and is not ready to recommend changes to how contingency reserves are calculated or to the efficiency program reserve targets. Staff plans to re-evaluate this in early 2017 and if changes appear warranted, will report back to the committee. Committee members expressed their support for this approach.

Previews of Board Meeting Presentations

Authorize Loan Application for Manufactured Home Early Retirement Savings Pilot
Mark Wyman, Residential Program Manager, presented information to the committee regarding a proposed manufactured home early retirement savings pilot. Mark reported that Oregon has more than 170,000 manufactured homes, representing about 10 percent of the residential building stock. In some rural Oregon counties the percentage of manufactured homes is much higher. Nearly 100,000 of these homes are pre-1990 construction and were built with weak or non-existent levels of energy efficiency. Residents in these homes live with insufficient levels of insulation in the ceiling, walls and floor; significant air leakage; and inefficient windows and heating systems. Energy loss, discomfort, poor indoor air quality and high energy costs result. Residents of manufactured homes spend about 70 percent more on energy per square foot than residents of site-built homes. These impacts disproportionately affect those with lower incomes, who already face a higher energy burden than the general population. While an average residential household spends 2.7 percent of its income on energy bills, lower-income households pay an average of 6 percent of their income on energy.[1]

Retrofitting older manufactured homes with efficiency measures is a partial solution, and has been a part of Energy Trust's program portfolio since 2012. A replacement program for older manufactured homes with energy-efficient new models produces far more energy savings than retrofitting them. It can also generate substantial additional benefits such as healthier living conditions and greater economic security.

Energy Trust is designing a pilot which would aim to replace 50 older manufactured homes over a three-year timeframe. The new manufactured homes would meet the standards of the Northwest Energy Efficient Manufactured Home Program (NEEM). It is anticipated that such replacements would receive an Energy Trust incentive, with remaining costs financed. Financing can be elusive for these types of manufactured home purchases. Energy Trust has been in conversations with a number of community housing service agencies to identify financing support. Energy Trust is working with rural electric cooperatives, Oregon Housing and Community Services, Housing and Urban Development, and private foundations to identify future sources of capital to expand the replacement pilot to additional households.

One source of possible funding is the United States Department of Agriculture Rural Energy Savings Program (the USDA RESP). On July 21, 2016, Energy Trust staff submitted a Letter of Intent in response to a USDA RESP notification of opportunity. This letter of intent is step 1 of the USDA RESP loan application process. If Energy Trust receives an invitation to proceed notice from the Rural Utilities Service, then Energy Trust has 60 days to submit a full loan application. Staff has provided information to the Finance Committee and will now provide information to the committee about the USDA RESP loan application opportunity. If Energy Trust is invited to submit a full loan application, staff will make a presentation to the full board for approval of a pilot proposed in connection with this opportunity. Mark reported that Energy Trust has not received an invitation to proceed**.** If such an invitation does come, Energy Trust will engage in conversations with USDA regarding the specific application requirements. Staff will then return to the Policy Committee with further information before

[1] ACEEE reports "Building Better Energy Efficiency Programs for Low-Income Households" and "Lifting the High Energy Burden In America's Largest Cities"

presenting a recommendation for approval to the full board. Staff will not make a presentation on this matter at the September board meeting because it is premature at this time.

Recommendation for Additional Budget and Extension of Pollinate Web Design and Development Contract
Sloan Schang, Senior Web Manager, briefed the committee on a proposal for a contract budget and term extension for Energy Trust's current contract with Pollinate, Inc. for web design and development services. The proposal would increase the current year's contract budget by $60,000 for identified additional work, including enhanced analytics for microsites, development and support of the Irrigation Modernization microsite and enhancement of the trade ally Insider email newsletter. The proposal also would extend the contract through 2017, with additional budget consistent with the 2017 board approved budget, expected to be an additional $260,000. These changes bring the contract total authorized expenditures over $500,000 and, as a result, require board approval.

The committee had suggestions for the presentation, including a request for more explanation of how modernization of the website provides demonstrated value to the organization. Sloan will supplement his presentation with information to address this issue.

Custom Track Program Delivery Contractors Contract Extensions
Staff supports one year extensions for each of Energy Trust's current Production Efficiency Custom Track Program Delivery Contractors (PDC) contracts, currently set to expire on December 31, 2016. In accordance to the terms of each PDC contract, contracts may be extended for up to two one-year extensions if Energy Trust staff determines that the firms have met the contracts' extension criteria and the board of directors does not object to the extensions. Adam Bartini, Energy Trust Senior Program Manager-Industrial, described how the following PDCs have met the extension criteria in their contracts: Energy 350 Inc., Portland General Electric Company and RHT Energy, Inc. Under the terms of the PDC contracts, if the board does not object to staff's recommendations to extend, the contracts may be extended for one year. Adam will make his presentation on the recommended extensions to the full board at its September meeting.

Marijuana Growing Incentives Program Information
At the committee's last meeting, members were provided with information regarding the legal considerations relevant to Energy Trust program offerings for marijuana operations. Since that time, the state convened a task force to provide guidelines for environmental and energy guidelines for the marijuana industry. Adam Bartini served as Energy Trust's representative on the task force. A final task force report was released in late August, and Adam was available for questions from the committee. The committee was pleased to know that Energy Trust had participated on the task force.

Consent to Appointment of Members to the Conservation and Renewable Energy Advisory Committees

In accordance with Conservation Advisory Council, Renewable Energy Advisory Council and board rules, Policy Committee consent is required for formal membership on Energy Trust's advisory committees. Policy Committee consent was requested for the appointment of the following individuals to the Conservation Advisory Council: Tony Galluzo of BOMA and Allison Spector of Cascade Natural Gas. Allison is appointed to replace Jim Abrahamson, who is retiring. Both individuals will bring relevant and important experience and perspective to the Conservation Advisory Council.

Policy Committee consent was also requested for the appointment of the following individuals to the Renewable Energy Advisory Council: Adam Schultz, senior policy analyst at ODOE, to replace Diane Broad; JP Batmale, Energy Trust liaison from the OPUC, to replace Elaine Prause; and Lise Luchsinger Wineland, executive director of the Northwest Environmental Business Council, to replace Robert Grott who has retired.

The committee unanimously supported the Conservation Advisory Council and Renewable Energy Advisory Council appointments recommended.

Brief Updates

Mike Colgrove updated the committee on activities and meetings related to his transition into the executive director position. Mike also described his efforts to identify and hire a permanent executive assistant. Mike acknowledged the excellent help he has received from Elizabeth Fox during this transition period. Mike also acknowledged Cheryle Easton's willingness to take on extra responsibility and tasks in the HR group.

Adjourn

The meeting adjourned before 5:00 p.m. The next meeting of the Policy Committee is scheduled for October 6, 2016.

Board Decision
Amend Conservation Funding for Schools Policy

September 28, 2016

Summary and Background

This policy is up for routine, 3-year review. A review of the policy is especially timely. Over the last several months, Energy Trust staff and ODOE staff have been meeting to coordinate funding based on the allocation of public purpose funds as set forth originally in SB 1149. OPUC staff has also been engaged in this discussions.

The Policy Committee reviewed staff's suggested revisions at their committee meeting on September, 8, 2016. The committee recommended that the policy be presented to the full board for approval, with some small edits that are reflected in the proposed revisions below.

Recommendation

Amend the Conservation Funding for Schools Policy as indicated below.

RESOLUTION 783
AMEND CONSERVATION FUNDING FOR SCHOOLS POLICY

WHEREAS:

1. **SB 1149, codified as ORS 757.612, specifically directs funds for the support of efficiency measures in Oregon's K-12 schools, with such funds to be administered by the Oregon Department of Energy (ODOE).**
2. **Energy Trust may provide ratepayer funds collected under SB 838, codified at ORS 757.689 and from natural gas ratepayers to K-12 schools, and Energy Trust and ODOE have coordinated to provide support from both sources of funding for energy efficiency.**
3. **Up for its regular three year review at this time, Energy Trust staff recommended revisions to the board's school funding policy to reflect Energy Trust and ODOE coordinating discussions on administration and deployment of energy efficiency funding support for K-12 schools.**
4. **Staff presented the recommended revisions to the board's Policy Committee on September 8, 2016. Based on suggestions for clarification from the Policy Committee, staff recommends the policy revisions indicated below at this time.**

It is therefore RESOLVED that the Energy Trust policy on conservation funding for schools is amended as shown below.

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

4.02.000-P Conservation Funding for Schools

History			
Source	Date	Action/Notes	Next Review Date
Board Decision	May 8, 2001	Adopted (R27)	November 28, 2001
Board	November 28, 2001	Reviewed/Revised (R58)	February 27, 2002
Board	February 27, 2002	Reviewed/Revised (R87)	February 2005
Board	October 6, 2004	Amended (R295)	October 2007
Board	April 6, 2005	Amended (R328) – see R331	April 2006
Board	May 4, 2005	Amended (R331)	June 2008
Board	February 14, 2007	Authorized funding to 2007 (R426)	June 2010
Board	July 28, 2010	Amended (R557)	July 2013
Board	August 17, 2011	Amended (R592)	August 2016

Policy on schools:

- SB 1149 specifically directs funds to efficiency measures in K-12 schools ("SB 1149 schools"). These funds are administered by ODOE in "the Schools Program." This policy coordinates how Energy Trust efficiency funds from non-SB 1149 sources, i.e., SB 838 and gas efficiency funds, may be combined with measures funded through the Schools Program.
- Energy Trust will make ~~electric~~SB 838 and gas funds available for SB 1149 schools through its New and Existing Buildings programs, provided the proposed measures meet the ~~relevant~~ Energy Trust cost-effectiveness criteria.
- Energy Trust SB 838 and gas funds ~~cash incentives~~ ~~funds~~ and ~~other SB 1149 s~~Schools Program funds may ~~not~~ be used for the same energy efficiency measure. However, Energy Trust funds (not including the cost of Energy Trust services such as audits or engineering support) and Schools Program funds, when combined, may not exceed the Schools Program's maximum allowable incentive or reimbursement amounts, or 100% of measure or project cost.
- To ensure this, Energy Trust will provide ODOE, for all Energy Trust-funded measures at SB 1149 schools, project information including: district name, school name, measure description, date of installation and ~~,project information including; district name, school name, project description, date of project, and~~ incentive amount paid for each measure.
- Energy Trust may provide technical and/or administrative support for school projects, provided Energy Trust can claim savings from the measures it supports.
- ~~Energy savings estimates, measures costs and other data identified in the school district audits will be accepted by the Existing and New Building Efficiency programs.~~
- Annually, Energy Trust will document how SB 838 or gas efficiency funds were used to fund efficiency measures in K-12 schools.
- In its biennial reports to the legislature, Energy Trust will not claim energy savings where (a) the school district still receives SB 1149 funds and (b) the district has not fully allocated such funds. However, Energy Trust will continue to claim energy savings for New Construction Schools Projects and non-educational facilities, which are not eligible for Schools Program funding.
- In reports to the OPUC, Energy Trust will report energy savings from school measures for which it provided funds.

Clean version:

- SB 1149 specifically directs funds to efficiency measures in K-12 schools ("SB 1149 schools"). These funds are administered by ODOE in "the Schools Program." This policy coordinates how Energy Trust efficiency funds from non-SB 1149 sources, i.e., SB 838 and gas efficiency funds, may be combined with measures funded through the Schools Program.
- Energy Trust will make SB 838 and gas funds available for SB 1149 schools through its New and Existing Buildings programs, provided the proposed measures meet the Energy Trust cost-effectiveness criteria.
- Energy Trust SB 838 and gas funds and Schools Program funds may be used for the same energy efficiency measure. However, Energy Trust funds (not including the cost of Energy Trust services such as audits or engineering support) and Schools Program funds, when combined, may not exceed the Schools Program's maximum allowable incentive or reimbursement amounts, or 100% of measure or project cost.
- To ensure this, Energy Trust will provide ODOE, for all Energy Trust-funded measures at SB 1149 schools, project information including: district name, school name, measure description, date of installation and incentive amount paid for each measure.
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Tab 5

FINAL REPORT - IMPACT EVALUATION OF THE PATH TO NET ZERO PILOT PROGRAM FOR NEW BUILDINGS

Submitted to

ENERGY TRUST OF OREGON
421 SW Oak St.
Suite 300
Portland, OR 97204

Submitted by

SBW CONSULTING, INC.
2820 Northup Way, Suite 230
Bellevue, WA 98004

June 8, 2016

sbw

ENERGY + WATER + EFFICIENCY

ACKNOWLEDGEMENTS

We want to acknowledge the support of Energy Trust staff, the program management contractor (CLEAResult), and end users to support this study. Many hours were spent reviewing plans and draft work products along with time spent gathering documentation and trend data, answering questions, and escorting the evaluation team during its inspections. This study could not have been completed without these contributions to our efforts.

EXECUTIVE SUMMARY

This report describes the results of the impact evaluation of Energy Trust of Oregon's Path to Net Zero (PTNZ) pilot. The primary goal of the pilot was to understand if net zero energy could be achieved and to understand the process required by design teams to make decisions that lead to a net zero outcome or are critical to creating a path to net zero program approach in commercial buildings. Increased technical and financial support was provided to support decision-making in pursuit of the goals. A process evaluation was conducted alongside the program's implementation of the pilot and concluded in 2012.[1] With all pilot buildings now complete, and enough post-occupancy data available, this impact evaluation was conducted to characterize the effectiveness of many measures pursued through the New Buildings program (the program)'s Path to Net Zero Pilot.

From the separate process evaluation, we know that the pilot was met with great interest from owners and the design community, providing information to the program. A white paper was also published through ACEEE that describes the early energy use of the buildings along with major energy efficiency features and measures selected, and the program's assessment of major net zero design strategies.[2] This evaluation builds on extensive information gained by program staff, design teams, and building owners; and provides a final assessment of savings impact.

Background

The pilot was designed to significantly advance major renovation and new construction projects beyond energy code. It referenced the 2007 Oregon Structural Specialty code and applied program requirements about building layout to determine baseline. Pilot requirements included a commitment to target 50% energy savings in design, but allowed projects to pursue 60% energy savings if using a combination of efficiency and on-site renewable energy generation, which provided the program with a learning opportunity as far as incorporating renewable energy measures.

To achieve these high energy savings targets, the pilot focused on early decision making and was geared to provide technical support to assess various energy-savings considerations in the very early stages. With early design assistance, the program engaged with building owners and teams to discuss energy-savings strategies; the program also provided technical support for studies and energy modeling, and later addressed installation and commissioning, as well as providing optional monitoring and reporting support. By 2014, eight projects completed the pilot.

[1] http://assets.energytrust.org/api/assets/reports/121204_PTNZ_Report.pdf

[2] B. Walker, E. Rowe, S. Truax and J. Rose, "Notes from the Trail: Checking in on the Path to Net Zero", 2012 ACEEE Summer Study on Energy Efficiency in Buildings. http://aceee.org/files/proceedings/2012/start.htm.

Energy Trust's New Buildings program incorporated early lessons learned into the standard program, such as early design assistance, and then launched Path to Net Zero in 2014 as a standard offering with updated requirements and reference energy code, making the requirement a target of 40% energy savings. The impact evaluation summarized in this report aims to provide important information to program staff about the performance of this highest tier of energy efficient building design.

Due to the unique nature of PTNZ pilot project, the more extensive commissioning, monitoring and reporting and post-occupancy engagement that was required, the eight pilot projects had not been included in previous impact evaluations of the NB program. Most PTNZ projects were evaluated with two years of post-occupancy data compared to the regular program's one-year timeline.

The goals of this impact evaluation were to:

1. **Measure actual savings compared to program estimated savings** for these projects by determining the gas and electric energy savings associated with each measure implemented at six sampled sites. Energy Trust uses this information for program savings projections and budget developments, and incorporates it into their annual true-up of program savings.
2. **Report observations and make recommendations** to help Energy Trust improve the effectiveness of future engineering studies and impact evaluations of its commercial new construction projects, particularly buildings designed for the highest energy performance targets. These include findings that help explain substantial deviations from the claimed savings, and recommendations for changes to gross savings calculation methods and/or other program processes that will enhance future realization rates.

Methodology

The three primary steps of this evaluation included a review of previous engineering estimates, site data collection, model review, and an impact analysis. Energy Trust provided project files for each site, which the evaluation team reviewed and examined to assess the reasonableness of modelling assumptions, such as hours of operation and equipment specification. In particular, we examined the baseline model definition to determine if the baseline methodology complied with code requirements. The 2007 Oregon Structural Specialty Code was applicable to five sites, with ASHRAE 90.1-2007 applied to one site.

Following this, we performed site visits and collected trend data to inform revisions to the simulation models for each site. The revised simulation models were in turn used to analyze energy savings impacts.

Findings

Findings are presented to answer three questions:

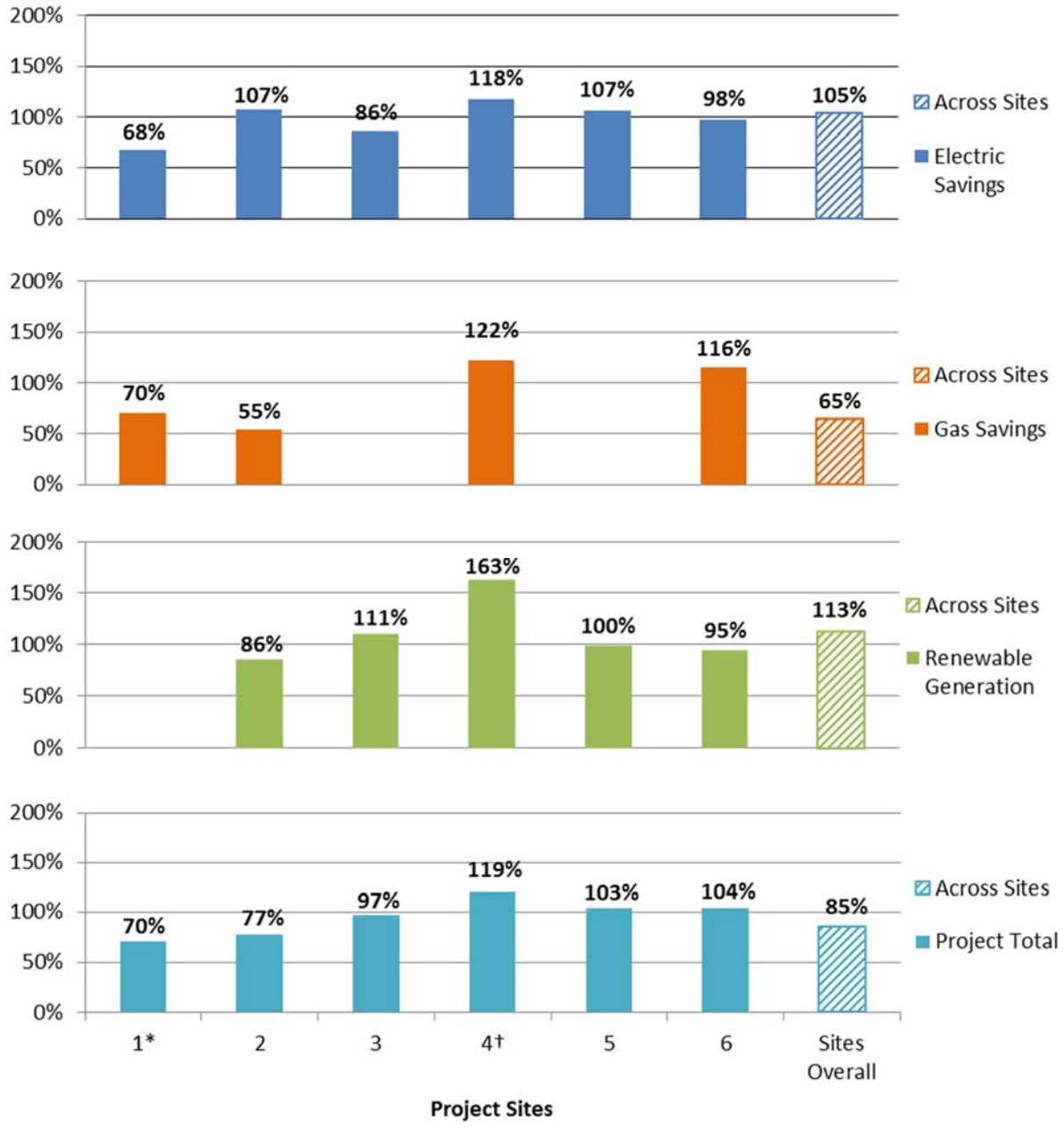
1. How well did the pilot program predict savings for each project?
2. How well did the PTNZ pilot program meet its goals of percent savings over code?

3. What program-wide observations were made and what issues were uncovered during the course of the evaluation?

Prediction of Savings

Four projects were well within their estimated electric savings goals (100% realized savings) or exceeding them; one project was slightly lower than the target, only realizing 86% of original savings estimated; and one saved far less than expected, realizing only 68% of the original electric savings estimate. Gas realization rates varied more widely compared to electric energy savings; in two of the four projects with gas savings measures, the gas savings were around 20% higher than predicted, and two projects saved 30-50% less gas energy than their target. Renewable generation, in the form of photovoltaic (PV) arrays, was incorporated into five projects. Four of the five projects with solar PV installed were within range of original generation estimates and one large project exceeded its goal with additional investments made to extend its PV system.

Figure 1 displays the impact evaluation findings as percent realization rates, indicating what percent of the original savings estimates were actually achieved. Savings realization rates are broken out among the three main sources--electric and natural gas savings, and also renewable energy generation--followed by the total site-level savings realization rates presented at the bottom of the chart. Across all evaluated sites, the electric realization rate was 105%, the gas realization rate was 65%, and the renewable generation realization rate was 113%. When considering all fuels savings and renewable energy generation, the realization rate across the evaluated sites was 85%.



*This site did not have renewable generation installed

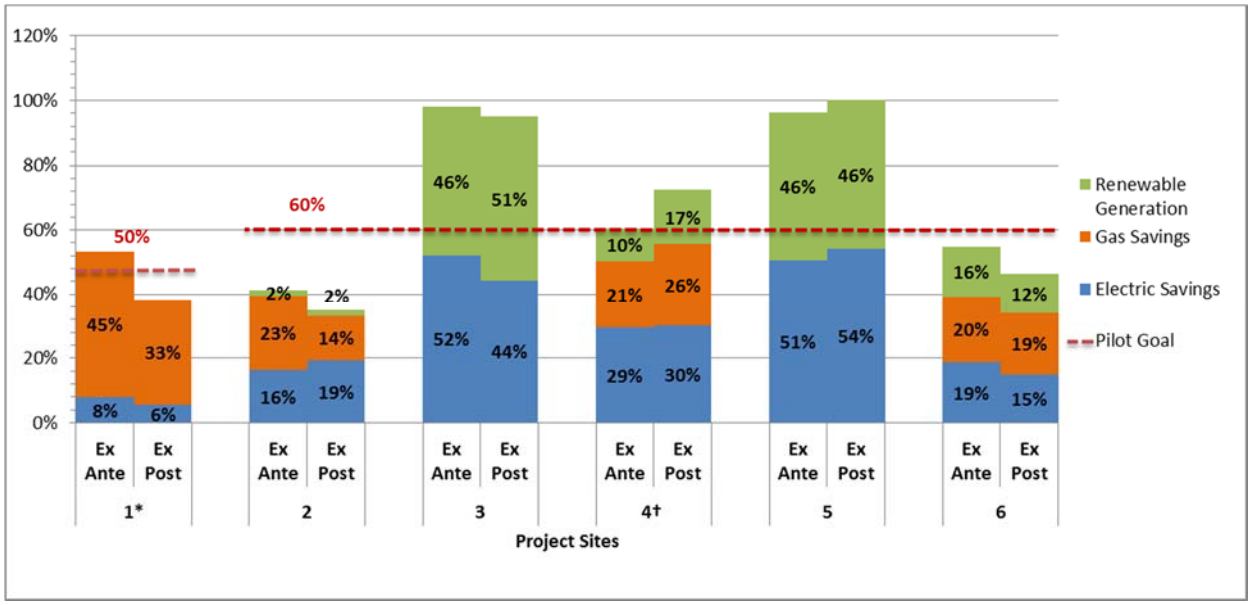
†Photovoltaic generation at this site was not incentivized under the PTNZ pilot but PV generation was still claimed based on specified minimum of 112,000 kWh for the project

Figure 1: PTNZ Project Realization Rates by Site, Type of Savings and Generation

Percent Savings Over Code

Six of the eight pilot projects completed by 2014 were evaluated, three of which are meeting their Path to Net Zero energy savings goals.

Figure 2 below presents the site-level evaluation estimates of percent savings over the 2007 Oregon Structural Specialty Code (ASHRAE 90.1-2007 for Site 2) broken down by savings component. The percent savings goal for each site is shown as a dotted red line. Ex ante and ex post savings are presented side-by-side to illustrate changes between the original pilot estimate and the evaluated estimate. It should be noted that the PTNZ pilot sought to achieve 50% savings over code with projects that utilized only energy efficiency measures and 60% savings over code for projects that utilized efficiency and renewable energy measures. With exception of Site 1, all of the projects evaluated in this study installed renewable generation, in the form of solar PV.



*This site did not have renewable generation installed.

†Photovoltaic generation at this site was not incentivized under the PTNZ pilot but PV generation was still claimed based on specified minimum of 112,000 kWh for the project.

Figure 2: PTNZ Project Percent Savings over 2007 Oregon Structural Specialty Code

Overall Observations/Issues

The following observations and issues were encountered during the course of the evaluation:

PTNZ Program Issues/Observations

- Data integrity issues were encountered at each site. These included the following:
  - Lack of historical trends
  - Historical trends set to record for too short a term (typically less than a week)
  - Large chronological gaps in data
  - Issues with intermediate data handling, especially for sites with web "dashboards" that import data from control systems

  - At all sites we visited, we found that the Monitoring and Reporting (M&R) system was either inactive or experienced data issues. Sites that indicated a high level of involvement in site energy monitoring demonstrated better savings realization rates. The one site with an inactive M&R system exhibited the lowest realization rate.

- In addition to the energy impact analysis presented above, SBW surveyed site building management staff to improve understanding of their energy management and monitoring behaviors. The results of the survey are shown in the appendices provided with the internal version of this report.

Savings-Related Issues/Observations

- Electric measures are generally performing well, with a few exceptions performing slightly below expectations.
- There appears to be much more variability amongst the gas measures. Some of these measures are performing well against code, while others are demonstrating significantly lower realization rates. Actual gas usage was found to be higher than expected.
- Renewables are generally performing better than expected, and at some sites are offsetting under-performance by the electric efficiency measures.
- Energy models were found to be well-developed and of excellent quality. Although we did find modeling errors which impacted savings, the relative number of errors we found was small. We believe that the high level of technical review required for the models was a major reason for success in this area.

Recommendations

This section describes recommendations developed as a result of the issues encountered during the engineering review and impact analysis processes.

Data Integrity

Data plays a critical part in meeting the goals of any energy efficiency program. It is especially important for net zero programs. PTNZ program energy savings goals are far more aggressive than for conventional programs, and even a small increase in energy can significantly impact whether or not these goals are met. Data allows building owners to quickly detect rises in energy, identify the causes, and ensure that applied solutions are working.

Data issues were discovered at each of the six evaluated sites. The following recommendations are meant to improve how the program handles both M&R data (which pertains to whole building and end use energy such as lighting, HVAC, etc.) and control system trend data (which pertains to detailed system operation such as fan speeds, temperature setpoints, daylighting, control, etc.).

- Currently, although the program requires periodic checks (sometimes quarterly) of M&R data throughout the 18 month reporting period, data quality issues were encountered with data stored during this period. We recommend improving the methodology used to check

M&R data during this period. This could include more frequent checks to ensure that valid data is being stored, a closer examination of the reasonableness of the data, or comparison of accumulated M&R data with concurrent utility billing data. These activities could also be incorporated into the site commissioning plan in order to facilitate implementation.

- We also recommend strongly encouraging customers to keep the M&R system active and functioning beyond the current 18 month requirement in order to facilitate the maintenance of energy savings. This could be encouraged by educating customers about the advantage in energy savings of maintaining the system. The same methodology used by Energy Trust to ensure data validity during the 18 month period (with the improvements noted above) could be adopted by the customer.
- In general, sites should be encouraged to regularly check all historical trend system data (M&R and otherwise) to ensure continued integrity. Sites should also be encouraged to maintain historical control system trends of 15-minute interval data for at least a year in order to capture building operation during all conditions. Sites should be educated as to why this is important, and the benefits of monitoring their historical trend systems regularly (as well as the negative impacts of not doing so).
- M&R does not extend to natural gas. Due to underperformance of gas measures and data issues at many of the sites, consider offering an M&R option for gas, which would install gas meters on major equipment such as boilers and domestic hot water heaters, and would record gas usage at 15 minute intervals similar to how electric M&R is currently being accomplished.

Integrated Building Management System Practices

Discussions with site property management personnel and the survey given to site personnel demonstrated a wide range of building management practices and engagement levels that inherently affect the persistence of savings measures. At one site, the controls contractor and building management worked closely together to maintain system performance, while at another site, the building management was not fully aware of typical system controls, resulting in unnecessary summer boiler operation. Additionally, some features of these advanced buildings provide unusual challenges for maintenance staff in their day-to-day work, resulting in specialized vendors having to be called in to facilitate standard maintenance.

We recommend developing measures and resources that support building management in sustaining building performance, including the following:

- Identify and support advanced system maintenance trainings specifically tailored to new technologies for building maintenance staff to ensure sufficient site expertise throughout the life of the measures installed. This is especially important for sites that experience building management changeover.
- Encourage site staff to conduct periodic walkthroughs that check on key measures; this ensures that tenants continue to use best practices. Some of the projects have involved

measures whose effectiveness relies on good tenant education and regular communication with building management staff.

- Encourage site staff to collaborate with their controls contractors in actively managing building performance. This may include the controls contractor directly monitoring performance and reporting regularly to site staff, or setting up a system that alerts staff to abnormally high energy usage and other performance indicator abnormalities. Enlisting the help of controls contractors is important because in most cases they are more familiar with the complexities of building operation than the site staff.
- Support and encourage building design teams to minimize building maintenance complexity and requirements. One important design feature would be maintenance accessibility to key systems. In one site in particular, maintenance of system performance was inhibited by a building design that made the system difficult to physically access, resulting in costly and time-consuming maintenance that required specialized vendors.

Maintenance of Effective Practices

This recommendation is based on which practices evaluators identified as being the most effective during the PTNZ pilot. We recommend that these practices be maintained in the future to help ensure the success of the program going forward.

- Technical reviews were found to be a thorough review of energy calculation methods, inputs, and assumptions. The reviews ensured that pre-occupancy energy models and calculations were of good quality. The format and layout of the technical review memos presented information clearly and helped in isolating specific issues and responses.

Energy Modeling Methodology

Energy modeling methodologies employed by the pilot were found to be sound. The one area for potential improvement relates to calculation of both project level and measure level savings. The pilot used a rolling baseline method to determine measure level savings, in which measures are added one at a time to the baseline model, and savings are calculated in steps as each measure is added.

This could be improved upon by using the full interactive model (all measures included) to calculate both total project and individual measure savings. Savings by measure can be accomplished with the interactive model using a “last in” approach in which the measure of interest is removed from the full interactive model to create the baseline condition for the measure. This ensures that interaction with all other measures is accounted for. Note that this method could potentially impact measure cost-effectiveness.

MEMO

Date: July 12, 2016
To: Board of Directors
From: Jessica Rose Iplikci, Program Manager, New Buildings Program
Sarah Castor, Evaluation Sr. Project Manager
Subject: Staff Response to New Buildings Path to Net Zero Pilot Impact Evaluation

Summary
Energy Trust New Buildings launched the nation's first Net Zero Energy pilot in 2009, called Path to Net Zero, designed to work closely with commercial building owners and their design and construction teams targeting design performance 50% above energy code. As documented in a process evaluation, completed in 2012, the pilot focused on the process to design and construct net zero buildings, identifying strategies and design features that save energy and understanding for how available technologies can be designed to achieve greater energy savings and benefits for building owners. This pilot impact evaluation found the program's early engagement and technical support resulted in significant energy saved.

Savings Results
The impact evaluation provides a snapshot of savings after approximately two years of occupancy, lending a unique perspective on the relationship between as-designed savings estimates and building occupancy.

- Energy Trust's pilot evaluations found that engaging owners in energy target setting and identifying energy savings goals and strategies early in the design process drives building design and construction practices that can result in 50% better than energy codes, or depending on the building owner's goals, a net zero energy building.

- Evaluators found that "the high level of technical review required for the models was a major reason for success." Total electric and gas savings were modeled correctly, with few issues or errors found by evaluators.

- Overall pilot realization rates were 105% electric, 65% gas, and 113% for solar PV generation. Operating decisions at one large site led to greatly reduced gas realization.

- Three of the six projects evaluated exceeded the pilot goal of 50% energy savings beyond code through energy efficiency or 60% savings through efficiency and renewables, the primary objective of Path to Net Zero.

Discussion
The pilot included several building types in various sectors, providing early insights to potential designs and decision making. Each project had a unique set of design goals and constraints they worked through, and pilot results cannot be generalized until the program has more implementation experience across a wider range of projects pursuing similar goals and

technologies. It was important for program staff to understand the overall design decisions, the process to design a better building and approaches to equipment selection – the central goal of the pilot.

Recognizing that the building construction industry's design and construction practice has multiple phases (schematic design, design development, construction development) followed by building occupancy, the pilot aimed to influence decisions early in design. By working directly with building owners, energy efficiency became part of how they approach design decisions. By also working closely with design teams, the program was able to understand how to assess design-related decisions and factor those into modeled energy savings estimates.

Energy use is expected to fluctuate during occupancy for various reasons which are hard to predict. One of the early challenges is with assessing how to factor in occupancy strategies or operational related assumptions in net zero buildings.

Some building owners dialed in their building energy use on all levels, resulting in steadily meeting annual estimated savings ranges, and the final savings estimates were very close to program estimates. Others may be operating the building to a different use case and varied from what we know they are capable of achieving; the building may require some adjustments, but there are no major issues with the actual design of the buildings (further discussion below). Program staff have a good basis for what worked well with some customers and how to close this gap in the market.

Having well-defined occupant needs will help inform design strategies (deciding between a simple or complex building depending on occupant characteristics and needs, for example) and are needed to advance building design practice. It's important to note how the program assesses energy savings estimates in this context currently: design decisions take into consideration operations and occupancy then energy savings estimates are derived. Designers are asking for more post-occupancy information to guide decisions and Energy Trust will work to close these market gaps.

Staff Observations
Staff have the following observations of the evaluation report and recommendations for future evaluations.

Modeling measure interactivity was a challenge to evaluate because it is difficult to identify savings at the measure level for whole building projects that model multiple, often complex, inter-dependent measures. For the evaluation report, the final, calibrated model is used to estimate the whole building savings, which are then compared to the program estimate of whole building energy savings, without actually considering measure-level savings. The program does provide multiple methods of modeling energy savings associated with each measure. Given that there are pros and cons for each, the program has continued to offer all three methods.

Due to the interactivity of many building design features and systems integration, evaluators were not able to attribute actual savings to specific measures documented by the program, and to do so would require extensive building sub-system metering that is not typically done and

would increase costs. Evaluators also noted that using a full interactive modeling process produces more accurate estimates of whole building energy savings than the way the program is currently required to estimate these savings. Staff also understand the full interactive effects can provide a more accurate picture of energy considerations than what the program is currently allowed to do.

To make improvements in savings estimates, in future evaluations, program staff need to see a detailed list from evaluators of all adjustments evaluators made to building energy simulation models for each site, including adjustments in baseline, HVAC schedule, occupancy and load, along with the basis for these changes.

Evaluation efforts focused recommendations on energy management and information system (EMIS) data though the focus of the pilot was on main contributors of success and challenges to designing to this high standard. There is an outstanding question of whether better data integrity would lead to better savings realization and what the costs would be, or whether it would just make evaluation easier.

Conclusions

New Buildings will continue to advance design practices to enable progress through Path to Net Zero. The program's Path to Net Zero offering aligns with the Architecture 2030 Challenge and references Oregon energy efficiency code which has been expanded and enhanced. Additional market transformation strategies and tactics are also being deployed to support the design and construction community.

Energy Trust Small Business Energy Savings (SBES) Initiative

2015 Process Evaluation Report

Final

Prepared by

PWP, Inc.

April 2016

Executive Summary

This report presents the results of the process evaluation of Energy Trust of Oregon's Small Business Energy Savings (SBES) initiative through 2015. Small Business Energy Savings is a component of the Existing Buildings (EB) program that offers turnkey lighting and lighting controls installation in small businesses, and in 2015 covered up to 80% of the project costs. SBES is delivered by SmartWatt, a subcontractor to EB Program Management Contractor (PMC) ICF. Financing to cover the remaining portion of project cost is offered at 0% interest for 12 months, so that there is potentially no out-of-pocket cost to the customer. Participants receive a 5% discount if they pay cash rather than finance the installation.

SBES is meant for small customers who have not typically been targeted by the EB program trade ally network. The SBES initiative's performance for calendar year 2015 as presented in the PMC's annual report to Energy Trust is summarized in Exhibit ES-1.

Exhibit ES-1 – 2015 Audits, Projects and Savings

	PGE	Pacific Power	Total
# Audits Completed	356	250	606
# Projects Installed	208	153	361
Installed kWh Savings	2,626,525	1,670,776	4,297,301
Installed Program Cost/kWh	$0.43	$0.38	$0.41

The goal of this process evaluation was to obtain feedback on the current initiative design and delivery that can be used to enhance the future implementation of the initiative. Evaluation activities included a combination of secondary data and program document review and primary data collection, including interviews with program staff, the PMC and its subcontractor, installation contractors, 36 SBES participants and 10 customers who received audits but did not install new lighting.

Key findings reported in this report as drawn from these data collection and analysis activities are summarized below.

Conclusions

- The SBES initiative exceeded its 2015 savings goals for both PGE and Pacific Power service territories, reaching small business customers outside the geographic area traditionally served by Energy Trust trade allies.
- Savings come from a diverse mix of business types, with offices, retail, and auto repair facilities together accounting for 60% of projects and over half of kWh savings.

- T8 fluorescents accounted for more than half of savings for all of 2015, but their share of savings was sharply reduced by new program requirements, so that LEDs accounted for the majority of savings in the last three months of 2015 and will likely continue to do so.

- Both utilities help generate leads for SBES, and the volume of leads and referrals has been sufficient to enable SmartWatt to maintain a steady flow of audits and installations. In addition, cold calls by SmartWatt, referrals and other sources account for up to half the audits conducted.

- Staff from Energy Trust, the PMC, SmartWatt and the utilities agree that communications regarding SBES are effective and that the program is being delivered according to plan. The utilities would like to have more detailed information on which specific customers have received audits and accepted proposals.

- Almost all audits result in a proposal, and about 70% of proposals are accepted. While this is high relative to other programs, it may be possible to increase this percentage of proposals accepted by more extensive pre-screening, but the audits themselves appear to have a positive impact on customer awareness of and receptivity to energy efficiency improvements.

- In at least one instance, a customer who had previously received a bid from an Energy Trust trade ally accepted the lower cost (to them) SmartWatt proposal, which led to that trade ally complaining to ICF, Energy Trust and regulators. The complaint was resolved, and SmartWatt has said that their auditor will ask customers if they have an existing relationship with a lighting contractor before conducting an audit and preparing a proposal.

- The assumption that only customers who are "below the radar" for Energy Trust's trade allies would participate in SBES appears to be mistaken. Over half of the participants interviewed had previously received proposals from a lighting contractor. These previously contacted participants tended to be larger, with an average incentive received that was more than twice as high as the incentive received by participants who had not previously considered a lighting retrofit. The average installed value of the projects completed by those previously contacted would have been roughly $12,000, which appears to have been sufficient to attract the interest of contractors.

- A review of project data for 2015 also shows 42 projects receiving incentives over $10,000, including 6 receiving incentives over $20,000, again indicating projects large enough to interest contractors through the regular EB program, although none of those had previously resulted in a sale.

- The criteria for determining whether a customer qualifies for SBES can be vague. The Energy Trust measure approval document for direct install mentioned that these measures

are “most applicable to commercial buildings less than 25,000 square feet” while the program description Energy Trust presented to utilities said that “most businesses under 10,000 sf will be eligible,” but neither states a specific eligibility criterion (although the PMC provides guidance on approved square footage for various building types). The utilities are using their general commercial rate class when identifying leads for SmartWatt, and SmartWatt has no easy eligibility criterion to use when qualifying a location for an audit, other than the determination that the customer is clearly too large, is already working with a contractor or would be considered “multifamily”, “industrial or agricultural” under Energy Trust rules. There are relatively few site visits where SmartWatt declines to do an audit because a previous relationship with a contractor exists, since the auditor must rely on the customer’s statement that they are not already working with a contractor.

- Average customer size for SBES participants is in line with goals, but the general trend toward a smaller average size for efficiency projects in existing buildings as fewer large-scale opportunities remain untapped will increase the potential for conflicts between trade allies and the more generous SBES direct install incentives.

- SBES participant satisfaction is high. All 36 survey respondents used a rating of 5 to indicate their satisfaction with how long it took to receive the audit results, and 100% of respondents gave ratings of 4 or 5 for their satisfaction with the lighting proposed and installed and the amount they had to pay for the lighting project. Similarly, more than 90% of respondents offered ratings of 4 or 5 for how long it took to schedule the installation, the installation contractor and the SBES offering overall.

- While several respondents recognized that their usage had gone up and down for reasons unrelated to the retrofit, some complained that their electricity bill had increased, and it is not clear that all participants understood the potential savings from their lighting retrofit in the context of their overall usage.

- One goal of SBES is to alert audit participants to non-lighting efficiency opportunities in their buildings, but only seven participants recalled the lighting auditor pointing out such saving opportunities. On the other hand, 62% of participants said they were more likely to install other energy efficiency measures, and none said they were less likely after participating in SBES. We were unable to find SBES participants in the Energy Trust tracking data who had subsequently participated in the regular EB program, but this may be because not enough time had elapsed.

- Despite their involvement with SBES, most participants do not seem knowledgeable about how to pursue efficiency opportunities. The percentage of survey respondents expressing concerns or asking to be contacted by Energy Trust, the PMC or SmartWatt

was higher than for most surveys we have fielded previously, indicating that more follow-up is required with these customers.

- Half of surveyed participants (18 of 36) said they consider Energy Trust primarily responsible for covering up to 80% of the cost of their SBES project, while one-sixth (6 respondents) attribute the initiative to the utilities and one-sixth credited SmartWatt. Three respondents said they did not know or could not distinguish between the roles of SmartWatt, the utilities and Energy Trust, while three offered other responses (all three of those, utility customers, state tax credits).

- Customers who received an audit but did not accept the resulting proposal were still satisfied with the audit process. When asked why they chose not to accept the lighting proposal, three of ten survey respondents mentioned cost, but it does not appear that cost alone was the reason for failure to follow through on the proposed project, with other respondents mentioning the building being for sale and "other priorities."

- The contractor engaged by SmartWatt for most of the installations through SBES was highly satisfied with SBES and SmartWatt. A second contractor who provided installation services for a short time was not satisfied, perhaps because of a previous issue with a customer accepting the SBES proposal rather than one offered by this contractor.

Recommendations

Based on the conclusions summarized above and other findings throughout the report, the following recommendations are designed to help ensure that SBES efforts remain on track and are targeted to those customers who truly would be least likely to be reached by the existing Energy Trust Trade Ally Network through the Existing Buildings program.

- Energy Trust should continue the SBES offering as an effective means of reaching out to small customers who are not served by the existing trade ally network.

- Utility outreach efforts and utility-provided contact information have been valuable sources of leads for SmartWatt and SBES, and utilities are pleased to have this offering available for their customers. To the extent possible, utilities should be supported in their efforts to access Energy Trust data to determine which specific customers have participated in the areas targeted by SBES.

- The more widespread and longer lasting the availability of SBES, the more likely that there will be conflicts with trade allies, especially in light of findings that many customers have been previously contacted. While, on average, SBES is reaching the targeted customer population, more explicit criteria determining whether a customer qualifies for SBES would help alleviate or avoid conflict with trade allies by enabling Energy Trust to state clearly which customers are and are not eligible.

- The fact that a building would be considered “industrial” simply because a very modest level of production is being done in what is otherwise a commercial space should not disqualify a customer from participating in SBES.

- While SBES direct install appears to be the only way to encourage the smallest projects, it may be possible to create a structure of tiered incentives that are greater than the standard lighting incentives but less than the amount provided through SBES to assist trade allies in encouraging customers to implement more substantial projects, such as those valued in the $8-12,000 range or higher. There would have to be requirements to ensure that projects covered by such incentives would in fact be whole-facility retrofits, but it should be feasible to develop program guidelines that support a primary role for trade allies while still providing support to the smallest customers.

- SmartWatt auditors point out the effect of non-lighting usage and seasonal variation on the overall bill, but it appears that not all participants fully understand that linkage. It may be appropriate to use a leave-behind information piece to remind customers of the seasonality of electric usage and encourage them to pursue energy efficiency options for non-lighting end uses, as well as behavioral and operational changes to manage usage.

- This same leave-behind piece should include contact information encouraging the customer to follow up with the EB program.

- In addition, all participants should receive a follow up phone call and/or email from a representative of the EB program to ask whether the customer has any questions about or interest in non-lighting efficiency options and to go over the “Other Opportunities” checklist left by the auditor. And of course, any follow up inquiries from customers should be acknowledged and responded to promptly.

MEMO

Date: July 7, 2016
To: Board of Directors
From: Spencer Moersfelder, Planning Manager
Sarah Castor, Evaluation Sr. Project Manager
Subject: Staff response to the Small Business Energy Savings process evaluation

This is the first evaluation of the Small Business Energy Savings (SBES) offerings through the Existing Buildings program. The effort rolled out at the end of 2014 and featured lighting offerings through the end of 2015 with a high portion of the overall project cost covered by incentives. The offering was augmented by 0% financing or a 5% discount for customers that paid in full on project completion. The evaluation found that SBES has been an effective means of serving small businesses outside the Portland Metro area, a set of customers that has traditionally been more difficult to reach than large or urban businesses. SBES has met the savings and incentive goals set out by Energy Trust, while achieving high customer satisfaction.

The Existing Buildings program will continue to offer SBES to customers, working with Portland General Electric and Pacific Power via their respective outreach capacities to identify areas for targeting. The utilities have been very receptive to the offerings and have enthusiastically promoted it to customers, resulting in many project leads for the program. In February, the program held a training for utility outreach staff on lighting offers and which customers should be connected with SBES versus a lighting trade ally who could provide standard lighting incentives. The program is now also performing post-installation verification visits on a sample of SBES projects, which provides the opportunity to follow-up with customers to ensure their satisfaction with the project and discuss additional energy efficiency opportunities, if needed.

The evaluation found that some customers may not be aware of the seasonal nature of lighting energy use and savings. Going forward, program staff plan to explore the potential for including more information about this topic in the proposal materials that customers receive. Also, since the evaluation, the program has added a steam trap measure for dry cleaners and laundry facilities to the offering. The program will explore opportunities to add additional measures, including more gas measures, through SBES.

Energy Trust is aware that offering measures through SBES compared to offering the same measures through a lighting trade ally channel requires communication and coordination, and can present challenges. Energy Trust is balancing the need to reach a group of customers that the program has not influenced since the program began in 2003 with the need to maintain a good working relationship with trade allies and

continued savings through that channel. The program will continue to monitor this dynamic and will make adjustments as necessary in order to achieve the best balance possible.

Tab 6

Finance Committee Meeting Notes

August 18, 2016

Attendance

Board members: Dan Enloe (phone), Susan Brodahl (phone), Anne Root (phone)
Staff present: Michael Colgrove, Mariet Steenkamp, Mark Wyman, Steve Lacey, Pati Presnail, Alison Ebbott

1. **Review of May meeting notes**

   Approved as submitted.

2. **Review of Reserve Policy and Current Plan / Trends**

   The using reserve policy is up for its regular review. Mariet presented the current policy, annual risk assessment policy and annual risk assessment. Steve joined the meeting and provided input on the program reserve targets and are not recommending any current. The committee reviewed recommendations from the 2013 workgroup for the contingency reserve and discussed the necessity of the current level of contingency reserves. Staff will report back at the next meeting with a timeline for evaluating and benchmarks for the contingency reserves that are appropriate for Energy Trust.

3. **Proposed pilot serving manufactured homes**

   Mark Wyman joined the meeting to present a pilot to serve manufactured home owners by financing the replacement of old, pre-1990 manufactured homes in rural areas with higher-efficiency models through a combination of an Energy Trust incentive, and is seeking a loan from the U.S. Department of Agriculture's Rural Utilities Service and will aim to replace 50 homes. Energy Trust has not yet received an invitation to proceed with an application to the U.S. Department of Agriculture. Mark presented the two tracks and alignment with the 2015 – 2019 strategic plan. The committee members asked questions related to scope creep, calculation of avoided costs and breakdown of replacement cost.

4. **Review of investment holdings**

   Alison Ebbott presented the current investment holdings compared to the investment policy. At the end of June, 2016 Energy Trust was overly concentrated in one investment holding. At the time of purchase, the bond did not exceed the 5% of overall limit as described in the investment policy but with the decrease in investments had 6.1% concentration at the end of June. The bond will mature in September, at which time the investment will be in full compliance.

5. Review and discussion of financial results

Revenue is within 2.7% of budget and total expenses are 0.6% over budget. Incentives are 21% over budget at the midpoint in the year, with Existing Buildings far exceeding budget for the first six months of the year. The average days to maturity for investments have increased slightly from 98 to 105 days, and as investments mature between now and the end of the year we will invest in short term options to increase the liquidity of investments.

6. Brief update of tenant improvements

Mariet gave a brief update on the tenant improvements. Staff will obtain full pricing bids in October with work scheduled to start at the end of February and be completed by August 2017.

The next meeting will be October 20, 2016 at 3:30pm

Notes on July 2016 Financial Statements

August 19, 2016

Revenue

PAC and CNG have both begun to reduce the current year shortage in revenue receipts. We expect these utilities will continue to make larger payments for the rest of the year.

Revenue through July 2016

	YTD Actual	YTD Budget	YTD Var	YTD %	PY
PGE	46,680,428	46,615,734	64,694	0.1%	46,784,416
PAC	30,014,017	30,918,890	(904,873)	-2.9%	28,539,095
NWN	12,771,984	14,154,931	(1,382,947)	-9.8%	12,870,095
CNG	1,115,334	1,215,230	(99,896)	-8.2%	927,925
Avista	78,000		78,000		
Investment Income	391,489	175,000	216,489	123.7%	349,897
Total	91,051,251	93,079,785	(2,028,533)	-2.2%	89,471,428

Reserves

Reserves increased slightly this month.

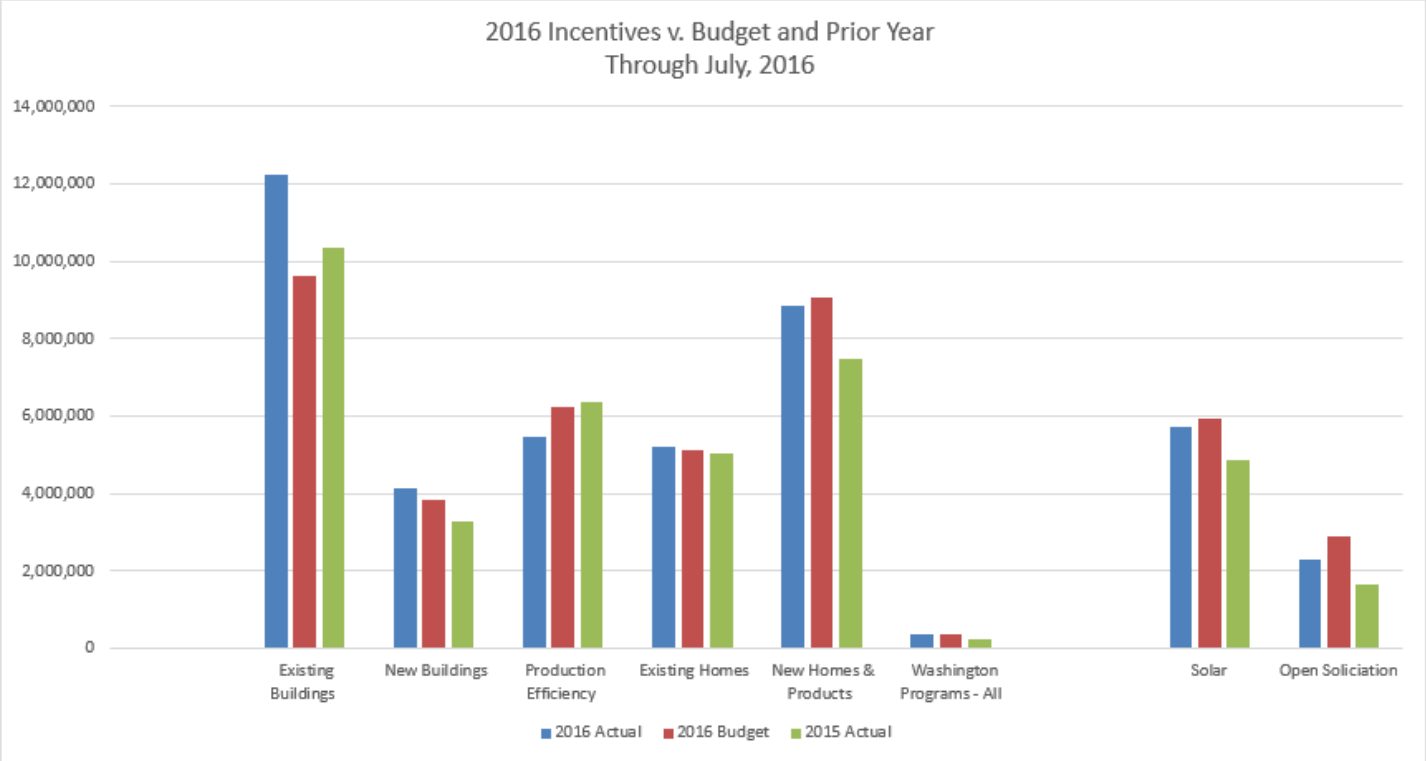
Reserves

	7/31/16 Amount	Actual 12/31/15 Amount	YTD % Change
PGE	23,465,953	23,006,282	2%
PacifiCorp	9,569,227	7,481,735	28%
NW Natural	8,175,886	6,430,002	27%
Cascade	453,480	229,935	97%
Avista	61,886	0	
NWN Industrial	1,918,944	1,032,752	86%
NWN Washington	204,264	257,872	-21%
PGE Renewables	8,257,705	10,144,624	-19%
PAC Renewables	11,026,947	10,910,203	1%
Program Reserves	63,134,292	59,493,405	6%
Contingency Reserve	5,000,000	5,000,000	0%
Contingency Available	4,131,374	3,739,885	10%
Total	72,265,667	68,233,284	6%

Expenses

Total expenses for July were $11 million, about $2 million below budget. We are still within 2% of our Year-To-Date expectations for total expenses.

Year to date incentives are above budget by $1.2 million (3%). July incentives were $1.4 million below the budgeted monthly amount after the programs pushed to meet their mid-year goals in June. We have still spent $5 million more (13%) than we did at this time last year - $44 million vs. $39 million Y-T-D.



Total Incentives
Year-to-Date 2016

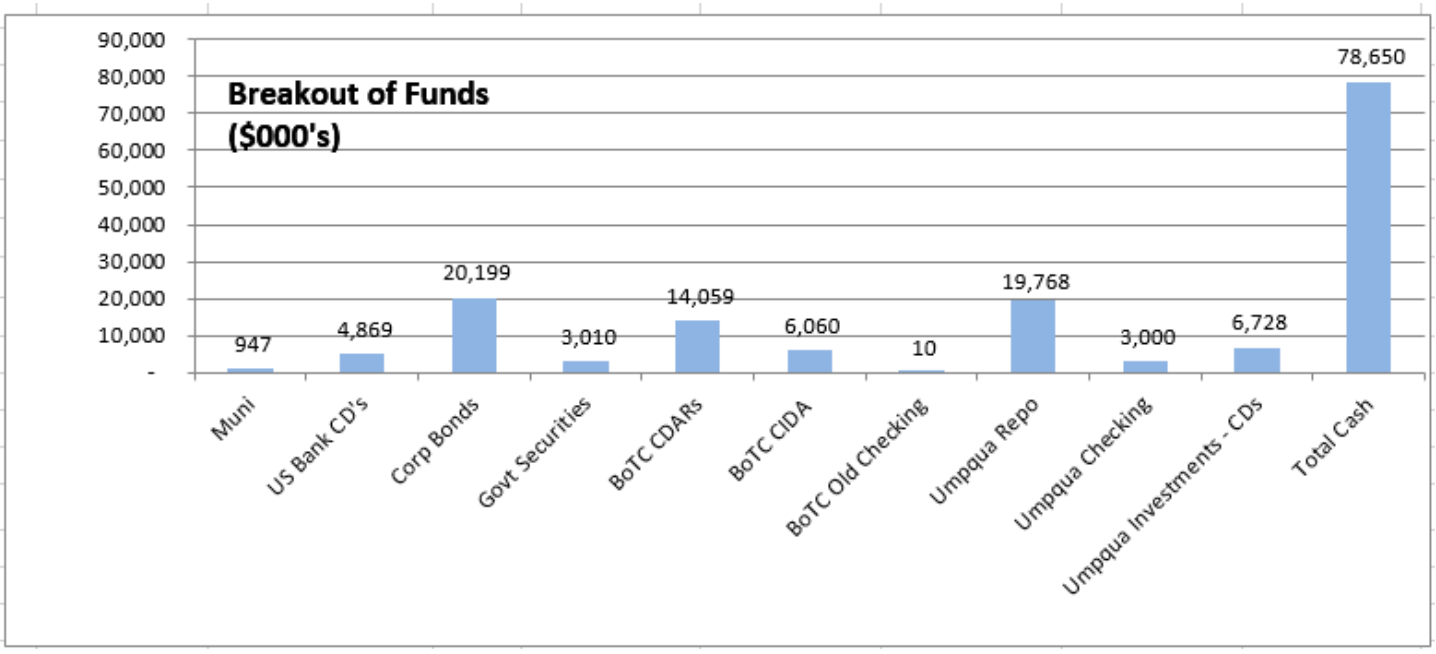
Incentives thru July 2016	Actual	Budget	Variance	Var %
Existing Buildings	12,242,664	9,605,783	(2,636,882)	-27%
New Buildings	4,122,734	3,840,323	(282,411)	-7%
Production Efficiency	5,481,438	6,257,251	775,813	12%
Existing Homes	5,192,117	5,117,522	(74,595)	-1%
New Homes & Products	8,834,907	9,056,305	221,398	2%
Washington Programs - All	347,417	349,017	1,600	0%
Solar	5,716,751	5,951,033	234,282	4%
Open Soliciation	2,313,783	2,895,535	581,753	20%
Total Incentives	44,251,810	43,072,768	(1,179,043)	-3%
Energy Efficiency Only	**36,221,276**	**34,226,199**	**(1,995,077)**	**-6%**

Total Incentives
Year-to-Year Comparison

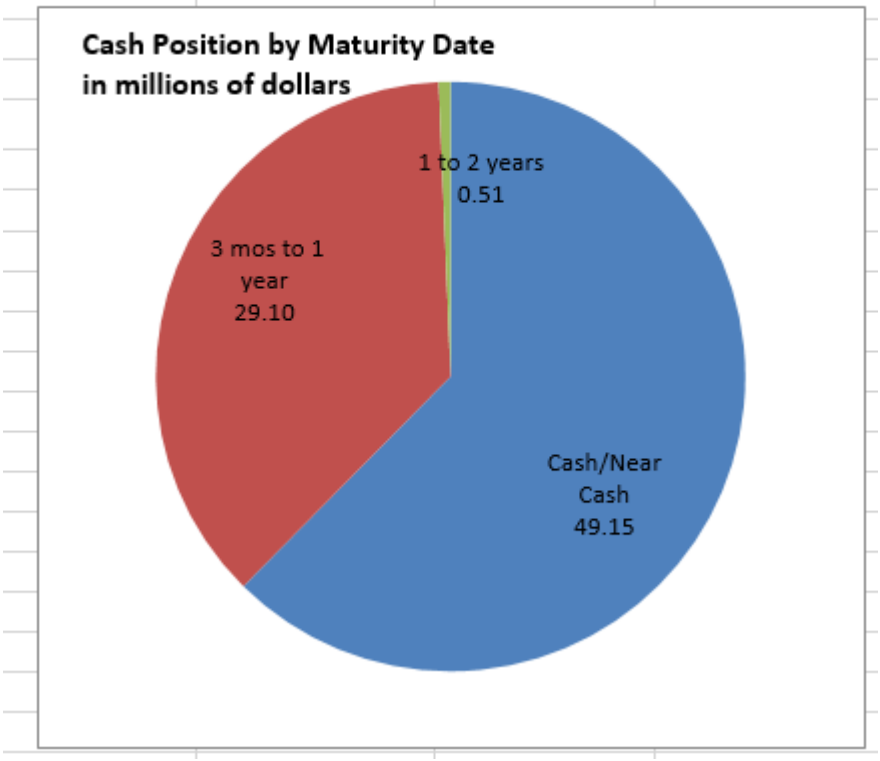
July 2016 vs. July 2015	Current Year	Prior Year	Variance	Var %
Existing Buildings	12,242,664	10,344,720	(1,897,944)	-18%
New Buildings	4,122,734	3,266,479	(856,255)	-26%
Production Efficiency	5,481,438	6,383,102	901,664	14%
Existing Homes	5,192,117	5,021,152	(170,966)	-3%
New Homes & Products	8,834,907	7,471,112	(1,363,795)	-18%
Washington Programs - All	347,417	236,020	(111,396)	-47%
Solar	5,716,751	4,864,241	(852,511)	-18%
Open Solicitation	2,313,783	1,639,198	(674,585)	-41%
Total Incentives	44,251,810	39,226,023	(5,025,791)	-13%
Energy Efficiency Only	**36,221,276**	**32,722,584**	**(3,498,692)**	-11%

Investment Status

The graphs below show the type of investments we hold and the locations where our funds are held at the end of July. As items mature, we will probably bank the proceeds in anticipation of strong year-end incentive volume.



Average Days to Maturity:	91
Average Portfolio Yield:	0.58%



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

	July 2016	June 2016	December 2015	July 2015	Change from one month ago	Change from Beg. of Year	Change from one year ago
Current Assets							
Cash & Cash Equivalents	28,838,017	30,750,789	27,186,505	30,660,832	(1,912,772)	1,651,512	(1,822,815)
Investments	49,692,808	51,703,074	63,884,187	70,742,889	(2,010,266)	(14,191,379)	(21,050,081)
Receivables	183,989	204,067	374,615	323,449	(20,078)	(190,626)	(139,460)
Prepaid Expenses	540,904	461,467	479,349	527,318	79,436	61,554	13,586
Advances to Vendors	1,444,424	2,064,997	2,049,018	1,376,599	(620,573)	(604,594)	67,825
Total Current Assets	**80,700,142**	**85,184,394**	**93,973,675**	**103,631,087**	**(4,484,252)**	**(13,273,532)**	**(22,930,945)**
Fixed Assets							
Computer Hardware and Software	3,671,135	3,671,135	3,509,829	3,350,062	-	161,305.83	321,073
Software Development in Progress	0	0	150,148	207,256	-	(150,148)	(207,256)
Leasehold Improvements	318,964	318,964	318,964	318,964	-	-	-
Office Equipment and Furniture	701,604	701,604	701,604	698,874	-	-	2,730
Total Fixed Assets	**4,691,703**	**4,691,703**	**4,680,545**	**4,575,157**	**-**	**11,158**	**116,546**
Less Depreciation	(3,219,452)	(3,139,792)	(2,672,098)	(2,278,752)	(79,660)	(547,354)	(940,700)
Net Fixed Assets	**1,472,251**	**1,551,911**	**2,008,447**	**2,296,405**	**(79,660)**	**(536,196)**	**(824,154)**
Other Assets							
Deposits	223,339	223,339	132,340	132,340	-	90,999	90,999
Deferred Compensation Asset	779,898	771,439	724,981	691,211	8,460	54,917	88,687
Note Receivable, net of allowance	88,909	88,909	85,609	86,789	-	3,300.00	2,120
Total Other Assets	**1,092,146**	**1,083,687**	**942,930**	**910,340**	**8,460**	**149,216**	**181,806**
Total Assets	**83,264,540**	**87,819,992**	**96,925,052**	**106,837,832**	**(4,555,452)**	**(13,660,512)**	**(23,573,292)**
Current Liabilities							
Accounts Payable and Accruals	8,880,853	14,140,008	26,910,003	8,464,043	(5,259,155)	(18,029,150)	416,810
Salaries, Taxes, & Benefits Payable	851,166	896,491	735,510	767,385	(45,324)	115,656	83,782
Total Current Liabilities	**9,732,019**	**15,036,499**	**27,645,513**	**9,231,427**	**(5,304,480)**	**(17,913,494)**	**500,592**
Long Term Liabilities							
Deferred Rent	482,661	438,949	314,472	330,243	43,712	168,189	152,418
Deferred Compensation Payable	779,898	774,239	727,781	691,211	5,660	52,117	88,687
Other Long-Term Liabilities	4,290	4,290	3,990	5,460	-	300	(1,170)
Total Long-Term Liabilities	**1,266,849**	**1,217,478**	**1,046,243**	**1,026,914**	**49,371**	**220,606**	**239,936**
Total Liabilities	**10,998,868**	**16,253,976**	**28,691,756**	**10,258,341**	**(5,255,108)**	**(17,692,888)**	**740,527**
Net Assets							
Unrestricted Net Assets	72,265,672	71,566,016	68,233,296	96,579,492	699,656	4,032,376	(24,313,820)
Total Net Assets	**72,265,672**	**71,566,016**	**68,233,296**	**96,579,492**	**699,656**	**4,032,376**	**(24,313,820)**
Total Liabilities and Net Assets	**83,264,540**	**87,819,992**	**96,925,052**	**106,837,832**	**(4,555,452)**	**(13,660,512)**	**(23,573,292)**

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

	January	February	March	April	May	June	July	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	$ 4,032,376
Non-cash items:								
Depreciation	76,179	75,997	76,143	80,055	79,660	79,660	79,660	$ 547,354
Change in Reserve on Long Term Note	-	-	-	-	-	-		-
Loss on disposal of assets								-
Receivables	(0)	18,000	(9,000)	-	12,191	7,230	3,579	32,000
Interest Receivable	14,398	(18,742)	103,825	(31,503)	(33,151)	107,300	16,499	158,626
Advances to Vendors	626,135	626,136	(1,232,162)	644,727	676,296	(1,357,111)	620,573	604,594
Prepaid expenses and other costs	47,275	(241,163)	56,960	88,757	(60,342)	126,395	(79,437)	(61,555)
Accounts payable	(17,410,869)	(2,320,614)	303,039	1,936,464	(921,656)	5,642,030	(5,259,156)	(18,030,762)
Payroll and related accruals	54,950	24,319	119,657	(42,788)	26,784	26,125	(39,666)	169,381
Deferred rent and other	(15,317)	(20,616)	(98,216)	(10,318)	63,094	65,393	35,253	19,273
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)	(12,528,713)
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	14,191,379
(Acquisition)/Disposal of Capital Assets	(166)	-	(691)	(370)	(9,931)			(11,158)
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	$ 14,180,221
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	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)	1,651,509
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	$ 28,838,017

(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							2016 Adjusted Budget				
	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	12,800,000	12,100,000	12,300,000	11,900,000	14,600,000
Trsfr from maturing investments	3,750,021	45,768	4,263,600		2,021,989	3,578,771	2,010,266	-	-			5,000,000
Investment Income	110,687	28,809	180,066	11,289	24,534	136,120	58,610	25,000	25,000	25,000	25,000	25,000
From Other Sources		18,000			12,191	7,230	3,579					
Total cash in	18,679,659	16,007,096	18,272,745	13,104,173	13,009,688	14,014,840	13,833,093	12,825,000	12,125,000	12,325,000	11,925,000	19,625,000
Cash Out:	(23,090,291)	(11,494,861)	(14,388,972)	(10,781,678)	(13,105,625)	(15,183,447)	(15,745,862)	(11,900,000)	(15,100,000)	(15,200,000)	(16,400,000)	(20,800,000)
Trsfr to investments				(1,479,036)								
Net cash flow for the month	(4,410,631)	4,512,235	3,883,773	843,459	(95,981)	(1,168,607)	(1,912,769)	925,000	(2,975,000)	(2,875,000)	(4,475,000)	(1,175,000)
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	29,763,017	26,788,017	23,913,017	19,438,017
Ending cash & MM	**22,775,874**	**27,288,109**	**31,171,882**	**32,015,382**	**31,919,401**	**30,750,789**	**28,838,017**	**29,763,017**	**26,788,017**	**23,913,017**	**19,438,017**	**18,263,017**
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	10,500,000	10,500,000	10,500,000	10,500,000
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	77,100,000	77,100,000	77,100,000	77,100,000
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	92,600,000	92,600,000	92,600,000	92,600,000

(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	19,000,000	18,100,000	14,900,000	15,700,000	12,900,000	12,300,000	13,300,000	14,000,000	13,200,000	13,500,000	13,300,000	16,100,000
Trsfr from maturing investments	12,500,000											
Investment Income	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
From Other Sources												
Total cash in	31,525,000	18,125,000	14,925,000	15,725,000	12,925,000	12,325,000	13,325,000	14,025,000	13,225,000	13,525,000	13,325,000	16,125,000
Cash Out:	(31,800,000)	(10,200,000)	(11,400,000)	(11,200,000)	(13,300,000)	(14,700,000)	(12,200,000)	(12,800,000)	(14,200,000)	(13,100,000)	(15,700,000)	(18,500,000)
Trsfr to investments												
Net cash flow for the month	(275,000)	7,925,000	3,525,000	4,525,000	(375,000)	(2,375,000)	1,125,000	1,225,000	(975,000)	425,000	(2,375,000)	(2,375,000)
Beginning Balance: Cash & MM	18,263,000	17,988,000	25,913,000	29,438,000	33,963,000	33,588,000	31,213,000	32,338,000	33,563,000	32,588,000	33,013,000	30,638,000
Ending cash & MM	**17,988,000**	**25,913,000**	**29,438,000**	**33,963,000**	**33,588,000**	**31,213,000**	**32,338,000**	**33,563,000**	**32,588,000**	**33,013,000**	**30,638,000**	**28,263,000**
Future Commitments												
Renewable Incentives	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000	10,500,000
Efficiency Incentives	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000	77,100,000
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	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000	92,600,000

(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 Seven Months Ending July 31, 2016
(Unaudited)

	June				YTD			
	Actual	**Budget**	**Budget Variance**	**Variance %**	**Actual**	**Budget**	**Budget Variance**	**Variance %**
REVENUES								
Public Purpose Funds-PGE	2,822,672	2,895,473	(72,801)	-3%	21,726,299	21,771,810	(45,511)	0%
Public Purpose Funds-PacifiCorp	2,154,805	2,109,439	45,366	2%	16,506,538	15,821,618	684,920	4%
Public Purpose Funds-NW Natural	147,273	461,518	(314,245)	-68%	9,985,109	11,140,497	(1,155,388)	-10%
Public Purpose Funds-Cascade	74,081	39,624	34,457	87%	1,115,334	1,215,230	(99,896)	-8%
Public Purpose Funds-Avista	15,600		15,600		78,000		78,000	
Total Public Purpose Funds	**5,214,431**	**5,506,054**	**(291,622)**	**-5%**	**49,411,280**	**49,949,155**	**(537,875)**	**-1%**
Incremental Funds - PGE	3,208,464	3,182,433	26,031	1%	24,954,129	24,843,924	110,205	0%
Incremental Funds - PacifiCorp	2,328,725	1,887,022	441,703	23%	13,507,479	15,097,272	(1,589,793)	-11%
NW Natural - Industrial DSM	1,009,018	1,071,908	(62,890)	-6%	2,018,035	2,143,816	(125,781)	-6%
NW Natural - Washington					768,840	870,618	(101,778)	-12%
Revenue from Investments	42,111	25,000	17,111	68%	391,489	175,000	216,489	124%
TOTAL REVENUE	**11,802,750**	**11,672,417**	**130,332**	**1%**	**91,051,253**	**93,079,785**	**(2,028,532)**	**-2%**
EXPENSES								
Program Subcontracts	4,120,385	4,721,338	600,952	13%	30,249,833	31,302,894	1,053,061	3%
Incentives	5,273,803	6,648,721	1,374,917	21%	44,251,810	43,072,768	(1,179,043)	-3%
Salaries and Related Expenses	956,273	1,061,076	104,803	10%	6,983,450	7,462,531	479,081	6%
Professional Services	507,344	700,875	193,530	28%	3,849,357	5,136,013	1,286,656	25%
Supplies	1,746	3,871	2,125	55%	15,968	27,096	11,128	41%
Telephone	5,291	6,267	976	16%	35,197	43,867	8,670	20%
Postage and Shipping Expenses	781	1,375	594	43%	6,567	9,625	3,058	32%
Occupancy Expenses	73,878	64,278	(9,601)	-15%	432,696	449,944	17,247	4%
Noncapitalized Equip. & Depr.	106,169	122,971	16,802	14%	697,467	815,696	118,228	14%
Call Center	10,856	15,617	4,761	30%	98,337	109,317	10,979	10%
Printing and Publications	729	8,208	7,479	91%	4,394	57,458	53,064	92%
Travel	16,492	16,678	185	1%	116,035	118,411	2,376	2%
Conference, Training & Mtng Exp	14,119	23,802	9,683	41%	98,606	156,630	58,024	37%
Interest Expense and Bank Fees	-	208	208	100%	1,621	1,458	(163)	-11%
Insurance	8,607	9,167	560	6%	59,140	64,167	5,026	8%
Miscellaneous Expenses	-	229	229	100%	54,078	1,604	(52,474)	
Dues, Licenses and Fees	6,619	6,229	(390)	-6%	64,317	73,364	9,047	12%
TOTAL EXPENSES	**11,103,094**	**13,410,908**	**2,307,814**	**17%**	**87,018,876**	**88,902,845**	**1,883,967**	**2%**
TOTAL REVENUE LESS EXPENSES	**699,656**	**(1,738,491)**	**2,438,147**	**140%**	**4,032,376**	**4,176,940**	**(144,565)**	**-3%**

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

	June				YTD			
	Actual	Actual Prior Year	Prior Year Variance	Variance %	Actual	Actual Prior Year	Prior Year Variance	Variance %
REVENUES								
Public Purpose Funds-PGE	2,822,672	2,888,756	(66,083)	-2%	21,726,299	21,721,302	4,996	0%
Public Purpose Funds-PacifiCorp	2,154,805	2,121,670	33,135	2%	16,506,538	15,913,355	593,183	4%
Public Purpose Funds-NW Natural	147,273	420,046	(272,773)	-65%	9,985,109	10,139,415	(154,307)	-2%
Public Purpose Funds-Cascade	74,081	30,256	43,825	145%	1,115,334	927,925	187,409	20%
Public Purpose Funds-Avista	15,600		15,600		78,000		78,000	
Total Public Purpose Funds	**5,214,431**	**5,460,727**	**(246,296)**	**-5%**	**49,411,280**	**48,701,998**	**709,281**	**1%**
Incremental Funds - PGE	3,208,464	3,210,511	(2,047)	0%	24,954,129	25,063,113	(108,984)	0%
Incremental Funds - PacifiCorp	2,328,725	1,578,103	750,622	48%	13,507,479	12,625,739	881,740	7%
NW Natural - Industrial DSM	1,009,018	1,026,144	(17,126)	-2%	2,018,035	2,052,288	(34,253)	-2%
NW Natural - Washington					768,840	678,392	90,448	13%
Contributions		350	(350)	-100%		1,050	(1,050)	-100%
Revenue from Investments	42,111	39,533	2,579	7%	391,489	349,897	41,592	12%
TOTAL REVENUE	**11,802,750**	**11,315,369**	**487,381**	**4%**	**91,051,253**	**89,472,478**	**1,578,774**	**2%**
EXPENSES								
Program Subcontracts	4,120,385	4,188,594	68,209	2%	30,249,833	29,459,564	(790,269)	-3%
Incentives	5,273,803	6,889,731	1,615,928	23%	44,251,810	39,226,023	(5,025,787)	-13%
Salaries and Related Expenses	956,273	860,698	(95,575)	-11%	6,983,450	6,134,177	(849,273)	-14%
Professional Services	507,344	516,160	8,816	2%	3,849,357	3,726,883	(122,475)	-3%
Supplies	1,746	3,594	1,849	51%	15,968	21,422	5,454	25%
Telephone	5,291	5,268	(23)	0%	35,197	34,230	(967)	-3%
Postage and Shipping Expenses	781	892	110	12%	6,567	8,999	2,432	27%
Occupancy Expenses	73,878	53,558	(20,320)	-38%	432,696	377,203	(55,493)	-15%
Noncapitalized Equip. & Depr.	106,169	117,690	11,521	10%	697,467	679,715	(17,753)	-3%
Call Center	10,856	12,589	1,733	14%	98,337	93,601	(4,736)	-5%
Printing and Publications	729	7,375	6,646	90%	4,394	52,503	48,109	92%
Travel	16,492	17,813	1,320	7%	116,035	82,759	(33,276)	-40%
Conference, Training & Mtng Exp	14,119	13,563	(556)	-4%	98,606	88,499	(10,107)	-11%
Interest Expense and Bank Fees			-		1,621	1,774	153	9%
Insurance	8,607	8,512	(95)	-1%	59,140	61,432	2,291	4%
Miscellaneous Expenses	-	104	104	100%	54,078	225	(53,853)	
Dues, Licenses and Fees	6,619	10,891	4,272	39%	64,317	71,099	6,782	10%
TOTAL EXPENSES	**11,103,094**	**12,707,032**	**1,603,938**	**13%**	**87,018,876**	**80,120,108**	**(6,898,768)**	**-9%**
TOTAL REVENUE LESS EXPENSES	**699,656**	**(1,391,664)**	**2,091,319**	**150%**	**4,032,376**	**9,352,370**	**(5,319,994)**	**-57%**

Energy Trust of Oregon
Statement of Functional Expenses
For the Seven Months Ending July 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/ Program Management & Delivery	66,222,939	8,278,069	74,501,008				635	74,501,643	74,375,662	$ (125,981)	0%
Payroll and Related Expenses	1,973,289	592,916	2,566,205	1,322,653	776,309	2,098,962	13,977	4,679,144	5,000,213	321,069	6%
Outsourced Services	2,160,031	647,232	2,807,263	229,891	513,876	743,766		3,551,029	4,887,638	1,336,609	27%
Planning and Evaluation	1,366,809	45,432	1,412,241	1,010		1,010		1,413,251	1,479,353	66,102	4%
Customer Service Management	326,204	68,513	394,717					394,717	293,048	(101,669)	-35%
Trade Allies Network	170,527	11,606	182,133					182,133	209,040	26,907	13%
Total Program Expenses	**72,219,799**	**9,643,768**	**81,863,567**	**1,553,553**	**1,290,185**	**2,843,738**	**14,612**	**84,721,917**	**86,244,955**	**1,523,037**	**2%**
Program Support Costs											
Supplies	4,029	1,372	5,402	3,936	2,222	6,158		11,560	19,818	8,258	42%
Postage and Shipping Expenses	1,509	514	2,023	2,099	803	2,902		4,925	6,172	1,247	20%
Telephone	1,726	588	2,314	926	658	1,584		3,898	10,062	6,164	61%
Printing and Publications	1,482	51	1,533	2,640	57	2,698		4,231	55,287	51,056	92%
Occupancy Expenses	129,297	44,042	173,338	69,368	49,331	118,699		292,037	307,148	15,111	5%
Insurance	17,672	6,020	23,692	9,481	6,742	16,224		39,915	43,802	3,887	9%
Equipment	4,021	14,021	18,041	2,157	1,534	3,691		21,732	82,087	60,355	74%
Travel	32,659	10,533	43,192	23,973	28,078	52,051		95,243	95,811	568	1%
Meetings, Trainings & Conferences	22,746	8,312	31,058	29,411	10,192	39,603		70,661	121,230	50,569	42%
Interest Expense and Bank Fees				1,621		1,621		1,621	1,458	(163)	-11%
Depreciation & Amortization	30,549	10,406	40,954	16,389	11,655	28,045		68,999	69,570	571	1%
Dues, Licenses and Fees	33,809	9,057	42,866	7,552	7,129	14,682		57,547	57,271	(276)	0%
Miscellaneous Expenses	52,844	167	53,011	263	269	533		53,544	1,095	(52,449)	-4790%
IT Services	1,039,231	137,091	1,176,322	233,796	160,929	394,725		1,571,047	1,787,076	216,029	12%
Total Program Support Costs	**1,371,573**	**242,173**	**1,613,746**	**403,614**	**279,600**	**683,214**	**0**	**2,296,960**	**2,657,887**	**360,927**	**14%**
TOTAL EXPENSES	**73,591,372**	**9,885,941**	**83,477,313**	**1,957,167**	**1,569,784**	**3,526,951**	**14,612**	**87,018,876**	**88,902,845**	**1,883,967**	**2%**
OPUC Measure vs. 8%	**5.7%**										

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

	ENERGY EFFICIENCY									
	PGE	PacifiCorp	Total	NWN Industrial	NW Natural	Cascade	Avista	Oregon Total	NWN WA	ETO Total
REVENUES										
Public Purpose Funding	16,845,877	12,853,509	29,699,386	-	9,985,109	1,115,334	42,000	40,841,829	-	40,841,829
Incremental Funding	24,954,129	13,507,479	38,461,608	2,018,035				40,479,643	768,840	41,248,483
Contributions										
Revenue from Investments										
TOTAL PROGRAM REVENUE	**41,800,006**	**26,360,988**	**68,160,994**	**2,018,035**	**9,985,109**	**1,115,334**	**42,000**	**81,321,472**	**768,840**	**82,090,312**
EXPENSES										
Program Management (Note 3)	1,718,275	1,032,320	2,750,595	101,844	324,742	40,755	30	3,217,964	55,950	3,273,914
Program Delivery	14,339,109	8,764,514	23,103,623	368,948	2,586,865	326,782	1279	26,387,498	254,436	26,641,934
Incentives	19,712,575	11,179,277	30,891,852	550,630	4,024,595	406,783	0	35,873,860	347,417	36,221,277
Program Eval & Planning Svcs.	1,316,234	802,205	2,118,440	30,358	227,883	22,427	49	2,399,158	46,543	2,445,701
Program Marketing/Outreach	1,433,133	825,010	2,258,144	13,569	413,883	32,238	15	2,717,850	23,083	2,740,933
Program Legal Services										
Program Quality Assurance	7,059	3,452	10,511		2,361	228		13,100		13,100
Outsourced Services	203,640	112,517	316,157	2,487	57,994	5,249	10	381,898	4,313	386,211
Trade Allies & Cust. Svc. Mgmt.	239,854	144,794	384,650	2,591	87,184	6,109	15	480,549	16,182	496,731
IT Services	520,984	317,694	838,678	10,191	154,410	12,041	38	1,015,355	23,876	1,039,231
Other Program Expenses - all	173,630	107,725	281,355	5,343	25,309	3,024	5	315,034	17,307	332,341
TOTAL PROGRAM EXPENSES	**39,664,493**	**23,289,508**	**62,954,005**	**1,085,961**	**7,905,226**	**855,636**	**1,441**	**72,802,266**	**789,107**	**73,591,373**
ADMINISTRATIVE COSTS										
Management & General (Notes 1&2)	929,954	546,034	1,475,988	25,461	185,343	20,062	34	1,706,885	18,501	1,725,386
Communications & Customer Svc (Notes 1&2)	745,889	437,956	1,183,846	20,421	148,656	16,091	27	1,369,040	14,840	1,383,880
Total Administrative Costs	**1,675,843**	**983,990**	**2,659,834**	**45,882**	**333,999**	**36,153**	**61**	**3,075,925**	**33,341**	**3,109,266**
TOTAL PROG & ADMIN EXPENSES	**41,340,336**	**24,273,498**	**65,613,839**	**1,131,843**	**8,239,225**	**891,789**	**1,502**	**75,878,191**	**822,448**	**76,700,639**
TOTAL REVENUE LESS EXPENSES	**459,670**	**2,087,490**	**2,547,155**	**886,192**	**1,745,884**	**223,545**	**40,498**	**5,443,281**	**(53,608)**	**5,389,673**
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
Change in net assets this year	459,670	2,087,490	2,547,155	886,192	1,745,884	223,545	40,498	5,443,281	(53,608)	5,389,673
Ending Net Assets - Reserves	**23,465,953**	**9,569,227**	**33,035,175**	**1,918,944**	**8,175,887**	**453,480**	**40,498**	**43,623,992**	**204,264**	**43,828,255**
Ending Reserve by Category										
Program Reserves (Efficiency and Renewables)	23,465,953	9,569,227	33,035,175	1,918,944	8,175,887	453,480	40,498	43,623,992	204,264	43,828,255
Operational Contingency Pool										
Emergency Contingency Pool										
TOTAL NET ASSETS CUMULATIVE	23,465,953	9,569,227	33,035,175	1,918,944	8,175,887	453,480	40,498	43,623,992	204,264	43,828,255

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

	RENEWABLE ENERGY					TOTAL			
	PGE	PacifiCorp	Total	Avista Development	Other	All Programs	Approved budget	Change	% Change
REVENUES									
Public Purpose Funding	4,880,422	3,653,029	8,533,451	36,000	0	49,411,280	49,949,155	($537,875)	-1%
Incremental Funding						41,248,483	42,955,630	(1,707,147)	-4%
Contributions						0		0	
Revenue from Investments					391,489	391,489	175,000	216,489	124%
TOTAL PROGRAM REVENUE	**4,880,422**	**3,653,029**	**8,533,451**	**36,000**	**391,489**	**91,051,253**	**93,079,785**	**(2,028,532)**	**-2%**
EXPENSES									
Program Management (Note 3)	381,662	211,254	592,916	14,612		3,881,442	4,334,232	452,790	10%
Program Delivery	151,627	95,907	247,535			26,889,469	27,465,106	575,637	2%
Incentives	5,452,431	2,578,103	8,030,534			44,251,811	43,072,770	(1,179,041)	-3%
Program Eval & Planning Svcs.	64,097	32,780	96,878			2,542,579	2,878,923	336,344	12%
Program Marketing/Outreach	99,021	48,940	147,960			2,888,893	3,550,831	661,938	19%
Program Legal Services	4,698	2,187	6,885			6,885	0		
Program Quality Assurance		507	507			13,607	22,222	8,615	
Outsourced Services	133,585	306,849	440,434			826,645	1,283,444	456,799	36%
Trade Allies & Cust. Svc. Mgmt.	54,597	25,522	80,119			576,850	496,257	(80,593)	-16%
IT Services	88,421	48,670	137,091			1,176,322	1,370,922	194,600	14%
Other Program Expenses - all	62,870	42,213	105,082			437,423	510,980	73,557	14%
TOTAL PROGRAM EXPENSES	**6,493,009**	**3,392,932**	**9,885,941**	**14,612**	**-**	**83,491,926**	**84,985,687**	**1,493,761**	**2%**
ADMINISTRATIVE COSTS									
Management & General (Notes 1&2)	152,232	79,549	231,781			1,957,167	2,109,037	151,870	7%
Communications & Customer Svc (Notes 1&2)	122,101	63,804	185,904			1,569,784	1,808,121	238,337	13%
Total Administrative Costs	**274,333**	**143,353**	**417,685**	**-**		**3,526,951**	**3,917,158**	**390,207**	**10%**
TOTAL PROG & ADMIN EXPENSES	**6,767,342**	**3,536,285**	**10,303,626**	**14,612**		**87,018,876**	**88,902,845**	**1,883,967**	**2%**
TOTAL REVENUE LESS EXPENSES	**(1,886,920)**	**116,744**	**(1,770,175)**	**21,388**	**391,489**	**4,032,376**	**4,176,939**	**(144,562)**	**-3%**
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%
Change in net assets this year	(1,886,920)	116,744	(1,770,175)	21,388	391,489	4,032,376	4,176,939	(144,563)	-3%
Ending Net Assets - Reserves	**8,257,705**	**11,026,947**	**19,284,653**	**21,388**	**9,131,374**	**72,265,672**	**69,741,855**	**2,523,817**	**4%**
Ending Reserve by Category									
Program Reserves (Efficiency and Renewables)	8,257,705	11,026,947	19,284,653	21,388		63,134,296			
Operational Contingency Pool					4,131,374	4,131,374			
Emergency Contingency Pool					5,000,000	5,000,000			
TOTAL NET ASSETS CUMULATIVE	8,257,705	11,026,947	19,284,653	21,388	9,131,374	72,265,672	69,741,855	2,523,817	4%

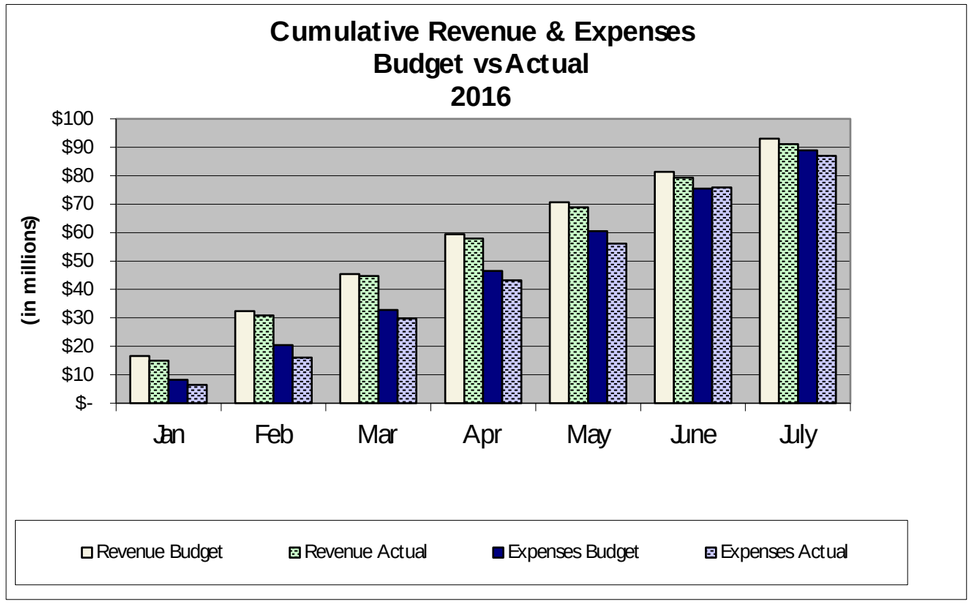
Energy Trust of Oregon
Program Expense by Service Territory
For the Seven Months Ending July 31, 2016
(Unaudited)

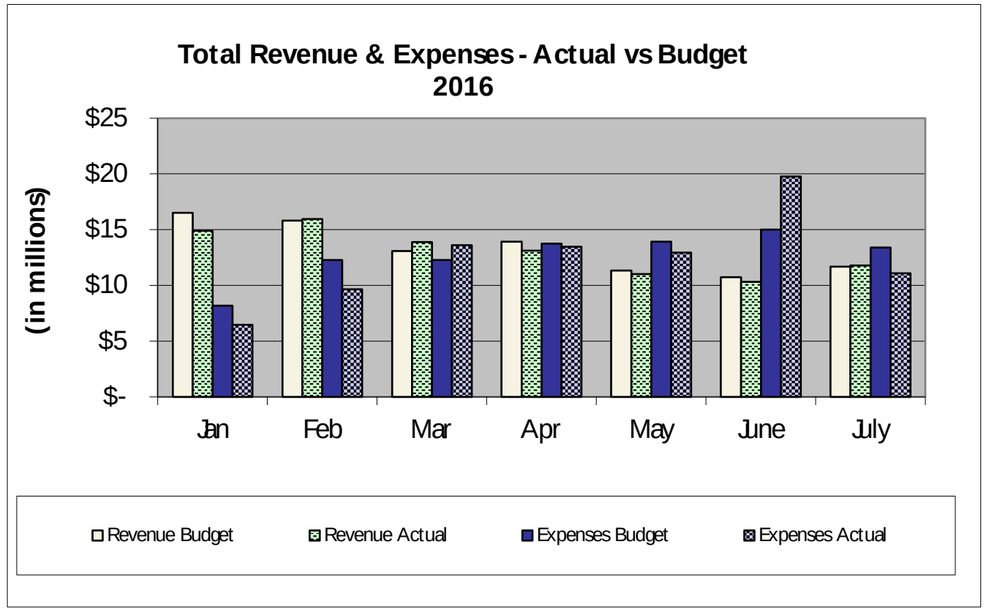
	PGE	Pacific Power	Subtotal Elec.	NWN Industrial	NW Natural Gas	Cascade	Avista	Subtotal Gas	Oregon Total	NWN WA	ETO Total	YTD Budget	Variance	% Var
Energy Efficiency														
Commercial														
Existing Buildings	14,370,395	8,033,949	22,404,344	482,033	1,568,977	249,836	-	2,300,846	24,705,190	194,745	24,899,935	23,624,912	(1,275,023)	-5%
New Buildings	5,236,083	2,529,671	7,765,753	6,443	839,585	123,262	845	970,135	8,735,888		8,735,888	8,540,428	(195,460)	-2%
NEEA	817,149	567,849	1,384,999		99,943	10,700		110,643	1,495,642	11,253	1,506,895	1,479,296	(27,599)	-2%
Total Commercial	**20,423,627**	**11,131,469**	**31,555,096**	**488,476**	**2,508,505**	**383,798**	**845**	**3,381,624**	**34,936,720**	**205,998**	**35,142,718**	**33,644,636**	**(1,498,082)**	**-4%**
Industrial														
Production Efficiency	7,099,964	4,929,345	12,029,309	643,365	212,933	114,413		970,711	13,000,020		13,000,020	14,650,901	1,650,881	11%
NEEA	119,752	83,217	202,969						202,969		202,969	241,165	38,196	16%
Total Industrial	**7,219,715**	**5,012,563**	**12,232,278**	**643,365**	**212,933**	**114,413**	**-**	**970,711**	**13,202,989**	**-**	**13,202,989**	**14,892,066**	**1,689,077**	**11%**
Residential														
Existing Homes	4,488,035	3,306,320	7,794,355	-	2,609,126	109,391	656	2,719,174	10,513,529	211,223	10,724,752	11,188,698	463,946	4%
New Homes/Products	7,656,780	3,744,516	11,401,295	-	2,549,038	245,680	-	2,794,718	14,196,013	364,733	14,560,746	15,471,126	910,380	6%
NEEA	1,552,180	1,078,636	2,630,815		359,623	38,502		398,125	3,028,941	40,492	3,069,433	2,629,259	(440,174)	-17%
Total Residential	**13,696,995**	**8,129,471**	**21,826,466**	**-**	**5,517,787**	**393,573**	**656**	**5,912,017**	**27,738,483**	**616,448**	**28,354,931**	**29,289,083**	**934,152**	**3%**
Energy Efficiency Costs	**41,340,336**	**24,273,498**	**65,613,839**	**1,131,843**	**8,239,225**	**891,789**	**1,502**	**10,264,352**	**75,878,191**	**822,448**	**76,700,639**	**77,825,785**	**1,125,147**	**1%**
Renewables														
Solar Electric (Photovoltaic)	4,897,833	2,280,396	7,178,229						7,178,229		7,178,229	7,395,733	217,504	3%
Other Renewable	1,869,508	1,255,889	3,125,397						3,125,397		3,125,397	3,681,325	555,928	15%
Renewables Costs	**6,767,341**	**3,536,284**	**10,303,625**	**-**	**-**	**-**	**-**	**-**	**10,303,626**	**-**	**10,303,626**	**11,077,058**	**773,432**	**7%**
Program Cost Total	**48,107,676**	**27,809,782**	**75,917,464**	**1,131,843**	**8,239,225**	**891,789**	**1,502**	**10,264,352**	**86,181,817**	**822,448**	**87,004,265**	**88,902,843**	**1,898,579**	**2%**
Avista Development							**14,612**		**14,612**		**14,612**		**(14,612)**	
Cost Grand Total	**48,107,676**	**27,809,782**	**75,917,464**	**1,131,843**	**8,239,225**	**891,789**	**16,114**	**10,264,352**	**86,196,429**	**822,448**	**87,018,876**	**88,902,845**	**1,883,967**	**2%**

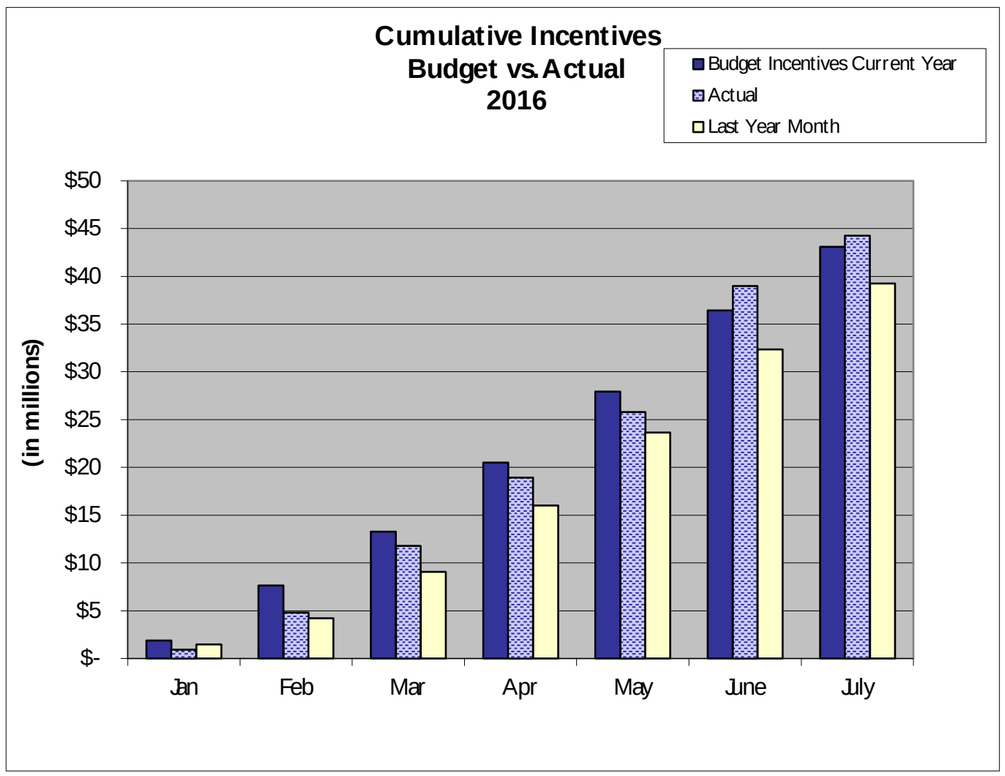
Energy Trust of Oregon
Administrative Expenses
For the Seven Months Ending July 31, 2016
(Unaudited)

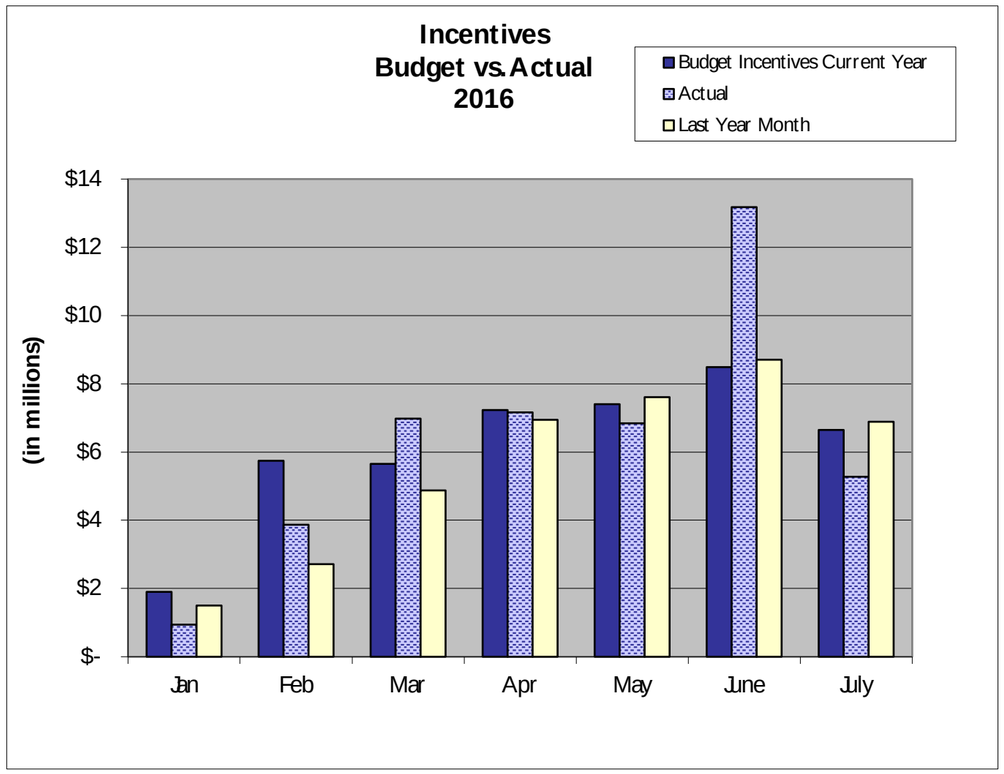
	MANAGEMENT & GENERAL						COMMUNICATIONS & CUSTOMER SERVICE					
	QUARTER			YTD			QUARTER			YTD		
	ACTUAL	BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE	ACTUAL	BUDGET	REMAINING	ACTUAL	BUDGET	VARIANCE
EXPENSES												
Outsourced Services	$45,953	$60,375	$14,422	$227,801	$274,750	$46,949	$133,987	$338,500	$204,513	$513,876	$606,208	$92,333
Legal Services		2,500	2,500	2,090	5,833	3,743						
Salaries and Related Expenses	183,815	571,160	387,345	1,322,653	1,343,706	21,053	109,017	387,338	278,321	776,309	903,789	127,480
Supplies		1,338	1,338	1,774	3,121	1,347		250	250	685	583	(101)
Postage and Shipping Expenses	167		(167)	1,290		(1,290)				227		(227)
Printing and Publications	649	1,125	476	2,560	2,625	65		550	550		1,283	1,283
Travel	5,190	11,987	6,798	23,973	27,971	3,997	6,042	11,250	5,208	28,078	26,250	(1,827)
Conference, Training & Mtngs	6,529	34,610	28,081	29,411	76,107	46,696	630	4,000	3,370	10,192	9,333	(859)
Interest Expense and Bank Fees		625	625	1,621	1,458	(163)						
Miscellaneous Expenses										82		(82)
Dues, Licenses and Fees	150	2,175	2,025	7,552	6,255	(1,297)	100	4,000	3,900	7,129	9,333	2,204
Shared Allocation (Note 1)	16,621	51,167	34,546	101,637	119,391	17,754	11,671	35,123	23,452	72,279	81,953	9,674
IT Service Allocation (Note 2)	31,625	108,511	76,886	233,796	246,766	12,970	21,768	74,485	52,716	160,929	169,387	8,457
Planning & Eval	145	448	303	1,010	1,055	45						
TOTAL EXPENSES	**290,843**	**846,021**	**555,177**	**1,957,167**	**2,109,038**	**151,870**	**283,214**	**855,496**	**572,281**	**1,569,784**	**1,808,119**	**238,336**

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)
$100
$90
$80
$70
$60
$50
$40
$30
$20
$10
$-
Jan
Feb
Mar
Apr
May
June
July
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Total Revenue & Expenses - Actual vs Budget
2016
(in millions)
$25
$20
$15
$10
$5
$-
Jan
Feb
Mar
Apr
May
June
July
Revenue Budget
Revenue Actual
Expenses Budget
Expenses Actual


Cumulative Incentives
Budget vs. Actual
2016
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$50
$45
$40
$35
$30
$25
$20
$15
$10
$5
$-
Jan
Feb
Mar
Apr
May
June
July


Incentives
Budget vs. Actual
2016
Budget Incentives Current Year
Actual
Last Year Month
(in millions)
$14
$12
$10
$8
$6
$4
$2
$-
Jan
Feb
Mar
Apr
May
June
July

CONTRACTOR	Description	City	EST COST	Actual TTD	Remaining	Start	End
Administration							
		Administration Total:	**12,813,577**	**3,607,275**	**9,206,302**		
Communications							
		Communications Total:	**3,796,741**	**2,368,584**	**1,428,157**		
Energy Efficiency							
Northwest Energy Efficiency Alliance	Regional EE Initiative Agmt	Portland	33,662,505	11,383,017	22,279,488	1/1/2015	7/1/2020
ICF Resources, LLC	2016 BE PMC	Fairfax	10,373,579	5,452,423	4,921,156	1/1/2016	12/31/2016
CLEAResult Consulting Inc	2016 HES PMC	Austin	6,634,665	3,175,515	3,459,150	1/1/2016	12/31/2016
Northwest Energy Efficiency Alliance	Regional Gas EE Initiative	Portland	6,200,354	995,250	5,205,104	1/1/2015	7/1/2020
CLEAResult Consulting Inc	2016 NBE PMC	Austin	5,878,253	3,433,524	2,444,729	1/1/2016	12/31/2016
Lockheed Martin Corporation	2016 MF PMC	Grand Prairie	4,496,935	2,425,535	2,071,400	1/1/2016	12/31/2018
Ecova Inc	2016 Products PMC	Spokane	3,756,714	1,827,596	1,929,118	1/1/2016	12/31/2016
Energy 350 Inc	PDC - PE 2016	Portland	3,123,000	1,575,323	1,547,677	1/1/2016	12/31/2016
CLEAResult Consulting Inc	2016 NH PMC	Austin	2,868,582	1,512,333	1,356,249	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	1,245,288	907,712	1/1/2016	12/31/2016
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	1,674,518	951,646	722,872	1/1/2016	12/31/2016
RHT Energy Inc.	PDC - PE 2016	Medford	1,665,000	916,992	748,008	1/1/2016	12/31/2016
Evergreen Consulting Group, LLC	PE Lighting PDC 2016	Tigard	1,371,500	749,979	621,521	1/1/2016	12/31/2016
CLEAResult Consulting Inc	PDC - SEM 2016	Austin	1,356,564	448,371	908,193	1/1/2016	12/31/2016
HST&V, LLC	PDC - SEM 2016	Portland	1,185,354	728,604	456,750	1/1/2016	12/31/2016
Clean Energy Works, Inc.	EE Incentive & Services Agmt	Portland	492,570	400,210	92,360	7/1/2014	12/31/2016
Cascade Energy, Inc.	SEM Curriculum	Walla Walla	464,080	411,675	52,405	5/1/2014	12/31/2016
SBW Consulting, Inc.	PE Program Impact Evaluation	Bellevue	450,000	29,488	420,513	5/1/2016	4/30/2017
ADM Associates, Inc.	EB 2013/2014 Impact Evaluation	Seattle	422,000	132,936	289,064	1/1/2016	12/31/2016
EnerNoc, Inc.	Commercial SEM curriculum	Boston	360,101	321,335	38,766	6/27/2014	12/31/2016
Michaels Energy, Inc.	New Buildings '14 Impact Evalu	La Crosse	325,000	25,423	299,577	5/23/2016	3/31/2017
Craft3	SWR Loan Origination/Loss Fund	Portland	305,000	23,369	281,631	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	151,173	138,427	1/1/2016	12/31/2016
EnergySavvy Inc.	Optix Engage Online Audit Tool	Seattle	273,600	36,667	236,933	6/1/2016	5/31/2018
Pivotal Energy Solutions LLC	License Agreement	Gilbert	270,500	84,611	185,889	3/1/2014	12/31/2017

Alternative Energy Systems Consulting, Inc.	PE Mobile App Scoping Tool	Carlsbad	229,830	10,442	219,388	6/1/2016	5/31/2017
KEMA Incorporated	Commercial SEM Impact Eval	Oakland	222,000	214,104	7,896	9/1/2015	8/30/2016
Enervee Corporation	Online Marketplace Development	Venice	212,558	90,650	121,908	1/15/2016	8/30/2016
The Cadmus Group Inc.	PE SEM Impact Evaluation	Watertown	203,300	198,043	5,257	5/1/2015	7/31/2016
ICF Resources, LLC	2016 BE NWN WA PMC	Fairfax	200,724	87,043	113,681	1/1/2016	12/31/2016
Balanced Energy Solutions LLC	New Homes QA Inspections	Portland	174,000	44,518	129,482	4/27/2015	12/31/2016
ICF Resources, LLC	2016 BE DSM PMC	Fairfax	129,019	45,938	83,081	1/1/2016	12/31/2016
Illume Advising, LLC	Existing Homes Process Eval	Verona	90,400	83,657	6,743	2/20/2016	11/30/2016
1000 Broadway Building L.P.	Pay-for-Performance Pilot	Portland	88,125	29,375	58,750	10/17/2014	11/1/2018
Evergreen Economics	EB Process Evaluation	Portland	73,000	71,184	1,816	11/16/2015	9/30/2016
CLEAResult Consulting Inc	Professional Services/Trans	Austin	70,613	51,185	19,428	10/15/2014	10/15/2016
Research Into Action, Inc.	Multifamily Process Evaluation	Portland	64,717	57,071	7,647	3/18/2016	9/15/2016
Hitachi Consulting Corporation	SOW #19 Program Design Support	Dallas	62,500	0	62,500	7/31/2016	10/31/2016
Abt SRBI Inc.	Fast Feedback Surveys 2016	New York	62,200	0	62,200	7/8/2016	4/15/2017
The Cadmus Group Inc.	Solar PV Impact Evalution	Watertown	53,135	47,072	6,063	10/26/2015	8/30/2016
The Cadmus Group Inc.	Existing Homes Pilot Eval	Watertown	53,000	26,967	26,033	2/18/2016	12/31/2017
MetaResource Group	Intel DX1 Mod 1&2 Megaproject	Portland	45,000	20,620	24,380	4/1/2015	5/1/2017
Research Into Action, Inc.	MPower Pilot Evaluation	Portland	43,900	43,011	890	2/1/2015	8/31/2016
Portland General Electric	2016 EE Workshop Sponsorship	Portland	40,000	40,000	0	1/1/2016	12/31/2016
KEMA Incorporated	Billing Analysis Review	Oakland	35,000	2,146	32,855	3/15/2015	12/31/2016
WegoWise Inc	benchmarking license 2015	Boston	35,000	22,484	12,516	6/15/2014	12/31/2016
Portland State University	Research Plan Development		29,945	14,500	15,445	2/1/2016	9/30/2016
SBW Consulting, Inc.	HVAC Economic Analysis	Bellevue	28,104	19,859	8,245	4/27/2016	9/1/2016
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	0	25,000	3/15/2015	12/31/2016
Sustainable Northwest	Klamath PAC Ag Program Aware	Portland	24,992	25,010	(18)	11/1/2015	8/10/2016
Sheepscot Creative LLC	SEM Videos	Portland	24,500	20,000	4,500	2/12/2016	11/30/2016
Collaborative Efficiency, LLC	EECLP Utility Outreach	Spokane	20,000	8,704	11,296	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
MetaResource Group	PMC Perf Comp Review	Portland	20,000	19,275	725	2/23/2016	9/30/2016
Michaels Energy, Inc.	NB '11-'12 Impact Evaluation	La Crosse	20,000	0	20,000	7/1/2016	3/31/2017
Consortium for Energy Efficiency	Membership Dues - 2016		19,392	19,392	0	1/1/2016	12/31/2016
Northwest Food Processors Association	NW Industrial EE Summit 2016	Portland	18,710	19,027	(317)	1/1/2016	12/31/2016
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	0	15,000	3/18/2016	12/31/2016
Energy 350 Inc	Professional Services	Portland	14,920	14,920	0	12/10/2014	12/10/2016
Bridgetown Printing Company	January 2016 Bill Insert	Portland	14,677	9,677	5,000	1/1/2016	12/31/2016
BASE zero LLC	Quality Assurance Services	Bend	11,625	4,538	7,088	3/1/2016	12/31/2016
Earth Advantage, Inc.	2016 Sponsorship	Portland	10,250	10,250	0	3/1/2016	2/28/2017
Flink Energy Consulting	Smart Grid Modeling	Portland	10,120	0	10,120	7/12/2016	7/30/2017
American Council for and Energy Efficient Economy	Intelligent Eff. Baseline		10,000	10,000	0	1/1/2016	12/31/2016
American Council for and Energy Efficient Economy	Smart Buildings		10,000	10,000	0	1/1/2016	12/31/2016
American Council for and Energy Efficient Economy	Small Business EE		10,000	10,000	0	1/1/2016	12/31/2016
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	Sponsorship - 2016	Portland	8,000	8,000	0	1/1/2016	12/31/2016
Northwest Environmental Business Council	Future Energy Conference 2016	Portland	7,450	3,950	3,500	1/1/2016	12/31/2016
FMYI, INC	Subscription Agreement	Portland	5,150	5,150	0	4/25/2016	3/1/2017
Social Enterprises Inc.	GoGreen Sponsorship - 2016	Portland	5,000	5,000	0	4/22/2016	12/31/2016
Sustainable Northwest	2015 Sponsorship	Portland	5,000	5,000	0	9/1/2015	9/1/2016
	Energy Efficiency Total:		**97,213,137**	**40,634,588**	**56,578,549**		

Joint Programs

Portland State University	Technology Forecasting		153,808	126,990	26,818	11/7/2011	12/31/2016
E Source Companies LLC	E Source Service Agreement	Boulder	93,750	93,750	0	2/1/2014	1/31/2017
The Cadmus Group Inc.	Evaluation Consultant	Watertown	90,305	72,502	17,804	6/20/2013	12/31/2016
CoStar Realty Information Inc	Property Data	Baltimore	40,820	33,010	7,810	6/1/2011	5/31/2017
Research Into Action, Inc.	EH Attic Air Sealing Pilot Eva	Portland	30,000	30,000	0	10/8/2014	9/30/2016
Excidian LLC	Business Finance Class	Wheeling	18,706	17,945	761	5/15/2016	8/1/2016
	Joint Programs Total:		**427,389**	**374,196**	**53,193**		

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	1,000,000	1,000,000	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	450,000	450,000	4/1/2014	4/1/2034
Farmers Conservation Alliance	Irrigation Collaboration Initi	Hood River	633,000	540,724	92,276	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	328,245	113,415	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
Gary Higbee DBA WindStream Solar	Solar Verifier Services	Eugene	200,000	103,784	96,216	8/1/2014	7/31/2016
Henley KBG, LLC	Henley Proj Dev Assistance	Reno	150,000	43,683	106,318	4/10/2014	12/31/2016
City of Astoria	Bear Creek Funding Agreement	Astoria	143,000	143,000	0	3/24/2014	3/24/2034
Klamath Basin Geopower Inc	Poe Valley Proj Dev Assistance	Reno	112,874	63,000	49,874	4/10/2014	12/31/2016
BSA Enterprises Inc	Solar Verifier Services	Sisters	100,000	0	100,000	8/1/2016	7/31/2018
RHT Energy Inc.	Verifier Services Agmt - Solar	Medford	100,000	0	100,000	8/1/2016	7/31/2018
Wallowa Resources Community Solutions, Inc.	Upfront Hydroelectric Project		100,000	39,463	60,538	10/1/2011	10/1/2016
Solar Oregon	2015 Outreach Agreement	Portland	72,800	47,500	25,300	1/1/2015	12/31/2016
Kendrick Business Services LLC	Solar TA Business Consulting	Albany	64,200	49,660	14,540	10/8/2015	12/31/2016
SPS of Oregon Inc	Project Funding Agreement	Wallowa	60,000	488	59,513	10/15/2015	10/31/2036
State of Oregon Dept of Geology & Mineral Industries	Lidar Data	Portland	40,000	40,000	0	11/7/2014	12/1/2016
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	1,725	23,274	2/1/2016	1/30/2018
Robert Migliori	42kW wind energy system	Newberg	24,125	21,673	2,452	4/11/2007	1/31/2024
Oregon Solar Energy Industries Association	Solar Technical Training Class	Portland	13,500	1,500	12,000	12/10/2015	12/31/2016
Warren Griffin	Griffin Wind Project	Salem	13,150	9,255	3,895	10/1/2005	10/1/2020
Oregon Solar Energy Industries Association	Sponsorship 2016	Portland	7,500	7,500	0	1/1/2016	12/31/2016
Magneto Advertising, LLC	Irrigation Infographic	Portland	5,950	2,975	2,975	7/6/2016	12/31/2016
Clean Energy States Alliance	2016 CESA ITAC Sponsorship		5,000	5,000	0	1/1/2016	12/31/2016
Bonneville Environmental Foundation	REC/WRC Purchase 2016	Portland	2,430	0	2,430	1/1/2016	12/31/2016
		Renewable Energy Total:	**16,709,328**	**10,749,272**	**5,960,056**		
		Grand Total:	**130,960,172**	**57,733,914**	**73,226,258**		

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 7

Renewable Energy Advisory Council Meeting Notes

July 27, 2016

Attending from the council:
Bruce Barney, Portland General Electric
Suzanne Leta-Liou, SunPower
Rikki Seguin, Environment Oregon
Frank Vignola, Solar Monitoring, University of Oregon
Dick Wanderscheid, Bonneville Environmental Foundation
Matt Mylet, Beneficial State Bank

Attending from Energy Trust:
Chris Dearth
Sue Fletcher
Fred Gordon
Jeni Hall
Betsy Kauffman
Dave McClelland
Dave Moldal
Lizzie Rubado
Jay Ward
Peter West

Others attending:
Erik Anderson, Pacific Power
Stasia Brownell, 3Degrees
Doug Gross, Sunverge
Nadine Hanhan, Oregon Public Utility Commission
Kendra Hubbard, Oregon Solar Energy Industries Association
Andria Jacob, City of Portland
Alan Meyer, Energy Trust board
Caroline Moore, Pacific Power
John Reynolds, Energy Trust board
Adam Schultz, Oregon Department of Energy
Brian Spak, Portland General Electric

1. Welcome and introductions

Betsy Kauffman convened the meeting at 9:45 a.m. The agenda, notes and presentation materials are available on Energy Trust's website at: www.energytrust.org/About/public-meetings/REACouncil.aspx.

2. Announcements

Lizzie Rubado shared out that Energy Trust created a document summarizing support for customers regarding consumer protection. We will condense the document for use on our website, and can distribute copies to council members. Rikki Seguin said she would be happy to help with further distribution.

3. Sunverge Solar Integration System

Doug Gross provided background on Sunverge and its role providing small, distributed, lithium-ion battery systems coupled with renewable power that can be aggregated into virtual power plants for a utility through a cloud-based software. The company started in Northern California after the founders identified problems with reverse power flows related to solar photovoltaic integration in the grid. Sunverge operates in Australia and North America, including California and Hawaii, where its solution makes economic sense based on regulatory conditions. Arizona and Nevada are newer opportunities.

> Sunverge's solution is the Solar Integration System. It has three component parts: the storage battery system; a renewable power source, typically solar; and cloud-based software.

Utilities are the primary customer of Sunverge. Doug sees opportunities for use with Portland General Electric based on the outcome of regulatory proceedings. Doug described examples from New Zealand, Consolidated Edison and Sacramento Municipal Utility District. The homeowners in the Sacramento Municipal Utility District example are saving 85 percent on their electric bills, and the system is meeting the needs of the utility.

Doug described the value of the Solar Integration System to consumers as providing backup power, reducing energy bills and being well-suited for time-of-use customers. The value to the utility is grid stability (using smaller distributed systems to firm up solar before it hits the grid), system upgrade cost deferrals, ability to aggregate the systems and dispatch as needed, and voltage optimization.

Bruce Barney: Can you discuss system size in terms of power?
Doug: The individual systems are a variety of sizes. Consolidated Edison will have 300 different systems. The systems will range from 7.7 to 19.4 kilowatts.

Bruce: How do you balance the competing needs of backup power and bill management systems? Do you always leave power reserve for backup?
Doug: Yes. Depending on the needs of the utility, you always want an amount in reserve for the consumer. The complexity is in the contracts, not in the technology.

Brian Spak: What are the dimensions of the Solar Integration System?
Doug: It is about 6.2 feet tall and 2.5 feet wide. It weighs between 725 and 800 pounds, depending on which battery is selected. Future systems will be smaller.

Brian: You are managing all business aspects right now. What is your core competency? Do you expect that other businesses will do part of this work?
Doug: We are seeing specialization in different parts of the storage value chain. We do and will use installers that are good at installing solar with battery backup. Our core competency is the software. We also work with companies in the hardware business. There are likely to be more actors in the market in the future, and we will integrate with them.

Fred: Are you looking broadly at demand management and load management, even without storage? For example, are you considering water heaters within your concept?
Doug: We see that integration happening at the next level up. We are not looking to bring in the integration of other parties' systems.

Suzanne Leta-Liou: What is your view on the rest of the market?
Doug: We are pursuing markets where the economics of solar plus storage make sense. In the Pacific Northwest, we see an evolving situation. We need to properly assess the value streams, and that work hasn't been done. In California, there are a great deal of credits and regulatory aspects that make it economically viable. The scenario is market by market at this point.

Dick Wanderscheid: What is your distribution channel? How do you get equipment installed?
Doug: Our single biggest partnership is with SunPower. They are our distributor in many respects. Installers vary based on market.

Alan Meyer: How is the unit wired into the home?
Doug: All of the power coming off of the photovoltaic system supports loads in the home. The power then flows through the system and back to the grid. Energy from the grid flows through the system. The system has islanding capability.

Brian: Is the typical installation in front of the meter?
Doug: It is typically behind the meter, but it can go in front of the meter. Both are feasible.

4. City of Portland, Bureau of Planning and Sustainability
Andria Jacob provided an update on the city's efforts to achieve climate and energy goals, and offered her perspective on storage considerations for the city.

> The Climate Action Plan is the city's guide for energy planning. The most recent version was adopted last year. The plan includes a 2030 goal to supply 50 percent of all energy used in buildings from renewable resources, with 10 percent produced within Multnomah County from on-site renewable sources, such as solar. The city is looking to increase on-site generation, which is currently at 9 percent with four different systems currently in development. The bureau works collaboratively with other bureaus to set goals and advance progress. The Comprehensive Plan adopted in June is also aligned with energy objectives. The growth strategy is to grow up rather than out, and develop robust centers and corridors.
>
> The Climate Action Plan does not currently address renewables with storage. The Bureau of Emergency Management determines how all agencies will respond, and the bureau's planning tools do mention energy storage in a limited capacity.
>
> Andria has a specific line item for solar system development, and plans to pilot some efforts related to storage. The Central Fire Station, Fire Station 1, is a candidate for a solar installation plus storage as a demonstration project. It will be a learning process. The city has learned that the fire station didn't see power at the building as necessary to fulfill its first responder role. Pilot sites must have already been retrofitted to withstand an earthquake.
>
> Other opportunities could be the post office redevelopment in the Broadway corridor. This site will undergo a master planning process, and any opportunities there are years out. A multifamily project in Lents with Portland Housing Bureau also offers opportunities. Andria is also learning from other cities like San Francisco.

Alan: Are the generation levels achievable?
Andria: They are aspirational goals. We buy renewable energy credits for what we cannot generate.

Brian: You are interested in Fire Station 1 as a pilot project. How far along are you?
Andria: We are scoping and working with an electrical contractor, and we have applied for PGE funding. The system is not yet designed.

Betsy: Does the city prefer to own its renewable systems?
Andria: Yes.

Dick: What has been the performance of the Lucid Energy system with city water lines?
Andria: It was an interesting demonstration project, but it wasn't the best technology for our system.

Lizzie: What is the interplay between the county, city and region regarding resilience planning?

Andria: The groups are meeting quarterly through an Emergency Management Steering Committee to make decisions about ownership and responsibility of various functions in a disaster.

Frank Vignola: Have you considered solar systems that are removable and can be taken to another place during an emergency to make energy available at a different site?
Jeni Hall: There are systems like that on the market. It is early but something to consider.

Brian: PGE is interested in helping the city, and we hear interest from lots of different customers related to piloting renewables plus storage. We want to work with the city to make the right decisions for these systems and pilots.

Andria: The Local Energy Assurance Plan outlines the risk of having energy infrastructure in a place that would be destroyed in a disaster. This is another planning tool to consider.

Lizzie: How do you see Energy Trust as a partner?
Andria: We have a nine-year history of working well together. We look to Energy Trust for thought leadership and technical assistance. We should keep communication open and invite dialogue. Support for pilot projects is also of benefit.

5. Public comment
There was no additional public comment.

6. Meeting adjournment
The meeting adjourned at noon. The next Renewable Energy Advisory Council meeting is scheduled on September 7, 2016 from 9:30 a.m. to 12:00 p.m.

Conservation Advisory Council Meeting Notes

July 27, 2016

Attending from the council:
Jim Abrahamson, Cascade Natural Gas
Brent Barclay, Bonneville Power Administration
Charlie Grist, Northwest Power and Conservation Council
Nadine Hanhan (for JP Batmale), Oregon Public Utility Commission
Julia Harper, Northwest Energy Efficiency Alliance
Garrett Harris, Portland General Electric
Scott Inman, Oregon Remodelers Association
Don Jones, Jr., Pacific Power
Don MacOdrum, Home Performance Guild of Oregon
Holly Meyer, NW Natural

Attending from Energy Trust:
Mike Bailey
Karen Chase
Amber Cole
Kim Crossman
Sue Fletcher
Fred Gordon
Jackie Goss
Mia Hart
Marshall Johnson
Oliver Kesting
Scott Leonard
Ted Light
Thad Roth
Kate Scott
Kenji Spielman
Jay Ward
Peter West

Others attending:
Jeremy Anderson, WISE
Carrie Cobb, Bonneville Power Administration
Scot Davidson, Enhabit
Alecia Dodd, Ecova
Gary Heikkinen, NW Natural
Jason Jones, Ecova
Roger Kainu, Oregon Department of Energy
Nick Michel, Lockheed Martin
Adam Schultz, Oregon Department of Energy
Bob Stull, CLEAResult

1. Welcome and introductions

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

2. Announcements and old business

June meeting notes were approved with two corrections. Kim asked that the minutes reflect that Tony Galuzzo, McKinstry/Building Owners and Managers Association, attended the June meeting.

Holly Meyer was not present at the June meeting, but asked that the June meeting minutes reflect her comments on the Pay for Performance presentation.

> Holly Meyer: Why aren't capital improvements included, and should they be considered in the future? Express caution over concluding too much with a sample of one. Continue treating this offering as a pilot to ensure savings in years two and three. As Pay for Performance expands and it becomes more difficult to determine a measure portfolio,

we may consider asking for a Utility Cost Test approach—pay each year based on annual savings, somewhere below avoided costs.

Alan Meyer: Sam Walker clarified the next phase of Pay for Performance will continue as a pilot.

Kim: At the June meeting, Don MacOdrum asked how Pay for Performance achieves cost-effectiveness if the participant cost is zero, and Oliver Kesting wanted to follow-up on his response with additional detail. Energy 350 covered all capital and implementation costs up front. The customer has a three-year contract with Energy 350 to pay based on energy savings achieved. We did not review the customer's contract with Energy 350, but the cost of implementation and capital is covered under this payment structure. We performed measure-level cost-effectiveness tests based on the estimated costs and savings of each measure as provided in the proposal.

3. Updated AirGenerate remediation plan

Marshall Johnson, residential program manager, summarized the impact of AirGenerate unit failures and Energy Trust's revised remediation plan to support customers with unit failures.

From 2012 to 2015, Energy Trust provided incentives for 400 AirGenerate heat pump water heaters through the Existing Homes program and about 100 units through the New Homes program. AirGenerate ceased operation in March 2015, and units continued to fail and customer warranties became void.

In 2015, Energy Trust and Northwest Energy Efficiency Alliance developed a remediation plan for customers who reported a failed unit. Energy Trust and NEEA split the roughly $2,000 cost to replace the unit with a General Electric water heater. NEEA's budget for this effort was exhausted in June 2016.

In 2016, Energy Trust developed a new remediation plan in which Energy Trust covers the cost of the replacement heat pump water heater when a customer reports a failed unit. This approach minimizes financial exposure, supports trade ally referrals for professional installation, and provides a less expensive option for customers who choose to self-install units. The plan is modified for AirGenerate units installed through the New Homes program by Habitat for Humanity due to the financially constrained customer base. These customers will receive replacement water heaters with a 0.95 energy factor, dues to installation location challenges for this set of homes.

Over the past year, 86 units were remediated for a total cost of $88,000 to Energy Trust and $95,000 to NEEA at an average cost per unit of approximately $2,400. With the new remediation plan, we expect about 80 to 100 additional unit failures at a cost of $700 per unit. Energy Trust will cover the sole cost of these units.

Scott Inman: How do customers know to contact Energy Trust when their unit fails?
Marshall: We expect to be contacted through a variety of pathways.

Julia Harper: We knew there was a bad batch of units manufactured by AirGenerate. Units continued to fail, indicating that there were multiple manufacturing problems. We cannot limit failures to a specific batch.

Jim Abrahamson: Does the cost include removal and disposal?
Marshall: The previous plan did include those costs. The revised plan only provides the cost of the replacement product. The customer pays for all other costs.

Holly: Customers in Habitat for Humanity homes are financially constrained. Why did they choose to install electric resistance water heaters instead of heat pump water heaters?
Marshall: Some of these homes were designed with space heating and water heating from a single unit. At this point, alternative heating systems have already been put in place and the water heater will need to be replaced as well. We wanted to consider gas as an option, but gas lines did not run to these sites.

Julia Harper summarized NEEA's role in the remediation effort. AirGenerate was a small company that developed an innovative product with multiple manufacturing and product quality issues. Since the product was first released, we now have two major manufacturers with higher quality products, and we expect additional manufacturers to continue developing that technology. NEEA frequently works with smaller companies like AirGenerate before bigger companies enter the market to refine the product. NEEA updated its checklist for evaluating new companies like AirGenerate, including financial analysis.

> NEEA chose to intervene because AirGenerate provided a unique product without a quality alternative to provide customers when the units started failing. The NEEA board approved the budget for the first remediation plan, then declined to renew the plan after similar, alternative products entered the market.

Alan: Does the plan only cover the cost of replacement for units that Energy Trust incentivized?
Marshall: In the revised plan, we chose to serve all customers for ease of implementation, including those who received an Energy Trust incentive and those who did not qualify for an Energy Trust incentive. Energy Trust will pay the cost of the replacement product for all future AirGenerate unit failures.

Alan: I think the Board Policy Committee should have been involved in this decision.
Peter West: This decision was approved by Finance Committee and Policy Committee and Management Team.

Garrett Harris: How many more AirGenerate units are there?
Marshall: There were originally about 500 units in our service territory. Now there are 415.
Garrett: We don't know how many of those units didn't receive an Energy Trust incentive.
Marshall: Correct. There's a small pool of customers that received the upstream incentive from NEEA and didn't receive an Energy Trust incentive, and can have their water heater replaced through this update plan.

Scott Inman: It's wonderful for customers that Energy Trust is covering the cost, but I am concerned about the precedent. From the customer's perspective, Energy Trust supported equipment that failed.

Garrett: It's great that the failed units are being replaced. From the utility perspective, we should not put this much risk on customers in the future when introducing a new technology.

Don MacOdrum: I appreciate that there's risk in market transformation. Are there other examples at NEEA analogous to this one?
Julia: The NEEA board recalled one of the first front-loading washing machines based on a mildew issue. There are no other examples that had significant ramifications. We cannot guarantee this won't happen again, but we will address and remediate any future issues that arise. If we take a zero risk approach, our programs would be much more expensive.

4. Residential savings assessment

Thad Roth, residential sector lead, provided an overview of the residential savings assessment. Results will be updated to inform and refine the residential sector assessment. In the residential sector, Energy Trust expects to receive less savings from some measures in 2017, including lighting measures due to customer acceptance and declining costs of LED lighting and showerheads due to market saturation. The residential savings assessment evaluates measures at risk, current measures that are expected to expand and new measures.

> Gas savings have been consistent from 2013 to 2016 at about 2.15 million therms, but they are expected to decrease over the next two years due to loss of market transformation savings for new home construction and reductions from showerheads due to improved code baselines. The decrease in savings is expected to represent about 30 percent of current savings, or 700,000 therms. New measures can offer savings of about 1.8 million therms in 2018, including automated controls, an expanded midstream approach for gas water heaters and targeted weatherization, expansion of existing measures and new market transformation savings for new construction.
>
> Electric savings have been increasing over the last four years in large part due to lighting, which represented 58 percent total savings in 2015. The lighting market is expected to transform by 2020, if not before, at which point we would not be able to incent numerous lighting measures that are currently providing savings for the sector. Due to the volatility of the lighting market, we are developing criteria to evaluate the market using market share, incentive levels and consistent data sources as opposed to trying to forecast lighting savings over the next four years. We will use this criteria to more effectively respond to changing market circumstances on an annual basis as lighting measure savings are updated. As a result, we are not predicting how savings will change through 2020.
>
> As with gas savings, we expect to increase electric savings with new measures, including a midstream water heater offering, Nest thermostats and new construction activity.

Don MacOdrum: Would changes to the Residential Energy Tax Credit undermine the cost-effectiveness of measures?
Thad: Our assumption was that nothing will change in the current landscape.

Don MacOdrum: Do you see opportunity in the cost-effectiveness and avoided costs docket at the OPUC for expanded measures and savings?
Fred Gordon: The OPUC hasn't fully developed this docket. It seems to be centered on the electric side. On the gas side, measures are already accepted as exceptions or have low benefit/cost ratios.

Holly: How do incentive levels fit in?
Fred: There's a price floor in the market. If the cost of the product is low enough, there's diminishing return to provide a smaller incentive. We want to provide a meaningful incentive.
Holly: So it's about market share and measure price.
Thad: Once we understand the annual energy savings of a product, we work with our Program Management Contractor to determine an incentive level, and then assess whether we're moving too fast or slow.

Holly: It would be helpful to see a breakout of lighting savings from the electric scenarios.
Thad: We're also looking at that perspective and will share later.

Jim: For market share, are LED and incandescent the two lighting categories?
Thad: There are four categories in specialty applications: LED, incandescent, halogen and CFL.
Jim: Broadly speaking, it seems like the main market share is CFLs.
Fred: LEDs are doing well in specialty categories, but lagging is some categories.

5. Multifamily structure design

Oliver Kesting, commercial sector lead, and Kate Scott, program manager, summarized the complexities of the Multifamily program incentive structure. Multifamily measures are primarily organized by ownership type and building structure, and different variables determine cost-effectiveness. Some measures are only cost-effective in some properties.

Conservation Advisory Council members and audience attendees broke into small groups to discuss how to reorganize and simplify the incentive structure and propose a new approach. A representative from each group summarized suggested changes.

Holly: The bulk of measures are in the five-plus unit stack category. We suggest that owner-occupied buildings move to the Existing Homes program because homeowners and multifamily unit owners consider the same type of decisions. Buildings that are not owner-occupied should receive incentives based on highest savings potential. The program would need to decide what three measures to promote to get the most savings, which may not be as cost-effective.

Jeremy Anderson: First priority should be to include all multifamily customers. Second priority should be ease and simplicity. Third priority should be to maximize savings. Owner-occupied units should move to the Existing Homes program. Condo associations are rare and should be considered Multifamily, in addition to single, small and multiplex buildings.

Bob Stull: Priorities should be ease of participation for customers and contractors, a simple incentive structure and ease of implementation. We suggest sacrificing some measures and savings to simplify program incentive structure and focus on priority measures. Incentive structure should be organized by owner type, including occupier-owned or owner-managed structure, with a second category for buildings that are stacked or not.

Nick Michel: We recommend designing for the marketplace. Five-plus stacked structures should have their own set of incentives. Eliminate measures that aren't popular and suggest organizing measures by technology, which would be simpler but could reduce precision.

Julia: We suggest removing the ownership category and retaining structure categories. Overlay new incentive structure with marketing and outreach plan to target by ownership type. Priorities are to simplify the overall structure and maximize savings.

Kim: Program staff will consider these ideas and return with a proposed approach for review.

6. Momentum savings

Ted Light, senior planning project manager, explained how Energy Trust uses the data behind Bonneville Power Administration's momentum savings work. Momentum savings are savings that occur outside of direct program interventions. Energy Trust uses market analyses that are done as part of the momentum savings work to inform programs, but does not claim market transformation savings with the data.

Carrie Cobb provided an overview of BPA's work on momentum savings, an emerging approach to measuring and counting momentum savings. Momentum savings measure the change in

market average efficiencies from the baseline set by the Northwest Power and Conservation Council's Power Plan to demonstrate the momentum of the total market over time based on customers' energy choices and use. Quantifying momentum savings allows BPA to claim more savings, in complement to program savings.

> Efficiency changes the load forecast, and BPA needs to understand how to make decisions and plan for those changes. BPA has been focusing on the residential and non-residential lighting market, including residential HVAC and appliance standards.

Kim: What is the relationship between momentum savings and spillover?
Carrie: Spillover looks at why customers are doing something.
Charlie Grist: Spillover and free riders are questions for the utility in terms of worth and investment.

Holly: What is the difference between market transformation and momentum savings? Is it just a difference in baselines?
Carrie: Yes. There's a lot of overlap between the two. Momentum savings includes total market shift. For example, it will examine the whole lighting market, not just the CFL market.
Julia: When NEEA measures net market effects, we're looking at the difference that NEEA makes alone. Utilities measure changes from their own programs. Momentum savings take a comprehensive look across the region.

Don MacOdrum: Is there a scenario where momentum savings could be used to prevent investments in energy efficiency based on free riders?
Ted: Planning might use underlying market data to understand our baseline. Depending on technology, we could use momentum savings data to inform whether or not to invest in a program.
Julia: It's a way to understand what's happening in the market.

Jackie Goss: One of the main purposes of research is to have the results on a measure-by-measure level. Is the momentum savings data public?
Carrie: Yes, the data is on our website. If there's a particular measure you're looking for and it is not on our website, BPA or NEEA might have it.

Charlie: This is great work, but it hasn't been widely reviewed. The Regional Technical Forum created a market analysis subcommittee and will examine momentum savings further.

7. Public comment
There were no additional public comments.

8. Meeting adjournment
The next scheduled meeting of the Conservation Advisory Council will be on September 7, 2016, from 1:30 p.m. – 4:30 p.m.

Renewable Energy Advisory Council Meeting Notes

September 7, 2016

Attending from the council:
Bruce Barney, Portland General Electric
JP Batmale, Oregon Public Utility Commission
Suzanne Leta-Liou, SunPower
Michael O'Brien, Renewable Northwest
Frank Vignola, Solar Monitoring, University of Oregon
Dick Wanderscheid, Bonneville Environmental Foundation
Peter Weisberg, The Climate Trust

Attending from Energy Trust:
Mike Colgrove
Matt Getchell
Fred Gordon
Jeni Hall
Mia Hart
Jed Jorgensen
Betsy Kauffman
Dave McClelland
Dave Moldal
Joshua Reed
Lizzie Rubado
Kenji Spielman
Peter West

Others attending:
Erik Anderson, Pacific Power
Margaret Hodes, Solar City
Caroline Moore, Pacific Power
John Reynolds, Energy Trust board
Adam Schultz, Oregon Department of Energy
Matt Shane, Oregonians for Renewable Energy Progress
Robin Rabiroff

1. Welcome and introductions

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

2. Welcome new executive director

Mike Colgrove, executive director, introduced himself and provided an overview of his background and experience. Mike joined Energy Trust after 15 years with the New York State Energy Research and Development Authority where he was both the director of the New York City office and director of multifamily programs. He has extensive experience in designing, developing and implementing energy efficiency programs that help to accelerate broad market adoption of clean energy solutions.

Suzanne Leta-Liou: What convinced you to take the job as executive director? What is your vision for Energy Trust?
Mike: Energy Trust has a reputation of good work, and the alignment with NEEA, regulatory entities, utilities and stakeholders was very attractive. There are opportunities to continue building on this success, and I would like to see Oregon and the Pacific Northwest become the nation's poster child for energy efficiency and renewable energy.

Dick Wanderscheid: New York is ahead of the curve in demand response and resiliency. How do you see your experience at NYSERDA supporting Oregon as we move toward this vision?
Mike: Capacity and demand are issues in New York, and the state has an established approach to demand response, storage and distributed energy. As those topics become more important in

Oregon with climate change and housing pattern shifts, I can apply my experience in system peaks and capacity issues from New York here in Oregon.

Michael O'Brien: What are the biggest challenges you see in the energy industry?
Mike: The biggest challenges I see relate to demand response, including electric vehicles, natural market transformation such as in the lighting market, and the future role of solar. There are big opportunities with these challenges. I'm interested in how we can reach out to more markets across the state in deeper ways, and do so in a way that's cost-effective.

Lizzie Rubado: Having been through Hurricane Sandy, how did you see priorities change?
Mike: Hurricane Sandy was a turning point in New York as people repositioned around increasing resiliency. NYSERDA's mission is focused on energy, so we worked to overlay resiliency with that mission as energy became a higher priority for the state. NYSERDA broadened program design by finding a new role within the more comprehensive approach to climate change and resiliency.

3. Presentation from Solar City

Margaret Hodes, Solar City, provided an overview of on the company's research on non-wire alternatives for improving grid operational efficiency. Solar City is working on several projects in other states to develop a more dynamic, flexible grid. Its goal is to transition the current grid to be built on distributed energy resources like solar, battery storage and intelligent devices to make the grid clean, resilient and affordable. Solar City proposes modernizing grid planning by moving toward integrated distribution planning.

> Distributed energy resources can decrease the amount of idle power on the grid, and can be aggregated into a distributed energy resource portfolio to inform grid services, like flexible ramping, dynamic capacity, voltage and reactive power, and contingency support.
>
> Additionally, solar can unlock additional value in conservation voltage reduction (CVR) programs. CVR lowers the overall voltage by requiring less energy at the source, and can lower overall voltage even further with solar.

Bruce Barney: The results shown in the voltage graphic for the CVR study on distributed solar look dramatic.
Margaret: The diagram is meant to be illustrative and does not represent true results.
Bruce: Did you study the impacts of cloud cover? Does the voltage level revert to the utility CVR curve?
Margaret: There are two approaches. There's a dynamic CVR program in place where the amount of voltage reduction can be adjusted. Also, we assume there's a margin of error and it would be in the band of compliance.

Suzanne: Can you clarify what the savings and benefits are for this study?
Margaret: Savings are one to three per kilowatt hour of PV installed at customer sites. The benefits are shared by all consumers within a particular service territory.

Michael: If there's a power purchase agreement and if you are changing the power factor, how do customers see the benefit of the grid services?
Margaret: We would compensate the customer on the front or back end. On the front end, the customer signs up and we evaluate how the customer is impacted. Or we provide compensation for participating on the back end.

Fred Gordon: What is the connection for customers providing demand management resources? Can the generation be dispatched?
Margaret: Demand management resources can be integrated into our control platform. We look at the resources the utility has already invested in and evaluate how to expand those resources.

JP Batmale: What investment is made by the utility for integrated distribution planning, automating hosting capacity and developing operation data?
Margaret: Automating hosting capacity analysis requires utility investment. Operational data can be more accessible with a portal or even organized in a CSV file.

Suzanne: Another resource related to this topic is a webinar from Smart Electric Power Association on the value of distributed energy resources for utilities.

4. 2017 draft budget action plans
Staff presented the 2017 draft budget action plans for the renewable energy sector, including Solar and Other Renewables programs.

Betsy provided a high level overview of budget themes for the sector, including flexibility to manage uncertainty in policies and changing programs while proactively addressing resulting impacts on the budget. Irrigation modernization and biopower provide a solid foundation that we will continue to build on. Some new initiatives include beginning to look at solar and storage, deploying renewables for locational value to the grid and increasing the value of trade allies.

Jed Jorgensen summarized 2017 activities for the Other Renewables program. The strategy is to continue with existing offerings and strategies, focusing efforts on projects that offset on-site load or leverage additional benefits, such as anaerobic digestion at wastewater treatment plants and irrigation modernization at irrigation districts. New initiatives include evaluating the performance of past projects that reached commercial operation and continuing customer relationships to ensure ratepayers receive the highest value from installed projects. We're also pursing net-zero opportunities at rural wastewater treatment plants.

Bruce: Will you evaluate the performance of biopower projects primarily or hydropower as well?
Jed: There's room for improvement for both project types, but to a lesser extent for hydropower.

JP: Have you put together a cohort like on industrial side? How do you control for staff time?
Jed: Last year, we held an operations and maintenance workshop for anaerobic digestion at wastewater treatment plants. That included existing project operators and potential project proponents. We've looked at similar ideas for hydropower. As far as staff time, we're really just starting this effort and we're exploring the potential for our involvement. We are releasing a request for qualifications in the next week to identify consultants who can do some of this evaluation work and report back to us on the kinds of opportunities that are available.

JP: What are the repowering opportunities to help increase the pipeline of hydropower projects? Would you develop eligibility requirements for splitting costs, like with the Opal Springs project?
Jed: Repowering opportunities are low. There are just not a lot of projects like that. Regarding how we look at costs, we will separate out costs and benefits to the extent practical, like with irrigation modernization projects.

Michael O'Brien: Are you planning for anticipated changes?
Jed: We anticipate above market costs will rise and overall costs will decrease, but we can't foresee or control that landscape.

Frank Vignola: What percentage of hydropower opportunities have you reached?
Jed: To date, 14 irrigation districts have enrolled for irrigation modernization and another 10 are expected to enroll in 2017. There are more than 200 irrigation districts in Oregon, but we started by reaching out to the largest districts. There's still huge potential for hydropower.

Suzanne: Are you considering doing an analysis of the market potential for solar and biopower for net-zero wastewater treatment plants?
Jed: Not yet. It is a small universe of potential projects, so it is straightforward to walk through the opportunities. We've been focused for a long time on larger facilities. Looking at solar allows us to look at the smallest facilities in a new way, such as the Wallowa Wastewater Treatment Plant, which is net-zero with a 60-kilowatt solar system.

Dave McClelland summarized 2017 activities in the Solar program. There is significant policy and market uncertainty over the next two years. New initiatives in 2017 include a solar and storage pilot with PGE and exploring how to expand participation to low- and mid-income customers. Along with the Clean Energy States Alliance, other state incentive programs and state agencies, the program applied for a grant through the U.S. Department of Energy to support this effort to expand participation. The outcome of this grant is expected in Q4 2016.

> Due to uncertainties in the solar market, we are assuming business as usual for budgeting purposes, but planning for flexibility and change. Considerations for 2017 include possible net metering policy changes and expiration of the Residential Energy Tax Credit at the end of 2017, which we think will drive activity. The budget does not presume a direct role in the community solar program, but we are ready to provide expertise and play a role as appropriate.

Robin Rabiroff: Can you expand on the impact of the Residential Energy Tax Credit expiring and how the program will respond?
Dave: We are seeing growth in the residential solar market through 2017 regardless, and we would need to discuss the longer-term implications of the tax credit expiration when the outcome of the legislative session is clear next year.
Betsy: If the tax credit is not extended, we would discuss with Renewable Energy Advisory Council. For budgeting purposes, we are just trying to build in flexibility if that should happen.

Suzanne: I realize that it's not Energy Trust's role to lobby, but there is a role to provide information about potential policy changes and their impact on the budget. Have you put together different scenario analyses for policy changes to plan for program impacts?
Dave: Yes, we're working with the Oregon Public Utility Commission to look at above market costs and possible scenarios over the next three years.
JP: Energy Trust provided key data analyses for the OPUC to develop the draft solar report. We have been relying on Energy Trust to respond to stakeholders. We expect legislators to be asking for data during legislative session, and Energy Trust is prepared to provide expertise.
Jed: This is similar to when the Business Energy Tax Credits were set to expire. The Residential Energy Tax Credit is a much bigger portion of system costs than our incentive.

5. Public comment
There was no additional public comment.

6. Meeting adjournment
The meeting adjourned at 11:30. The next Renewable Energy Advisory Council meeting is scheduled on October 21, 2016 from 9:30 a.m. to 11:30 a.m.

Conservation Advisory Council Meeting Notes

September 7, 2016

Attending from the council:
Jim Abrahamson, Cascade Natural Gas
JP Batmale, Oregon Public Utility Commission
Warren Cook, Oregon Department of Energy
Julia Harper, Northwest Energy Efficiency Alliance
Wendy Gerlitz, Northwest Energy Coalition
Kari Greer (for Don Jones), Pacific Power
Garrett Harris, Portland General Electric
Andria Jacob, City of Portland
Jess Kincaid (for Brent Barclay), Bonneville Power Administration
Don MacOdrum, Home Performance Guild of Oregon
Tyler Pepple, Industrial Customers of Northwest Utilities

Attending from Energy Trust:
Mike Bailey
Tom Beverly
Mike Colgrove
Amber Cole
Kim Crossman
Fred Gordon
Scott Leonard
Spencer Moersfelder
Jay Olson
Kate Scott
Kenji Spielman
Mark Wyman

Others attending:
Audrey Burkhardt, NW Natural
Scot Davidson, Enhabit
Carolynn Farrar, NW Natural
Sara Fredrickson, CLEAResult
Elaine Prause, Oregon Public Utility Commission
Allison Spector, Cascade Natural Gas

1. Welcome and introductions

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

2. Announcements and old business

Julia Harper provided corrections to the July meeting notes.

Jim Abrahamson: I will be retiring in early 2017. Allison Spector is here and will take my place on the Conservation Advisory Council. It has been a pleasure to serve since 2009.

Kim: Tony Galuzzo of McKinstry, representing the Building Owners and Manager Association, is expected to join the committee after board approval. Someone from Avista may join us soon.

3. Welcome new executive director

Mike Colgrove: I am on my fourth week of transition at Energy Trust. I spent the last 20 years in New York, most recently at New York State Energy Research and Development Authority, where I directed the multifamily program. I have experience with low- to moderate-income programs. I also have experience with the commercial sector in New York City and statewide. With NYSERDA, I learned to navigate the urban and rural divide because we served customers throughout the state. The experience will translate nicely. I'm blessed with having Margie's help

during the transition and with inheriting a successful organization. I'm looking forward to learning and working with all of you.

Tyler Pepple: What is your vision for Energy Trust?
Mike: As the organization is already successful, my first goal is to learn and understand where we are now. There are numerous challenges we face in the future. The environment around us has changed, and we need to figure out our role. Oregon and the Pacific Northwest are in a very unique position nationally. There is a wonderful coming together of political views, industry and regulators. Citizens are extremely receptive to our message. It creates a great opportunity here. The vision is really to see what the next level is and bring Oregon to the forefront nationally. I would like to see how much farther we can go.

4. Combined heat and power incentives
Kim: We previously came to Conservation Advisory Council in March 2015 with a proposal to increase fossil fueled combined heat and power (CHP) incentives from 8 cents per kilowatt hour to be equal with all other custom incentives. Members largely supported this with the notable exception of the electric utilities, who expressed concerns about fossil fuel fired CHP projects for Energy Trust.

> We have treated CHP as electric efficiency since 2006 as long as it's cost effective, used on site and highly efficient. This approach aligns with Oregon Public Utility Commission direction. CHP projects can participate in Existing Buildings, New Buildings, Multifamily and Production Efficiency programs.
>
> When we launched the CHP incentive offering, the perceived higher performance risk led us to set the incentive at half of the incentive level for custom projects. We worried savings from CHP projects might not have persistence. The standard custom incentive is now 25 cents per kWh, up from 15 cents per kWh in 2006, but the CHP incentive was never revisited. We completed one CHP project since 2006, a megaproject at Oregon State University.
>
> In March 2015, we proposed that the incentives for CHP be raised to match custom electric project incentives. We have discussed this further with electric utilities to understand and address concerns. In the NW Natural CHP docket, questions were raised. The OPUC addressed those questions in its response to the docket. The OPUC reaffirmed that Energy Trust can support CHP as electric conservation. Based on that direction, we are ready to move forward.
>
> The OPUC asked how we will limit this offering so that we will not exhaust funds supporting CHP projects. First, we will limit the offer to only high efficiency CHP projects that use at least three quarters of the heat. That eliminates Public Utility Regulatory Policies Act projects. Second, a CHP project must be cost-effective and pass the same tests as any other custom energy efficiency project. Third, anything under consideration for over $500,000 in incentives would be considered a megaproject. We have controls and extensive review on that type of project, including board review and approval. Finally, we will limit the number of new fossil CHP projects to five. Once we have reached five projects, we will stop to assess outcomes, engage with the public and determine next steps. In this way, CHP would be treated like a pilot.

Warren Cook: The combined efficiency of 65 percent relates to standalone electric production in what way?

Kim: That was me doing a quick conversion for illustration purposes. It's a net heat rate calculation and we've historically matched up with Oregon Department of Energy. The actual number was negotiated with the OPUC and utilities in 2006 and reviewed by CAC in March of 2015.
Warren: The thing that helps bring it together is that conservation and efficiency are the same thing in this case. Producing electricity potentially has the same value as conserving it. It's not a reduction in energy use, but they are using what they produce.

Tyler: Do you have five projects in mind?
Kim: No. We have been on hold for the last year and a half while under discussions with utilities. We will now start working on the CHP pipeline in earnest, but we are unlikely to see anything complete in the next two years. CHP projects take two to four years to complete. In reality, we are unlikely to reach five projects in five years. Gas fired CHP remains marginal in Oregon. Only certain applications will work. Where they do happen, it's a powerful savings tool.

Garrett Harris: PGE does appreciate this approach.

Kari Greer: How will you recruit projects?
Kim: We aren't marketing for CHP projects. Customers bring up CHP as we are discussing projects at their site.

Tyler: What would the incentive be?
Kim: We propose that each program use its current custom incentive level.

Garrett: Do you believe CHP projects will be megaprojects and therefore probably get less than 25 cents based on that?
Kim: Most will fall below that range.

Tyler: How does the per kWh incentive work? How is it measured?
Kim: We have a negotiated baseline that is the grid heat rate. It's the value of the heat converted into kWh. We incent the difference between that rate and the normal heat rate.

Warren: We may want to revisit that chart. Is the grid baseline the same by utility?
Kim: Yes, and we're not recommending any changes. Are you suggesting we don't move forward? The baseline hasn't changed for us, and I would be happy to walk through it with everyone. The incentive change came about because at 8 cents per kWh, the payback was 9.5 years and we covered 13 percent of project costs. For other custom projects we have learned that we need to cover 40 percent on average. With the new incentive, payback is driven down to 6.5 years, and other incentives bring it below 5 years.

Garrett: With no other incentives and yours at 8 cents, the payback is 9.5 years?

Warren: I think walking through an example project would help give us more comfort.
Amber Cole: I suggest we move on and go forward with the changes. We can bring more information back at another meeting.

Wendy Gerlitz: Thank you all for all the work you've done on this and being responsive.

5. Multifamily incentive structure
Kate Scott: This is a follow-up on an exercise at the July Conservation Advisory Council meeting to help us improve multifamily incentive structure. We have addressed the priorities and concerns. Multifamily has some complex eligibility requirements for some measures. We think

that the simplifications will help boost participation. This is related to a limited number of measures and won't have a big impact. The changes will go live January 1.

Don: You mentioned the ownership layer will be removed. That means there were limitations that units needed to be individually owned. Was that the only limitation?
Kate: We have found the ownership layer to be confusing to customers. For example, a home owners association doing measures in a condo building may have had different incentives for some measures than an individual condo owner. Individual ownership created some limitations and confusion. In 2017, we intend to customize outreach to different segments instead of building it into the incentive structure.

Don: With townhomes, what's the difference between your description and code description?
Kate: Code defines a townhome as a side-by-side structure with exposed surfaces, including ceiling and floor. It's easier to understand a townhome as a place without a unit above or below.

JP Batmale: Thanks for bringing this to the council. It's a good use of time.
Kate: The feedback we got from Conservation Advisory Council improved this proposal.

6. 2017 residential incentive adjustments
Scott Leonard presented residential incentive changes.

Julia: What are the two levels of incentives?
Scott: They represent different tiers of heat pump water heaters. That's consistent with this year's incentives.

Kim: This relates to something Garrett provided feedback on last year.
Garrett: Customers might undersize units or go with electric resistance instead. That was the concern.
Scott: This will avoid it.
Julia: We are happy to see this because we've seen the share of large tanks increasing.

Audrey Burkhardt: What is the incentive to consumers for the same thing under Savings Within Reach?
Scott: All Savings Within Reach incentives are paid to the contractor. It's one or the other.
Sara Fredrickson: Savings Within Reach incentives reduce the out of pocket cost to the consumer up front.

Don MacOdrum: Given the update on the GE Geospring, is there an expectation that AO Smith has products available?
Scott: Yes, they have products that meet the requirements, and we expect more to come online.
Julia: AO Smith added something like 35 models to the qualified products list in July.

JP: How does Savings Within Reach get managed and tracked?
Scott: Qualification for Savings Within Reach is based on a percentage of the median income.

Carolynn Farrar: Is there on-bill repayment through the utilities?
Scott: Yes, that's available.

Don: Has EPS™ always been branded like that, or was it called New Homes before?
Scott: EPS is a performance metric offered through the New Homes program. The incentive is tied to performance improvements over code. EPS is the end piece the builder or buyer gets.

Don: I've been expecting updates regarding the draft city policy for time-of-sale energy disclosure and how EPS supports or confuses that program.
Scott: We will bring that topic back to CAC.

Don: Does it look like the measure to decommission manufactured homes will happen?
Scott: I'm optimistic that it will. Part of it will rely on financing availability and other factors.
Garrett: When is that expected to launch?
Scott: We are hoping to launch it in the first part of 2017.

Scott: We are not expecting big changes to lighting in 2017.

7. Draft 2017 budget action plans

Amber Cole introduced the draft 2017 budget action plans presentations. Amber reviewed the budget process and invited Conservation Advisory Council members and the public to comment. Amber emphasized the deadline for formal budget comments is November 9, but early comments are appreciated. She directed members to send comments to Peter West.

Mark Wyman presented the draft budget action plans for the residential sector, including Existing Homes, New Homes and Products programs.

Don: What do you see as the biggest Existing Homes savings opportunities in Avista territory? Is the opportunity similar to other territories?
Mark: We're starting out similar to other areas, but we expect to learn more as we go in.

Jim: Behavioral change appears to be a large area of savings. What is it?
Mark: It includes Opower, but also some other approaches like advanced thermostats that gradually adapt to behaviors and adjust set points.

Julia: What are examples of higher free rider rates?
Kim: We will be able to go into that in more detail in October.

JP: How are large, mixed-use new construction projects handled internally between programs? How do you ensure a seamless customer experience? I'm thinking about projects like master planned communities with homes and retail shops.
Mark: We've been working with Hillsboro for three years. The developers are interested in what they can build and how. The city has these negotiations all the time, but now they have added efficiency as part of it, driving homes to be built above code. We're trying to deal with a block of homes at once and pass through covenants during the sale of development rights to the builder.
Amber Cole: Were you thinking of customer touch points? We do have outreach resources to help with that: Jay Ward, Susan Badger-Jones, Karen Chase and program field staff.

JP: There seem to be a lot of overlap with Oregon Housing and Community Services. I'm curious about communications and coordination with them on serving moderate income customers, rentals and new manufactured homes.
Mark: A few of us have worked with OHCS to see if there's an overlap between moderate- and low-income offerings. We're looking at ways that funding can be stacked.

JP: It would be helpful at the next Conservation Advisory Council to talk about the number of pilots and initiatives. What's happening in the pipeline for Products?
Kim: We will revisit this and are seeking your written comments.

Oliver presented the draft budget action plans for the commercial sector, including Existing Buildings, Existing Multifamily and New Buildings programs.

Oliver: We have new savings realization adjustment factors for Existing Buildings for both gas and electric incentives. They will be going down slightly in 2017, which will drive a need for greater accomplishment and will drive up the overall incentive budget.

Wendy: When will the pilot evaluation be available for Pay for Performance? When will the new program details be available?
Oliver: We'll have to get back to you on the Pay for Performance evaluation. We're happy to schedule another update for you to discuss the current design in more detail.

Wendy: Are the six Pay for Performance projects a rough estimate of customer interest? Why did you limit it to six?
Oliver: These are complicated projects and we are entering into a three-year commitment with these customers, so we want to roll it out slowly and keep learning before we make it more widely available. We are confident we can find six projects.

Andria Jacob: How could solar policy changes impact efficiency programs?
Oliver: Net-zero projects are interested in efficiency as well as solar and renewables. If there's a shift in incentives, it will impact interest.

JP: How will the Program Management Contractor manage the different operations and maintenance offerings?
Oliver: We provide a spectrum of offerings. Retrocommissioning is a measure specific offering for smaller projects. Pay for Performance is a whole building, long-term approach with deeper analysis provided by a third party. Strategic Energy Management is focused on organizational change for larger customers who have an energy champion. Each offering will fit a different customer type, and they are all implemented through a PMC.

JP: What's the approach for SEM and capital measures?
Oliver: Through SEM, we work with customers who have multiple buildings, but we only focus on comprehensive operations and maintenance services for a couple of buildings at a time. If customers implement capital measures where we are also capturing operations and maintenance savings, we net the capital savings out of the operations and maintenance calculation.

JP: How do you balance making more incentives midstream and better managing trade allies?
Oliver: We're looking at both, and we will carefully manage the potential for risk of double dipping. It's about engaging and helping trade allies get more savings where they are already supporting our programs, and finding midstream opportunities where that would be the best approach.

Kim presented the draft budget action plan for the industrial and agricultural sector, including the Production Efficiency program.

JP: What was the big jump in lighting project counts between 2014 and 2015?
Kim: It was the onset of LEDs and a different approach to LEDs.

Tyler: You are seeing smaller savings per project. Is that more with streamlined or custom?
Kim: It's more with streamlined and especially lighting.

Amber: Are there any things you want us to look at when crafting our presentations for October?
Warren Cook: We appreciate the time to go through the drafts and send in written comments.

Amber: Any comments are welcome, and earlier is better. We are tweaking things through September. When you see the draft budget in October, we need formal comments by November 9. We'll include them in the board packet.

JP: Will we receive a copy of the budget before the next meeting?
Amber: It's coming together and we will do our best to get it out a few days before the next meeting. The full board packet with the draft budget and action plan will be up on the website the Monday or Tuesday after the October 21 Conservation Advisory Council meeting.

8. Public comment
There were no additional public comments.

9. Meeting adjournment
The next scheduled meeting of the Conservation Advisory Council will be on October 21, 2016, from 1:30 p.m. – 5:00 p.m.

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	