Agenda

Conservation Advisory Council
Wednesday, September 13, 2017
1:00 p.m. – 5:00 p.m.

421 SW Oak St., #300, Portland, OR 97204

1:00 Welcome, Old Business and Short Takes *(discussion)*
Introductions, agenda review, August 2017 CAC minutes
Introduce Industrial and Agriculture Sector Lead Amanda Potter

1:10 PGE Large Customer Funding Compliance (*discussion)*
In 2016, incentive spending slightly exceeded the threshold for PGE large commercial and industrial customers. Staff will review the incentive spending reduction strategies to be implemented starting September 2017 to bring spending below the funding threshold over a three-year timeframe.

1:30 2018 Measure Development and Incentive Updates *(discussion)*
Staff will provide an update from the August meeting on measure development and incentive level adjustments, which are planned to go into effect January 2018.

2:20 Draft Participation Rate and Penetration Rate Analyses *(information)*
Staff will present on recent participation rate and penetration rate analyses completed to inform 2018 budget development and to identify future savings opportunities.

2:50 Break

3:05 Draft 2018-2019 Action Plans: Introduction and Themes *(information)*

3:15 Draft Industrial Sector 2018-2019 Action Plan *(discussion)*

3:45 Draft Commercial Sector 2018-2019 Action Plan *(discussion)*

4:15 Draft Residential Sector 2018-2019 Action Plan *(discussion)*

4:45 Public Comment

5:00 Adjourn

The next scheduled meeting of the Conservation Advisory Council is Wednesday, October 25, 2017

Conservation Advisory Council Meeting Notes

August 2, 2017

Attending from the council:
JP Batmale, Oregon Public Utility Commission
Warren Cook, Oregon Department of Energy
Julia Harper, Northwest Energy Efficiency Alliance
Don Jones, Jr., Pacific Power
Garrett Harris, Portland General Electric
Lisa McGarity, Avista (by phone)
Holly Braun, NW Natural
Tyler Pepple, Industrial Customers of Northwest Utilities
Allison Spector, Cascade Natural Gas
Stan Price, Northwest Energy Efficiency Council
Oliver Kesting
Andrew Lunding
Connor Morrow
Jay Olson
Thad Roth
Kenji Spielman
Cameron Starr
Scott Swearingen
Julianne Thacher
Nicole Theodoulou
Sam Walker
Katie Wallace

Attending from Energy Trust:
Adam Shick
Mike Bailey
Ryan Crews
Hannah Cruz
Lindsey Diercksen
Sue Fletcher
Andy Griguhn
Fred Gordon
Jackie Goss
Kati Harper
Susan Jamison
Marshall Johnson

Others attending:
Alan Garcia, NW Natural
Lindsey Hardy, Energy Trust board (by phone)
Rick Hodges, NW Natural
Brian Lynch, Alternative Energy Systems Consulting
Don MacOdrum
Alan Meyer, Energy Trust board
Lonny Peet, Nexant
Blake Shelide, Oregon Department of Energy
Kerry Shroy, Avista (by phone)
Bob Stull, Ecova

1. Welcome, Old Business and Short Takes

Hannah Cruz convened the meeting at 1:32 p.m. The agenda, notes and presentation materials are available on Energy Trust's website at www.energytrust.org/about/public-meetings/conservation-advisory-council-meetings/.

Hannah reviewed the dates of the remaining 2017 Conservation Advisory Council meetings. Some dates have been changed to allow additional staff time to develop the Energy Trust 2018 Budget and 2018-2019 Action Plan. Revised meeting dates are Wednesday, September 13, Wednesday, October 25 and Friday, November 17. Hannah reviewed key dates for council members to learn about and provide input on Energy Trust's 2018 Budget and 2018-2019 Action Plan.

Julia Harper joined the meeting at 1:40 p.m.

2. Residential Sector Request for Proposals Results

Thad Roth, residential sector lead, reviewed the results of and next steps for the residential sector request for proposals for a Program Management Contractor and Program Delivery Contractors. The

board of directors approved the staff recommendation for a residential PMC, Retail Midstream Promotions PDC and EPS Whole-Home New Construction PDC.

Thad reviewed the current structure of the residential sector, as well as the revised new structure to be implemented beginning January 1, 2018. The new structure better matches available energy-efficiency resources, and enables the sector to more flexibly and nimbly adapt to changing markets.

Holly Braun: Will there still be three programs, but the PMC will manage all three programs?
Thad Roth: Yes, and the two PDCs will also deliver savings for specific measures. The PDCs will provide subject matter expertise for retail lighting and EPS.
Holly Braun: So one PMC will do everything except for EPS and retail? The PMC will do all measure development, customer service, marketing and outreach?
Thad Roth: Yes. The PMC and PDCs will work in close coordination as will be required in the contract scopes of work.

Don Jones, Jr.: The retail PDC will work with the PMC on measure development and determining savings opportunities and appropriate incentives?
Thad Roth: Yes.

Thad described a robust response to the RFP, including four PMC proposals, two PDC retail responses and three PDC EPS responses. Scoring criteria included cost and energy savings; strength of proposal; strength and cohesion of team; collaboration; and diversity, equity and inclusion. The review team included Energy Trust staff, a representative from Northwest Energy Efficiency Alliance and a diversity and equity representative.

The board approved the staff recommendation for a PMC contract with CLEAResult, a PDC Retail Midstream Promotions Contract with Ecova, and a PDC EPS Whole-Home New Construction contract with TRC.

Thad reviewed next steps. Transition contracts will be signed by September 1. Onboarding and transition tasks will occur by November 15. Key relationships will be transferred by December 15, and 2018 and 2019 contracts will be signed by December 22.

Don Jones, Jr.: Can you please summarize the board's thought process on recommendations?
Thad Roth: Board members were comfortable with the RFP process and supported the results.
Alan Meyer: The concept of simplifying the program makes sense, and the RFP process was well run. We trust staff to make good decisions.

Don Jones, Jr.: With the new contract structure, are there any activities currently performed by Energy Trust staff that can be transferred to a PMC or PDC?
Thad Roth: Managing one PMC contract is expected to take less staff time than managing three PMC contracts. We also anticipate the cost of total program delivery to decline with the new structure and contracts.

3. Quarter Two Highlights

Thad Roth presented highlights from quarter two and early projections for 2017 annual results, with input from Oliver Kesting, commercial sector lead, and Lindsey Diercksen, senior industrial program manager. Official quarter two results will be submitted to the Oregon Public Utility Commission on August 15, 2017.

Thad Roth described overall energy-efficiency results through June 2017 for the organization. Energy Trust exceeded historical savings in Portland General Electric and Pacific Power territories, and expects savings in these territories to exceed year-end goals. In natural gas utility territories, savings are in line with historical savings. Energy Trust expects to meet goals in Cascade Natural Gas and Avista territories, and to achieve roughly 94 percent of goal for NW Natural territory. Staff is coordinating with NW Natural on strategies to close the savings gap.

Trends included strong lighting savings across sectors and strong new construction. A large megaproject is expected to contribute industrial savings by year-end.

Lindsey Diercksen noted that more industrial customers installed energy-efficient lighting so far in 2017, which is in part due to the growing cannabis market. Lighting in cannabis facilities is expected to represent about one-quarter of all industrial lighting savings in 2017.

Oliver Kesting shared that the commercial programs are on track to meet year-end goals. New commercial construction has been notably strong, with 100 more projects enrolled in Q2 2017 compared to Q2 2016.

Don MacOdrum: Is lighting primarily responsible for Energy Trust expecting to overachieve on electric savings in 2017?
Thad Roth: At this point in the year, yes, lighting and a strong new construction market are driving savings.

4. Factors Impacting 2018 Measure Development and Budget

Fred Gordon, director of planning and evaluation, and Adam Shick, senior planning project manager, shared updates to Energy Trust's avoided costs, Energy Trust's standard annual measure reviews and impacts of the upcoming expiration of the state Residential Energy Tax Credit (RETC). This analysis informs development of 2018 measures and budget, and information on specific measure impacts is preliminary until the 2018 annual budget is drafted and could change.

Most measures are expected to be cost-effective for 2018, but some measures will be impacted by updated avoided costs, RETC expiration, new codes and standards, expiring cost-effectiveness exceptions from the Oregon Public Utility Commission and changing market conditions.

Avoided costs of energy efficiency represent the value of energy savings to the utility system, and are used to determine cost-effectiveness. Energy Trust held a stakeholder workshop in May to discuss improvements to the method that is used to calculate avoided costs, and Conservation Advisory Council members were notified of the meeting. Energy Trust updated avoided costs in June, and the new avoided costs will be used in 2018 measure and program planning.

Key components of electric avoided costs include energy price forecasts, avoided transmission and distribution capacity deferral value, avoided generation capacity deferral value, a regionally accepted 10 percent conservation credit and a risk reduction value. Electric avoided cost updates were influenced by decreasing forecasts for future electric prices, higher generation capacity deferral values and lower transmission and distribution deferral values. Energy Trust is evaluating its current method used to value peak reduction, which currently undervalues savings from measures where a lot of the savings are coincident with peak and overvalues savings for measures with low peak coincidence.

Following the updates, electric avoided costs decreased for all load profiles and all measure lives. Measures with shorter lives were affected more. Energy Trust will not know the full extent of the impact on Energy Trust's program offerings until after measure and 2018 budget development are complete.

Don MacOdrum: Are electricity costs going down?
Fred Gordon: Electricity costs are low now, and will go up, but will not go up as high as we had previously expected.

Tyler Pepple: How do you calculate the value of avoided risk from the market?
Adam Shick: The value is provided by the utilities. It represents reduced exposure to price risk of purchasing electricity now rather than later when prices may change.
Don Jones, Jr: This value is from Pacific Power's Integrated Resource Plan.

Fred Gordon: Many of our avoided cost inputs are from utilities' integrated resource planning processes and are reviewed by stakeholders through that process.

Key components of gas avoided costs include gas price forecasts, supply and distribution capacity costs, Oregon carbon policy adder, risk reduction value and the 10 percent regional conservation credit. Line losses are not applied to gas avoided costs. Updated gas price forecasts have decreased, and NW Natural provided separate avoided cost values for distribution and supply capacity savings.

Julia Harper: Where will gas prices go relative to what they are today?
Fred Gordon: Gas prices are forecast to increase, but they are now lower than utilities had previously forecast, and the future prices are also lower than previously forecast for a long time. There is a crossover point where forecast prices are higher than the previous forecast, about 20 year out. This reflects a methodology improvement. We previously took 20 years of utility gas price forecasts, and then held the value constant in real terms for the rest of the life of measures. We discovered that some utilities forecast further out, and we used that data, which turned out to include prices above the values we had previously extrapolated.

Adam Shick: We need a 70-year forecast of prices, because Integrated Resource Planning considers resource purchases in a 20-year period, and some measures have up to a 50-year life.

Fred Gordon: The values beyond 30 years have only a modest influence on the overall price because the discount rate used in establishing value reduces the value more in later years.

JP Batmale: What is the source of the carbon policy adder?
Adam Shick: This is an input from the utility. It's consistent with IRPs.
Holly Braun: It has to do with future regulatory compliance cost.

Key outcomes for gas updates are that gas avoided costs have decreased for measures with lives less than about 20 years and gas avoided costs have increased for measures with lives greater than about 20 years. Energy Trust will not know the full extent of the impact until after measure and budget development are complete.

For measures that don't pass the Total Resource Cost (TRC) test, Energy Trust has a few options: narrow or re-structure the measure, submit the measure to the OPUC for a cost-effectiveness exception, consider a pilot or stop offering an incentive for the measure. These are program design decisions, made in consultation with Planning and Evaluation staff.

Holly Braun: Does the pilot option have to stand alone? For example, wouldn't you do a pilot to determine if narrowing or restructuring a measure is the best approach?
Fred Gordon: If it's a new measure, we don't know because we don't have enough data.

In July, the Oregon legislature discontinued the state Residential Energy Tax Credit (RETC). When there is a tax credit, Energy Trust can deduct that from the cost of the energy-efficeincy measure in the Total Resource Cost test. This means that tax credits help some measures achieve cost-effectiveness. The RETC was available for heat pump water heaters, tankless gas water heaters, storage gas water heaters, gas furnaces, direct vent gas fireplace, air-source ducted heat pumps, ductless heat pumps and residential solar systems. Without the RETC, the cost of the energy-efficiency measures used in the benefit/cost test will increase, making it more difficult for some measures to pass the test.

JP Batmale: Will Energy Trust have a better understanding of estimated impacts of RETC by September?
Fred Gordon: Yes. We'll also address this later in the presentation. It will take us longer to analyze larger and more complicated measures.

Other factors influencing cost-effectiveness are codes and standards, including an Oregon residential code update, a change in the rating system for water heater efficiency and a possible commercial code update with uncertain timing. In addition, some measures have OPUC cost-effectiveness exceptions that are set to expire, such as residential gas tank water heaters, multifamily windows and some residential new construction measures.

Holly Braun: It sounds like most measures are getting harder to pass.
Fred Gordon: This is true for electric measures but not always for gas measures.
Holly Braun: But all of these factors are pointing in the same direction of making measures less cost-effective, correct? Could you start by analyzing the measures that are impacted by RETC first, then evaluate the measures that are impacted by the other factors?
Fred Gordon: We have to do it all at once to understand the real impact. There are many factors that interact in complex ways.
Holly Braun: Will all of this analysis will done in time for 2018 budgeting?
Fred Gordon: Yes, analysis of most of the important measures will be complete. We are presenting this information to you early in preparation for when the budget and action plans are drafted and presented for your feedback.

Measures that may be at risk of not being cost-effective in the 2018 program year include packaged terminal heat pumps; whole home heat pumps; ductless heat pumps for multifamily, new homes and existing homes; gas tank water heaters; multifamily windows; some new homes incentives and residential furnaces. This is a preliminary list that could, and most likely will, change as analysis completes and programs determine their 2018 action plans.

Allison Spector: Will there be insights from the new standard practices manual with a new set of guidance on valuation of demand-side management, including looking at different ways to look at test inputs? Will this guidance influence Energy Trust?
Fred Gordon: Energy Trust has not thus far received new guidance from the Oregon Public Utility Commission based on the new National Standard Practice Manual written by the National Efficiency Screening Project. The OPUC will host cost-effectiveness workshops in the fall. We think the scope will include the issues of how to value peak that were discussed early in this meeting. Beyond that, there are many potential issues to discuss about cost-effectiveness and I'm not sure which ones will be included in the workshops.
JP Batmale: The OPUC has been talking with the State of Washington. Washington is not sure which of the recommendations it will adopt from this manual. The OPUC plans to look at components of the avoided cost methodology and bring more stakeholder inputs to the process.

Garrett Harris: Was the forecast you showed us earlier in the meeting during the dashboard presentation—specifically the 2018 pipeline forecast—adjusted to account for these avoided cost updates?
Fred Gordon: No, the cost-effectiveness analysis will only impact 2018. It will not impact 2017. Regarding the 2018 pipeline, no, we have not yet made any adjustments to forecasts as a result of updated avoided costs since we do not yet fully understand the impact of the updated avoided costs.

Alan Meyer: At the Renewable Energy Advisory Council this morning, there was discussion about RETC potentially returning in February 2018. Is it possible RETC energy-efficiency incentives could be added in 2018?
Fred Gordon: It's speculation at this point. We have to work with legislation that has become law and be prepared to adapt if policy changes.

Don MacOdrum: Energy Trust should do the analysis based on RETC going away so legislators can see the full impact of discontinuing the tax credits.
Fred Gordon: During the 2017 legislative session, some attempts to extend RETC included solar tax credits only, not efficiency tax credits. Even if something passes in February 2018, the timing of implementation would still be unknown.

Don MacOdrum: I was referencing legislative work sessions that will be held in the fall to address next steps.
Warren: This is not part of the Oregon Department of Energy's plan. We will implement the RETC sunset as the legislature determined.

Lonny Peet, Nexant: With all of these factors influencing measure cost-effectiveness, what are Planning staff doing to assess long-term energy savings forecast and longer term viability of EE programs?
Fred Gordon: It's a challenge to estimate emerging technologies, but we are looking at potential new opportunities. We have included technologies that are not yet certain, with a reduction in overall savings to reflect that not all will succeed. We are considering markets that we haven't previously thought we could reach.
Adam Shick: We also know we need to improve our electric avoided cost methodology, and we intend to work on that. In the future, when we can better evaluate the capacity of measures, we may see more value, at least for the generation capacity deferral component of avoided costs.

For the next steps, Energy Trust will complete measure development and updates in August and September. Staff will share updates with the council at September and October meetings.

Hannah Cruz: Is the level of detail and early, in-progress information from this presentation helpful?
Allison Spector: I appreciated it. It's important for our resource planning.
Holly Braun: I agree. It's important to know very early because we plan our promotions so far in advance.
Julia Harper: Thanks for not walking us through the detailed formulas.
Fred Gordon: These avoided costs will be used to work with our supply curves and may influence future integrated resource plans.

Hannah Cruz: Would the council like to have received any additional information to review prior to the meeting?
Holly Braun: Staff at NW Natural are curious about why RETC doesn't have a more straightforward impact on measures. Could you apply the RETC expiration as a first step to get a sense of direction?
Fred Gordon: That's what we've tried to provide today. There are other factors, such as moving measures upstream, that make some measures more cost-effective.
Holly Braun: Thanks. Previously I didn't hear that there were any other factors to make measures more cost-effective.

5. Sector Trends Analysis

Sector leads presented trends from 2009 to 2016 based on working savings, which do not have evaluation factors applied. The analysis will inform program budgeting for 2018.

Oliver Kesting presented commercial sector trends. The commercial sector achieved record gas and electric savings in 2016, as well as record project completions. Since 2009, the number of Existing Buildings and Existing Multifamily projects more than doubled. The sector has seen steady growth in Existing Buildings participation and offerings, and strong performance for Existing Multifamily. The New Buildings program is driven by the market and new construction cycles.

JP Batmale: What drove the Existing Buildings increase in 2016, was there a large project?
Oliver Kesting: Not necessarily, the volume of projects was the main reason for higher savings.

Oliver presented commercial incentive cost trends. Incentive cost per kilowatt hour increased for Multifamily and Existing Buildings. Incentive cost per therm declined compared to 2012 for all programs. Incentive cost per kWh and therm declined for New Buildings. Existing Buildings incentive cost per therm increased since 2014. Existing Buildings gas incentive costs for Existing Buildings peaked in 2012, which was due to large custom projects.

Market trends impacting the commercial sector included increasing codes and standards, which have been influenced by Energy Trust. This means Energy Trust needs to innovate and find more advanced program offerings. Savings opportunities are shifting from large to smaller projects. All programs are serving more small- and medium-sized customers. Since 2009, the average savings per commercial sector project have dropped by about one-half, illustrating the trend toward smaller projects. Lighting continues to drive new participation and savings in all commercial programs, given declining LED costs, a booming economy and a strong Trade Ally Network. Very large projects can influence results, such as projects with data centers.

Stan Price: Are declining savings per project driven by the number of small projects increasing or the number of large projects decreasing?
Oliver Kesting: It's a combination of both.
Stan Price: Are customers doing smaller projects?
Oliver Kesting: There are a lot more customers participating. We're not seeing as many large projects as a percentage of the total. I don't have on-hand the data to compare the total number of large projects in 2009 vs 2016.

Existing Buildings is expanding Strategic Energy Management to smaller customer sites and sites outside of the Portland Metro area. LEDs are driving big savings, but street lighting opportunities are declining. Custom projects continue to be strong. Standard incentives, especially foodservice, continue to grow. The program is focused on diversifying and recruiting trade allies.

New Buildings trends included more standard measures, which is driving down incentive costs. With Market Solutions, the program is installing more measures at smaller sites and getting deeper savings with these participants. There are more than 70 projects enrolled in Path to Net Zero. Custom building designs are becoming more sophisticated and baselines are rising, increasing costs for custom projects.

Existing Multifamily trends include low vacancy rates. This means customers have more consistent cash flow but also more competing priorities. The program is shifting focus to smaller properties. Standard track savings are up. Customers are interested in LEDs. Savings from direct installation of energy-efficient products are declining due to reduced measure savings, but still represent a significant source of savings.

JP Batmale: What's the trend in delivery costs?
Oliver Kesting: Delivery costs are increasing as we do more smaller projects and increase our effort to reach non-metro customers.

Holly Braun: You're representing LED trends as positive, but the cost-effectiveness presentation presented them as potentially declining.
Oliver Kesting: This is a look backward, and we have achieved a lot of savings from LEDs. LEDs may not offer as much energy-efficiency opportunity in the future.

Holly Braun: Is there more information on Existing Multifamily specifically?
Oliver Kesting: Yes, it's in the trends report.

Lindsey Diercksen presented trends for the industrial and agricultural sector. Lindsey summarized recent sector highlights, including the launch of a new Continuous SEM offering, new market development with indoor agriculture, strong lighting growth and increasing LED conversions, and growth of participation from small- to medium-sized businesses. As project sizes decline, it takes more projects to achieve the same level of savings as in prior years.

The industrial gas portfolio continued to be influenced by large projects, which are difficult to predict. A lot of standard track gas savings come from greenhouse upgrades.

As the program reaches small- to medium-sized customers, the number of projects has increased while the average project size for electric savings has decreased. This means electric incentives are getting more expensive. Gas continues to be lumpy, with low project volume and large cost-effective projects. The volume of standard projects has increased significantly since 2009.

Savings from indoor cannabis production have increased significantly since the legalization of marijuana in Oregon. Savings from cannabis production facilities in 2017 are expected to contribute more than double the savings in 2016. The program expects the cannabis savings to continue to grow and eventually level out, becoming more predictable. LEDs have been rapidly adopted by industrial customers—from less than 20 percent of lighting savings from LEDs in 2013 to almost 90 percent in 2016. A lot of LED opportunities remain for industrial customers. The program is evaluating the potential for integrating lighting controls into lighting projects.

JP Batmale: Would Energy Trust go back and evaluate completed projects to see if they want to add controls?
Lindsey Diercksen: Yes, but with LEDs the wattage controlled per fixture is less and possibly not cost effective when upgrading to an integrated control system.

Tyler Pepple: What's the difference between an occupancy sensor and a vacancy sensor?
Lindsey Diercksen: Both will turn off the lights when a room as been unoccupied for a certain amount of time. An occupancy sensor will turn the lights on automatically when a person enters the area; a vacancy sensor requires a person to manually turn on the light in the space. The type of sensor depends on how the space is used.

The first projects industrial customers engaged in were by far prescriptive projects and lighting upgrades.

JP Batmale: There's a dramatic drop in cost of gas incentives from 2009 to 2016. Why is this?
Lindsey Diercksen: This has to do with very large projects with low run-rates.

Thad Roth presented trends for the residential sector. The analysis was based on residential efficiency technologies. Electric savings have increased over time, especially for lighting, HVAC and new construction. Savings declined for appliances resulting from Energy Trust's success in market transformation and removing inefficient refrigerators from the market. NEEA has contributed roughly 20 to 40 percent of residential savings in the last few years.

Electric water heating savings are from showerheads and faucet aerators as well as water heaters. The program had limited success in the heat pump water heater market, and is now promoting midstream incentives to increase heat pump water heater savings. Savings from showerheads are also expected to decline because of market saturation. Gas water heater savings are primarily from showerheads and faucet aerators.

Tyler Pepple: If you assume you'll reach market saturation for LEDs, will LEDs no longer contribute to Energy Trust savings at some point?
Thad Roth: Yes. We claim savings based on Energy Trust's influence on the market.

Residential gas savings have been more variable. Gas savings were bolstered by weatherization and federal American Recovery and Reinvestment Act funds in 2011 and 2012. The primary drivers for gas savings have been market transformation and new construction, which represent roughly 45 percent of residential gas savings. This reflects the robust economy.

Cameron Starr: When you look at air and duct sealing, does that include single-family and manufactured homes?
Marshall Johnson: Through 2012, it includes both single-family and manufactured homes. After 2012, it is single-family homes only.

Electric HVAC savings have increased, especially for ductless heat pumps. Savings from ductless heat pumps seem to have plateaued and are under some cost-effectiveness constraints. Gas HVAC savings, while small, increased significantly in 2016 due to midstream and downstream gas fireplace incentives. There are also new opportunities with smart thermostats and Nest Seasonal Savings.

Don MacOdrum: What is Seasonal Savings?
Marshall Johnson: It's a thermostat optimization algorithm that Nest can deploy to thermostats installed in homes. It makes minor temperature adjustments to help customers save energy.
Don MacOdrum: Is that demand response?
Garrett Harris: Demand response is about reducing energy during short windows of time when energy use peaks, such as on hot weather days. This technology does both demand response and energy efficiency.

Savings Within Reach offerings for moderate-income customers have transitioned over time from weatherization to HVAC systems, such as ductless heat pumps and gas furnaces. The number of Savings Within Reach HVAC upgrades grew from a handful in 2009 to 300 in 2015 to more than 800 in 2017.

In 2016, roughly 4,500 homes have been built with EPS. This is due to a strong new construction market, engagement with builders and increases in energy savings per home. New construction gas savings are comprised of both new EPS home construction and market transformation, which reflect Energy Trust's influence on building codes.

Holly Braun: Since the residential building code didn't change for six years, what code have you influenced through market transformation?
Thad Roth: Codes changed in 2008 and 2011. Energy Trust claims savings for homes built after code changes that did not participate in EPS.

6. Public Comment
There were no public comments.

7. Meeting Adjournment
The meeting adjourned at 4:25 p.m. The next scheduled meeting of the Conservation Advisory Council is September 13, 2017. Topics will include potential measure changes, rough drafts of program budget action plans and corrective strategies to reduce PGE large customer expenditures.

Holly Braun: This was lot of information, but it's helpful as we start to think about the budgets. When you present budget concepts, can you reference the trends reports to help us make the connections?
Hannah Cruz: Thank you, we'll consider that suggestion.

Large Customer Funding Briefing Paper

Background, 2016 analysis and strategies to achieve compliance in PGE territory

September 25, 2017

Summary

Energy Trust of Oregon electric efficiency funding flows from two legislatively mandated sources (SB 1149 and SB 838). Commercial and industrial customers using more than 1 average megawatt per year (termed large customers) are excluded from SB 838. To ensure large customers are not benefitting from this supplementary funding, a limit was set on the percentage of SB 1149 incentive funding that Energy Trust can allocate to large customers. Energy Trust contracts with a third party annually to review large customer incentive spending.

In 2016, incentive spending slightly exceeded the threshold for Portland General Electric large customers. This was after multiple years of being close to the threshold. In anticipation of exceeding it, Energy Trust staff has been coordinating with the Oregon Public Utility Commission, Energy Trust board of directors, PGE and Pacific Power over the past four years to create options for potential actions to regain compliance, including those that staff will implement starting this year.

Energy Trust will implement the following strategies in September 2017 to reduce PGE incentive expenditures over a three-year timeframe:

- Maximum incentives at a single large customer site served by PGE will be lowered to $500,000 per year, down from $1,000,000. Current signed commitments will proceed as planned.
- For customers that self-direct their public purpose charge for efficiency, the maximum allowable incentives at a single site will be $250,000, down from $1,000,000.
- The “effective date” for incentive offers for new projects at PGE large customer sites will be 12 months, down from 24 months.
- The maximum incentives to be paid to a single large customer will be established at $1,500,000 per year. This applies to customers with multiple SB 838-exempt sites in PGE territory. Sites outside of PGE territory will not be included.
- Energy Trust will no longer support projects for PGE customers where incentive applications exceed the previous $1,000,000 project cap—called “mega projects.”
- Energy Trust will continue working with customers to help them understand and prioritize any potential lost opportunities.

These actions will reduce average PGE incentive spending from 2018 to 2020 by $1.1 million per year from historical levels. Savings over the same period will be lower by at least 14.3 million kilowatt hours per year. This funding reduction means that Energy Trust will not secure all cost-effective energy efficiency from these customers.

The large customer incentive reductions will effect a small number of PGE customers, and the majority of customers will not be impacted by these changes.

Background

Energy Trust of Oregon electric efficiency funding flows from two legislatively mandated sources: 1) SB 1149 public purpose charge funding is received from all PGE and Pacific Power customers as of 2002, and 2) SB 838 funding is received from PGE and Pacific Power customers using less than 1 average megawatt (aMW) per year as of 2008. Through SB 838, PGE and Pacific Power, in coordination with Energy Trust, can add incremental funding to the public purpose charge to achieve all cost-effective energy efficiency identified through utility integrated resource planning. Commercial and industrial customers using more than 1 aMW per year (large customers) are excluded from, and cannot directly benefit from, SB 838 funding. Language describing the SB 838 electric efficiency funding mechanism in legislation reads as follows:

> SECTION 46.
> (1) In addition to the public purpose charge established by ORS 757.612, the Public Utility Commission may authorize an electric company to include in its rates the costs of funding or implementing cost-effective energy conservation measures implemented on or after the effective date of this 2007 Act. The costs may include amounts for weatherization programs that conserve energy.
> (2) The commission shall ensure that a retail electricity consumer with a load greater than one average megawatt:
>
> (a) Is not required to pay an amount that is more than three percent of the consumers' total cost of electricity service for the public purpose charge under ORS 757.612 and any amounts included in rates under this section; and
> (b) Does not receive any direct benefit from energy conservation measures if the costs of the measures are included in rates under this section.

To ensure large customers are not benefitting from SB 838 funding, a 2008 informal multiparty agreement set a limit to the percentage of SB 1149 incentive funding that Energy Trust can allocate to large customers. The stakeholders involved included Energy Trust, the OPUC, PGE, Pacific Power, Citizens' Utility Board of Oregon and Industrial Customers of Northwest Utilities. Incentives were used as a proxy for overall spending, as program management and administrative costs are difficult to allocate to specific program participants.

The methodology was reviewed again by the OPUC, electric utilities, Energy Trust board of directors and Energy Trust Conservation Advisory Council in 2013 and 2015 in anticipation of exceeding the threshold at some point due to increased project activity by large customers. The probability of reaching the threshold was highlighted in the Energy Trust 2010-2014 Strategic Plan.

In agreement with the parties, Energy Trust does not proactively manage to avoid reaching the cap because it could negatively impact customer relationships in the Production Efficiency, New Buildings and Existing Buildings programs, and there is no guarantee the threshold would be exceeded in any program year.

Methodology

Energy Trust developed an analytic method to track compliance with the working group agreement, and over the past several years, has contracted with a third party to determine whether expenditures comply with the agreement.

The annual limits, established separately for each utility, are based on large customer funding prior to SB 838 implementation. They are calculated as the total incentives paid in a year to large customer sites divided by the total SB 1149 efficiency revenues directed to Energy Trust over a base pre-SB 838 timeframe. For Pacific Power, the base period is 2004-2007, and for PGE, the base period is 2005-2007.

For Pacific Power, the base (or threshold) is **27.3%** and for PGE it is **18.41%**. The difference in limits between utilities reflects differences in size and volume of large customer projects during the base period.

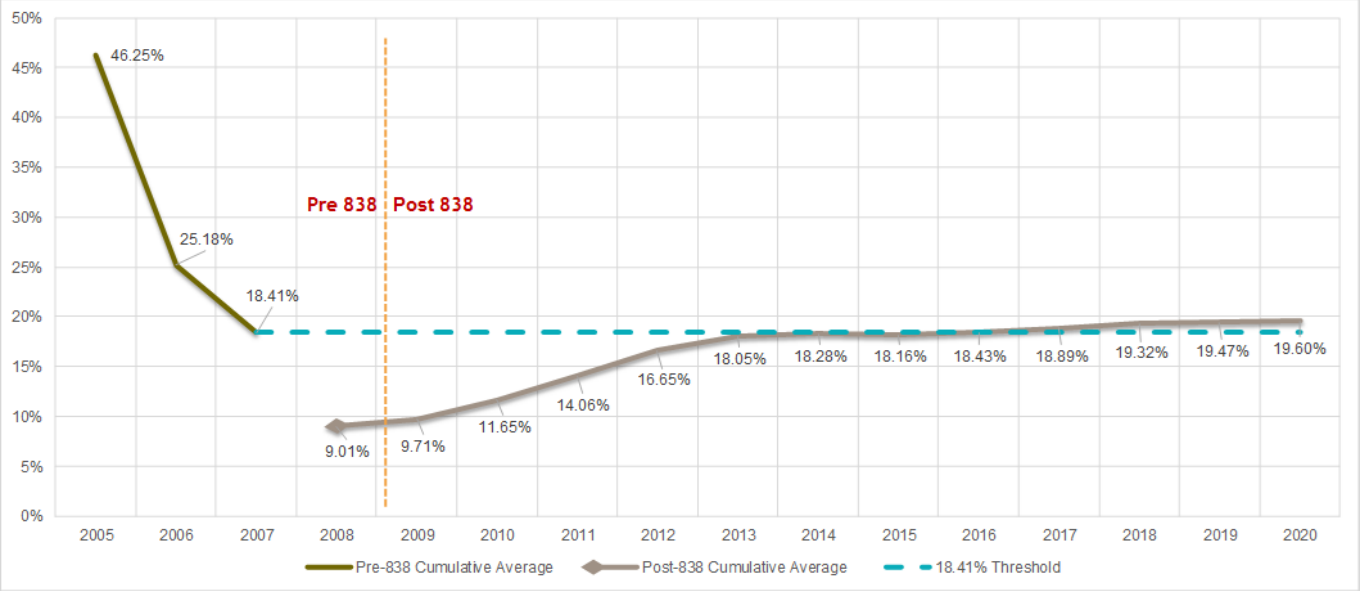
The post-SB 838 percentage for comparison to the numbers described above is calculated on a cumulative basis starting in 2008. It is the sum of incentives for large customers over the sum of total SB 1149 energy efficiency revenues to Energy Trust.

2016 Analysis

Energy Trust contracted with a third party (CLEAResult Consulting, Inc.) to conduct the 2016 large customer incentive spending analysis. The reports concluded Energy Trust 2016 spending stayed within the Pacific Power threshold and slightly exceeded the PGE threshold:

- Pacific Power 2016 large customer incentive spending: 20.1% (7.2% below the 27.3% threshold)
- PGE 2016 large customer incentive spending: 18.43% (0.02% above the 18.41% threshold)

Chart 1: Cumulative average of SB 1149 revenue spending on large customer incentives 2005-2020, pre and post SB 838, for PGE customers



Large customer incentive spending in PGE territory has increased since 2008 as more customers engaged with Energy Trust programs and the customer makeup in PGE territory evolved. For example, as seen in Table 1, while SB 1149 revenue in 2016 was similar to 2015, incentive spending for PGE large customers increased by nearly $700,000. In addition, the number of large customers in PGE territory increased from 41 in 2008 to 62 in 2016. Since the base level of activity and savings increased significantly over time, efforts to curtail these will have a larger impact than indicated in past analyses.

In 2016, total incentive spending for PGE large customers was 21% of SB 1149 revenue, an increase of 4% over 2015 and the highest level since 2013.

Table 1: Summary of spending and kWh savings for large customers 2012-2016, for PGE customers

PGE	2012	2013	2014	2015	2016	2008-2016 (average)
Energy Efficiency SB 1149 Revenue	$28,119,658	$26,484,405	$28,741,721	$28,723,137	$28,127,435	$27,703,705
Incentives to >1aMW Sites	$7,508,724	$6,705,824	$5,621,248	$5,004,680	$5,776,906	$5,106,525
>1aMW Sites Incentives as a Percent of SB 1149 Revenue	27%	25%	20%	17%	21%	18.43%
Cumulative Average	17%	18.1%	18.3%	18.2%	18.43%	18.43%
Number of >1aMW Sites Receiving Incentives	56	56	55	57	62	53
Savings from >1aMW Sites (kWh)	62,520,010	95,229,586	73,813,874	40,267,774	36,740,007	50,267,619
Total Savings (kWh)	282,316,497	311,992,892	321,470,265	170,374,245	194,005,002	226,793,027
Percent of Total Savings from SB 838-Exempt Sites	22%	31%	23%	24%	19%	22%

The 2017 incentive spending for these customers is forecast to reach more than $7.1 million, with cumulative expenditures forecasted to rise to 19.1%. This 2017 forecast necessitates earlier, larger and more direct action. The increases in incentive spending result from a healthy economy, increased new commercial construction and industrial activity, a mega project and ongoing success engaging large customers. This additional success does translate into more that has to be moderated in order to achieve compliance.

Incentive Reduction Actions

Staff reviewed proposed actions to ensure they would reduce spending while minimizing loss of savings, allow Energy Trust to maintain positive working relationships with customers, be reasonably simple to implement and communicate, be implemented over a multi-year timeframe, and allow staff to adjust approaches if needed and suspend the corrective actions when compliance is achieved.

To reduce expenditures, Energy Trust is modifying incentive eligibility requirements for PGE large commercial and industrial customers, including those that self direct the public purpose charge. Staff selected what are believed to be the lowest-risk options in terms of effectively reducing expenditures while maintaining positive customer relationships. The large customer incentive reductions will effect a small number of PGE customers, and the majority of customers will not be impacted by these changes.

Energy Trust and Program Delivery Contractors will continue to provide technical services to help customers identify cost-effective projects at their PGE sites, allowing customers to make informed decisions and plans. We will continue to identify and analyze lost opportunities with the impacted customers, and encourage them to prioritize such projects.

Starting immediately for the Production Efficiency, Existing Buildings and New Buildings programs, and continuing until expenditures meet the threshold, Energy Trust will:

- Maximum incentives at a single large customer site served by PGE will be lowered to $500,000 per year, down from $1,000,000. Current signed commitments will proceed as planned.
- For customers that self-direct their public purpose charge for efficiency, the maximum allowable incentives at a single site will be $250,000, down from $1,000,000.
- The “effective date” for incentive offers for new projects at PGE large customer sites will be 12 months, down from 24 months.

- The maximum incentives to be paid to a single large customer will be established at $1,500,000 per year. This applies to customers with multiple SB 838-exempt sites in PGE territory. Sites outside of PGE territory will not be included.
- Energy Trust will no longer support projects for PGE customers where incentive applications exceed the previous $1,000,000 project cap—called “mega projects.”
- Energy Trust will continue working with customers to help them understand and prioritize any potential lost opportunities.

To reach funding compliance, incentive spending for PGE large customers needs to average $4.2 million per year from 2018 to 2020. The $4.2 million spending level is $1.1 million less than the average spending from 2008 to 2017.

Most of these incentive reduction strategies were vetted with the OPUC and electric utilities in years prior, and have been shared with them again now that the PGE large customer funding cap was exceeded in 2016. The customer and the time limit are new controls. Without these extra strategies a customer with multiple sites in PGE territory could take up to 75% of the allowable, remaining funds or reserve funds too long.

It is anticipated these actions will reduce expenditures for this customer class by 2020. Taking action now will help Energy Trust stay within the allowable amount beyond 2020, and will allow the organization to implement these lower-impact options instead of larger, drastic changes.

These changes will result in fewer savings achieved for the organization, from a customer base that historically provides the most cost-effective savings. On average, large customer projects have benefit/cost ratios that are 2.5 times higher than SB 838-eligible site projects. Staff anticipates a reduction of 14.3 million kWh or 1.63 aMW in savings per year from 2018 to 2020, impacting goal-setting and IRP forecasting.

The result will likely mean lost opportunity of a low-cost resource, unmet demand and unrealized savings. In the long run, savings from larger sites will not be fully captured. This is particularly the case for lost opportunity savings that must be acquired during specific events, such as a major capital investment in a process line upgrade or redesign, or a building renovation. A significant share of Energy Trust savings comes through such events.

All Potential Actions Considered

A range of strategies are possible to reduce spending on large customers. There is no perfect solution; every option to reduce spending on large customers has weaknesses or potential negative repercussions. Staff proposes to start with the low-risk options.

Short-term, low-risk strategies

1. No new mega projects in PGE territory until we regain compliance
2. Change site caps: Reduce annual site incentive caps from $1 million total across all projects back to former site cap of $500,000; and/or reduce site caps for self-directors to 50% of standard site caps

Interventions that cap the highest incentives naturally affect spending on the very largest customers, without altering the services or project incentives that have proven to be effective to acquire savings. These can be applied to a single utility territory effectively, and implementation is fairly simple, involving conversations as needed with only a handful of the largest customers. While these interventions are expected to reap results, they may not prove to be enough to solve the funding issue; however, they

should cause minimal impact on most customers. Staff will assess the intervention effectiveness over the year and course correct as necessary.

Higher-risk, higher-cost, higher-effort strategies

1. Determine two-year annual cap of total incentive funds available to large customers in PGE territory to drive down spending; implement as first-come, first-served with reservation system

This strategy would likely be effective, but implementing it is operationally complex for the organization—creating inefficiencies in program management. If triggered, the reservation system creates far more complexity for customers, requires communication to all business customers and has greater impacts in the market.

2. Reduce incentive levels/kWh at large customer PGE sites
3. Develop total incentive budget for large customers in PGE territory to drive down spending and run competitive process for all incentives as a way to drive down acquisition costs

Strategies 2 and 3 under the higher-risk section introduce a high risk of catastrophic loss of short-term savings, may affect ability to meet IRP goals, and may result in long-term damage to customer relationships and future savings.

PGE Large Customer Funding Compliance Actions

Conservation Advisory Council

September 13, 2017

Energy Trust of Oregon

Background: SB 838

- Allowed additional charges to acquire more energy efficiency
- Large commercial and industrial electric energy users (> 1 aMW) exempted
- Large electric customers to receive no “direct benefit” from additional funding
- Analyses show PGE large customer incentive spending slightly exceeded the threshold in 2016
- Pacific Power remains below the threshold

History of Stakeholder Engagement

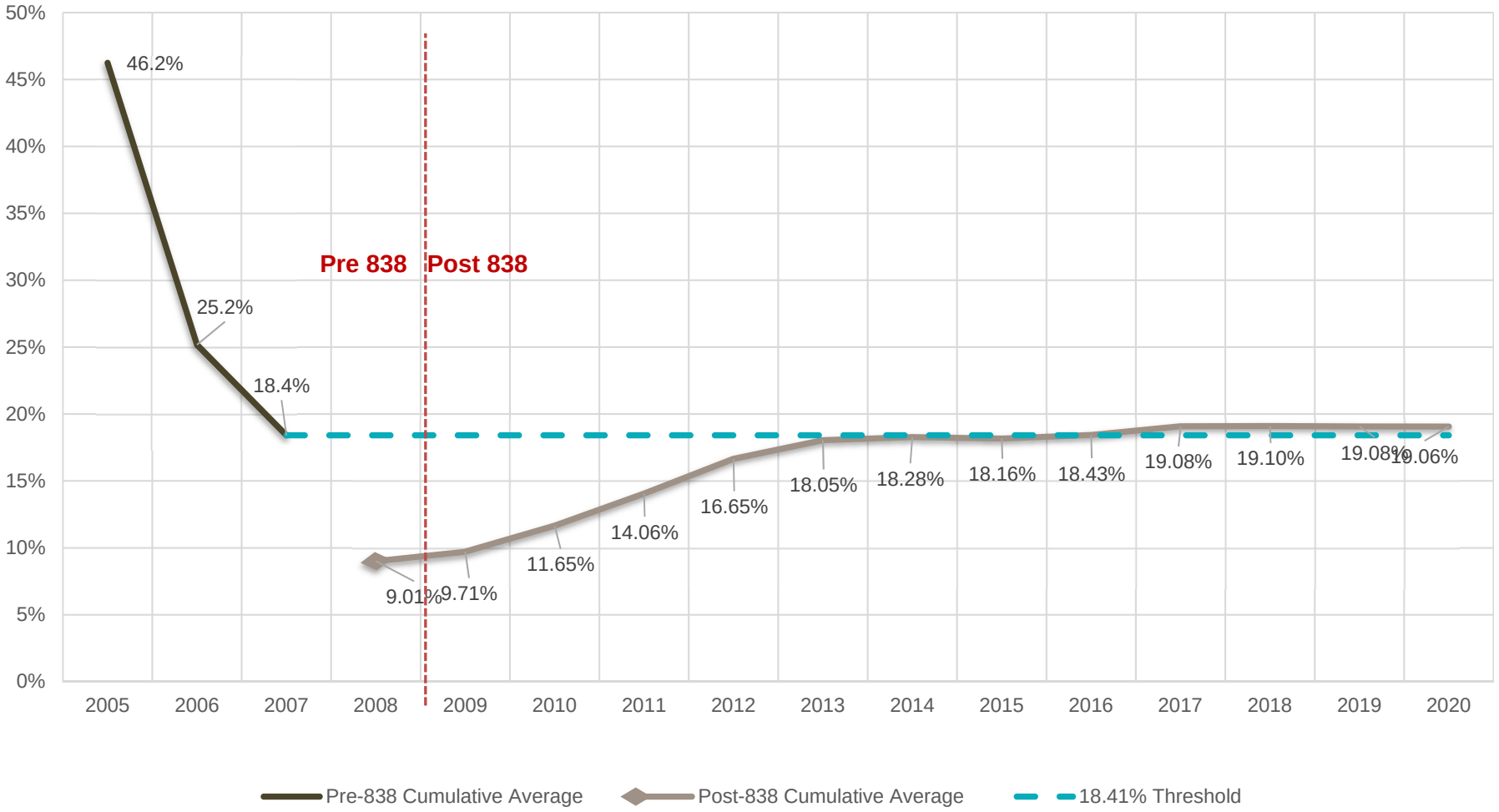
- Board Strategic Planning Workshop in 2013 reviewed analytic method in preparation for 2015-2019 Strategic Plan
- Stakeholder review of guidelines in 2014; no changes made
- Annual update to Conservation Advisory Council during Quarter 2
- 2017 updates
  - CAC briefed in June
  - Board briefed in July

PGE Analysis

- In 2016 we paid $5.8 million in incentives to large customers, exceeding the incentive spending threshold
- For the 2017 forecast, we're anticipating that we'll pay $7.1 million to these customers
  - Without further action, 2019-2020 are expected to average about $5.4 million in spending each of those years
- To bring large customer incentive spending below the threshold, we need to average $4.2 million/year in 2018-2020

Portland General Electric

2005-2016 actuals
2017-2020 forecast without corrective actions



PGE Compliance Actions

- Reduce maximum incentives at a **single large customer site** to $500,000 per year, from $1,000,000.
  - Current signed commitments may proceed as planned
- Reduce maximum site incentives for companies self-directing to $250,000, from $1,000,000
- Shorten the “effective date” for incentive offers for new projects at large customer sites to 12 months from 24 months
- Cap the maximum incentives to be paid to a **single large customer** at $1,500,000 per year
  - Applies to customers with multiple 838-exempt sites in PGE territory
  - Includes prior commitments
  - Sites outside of PGE territory will not be included
- Given the 2017 expected spending levels these actions need to be in place immediately to impact 2018 and then reviewed to determine ongoing actions
- This change does not change any incentives for energy efficiency improvements for customers or sites served by Pacific Power, NW Natural, Avista or Cascade Natural Gas

Questions?

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EnergyTrust of Oregon

Background

Drivers

- Healthy economy
- New Commercial construction activity
- Increased industrial activity
- Success with large customer engagement

Design Ideals for Program Actions

Effective	Reduces spending on large customers
Protective	Minimizes loss of savings
Skillful	Minimizes damage to customer relationships or their attitudes towards energy efficiency
Simple	Does not create major new inefficiencies in program operations; is easy to explain
Realistic	Plans for multi-year time horizons to implement changes and achieve results
Nimble	Able to be changed if ineffective or once average funding spent is back under baseline

Potential 2018 Measure Changes

Conservation Advisory Council

September 13, 2017

Energy Trust of Oregon

Factors Influencing 2018 Measures

- Updated avoided costs
- Oregon Residential Energy Tax Credit expiration
- New codes and standards
- Expiring exceptions
- Changing market conditions (e.g., LEDs)
- Regular updates
- Commercial code change in 2018

Options for Measures that Don’t Pass TRC

- Narrow or re-structure measure
- Consider requesting exceptions per OPUC exception criteria and process
- Consider whether a pilot is warranted
- Stop offering an incentive for the measure

Reviewed Measures to Remain Cost-Effective in 2018

- ✓ Furnaces for moderate-income customers and renters
- ✓ Multifamily direct installation of advanced power strips
- ✓ Heat pump water heaters
- ✓ Direct vent gas fireplaces

New or Expanded Measures for 2018

- ✓ Efficient forklift chargers
- ✓ New refrigerated display cases with doors
- ✓ Gas furnaces for stacked new and existing multifamily buildings

Summary of Potentially Impacted Measures

Measures	Programs	Status
Whole home heat pumps	Residential	Reconfigured; available only for upgrades from electric resistance heat
Ductless heat pumps	Residential, Existing Multifamily	Cost-effectiveness exception requested for existing homes and Multifamily; measure sunset for new homes
Gas tank water heaters	Residential, Existing Multifamily	Cost-effectiveness exception requested
New homes EPS, select tiers and fuels	Residential	Cost-effectiveness exception requested
Manufactured homes, gas heated	Residential	Cost-effectiveness exception requested
Windows	Existing Multifamily	Cost-effectiveness exception requested
Package terminal heat pumps	Existing Multifamily	Under analysis
Sprinkler irrigation, select measures	Production Efficiency	Cost-effectiveness exception requested
Lighting	Residential, Commercial, Industrial	Under analysis

Whole Home Heat Pumps

- Incentive available only for electric resistance heat
- Incentive to sunset for upgrades from existing heat pumps
- Will be replaced with updated controls measures for existing heat pumps

Ductless Heat Pumps

Cost-effectiveness exception requested for existing homes and Existing Multifamily

- Existing homes includes single-family and manufactured homes
- Non-energy benefits, region-wide efforts and cost reduction plans

Measure sunset for new homes

- Individual equipment incentive discontinued for new homes
- Still available as part of EPS whole-home offer
- New residential code has a ductless heat pump compliance option

Gas Tank Water Heaters

New midstream approach launched mid-2017

- Distributer facing program will replace contractor delivered measure
- Instant discounts at retail will replace mail-in and web-based applications

Updated measure requirements due to new federal standards: UEF replaces EF

Cost-effectiveness exception requested

- Residential, Existing Multifamily
- Cost reduction plans

Existing Multifamily

Windows
- Not passing: windows in stacked multifamily buildings with electric heat (windows in gas-heated buildings sunset several years ago)
- Cost-effectiveness exception requested based on non-energy benefits

Package terminal heat pumps
- Still in analysis

Direct installation of lighting, showerheads and advanced power strips
- Measures are cost-effective for 2018
- Potential to be discontinued for 2019

New Homes and New Manufactured Homes

EPS new homes

- All new pathways designed around updated residential code
- Not passing: Electrically-heated Path 1 and 2, gas-heated Path 4
- Cost-effectiveness exception requested based on regional consistency, cost-effective offering overall, expected cost reductions

Manufactured new homes

- Not passing: gas-heated homes
- Cost-effectiveness exception requested based on regional consistency, cost-effective offering overall

Sprinkler Irrigation

Prescriptive sprinkler measures

- 7 of 14 sprinkler measures not passing
- Cost-effectiveness exception requested based on non-energy benefits, regional consistency, cost-effective offering overall

Lighting

Lighting measures are updated and analyzed annually due to shifting market baselines and costs

- Savings from residential lighting sold at retail expected to decline in 2018

Lighting in all sectors will be discussed at future Conservation Advisory Council meetings in 2017 and 2018

Next Steps

- Status updates to be shared at October Conservation Advisory Council meeting
- We will know more through our standard 2018 budget development process

Questions?

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EnergyTrust of Oregon

2017 Penetration and Participation Analysis

Conservation Advisory Council

September 13, 2017

Energy Trust of Oregon

Introduction

- Staff analyzed penetration rates and participation rates to inform development of the draft 2018 budget and to identify future savings opportunities
  - Participation Rate

$$\frac{\text{Sites served through Energy Trust programs}}{\text{Sites identified in Utility Customer Information}}$$

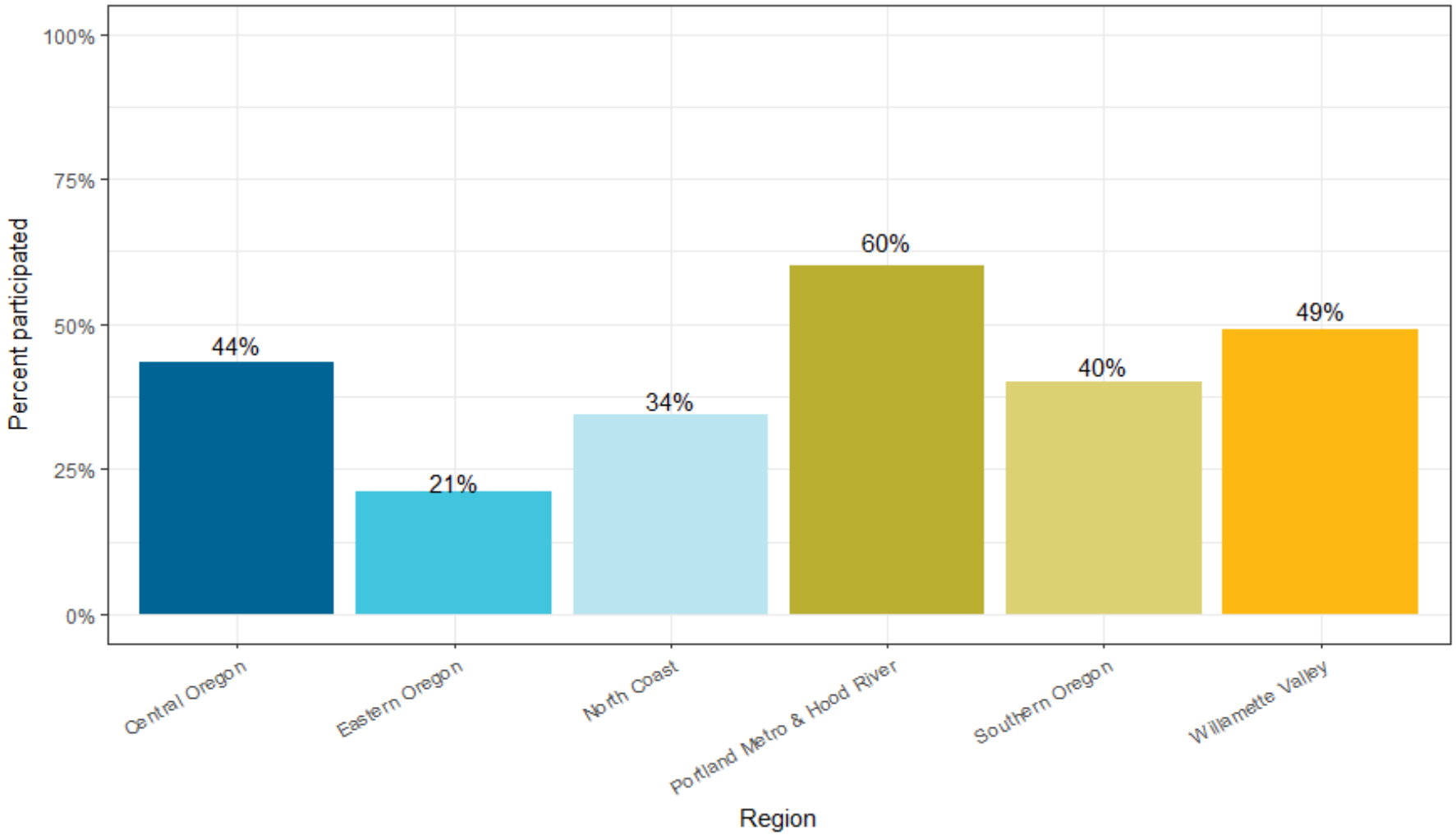
  - Penetration Rate

$$\frac{\text{1st year annual working savings}}{\text{1st year annual working savings + 2016 annual energy consumption}}$$

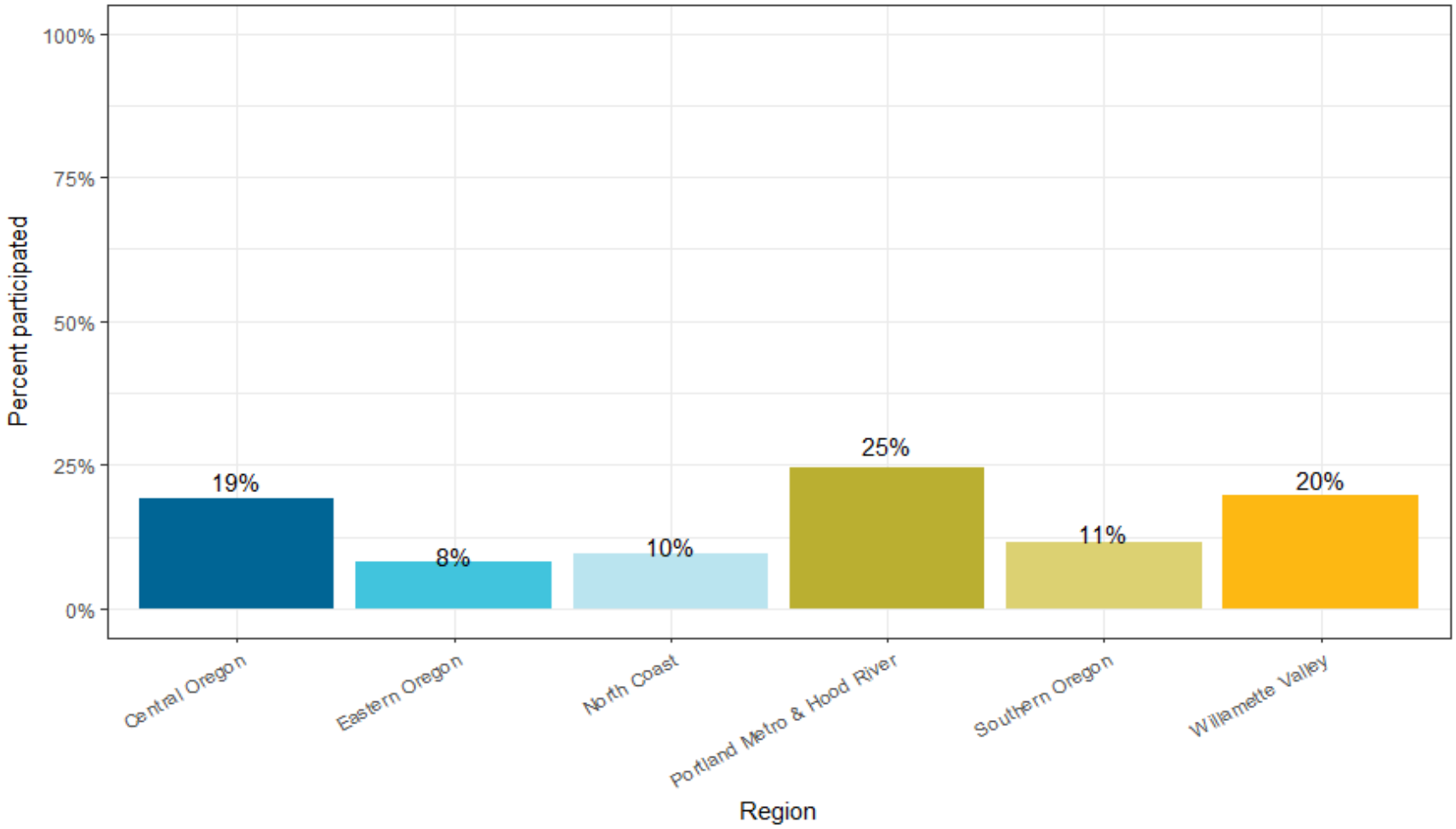
- The analyses considered data and project activity from 2002 to current day

Participation Rates

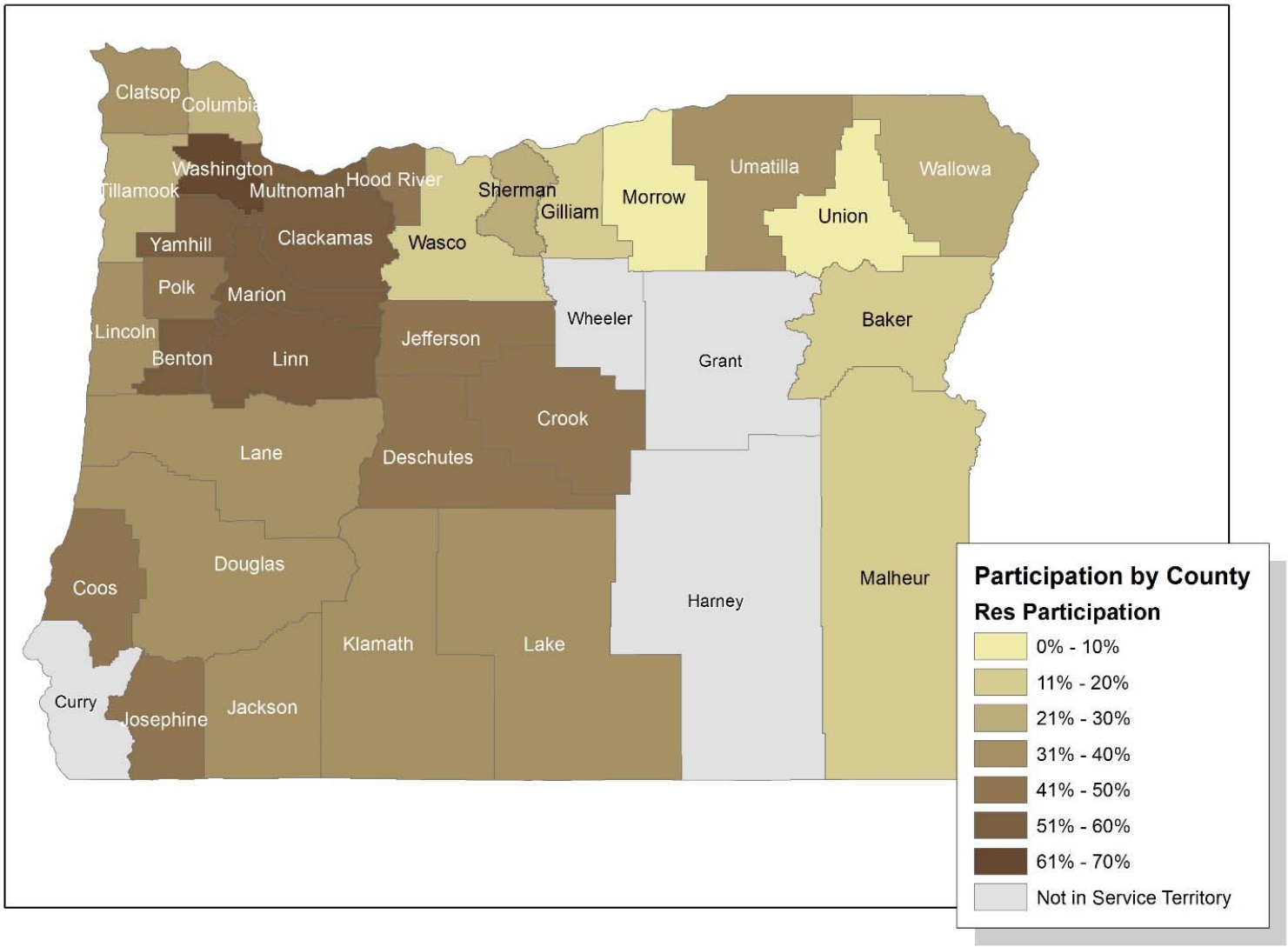
Residential Participation by Region



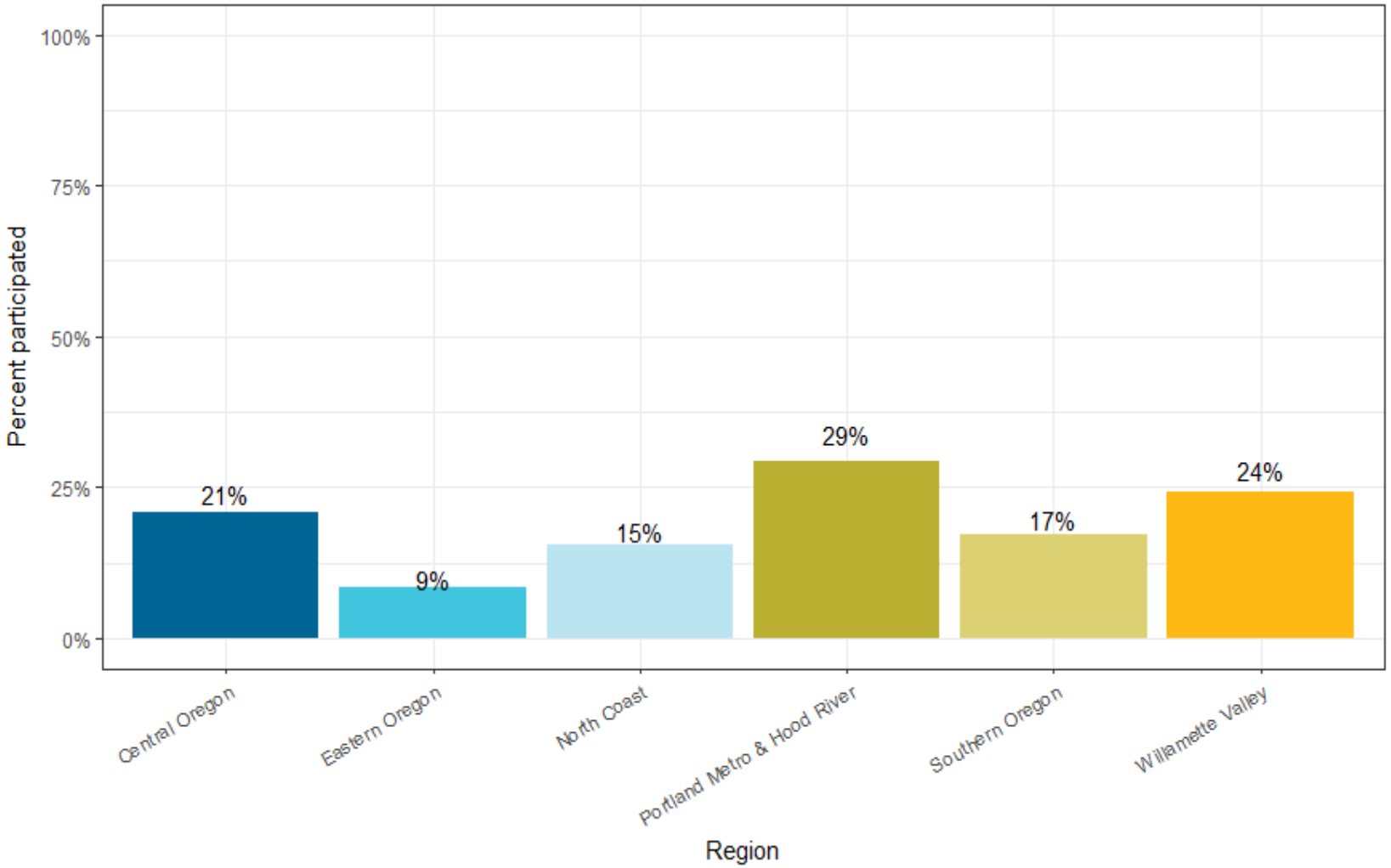
Residential Participation by Region, Excluding Kits and Products



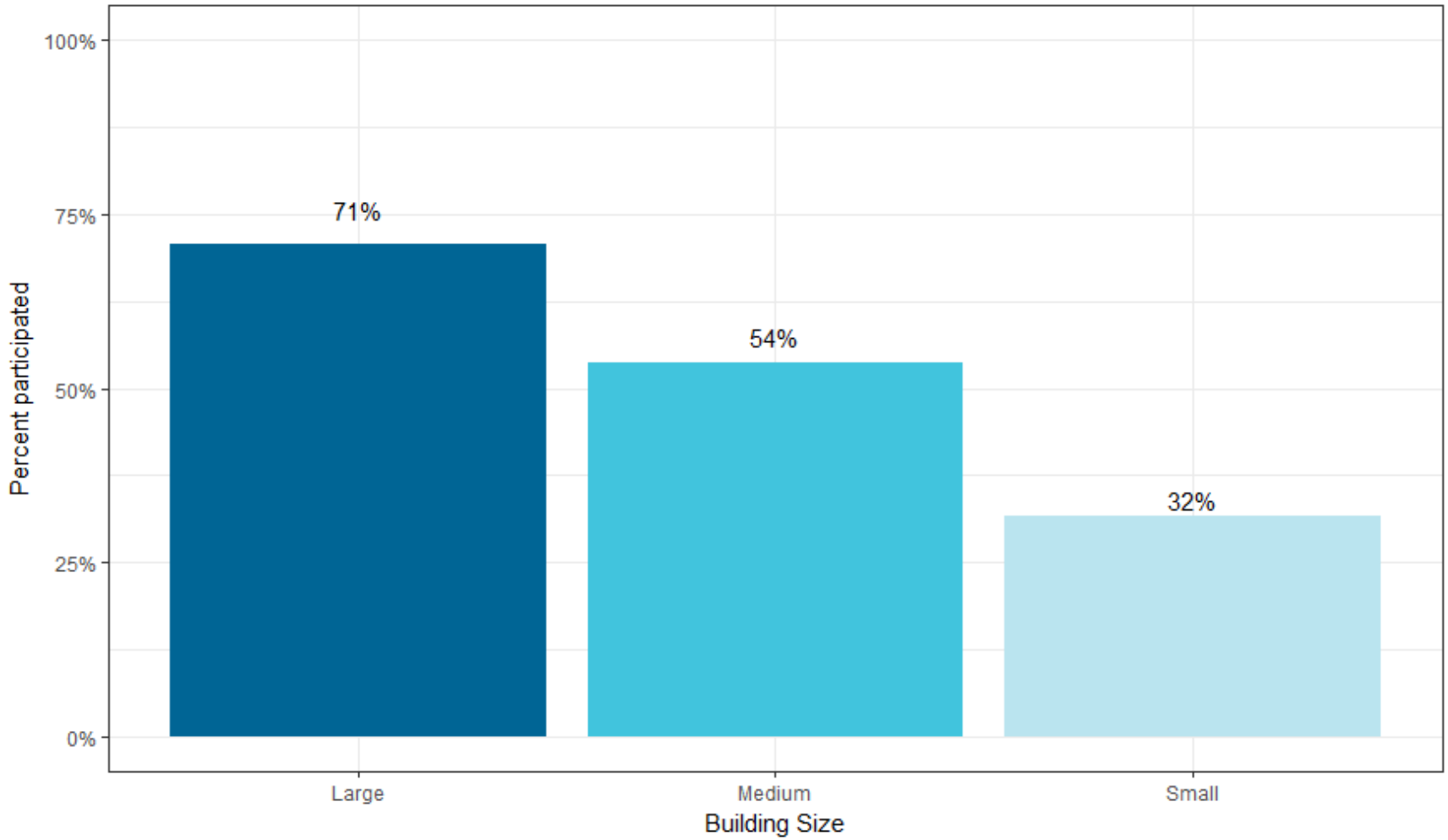
Residential Participation Rates by County



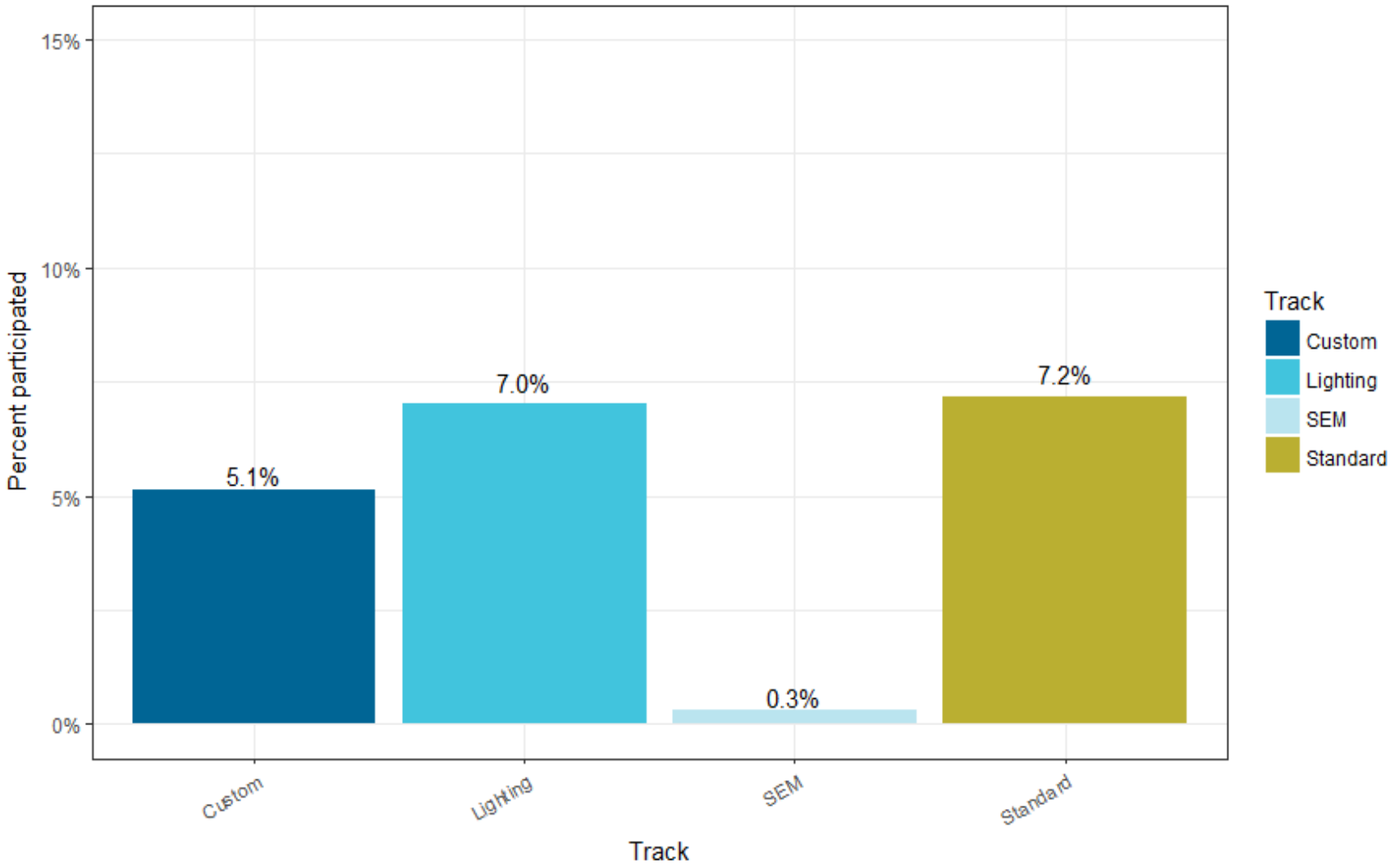
Business Participation by Region



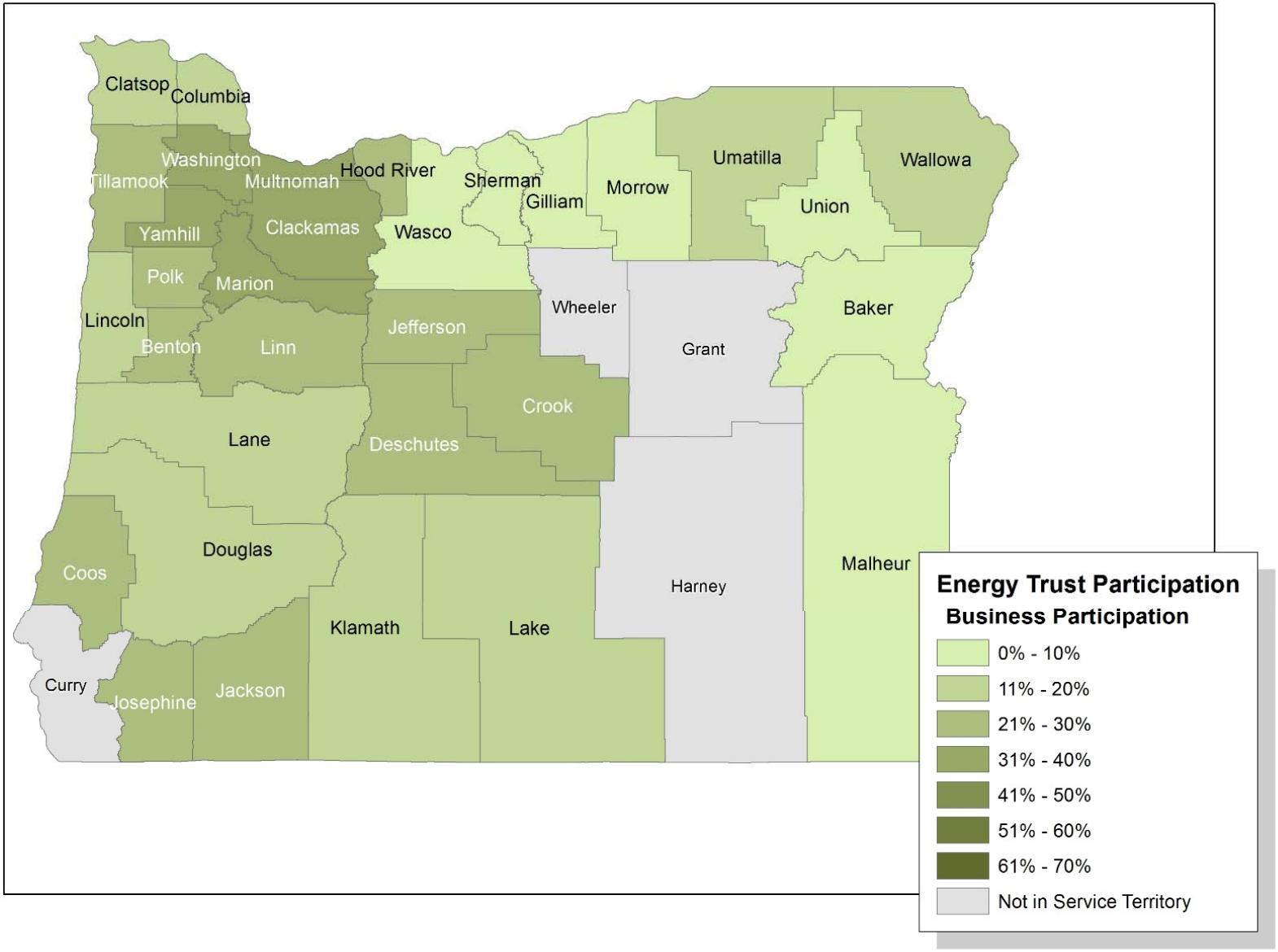
Business Participation by Building Size



Business Participation by Track

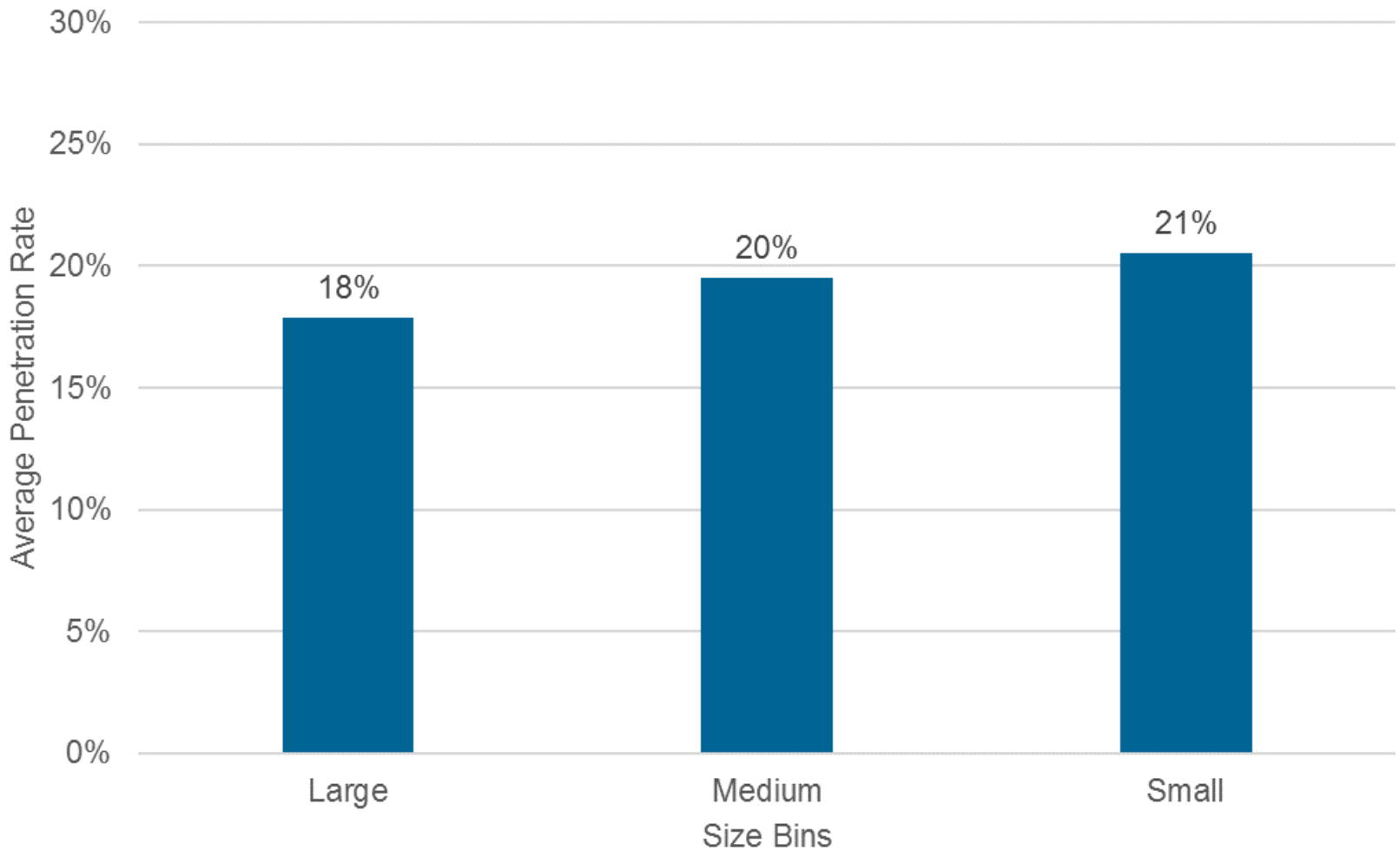


Business Participation Rates by County

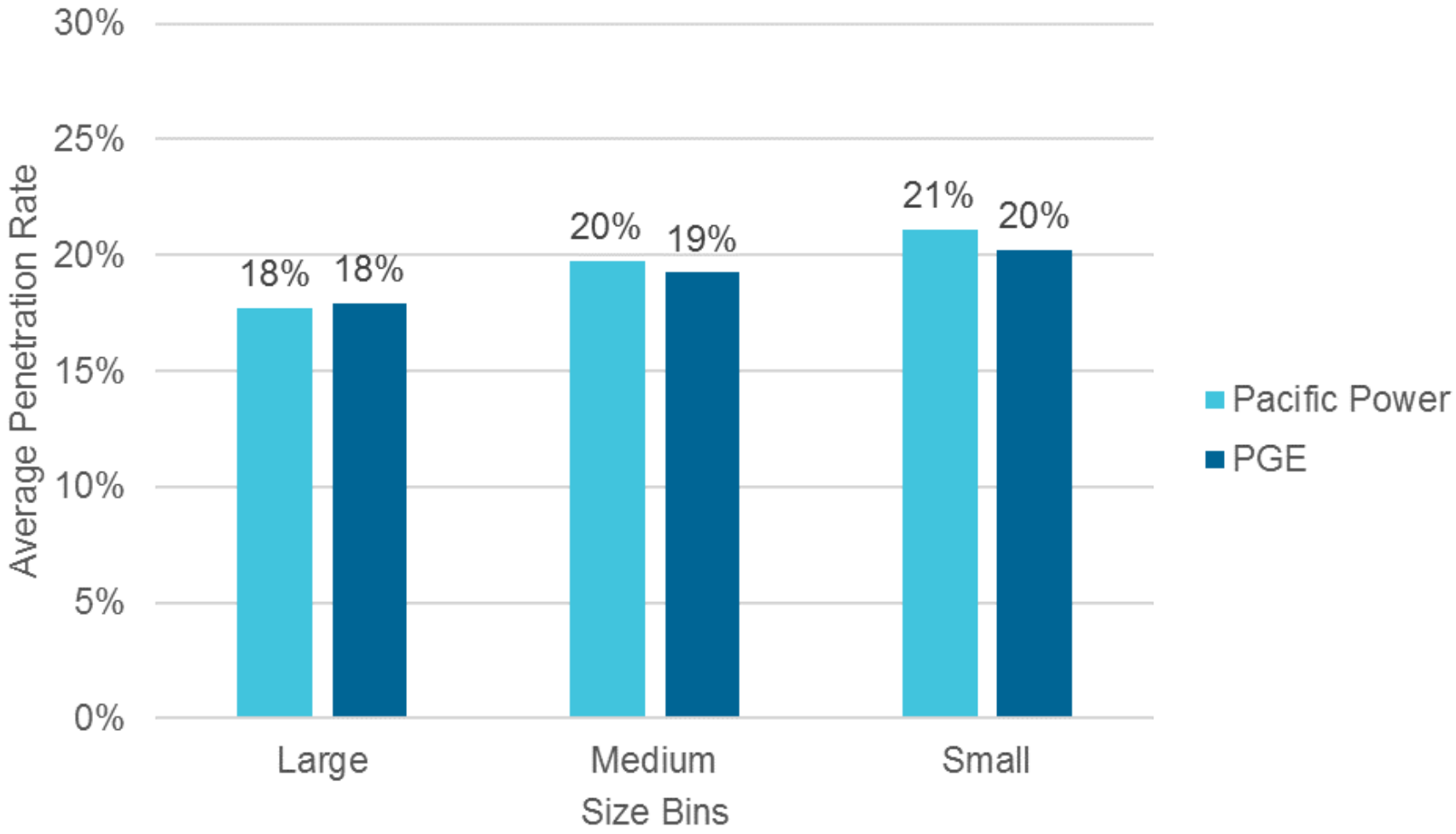


Penetration Rates

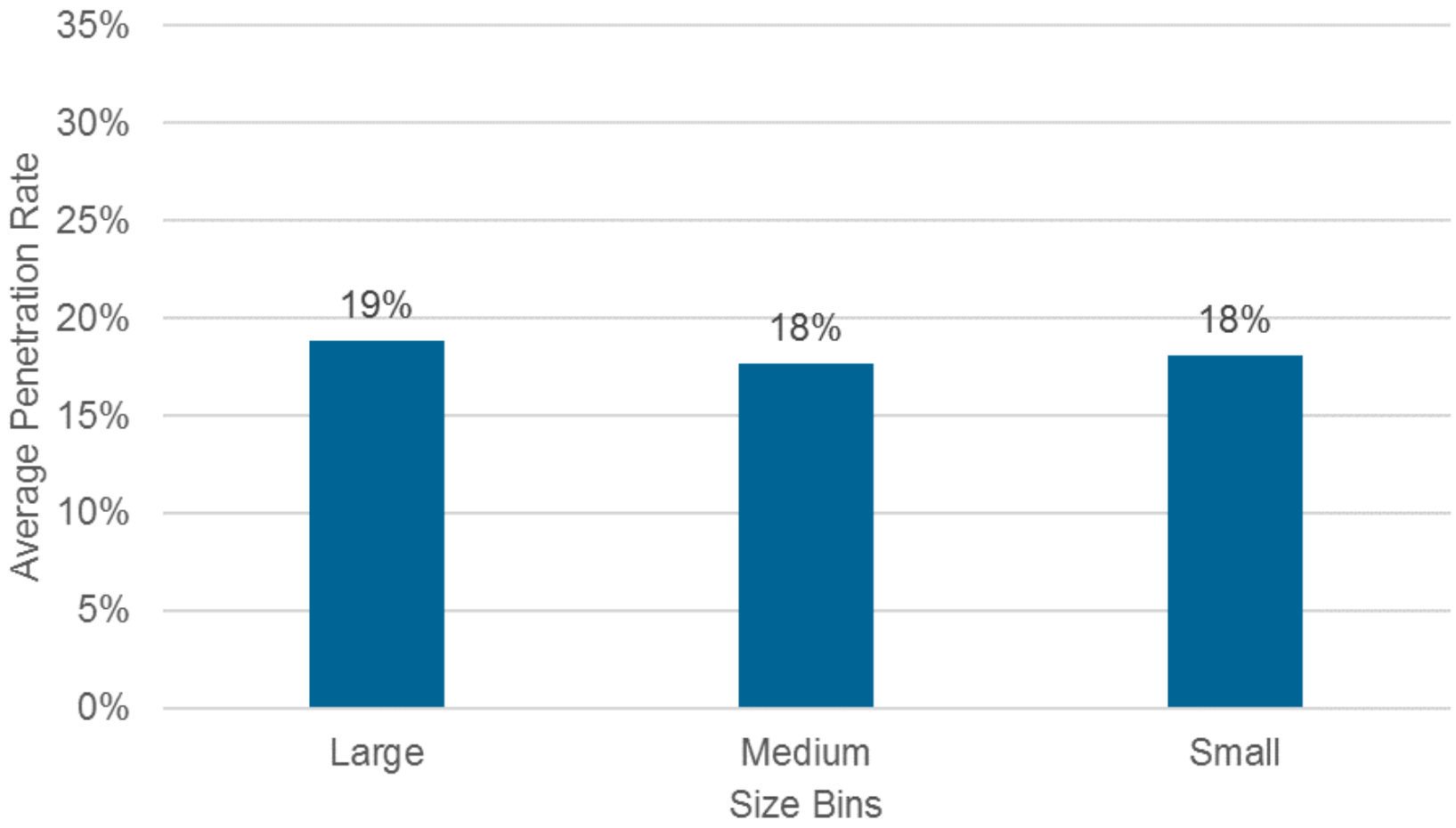
Commercial Electric Penetration by Building Size



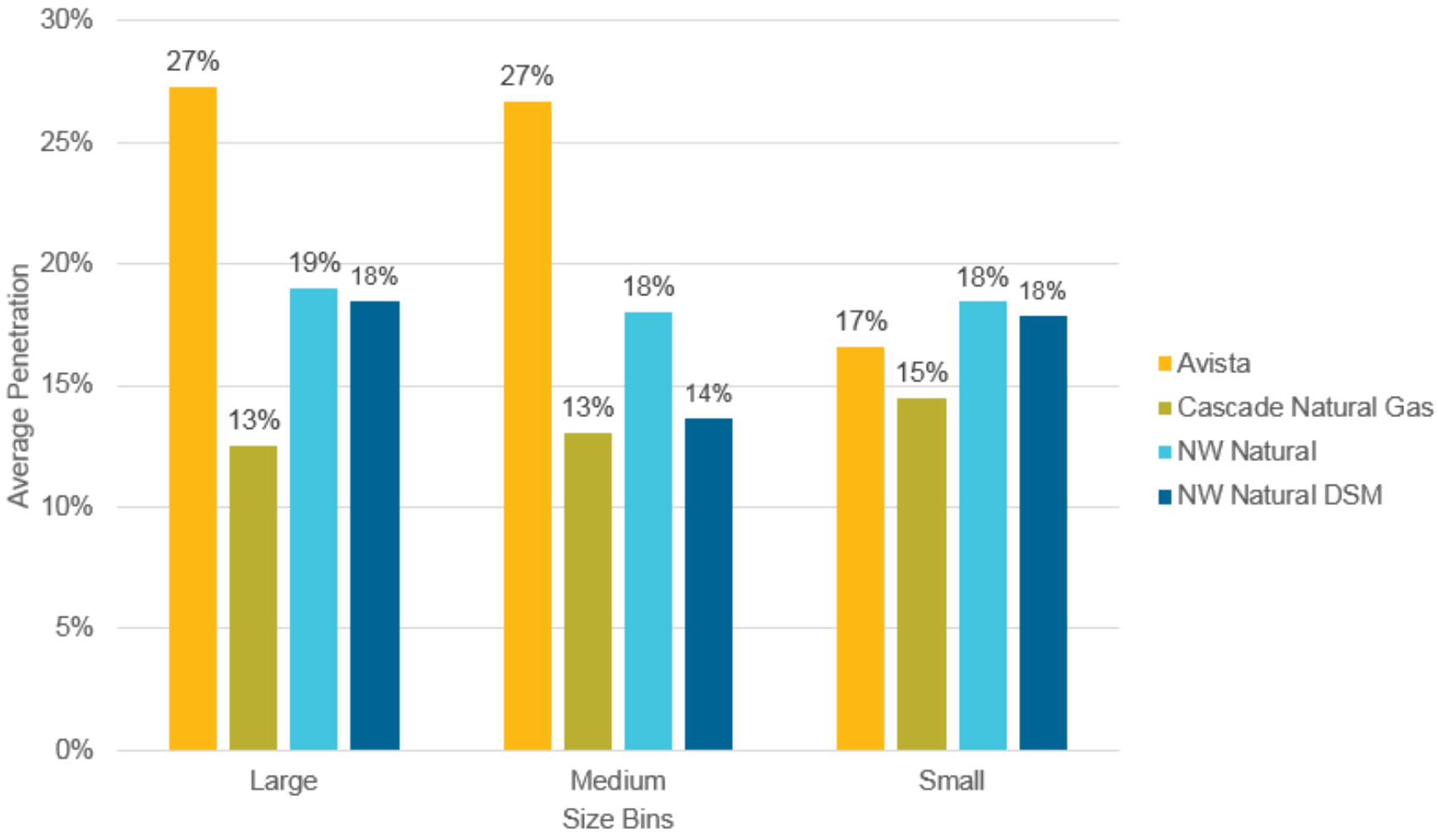
Commercial Electric Penetration by Utility



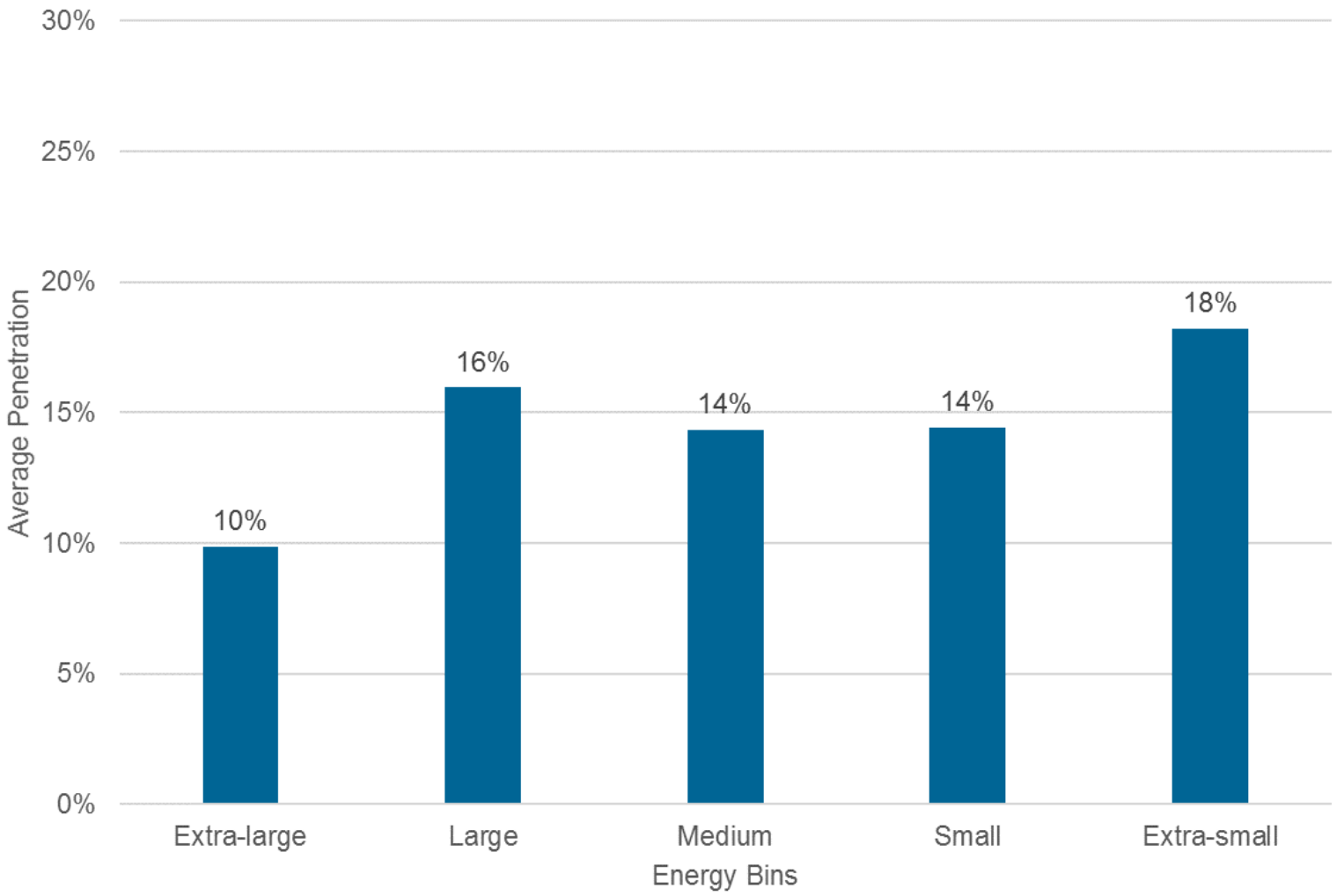
Commercial Gas Penetration by Building Size



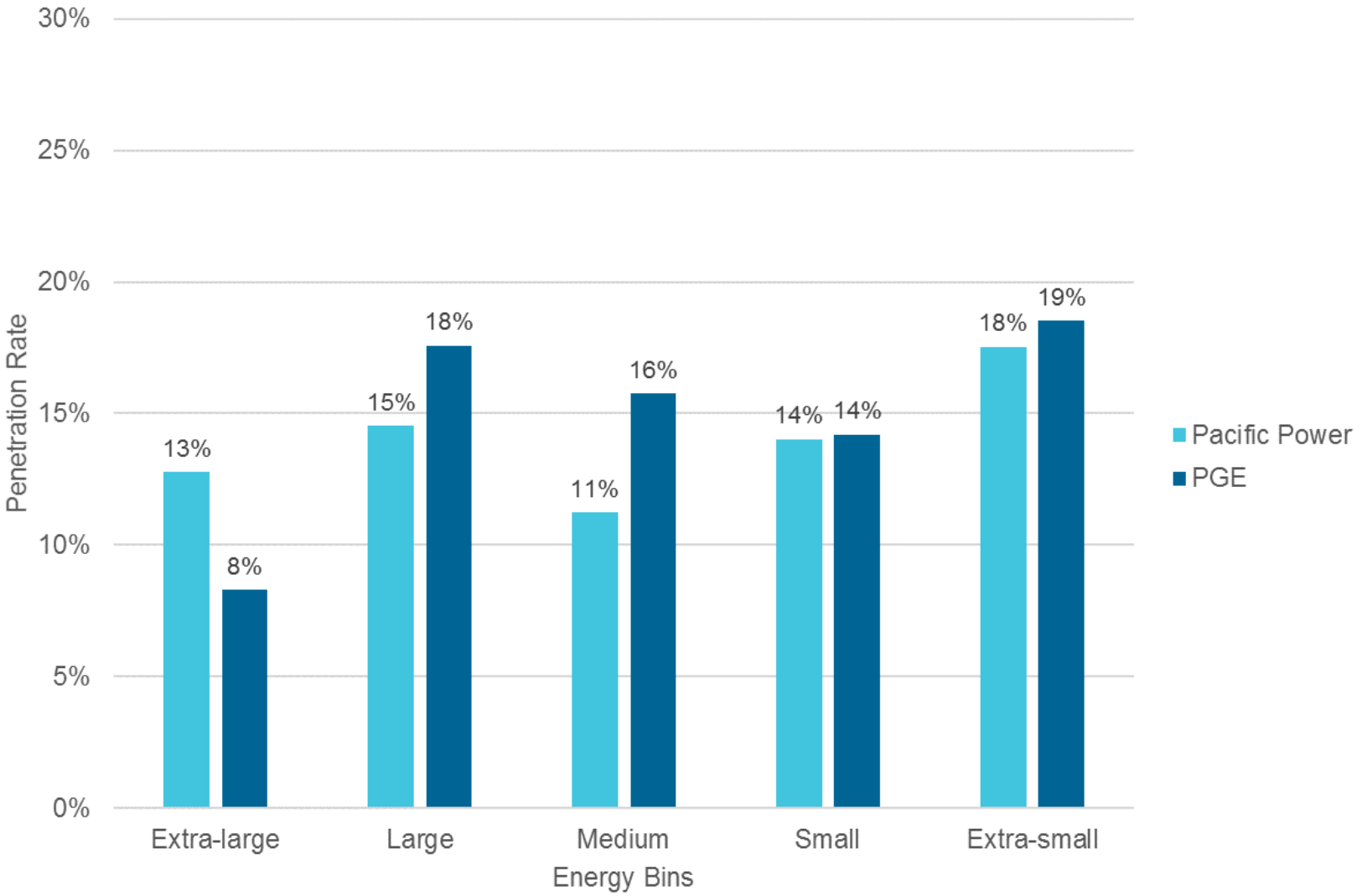
Commercial Gas Penetration by Utility



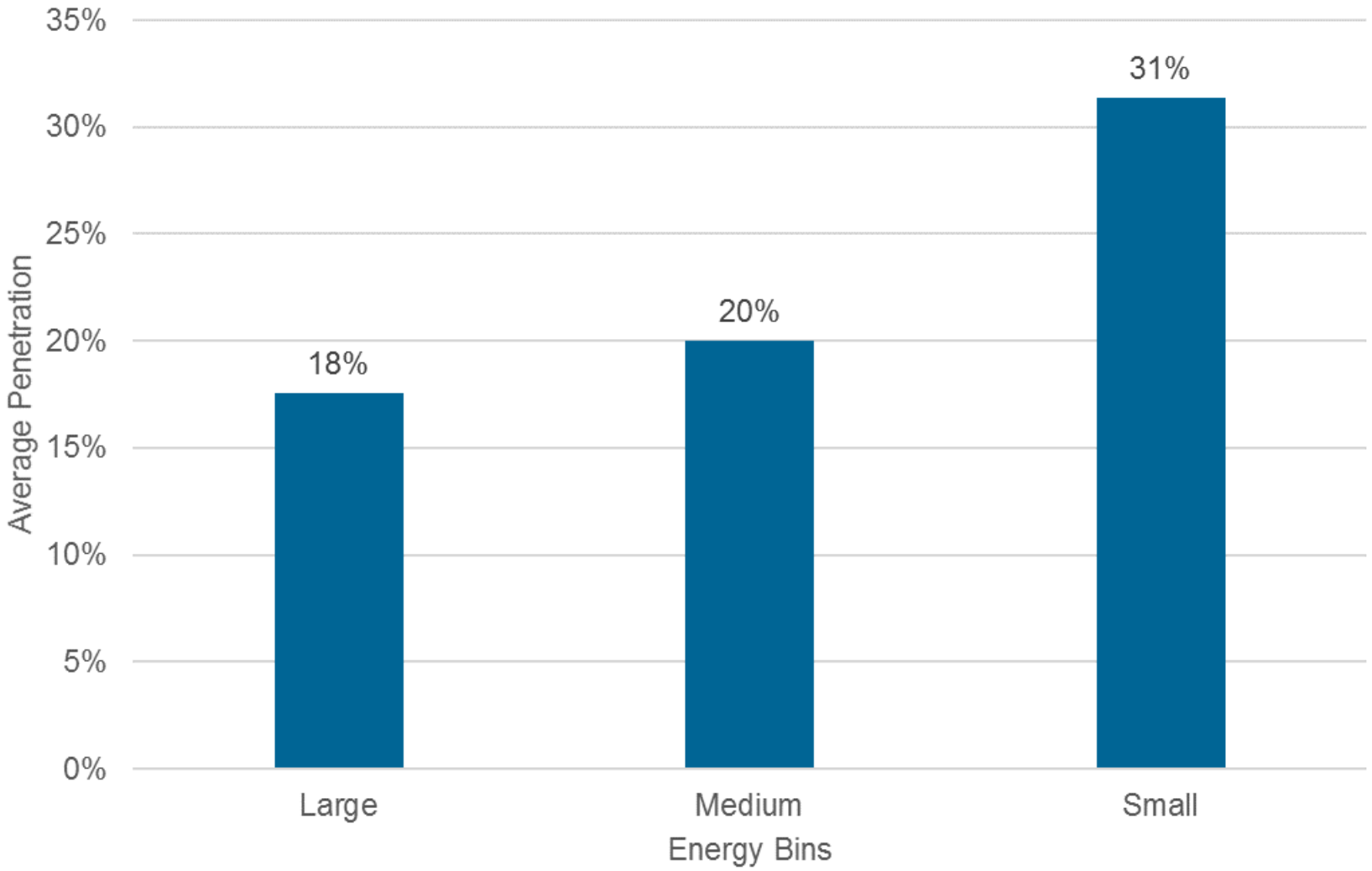
Industrial Electric Penetration by Energy Bin



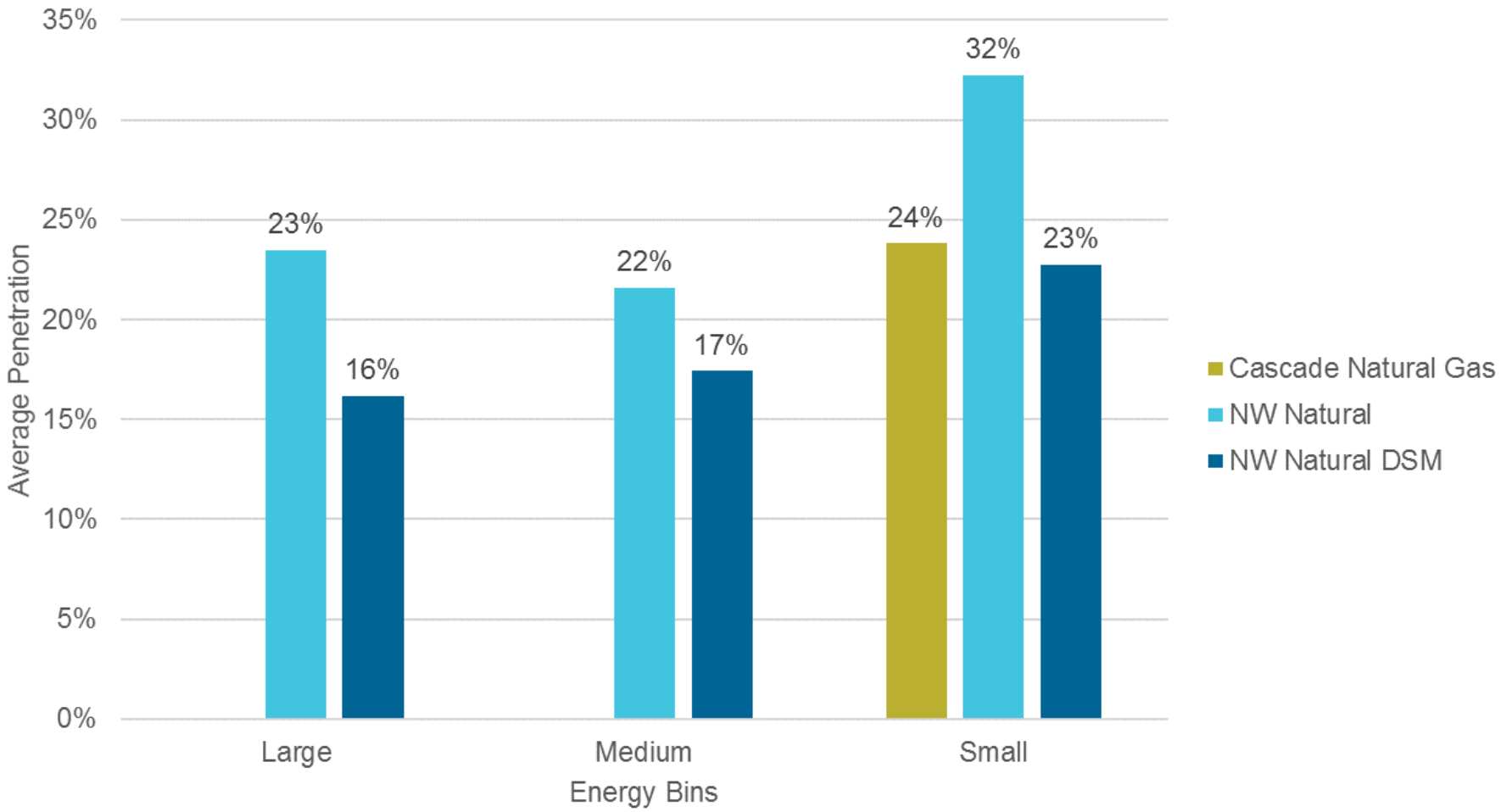
Industrial Electric Penetration by Utility and Energy Bin



Industrial Gas Penetration by Energy Bin



Industrial Gas Penetration by Utility and Energy Bin



Questions?

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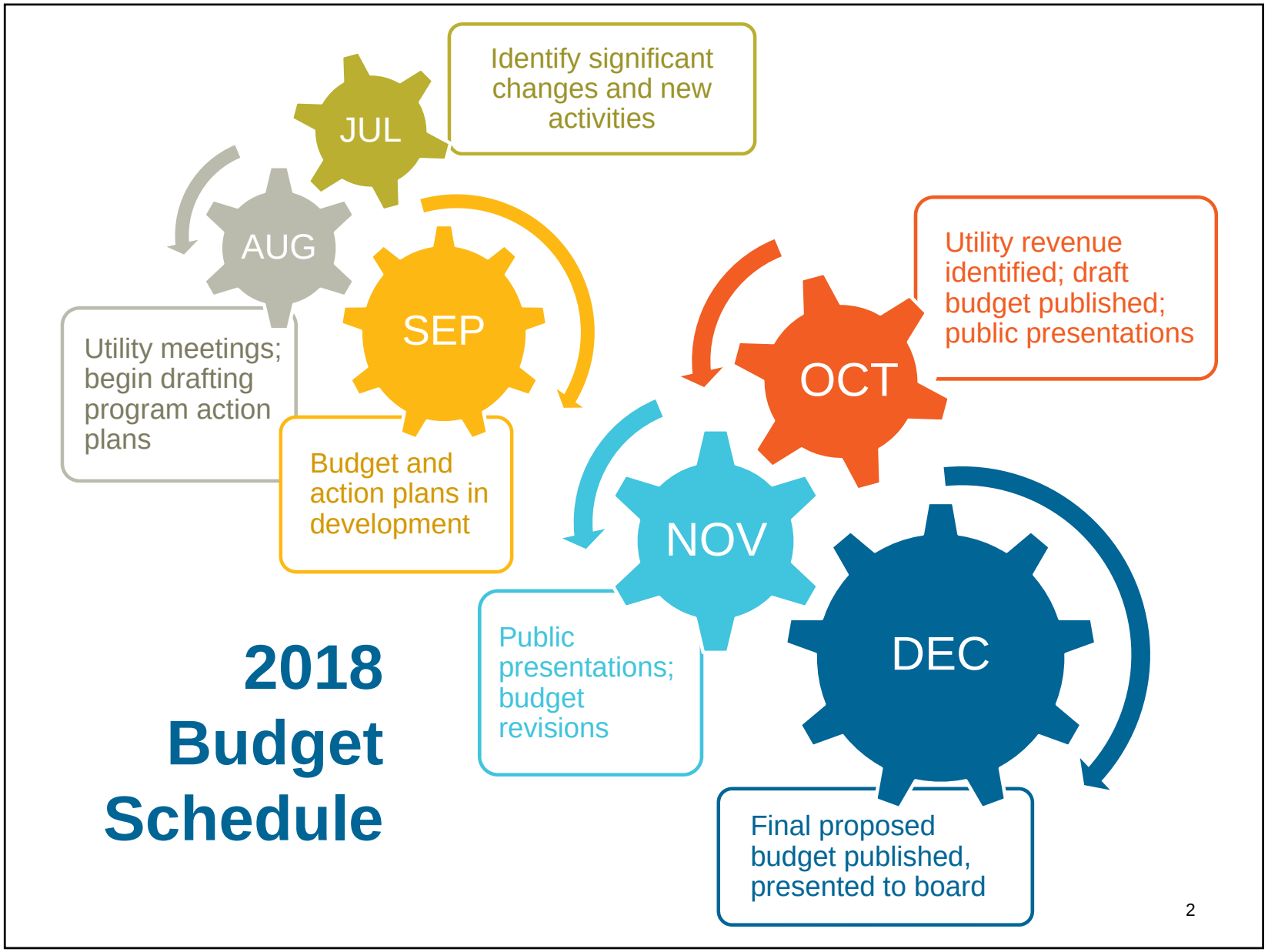
EnergyTrust of Oregon

Early Draft 2018 Action Plans

Conservation Advisory Council
September 13, 2017

Energy Trust of Oregon

2018 Budget Schedule



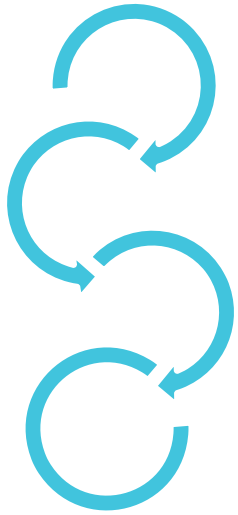
2

Early Budget Themes

3

Context for Program Action Plans

- 4th year of 5-year strategic plan
- Stable economy driving high activity in some program areas
- Cost-effectiveness challenges for some measures
- Uncertainty and transition continue
- Market changes



4

Residential Sector

Residential Sector and Action Plan Overview

- Transition program management to new delivery structure
- Manage reduction in savings from lighting and water conservation devices
- Continue emphasis on reaching a diverse set of customers
- Support targeted demand-side management efforts with utilities
- Identify opportunities for operational efficiencies

Expanding Participation

- Coordinate with agencies serving low-income populations
- Promote participation of minority- and women-owned businesses
- Support and expand energy-efficiency advancements in moderate-income and rental homes
- Diversify distribution of incentives across the supply chain

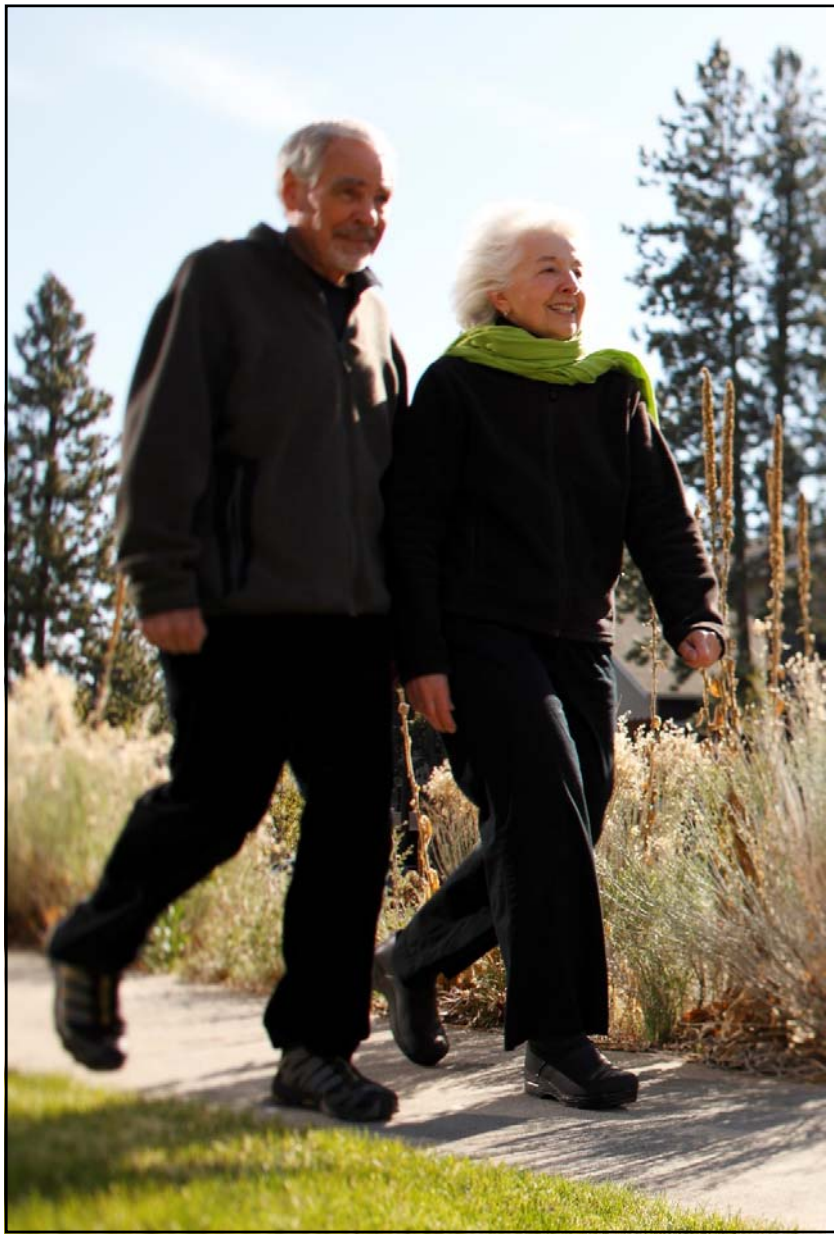
7

New Approaches and Emerging Technology

- Develop methodology to produce a five-year measure savings assessment and customer acquisition plan
- Deploy an automated meter data analytics platform
- Drive automated thermostat services with a goal of developing additional savings opportunities from smart thermostats

Managing Transitions

- Complete transition to new delivery structure
- Manage transition to new sector team structure



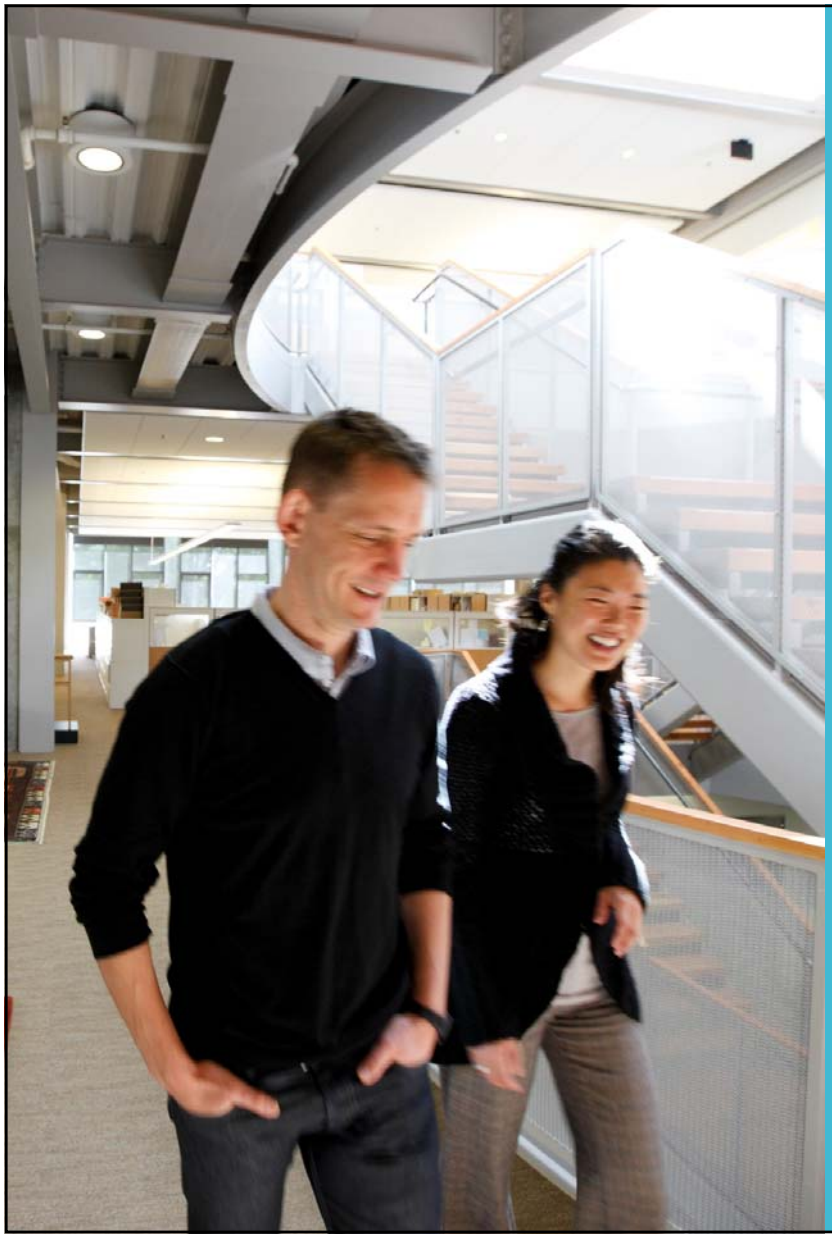
Efficient Operations

- Continue collaboration with utilities and Craft3 on process improvements for financing with repayment through utility bills
- Explore more efficient quality assurance protocols and incentive processing

10

Trends and Context

- A strong market for home improvement will continue to support investment in efficient products
- A strong new construction market will support sustained market share for EPS new construction as the state implements an updated residential energy code
- Increased LED market share and reduced incremental cost will significantly reduce lighting savings
- The sector will be under cost-effectiveness constraints



Commercial Sector

Commercial Sector and Action Plan Overview

- Sustained high project volume
- Challenges due to avoided cost updates
- Continued emphasis on reaching a diverse set of customers
- Adjusting to PGE large customer incentive expenditure reductions
- Support targeted demand-side management efforts
- Refine incentives
- Balance program delivery costs with customer service and support needs

13

Trends and Context

Existing Buildings

- Consistent year-over-year growth
- Updated avoided costs create measure cost-effectiveness challenges
- Cost-effectiveness of the overall program is a potential concern given lower avoided costs and relatively higher delivery cost due to a growing number of smaller sites enrolled

Trends and Context

Multifamily

- Key measures facing cost-effectiveness challenges
- RETC sunset affects several key measures, specifically windows and ductless heat pumps; volume will decrease for these measures while the market adjusts

New Buildings

- Construction market continues to be strong
- New Multifamily enrollments will be strong, shifting geographically
- Traditionally large projects (data centers and healthcare facilities) expected to be fewer in 2018

Expanding Participation

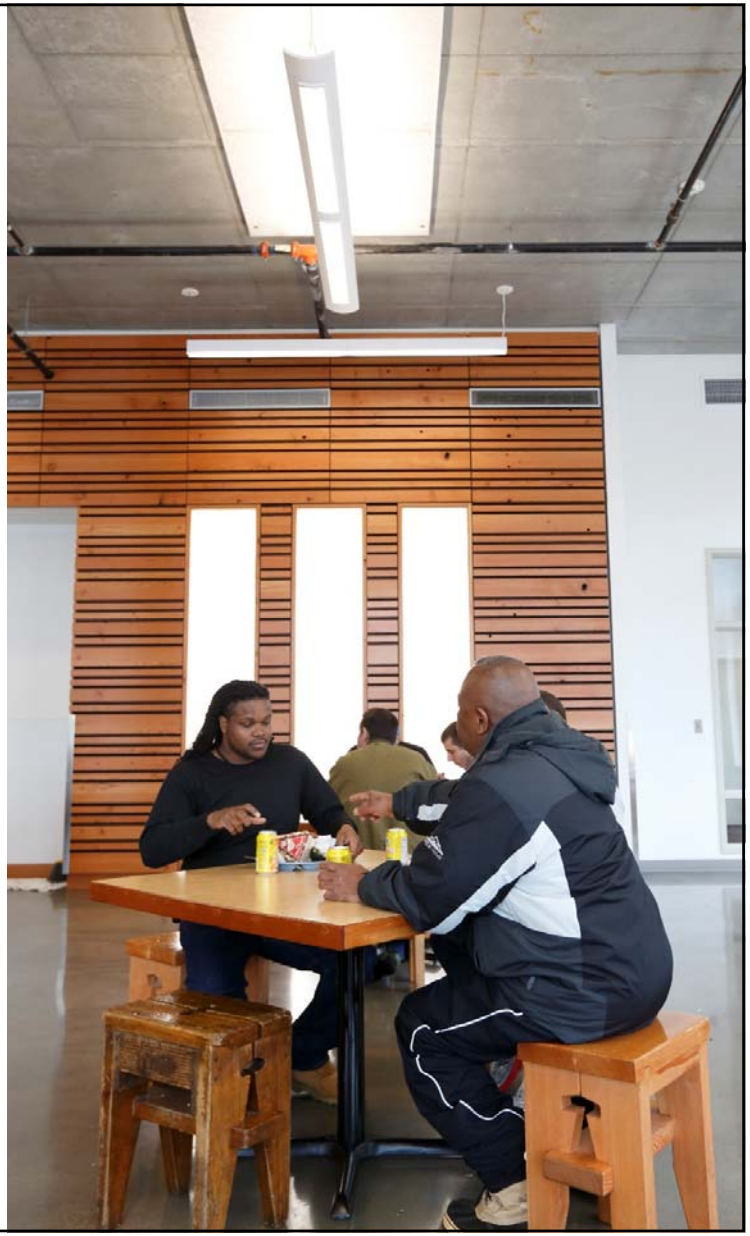
Continue regional outreach and delivery model with emphasis on inclusion of all customer types and geographic diversity

- Expand trade ally and contractor participation with emphasis on active recruitment and support for diverse firms
- Leverage Property Fit (CPACE) as a financing option to enable deeper savings for interested customers in Multnomah County

16

New Approaches and Emerging Technology

- Collaborate with NEEA to identify new measures, strategies and delivery channels
- Work with Planning and Evaluation on measure development and to roll out new measures as they are approved



Managing Transitions

- Will release a request for proposals for a New Buildings Program Management Contractor in 2018 for a minimum 2019-2020 contract term
- Expansion of Strategic Energy Management and Pay for Performance (after transition to PMC)
- With the increasing challenges to the multifamily direct-install track, program will need to evolve in 2019 to maintain viability
- Release RFP for revised commercial and industrial lighting tool

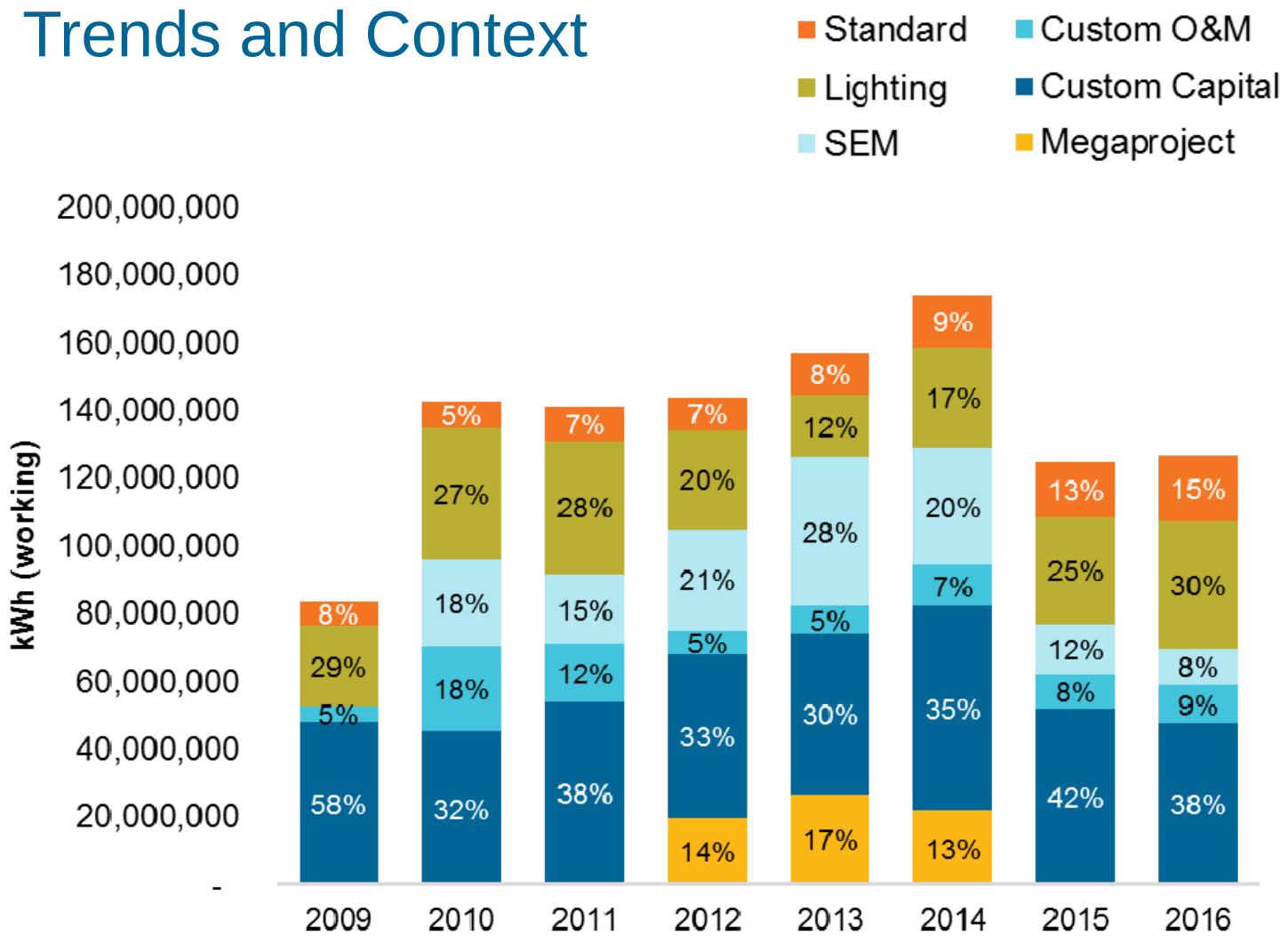
Efficient Operations

Refine outreach strategies to expand participation

- Streamline program design to improve customer experience
- Leverage improved internal data systems to engage new participants and explore new offers
- Conduct ongoing analysis of market and program participation data to identify areas of opportunity and refine messaging

Industrial & Agricultural Sector

Trends and Context

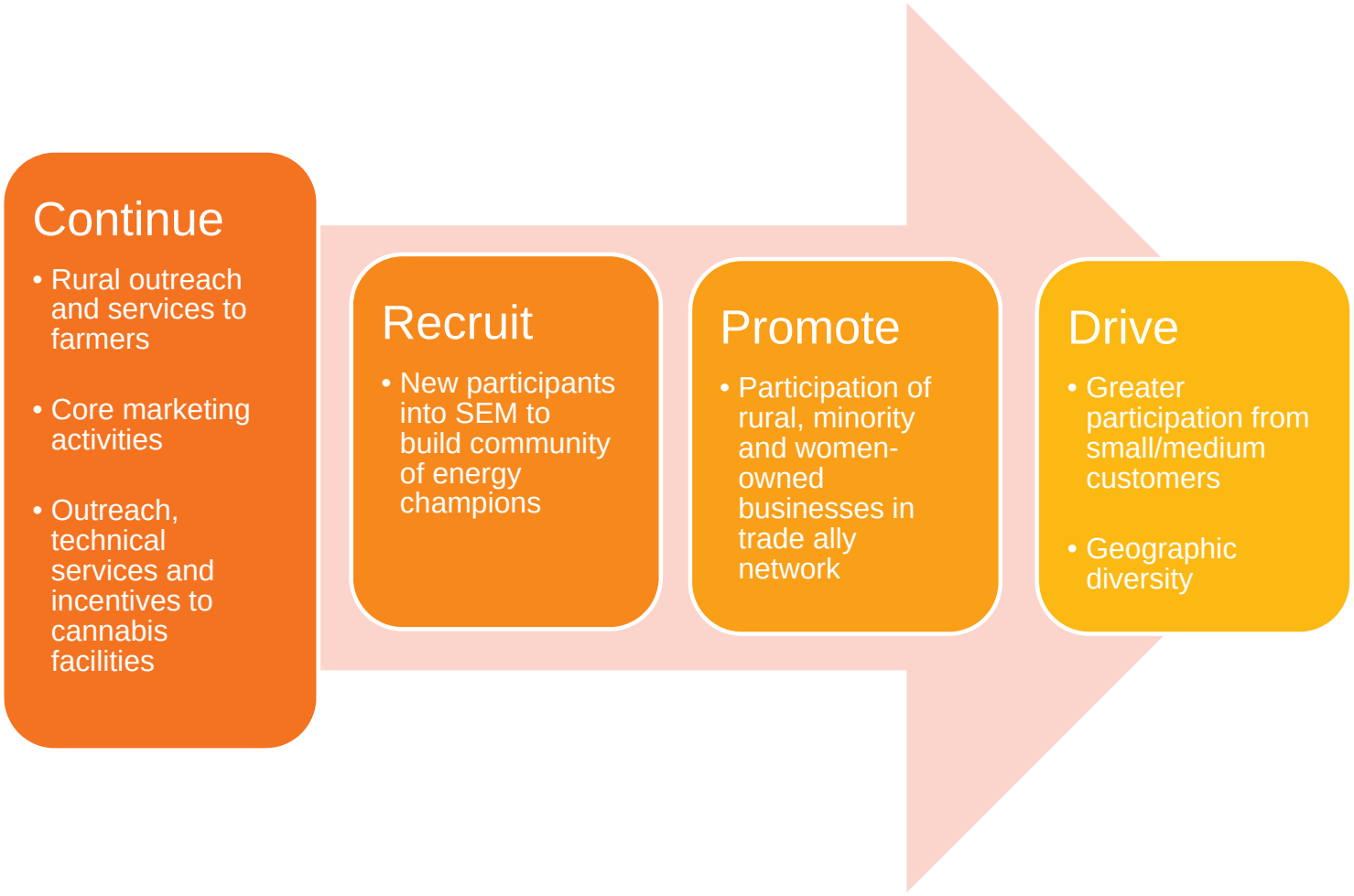


21

Industrial and Agricultural Sector and Action Plan Overview

- Continue to improve standard, custom and SEM offerings
- Increase outreach to agriculture and small/medium customers
- Increase the volume of gas projects
- Deploy new technologies
- Improve internal processes and systems
- Promote participation of rural, minority and women-owned trade allies
- Adapt design, implementation and operations to accommodate increasing volume of small projects

Expanding Participation



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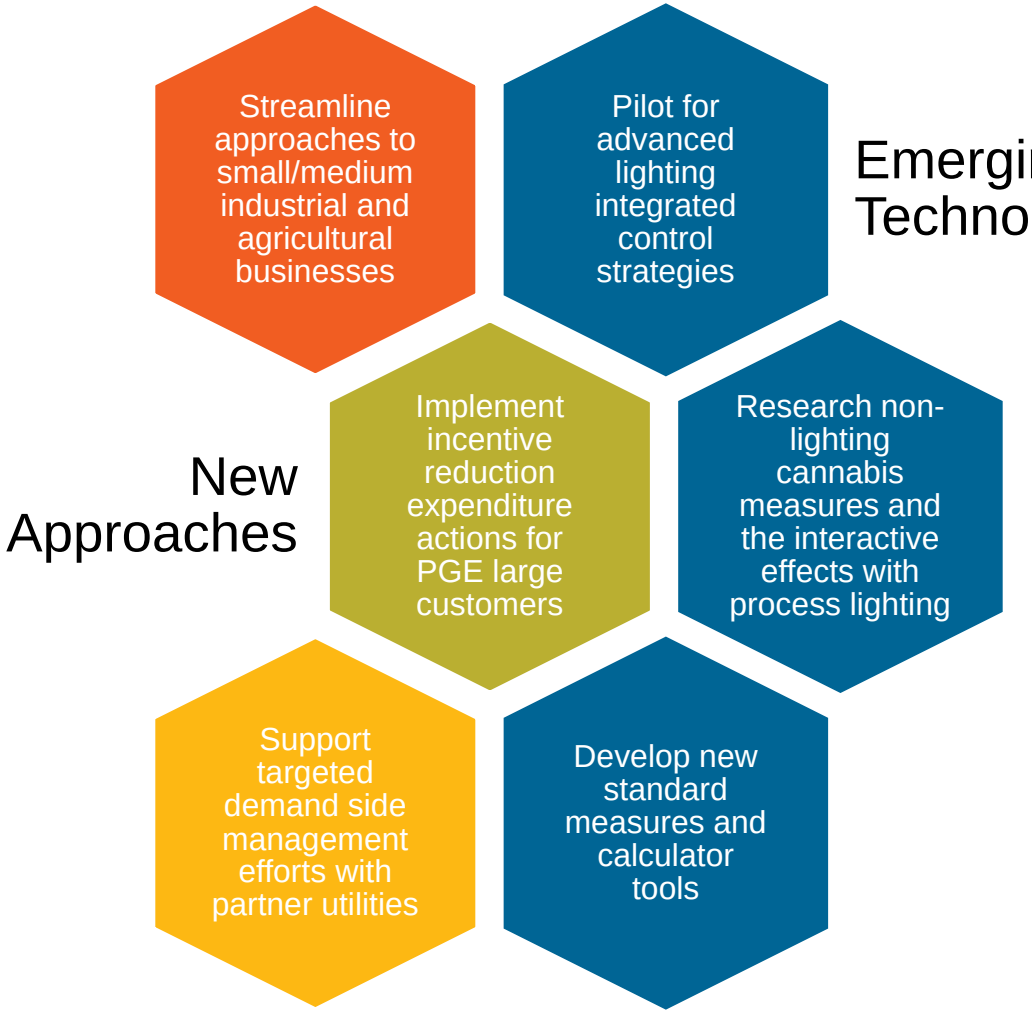
New Approaches and Emerging Technology



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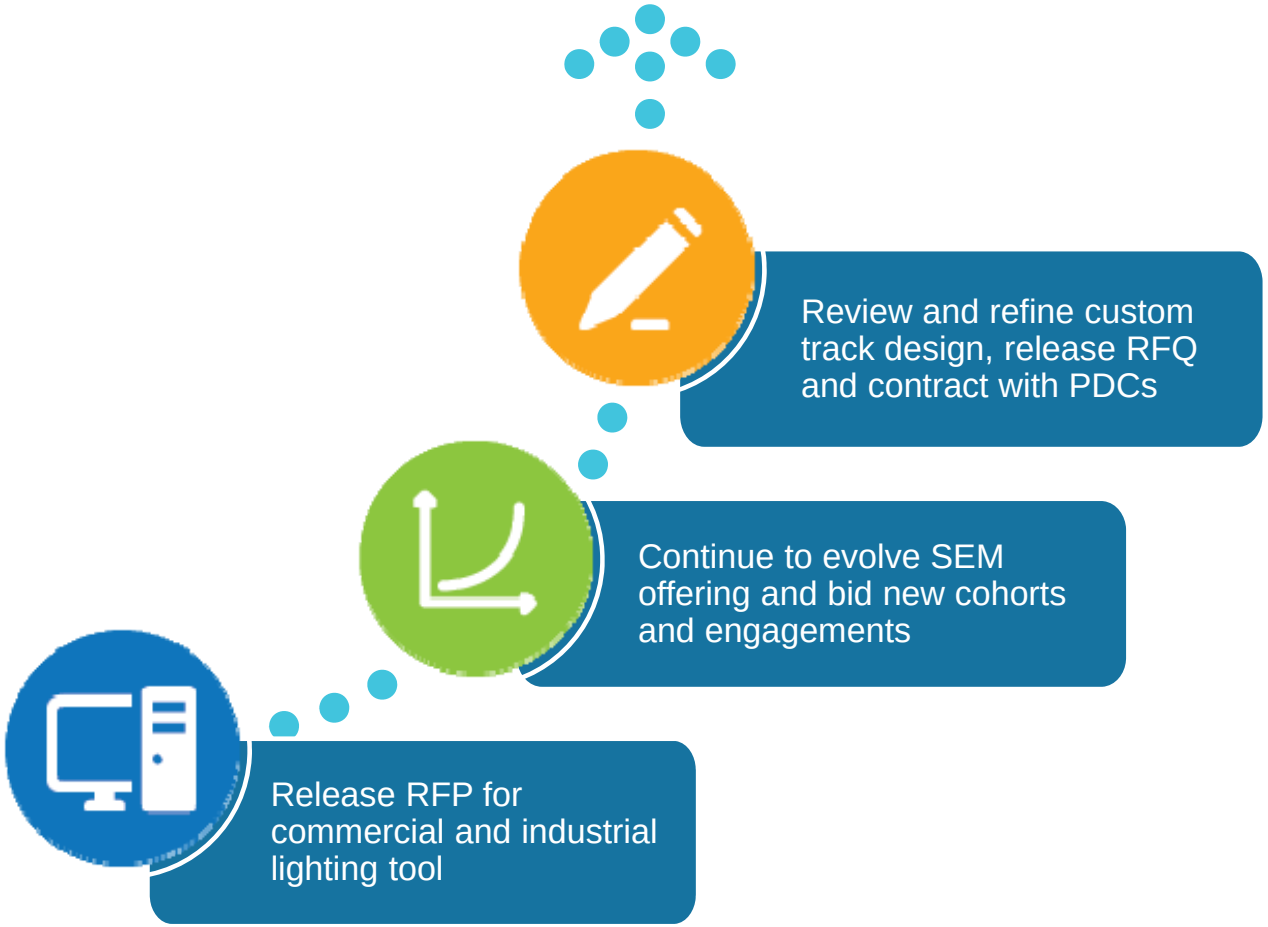
Managing Transitions



Efficient Operations

Improve

use of our customer relationship management system to capture customer engagement, site and pipeline information

Streamline

processes for small and medium sized projects

Transition

project processing and data entry to our PDCs

Questions?

1.866.368.7878
www.energytrust.org

EnergyTrust of Oregon

Commercial sector—Existing Buildings

Existing Buildings Program Description

Energy Trust's Existing Buildings program provides electric and gas energy-efficiency solutions for existing commercial buildings. The program has three components: program management and delivery through Program Management Contractor ICF International, commercial Strategic Energy Management and Pay for Performance offerings through ICF International, and management and delivery of the Existing Multifamily program through PMC Lockheed Martin. The Multifamily Action Plan is a separate document. The Existing Buildings program consists of four tracks.

1. The **custom track** acquires electric and gas savings through energy-efficient capital projects and operations and maintenance upgrades. PMC account managers, trade allies, and engineering firms identify and promote customer opportunities.
2. The **standard track** provides incentives for standard measures with predetermined savings for buildings of all sizes and across all commercial market sectors. The program promotes measures through customer outreach and cultivation of trade ally contractors.
3. The **lighting track** uses a combination of customer outreach and outreach through a network of trade allies. In addition to the traditional lighting track, the program offers incentives provided midstream to distributors and retailers with savings passed onto small commercial customers and state agencies.
4. The **energy performance management track** uses training, tools, technical assistance and incentives to help customers save energy by improving energy management practices.
    - **Commercial Strategic Energy Management** has a year-long enrollment cycle using a cohort approach and offers technical assistance to deepen commitment to energy management. The offering helps customers drive persistent energy-efficiency improvements in large buildings or campuses. Customers are paid incentives for incremental savings achieved at the end of each enrollment year, as well as for milestones achieved throughout the year.
    - **Pay for Performance** Customers enter into agreements with contractors to implement a suite of measures at a single site. Includes annual financial incentives for demonstrated energy savings each year for three years. Pay for Performance projects can include operations and maintenance, behavioral and capital measures.
    - **Retrocommissioning** features incentives for specific operations and maintenance measures such as controls or HVAC adjustments, paid at project installation completion
    - **Building Operator Certification and Energy Management Certification** offers incentives for coursework completion offered by the Northwest Water and Energy Institute (NWEEI).

Existing Buildings 2018 Strategic Focus

- Promote and add gas measures and/or measures with both gas and electric savings to increase gas opportunities and achieve goals.
- Adapt lighting program offerings to respond to changes in the market, standards and codes.

- Increase regional outreach and continue an emphasis on reaching a diverse set of customers, including size, type and location.
- Dedicate outreach and contractor recruitment resources to promote participation of rural, minority- and women-owned businesses in Energy Trust's ally network.
- Expand midstream offerings to streamline program delivery, improve cost-effectiveness of measures and target customers who purchase and install their own lighting rather than hiring a trade ally.
- Design and refine delivery strategies to expand participation, support a growing pipeline of long-term customers and influence a culture of energy management across businesses and institutions in Oregon.
- Find ways to reduce costs and drive better cost-effectiveness while maintaining a high level of customer service and support.

Existing Buildings 2018 Activities—Ongoing

Expand participation

- The program has consistently grown over the years and has exceeded 5,000 enrollments per year through a variety of delivery channels, targeted outreach and marketing efforts, and tailored program offerings to meet a wide range of customers. Staff expects enrollments to continue to grow and will focus efforts on achieving Energy Trust's savings and equity objectives.
- Expand outreach level of effort in northeast Oregon to better serve Cascade Natural Gas and Avista customers.
- Work with organizations that focus on diverse customer groups.
- Continue direct installation of efficient lighting to serve small business customers throughout the state and support equitable access to program opportunities.
- Support targeted demand-side management efforts with utilities.
- Deliver SEM Continuation cohorts in Southern Oregon, Central Oregon, Willamette Valley and Portland and launch two year-one cohorts.

Explore new savings opportunities

- Collaborate with NEEA to identify new measures, strategies and delivery channels.

Streamline program operations

- Reduce operational costs by improving processes and eliminating activities that are not effectively supporting the program for long-term savings.
- Work with the ICF account outreach teams to find opportunities for streamlining SEM customer communication and support.
- Build a portfolio of SEM learning modules for workshop delivery that meets the needs of customers with evolving energy management practices.

Increase focus on quality technical assistance and design support through training for trade allies and technical consultants.

Increase market penetration

- Continue to expand the contractor and trade ally network, including outreach to minority businesses and engagement with minority trade allies. Employment of regionally located trade ally coordinators will continue to build awareness among regional customers.

Existing Buildings 2018 Activities—New

Expand participation

- Re-engage underperforming trade allies and technical consultants with training and support to help them be more effective in closing projects.
- Launch the first combined commercial and industrial SEM cohort, which will take place in Northeast Oregon.
- Explore potential for a North Coast SEM cohort for commercial and industrial customers.

Grow program offerings

- Update program procedures to vet third-party energy studies and provide incentives for these projects.
- Investigate a midstream offering for HVAC for a 2019 launch.
- Enroll six buildings in the 2017 Pay for Performance pilot.

Explore new savings opportunities

- Identify pilot opportunities for new measures, for example working on a NEEA led joint collaboration pilot with Bonneville Power Administration for pumps and circulators.
- Explore ideas and conduct field tests of prescriptive behavioral and technical strategies that will drive cost-effective energy savings in 2019.

Streamline program operations

- Refine and Implement improvements to multisite applications.
- Explore opportunities for additional calculators and tools to reduce processing time for custom energy audits and studies.

Deepen relationships with customers

- Utilize SEM engagement as a Key Account Management strategy to support development of long range capital project planning.
- Create a standardized tracking system for long term planning for larger customers.
- Continue emphasis on diversity based on customer size and location. Focus on inclusion of all customer types and business ownership.

Refine delivery strategies

- Engage stakeholders to support community energy efforts involving commercial buildings, including Multnomah County's PropertyFit Commercial Property Assessed Clean Energy and City of Portland Energy Performance Reporting.
- Leverage improved internal data systems for market analysis to engage new participants and explore new offers.
- Release request for proposals for revised commercial and industrial lighting tool.

- Promote integration of lighting controls and other best practices in comprehensive lighting projects through promotion of advanced lighting strategies.
    - Refine SEM incentives to better support activity milestones.

Existing Buildings 2018 Key Assumptions, Risks and/or Challenges

- Large 838-exempt customers will have to be closely monitored and limited to stay within spending cap limitations.
- Market trends and analysis indicate that the lighting replacement market will continue to be very strong in 2018, which will continue to place demand on incentive budgets.
- Revisions to incentive levels made in 2017 and proposed for 2018 should help bring down run rates that will allow the program to meet goals within budget.
- Historically low savings realization adjustment factors of 71 percent for electric and 58 percent for gas that resulted from the last evaluation will result in significantly lower cost-to-savings ratio.
- Gas savings continue to be a challenge based on low gas costs and current avoided costs. As measure approval documents expire, it will be harder for gas measures to pass cost effectiveness, and offerings may be eliminated.
- Cost-effectiveness of the overall program is a potential concern given lower avoided costs and relatively higher delivery cost due to a growing number of smaller sites enrolled.

Existing Buildings 2019 Expected Changes

- Revisions to incentive levels made in 2017 and proposed for 2018 should further help bring down run rates in 2019.
- Lower evaluation factors will result in lower achieved savings at a higher cost per unit. This is especially challenging for gas measures in Existing Building.
- Anticipate a decline in eligible lighting measures due to market adoption and significantly lower LED pricing.

Commercial sector—Existing Multifamily

Existing Multifamily Program Description

Delivered through PMC Lockheed Martin, the Existing Multifamily program serves existing multifamily structures with two or more dwelling units across diverse market segments, including market rate housing, affordable housing, assisted living facilities, campus housing facilities, homeowners associations and individual unit owners. Offerings include free installation of LEDs, showerheads and faucet aerators, and distribution of energy-saving advanced power strips in tenant units; incentives for common-area lighting upgrades; incentives for standard measures including HVAC equipment, water heaters, weatherization, appliances and foodservice equipment; midstream incentives provided to distributors for qualifying equipment and lighting measures; incentives for custom projects; and technical services including technical analysis studies and free walkthrough surveys.

Existing Multifamily 2018 Strategic Focus

- Expand program participation in market segments and regions where participation has historically been lower, using market and program participation data analysis and customized marketing and outreach strategies
- Foster long-term relationships with customers to drive repeat participation and deeper energy savings.
- Develop a strategic plan for utilizing data to drive program design improvements and targeted outreach.
- Enhance relationships with market actors, including trade allies, distributors, manufacturers and external partners such as Oregon Housing and Community Services, the City of Portland and the Portland Water Bureau.
- Seek new savings opportunities by monitoring new technologies and conducting field tests and pilots.
- Maintain strong cross-program collaboration to identify ways to align on offerings and messaging, streamline program participation and reduce customer confusion.
- Enhance engagement strategies and services for affordable housing customers.
- Explore tenant engagement strategies.
- Develop customized strategies to engage with customers of various sizes, types, and locations throughout the state.
- Reduce savings from free installation of LEDs, showerheads and faucet aerators, and distribution of energy-saving advanced power strips in tenant units, while also developing strategies to re-design this offering to maintain viability.

Existing Multifamily 2018 Activities—Ongoing

Deepen relationships with customers and expand participation

- Maintain account management approach with PMC business development representatives who conduct direct outreach to property owners and managers, including dedicated representatives located in Central Oregon and Southern Oregon.
- Expand the delivery of energy-efficiency workshops for multifamily customers, presenting relevant information based on their market segment and region.

- Analyze market and program participation data to identify key areas of opportunity and refine messaging based on market segment and region.
- Develop outreach tactics for customer groups with lower participation rates, such as smaller multifamily properties and customers outside of the Portland Metro area.
- Increase trade-ally driven program activity through enhanced trade ally support, one-on-one engagement and educational resources, and encouraging business development funds.
- Dedicate outreach and contractor recruitment resources to increase participation of minority- and women-owned businesses in Energy Trust's ally network.

Offer a wide range of incentives and services

- Provide direct installation of LEDs, showerheads and faucet aerators and free distribution of energy-saving advanced power strips in individual dwelling units.
- Promote common-area lighting solutions, with emphasis on smaller multifamily properties.
- Promote standard measures, which saw strong uptake in 2017.
- Continue and expand midstream incentives paid to distributors for appliances, water heating and HVAC equipment, with savings passed onto customers.
- Support multifamily customers enrolled in commercial Strategic Energy Management.

Grow program offerings and seek new savings opportunities

- Partner with the Portland Water Bureau on a water sub-metering pilot to study the savings associated with shifting participants from master-metered to individually metered water billing.
- Optimize the benchmarking offering to provide customers with actionable reports that help them prioritize property improvements and track impacts.
- Drive participation in the cadet pilot to determine if energy-efficient wall heaters provide savings for multifamily customers who are not able to make other upgrades.
- Continue limited rollout of GreenPSF, an online tool enabling customers to solicit multiple bids for custom projects through a competitive online request for proposals process. Determine if this service increases close rates and decreases timeframes for custom projects.
- Leverage Multnomah County and Prosper Portland's (formerly the Portland Development Commission) PropertyFit Commercial Property Assessed Clean Energy initiative as a financing option to enable deeper savings for interested customers. PropertyFit leverages Energy Trust incentives and loans to provide 100 percent of funding to commercial property owners in Multnomah County who complete comprehensive energy-efficiency and renewable energy projects, with long-term loans from Prosper Portland repaid through energy savings or electricity production. This tool may lead to comprehensive projects for customers previously limited by access to capital.
- Incorporate Tier 2 advanced power strips with activity sensors into the direct installation offering, based on outcome of 2017 analysis.

Existing Multifamily 2018 Activities—New

Refine outreach strategies to expand participation

- Use data analytics to identify areas with high savings opportunities and lower participation rates.
- Refine program design and outreach strategies by incorporating lessons learned from market analysis and data-driven program outreach.

- Simplify requirements and increase distributor motivation to participate, and explore ways to leverage buy-down strategies across programs.
- Conduct secondary research to identify opportunities for increasing participation in specific market sectors.

Explore new program services and savings opportunities

- Assess opportunities for enhancing services to help affordable housing participants install comprehensive upgrades.
- Identify opportunities to engage renters to help reduce in-unit energy consumption.
- Assess opportunities for testing behavioral energy savings initiatives in multifamily properties.
- Investigate alternative delivery options for direct-install to tenants.
- Support utility pilots and new offerings as requested by utilities and regional stakeholder organizations, including demand-side management efforts.

Streamline program design to improve customer experience

- Simplify program forms and processes to meet customer needs, especially for direct installation enrollment and portfolio managers installing measures at multiple sites.
- Expedite application processing turnaround time implementing online incentive applications and enrollment forms .

Existing Multifamily 2018 Key Assumptions, Risks and/or Challenges

- Existing Multifamily has several key measures that may be discontinued due to cost-effectiveness; these current unknowns will have significant impacts on 2018-19 budgets. These include ductless heat pumps and windows in electrically heated stacked structures.
- The expiration of the Residential Energy Tax Credit will impact window and ductless heat pump measures.
- The direct installation track faces eroding savings per measure and per site and increased market saturation. This is particularly acute for smaller properties.

Existing Multifamily 2019 Expected Changes

- With the increasing challenges to the direct-install track, the model for instant-savings devices for multifamily properties will need to change in 2019 to maintain viability.
- In a dynamic lighting market, program offerings may also need to change in 2019.

Commercial sector—New Buildings

New Buildings Program Description

New Buildings influences commercial design and construction practices to deliver buildings with low energy use. Program staff work closely with building owners and design teams to make energy considerations part of building design criteria and an asset for the building owner in both major renovations and new construction projects. Outreach managers influence a broad range of market actors, leveraging energy-efficiency and renewable energy strategies and incentives to achieve energy savings targets. New Buildings delivers highly technical solutions, simplified where possible, to create cost-effective, above-code options that leverage architectural design solutions and systems. New Buildings provides incentives to support high-performance design, including early design assistance, energy modeling incentives and a solar ready offering; incentives for whole building approaches including modeled savings, standard incentive packages for small commercial buildings; and prescriptive and calculated incentives such as standard offerings and lighting calculators.

New Buildings 2018 Strategic Focus

- Build market momentum for net zero and Architecture 2030 goals through Path to Net Zero and whole-building offerings.
- Drive savings and prepare customers and building industry professionals for advancing codes and standards through customizable incentive packages.
- Accelerate adoption of emerging technologies and approaches through partnerships, pilots and other promotions.
- Influence decisions from early design to occupancy by deploying additional tools and repositioning offerings to drive further market adoption and improve building energy performance.
- Launch a competitive selection process for program design, delivery and management contracts.
- Support evaluations, including of program impact, program process and large or complex project evaluations.

New Buildings 2018 Activities—Ongoing

Targeted offerings

- Encourage innovation the Path to Net Zero offering designed to push savings to at least 40 percent better than code and incorporate solar to reach net-zero energy goals.
- Support the connection between energy efficiency and resilience through education, technical assistance and implementation of renewable and efficiency measures. Implement solar ready, an offering that supports early feasibility of installing solar.
- Provide custom solutions using whole-building energy modeling, technical assistance, early design assistance, and standard and custom measures to capture savings in larger projects. Target and support small commercial construction through streamlined approaches.

Comprehensive market delivery

- Continue regional outreach and delivery model with personnel based in Eastern Oregon, Southern Oregon and the Portland Metro area. Emphasize diversity and inclusion of all customer types in program offers, outreach, training and education.
- Engage the small commercial market through standard incentive packages for small commercial buildings, targeted by building types.
- Engage the data center market, targeting small- and mid-sized facilities.
- Engage with the public sector and market actors involved in projects supported by bond measures, and provide design assistance and support for these projects from inception.

Continue strategic market transformation activities

- Provide training and education opportunities for design professionals and building owners around the state on high-performance building design strategies and technologies, including solar.
- Promote and release results from the 2017 Net Zero Fellowship. Release and promote opportunities similar to the 2017 Fellowship and small project grants.
- Coordinate with NEEA to leverage regional activity, enhanced codes pathway and commercial lighting, and prepare for code updates estimated to improve electric baseline by 5–10 percent.
- Explore supporting a pilot program with NEEA for an advanced HVAC technology with heat recovery.

New Buildings 2018 Activities—New

Expand participation and deepen relationships with customers

- Increase delivery of higher-tier Best and Very Best Market Solutions incentive packages that deliver more savings to customers.
- Expand the training and education offering—Allies for Efficiency—with best practices, case studies and local success stories, adding a net-zero leadership series. Expand delivery through co-sponsorships and regional building tours.
- Collaborate with cities to advance energy-efficiency opportunities at the master planning stage, supporting large-scale developments.
- Help design teams maintain energy strategies identified in early design throughout the late-stage cost-cutting exercises.
- Help owners make a more compelling business case for solar and high-performance buildings through targeted customer stories, training and education.
- Engage the next generation of New Buildings Allies through engagement initiatives to connect with the next generation of building industry professionals.

Refine measures and offerings

- Revise Market Solutions for several targeted building types—including multifamily, grocery and schools—and create new Market Solutions offerings for public sector facilities and low-income multifamily, including features that help overcome barriers to energy efficiency faced by nonprofit developers building affordable housing.
- Develop variable refrigerant flow offering for specific markets as identified in a 2017 pilot.
- Streamline modeling and technical review processes to address perceived barriers to participation.

Refine strategic program development and innovation

- Explore and test tools, technologies and strategies to improve design assumptions and building performance, creating a feedback loop from building operators to building designers.
- Support targeted demand-side management efforts with partner utilities.
- Develop offerings for measures that may be next in line for code through code scans and work of other groups, such as Pacific Northwest National Laboratory and NEEA.

New Buildings 2018 Key Assumptions, Risks and/or Challenges

- Construction will continue at a fast pace through 2018-2019, with strong activity in office, retail, mixed-use, multifamily and school buildings.
- A decrease in multifamily enrollments is expected due to new policies in the City of Portland. However, multifamily enrollments in the rest of the Portland Metro area and statewide are expected to remain strong.
- Few large savings projects are expected in 2018, such as data centers and health care projects.
- Incentive caps on all 838-exempt large customer sites may stall participation.

New Buildings 2019 Expected Changes

- The new version of the Oregon energy code is expected in 2018, which will necessitate program measure and offering redevelopment and will likely impact savings starting in 2019.
- The pace of construction is expected to continue into 2019, particularly for education and other bond-funded projects.
- Refine program offerings using learnings from Path to Net Zero to drive deeper savings in all projects. Incorporate energy target setting by providing an energy use intensity target for all projects entering the program, starting with a phased rollout in 2018.
- The program will identify opportunities for deeper impact by providing support to new construction development areas that closely align with energy efficiency, such as renewable energy, resilience and master planning.
- Savings from data centers are likely to increase after low savings in 2017 and 2018.

Commercial Sector—Southwest Washington

Southwest Washington Program Description

Energy Trust's Washington Existing Buildings program provides gas energy-efficiency solutions for existing commercial buildings. Business customers of NW Natural in Washington can receive incentives for qualifying energy-efficient upgrades and retrofits. The program provides incentives for select measures in existing and new commercial buildings, including office buildings, restaurants and other foodservice buildings, dormitory and assisted living facilities, greenhouses and multifamily structures. The Washington Existing Buildings program consists of two tracks:

1. The **custom track** acquires gas savings through energy-efficient capital projects and operations and maintenance upgrades. Program Management Contractor account managers and engineering firms identify and promote customer opportunities. The custom track also includes opportunities in retrocommissioning, which features targeted incentives for operations and maintenance improvements such as controls or HVAC adjustments.
2. The **standard track** provides incentives for standard measures with predetermined savings for buildings of all sizes and across all commercial market sectors. The program promotes measures through customer outreach and cultivation of trade ally contractors.

Southwest Washington 2018 Strategic Focus

- Identify and work with customers, architects and trade allies on new construction projects.
- Continue to work with school districts based on recent bond approvals.
- Strengthen the trade ally network to work with small and medium businesses.
- Introduce new gas measures including HVAC, restaurant equipment and measures for multifamily structures.
- Continue emphasis on diversity based on customer size, location, customer types and business ownership.

Southwest Washington 2018 Activities—Ongoing

Expand participation

- Work with organizations that focus on minority-owned businesses.

Grow program offerings

- Promote non-funded studies to accommodate medium usage customers through the custom track. Trade allies are encouraged to submit single measure custom projects to the program for review without a proposal for funding or request for study incentive. This cuts out several steps and time delays in the process (proposal for study, negotiation on study cost, issuing a work order for a study, etc.) This also helps medium customers with smaller projects because the program cannot pay for studies where potential savings do not justify the study costs. Non-funded studies

are for custom projects where only a limited number of variables determine the savings. Projects may include custom boilers or roof insulation over 50,000 square feet.

Streamline program operations and deepen relationships with customers

- Refine customer acquisition and account management to identify market opportunities and serve NW Natural commercial ratepayers efficiently.

Refine delivery strategies

- Increase focus on trade ally delivery through trade ally coordinator outreach and training.

Deliver technical assistance and design support

- Focus on working with active allied technical assistance contractors.

Increase market penetration

- Continue outreach to minority-owned businesses.
- Explore opportunities for Spanish or other language collateral.

Refine measures and offerings

- Continue to review measures nearing expiration while developing new gas measures.

Southwest Washington 2018 Activities—New

Expand participation

- Use building permit information to expand new construction participation.

Grow program offerings

- Investigate a midstream offering for HVAC for a 2019 launch.

Streamline program operations

- Refine and implement improvements to multisite applications.

Deepen relationships with customers

- Create a standardized spreadsheet for long-term planning for larger customers.

Deliver technical assistance and design support

- Introduce every-other month trainings for allied technical assistance contractors.

Refine measures and offerings

- Explore offering instant incentives paid directly to trade allies.

Southwest Washington 2018 Key Assumptions, Risks and/or Challenges

- Gas savings continue to be a challenge based on low gas costs and current avoided costs. It will be harder for gas measures to pass cost-effectiveness tests and offerings may be eliminated.

- Forecasting custom pipeline development and realization of custom project savings in a relatively small commercial program can challenging. One large project can make up a large percentage of program budget. Ensuring an accurate forecast for 2018 is a high priority for the commercial program.

Southwest Washington 2019 Expected Changes

- Boilers bring in the largest savings per standard applications. Over the past few years, as participation in boiler projects decreased, incentives were raised. This measure has one of the highest run rates. If participation in 2018 continues at the same level, in 2019 it may be necessary to reduce the boiler incentives to level the overall run rate.

Industrial Sector—Production Efficiency

Production Efficiency Program Description

Energy Trust's Production Efficiency program provides electric and gas energy-efficiency solutions for all sizes and types of eligible industrial, agricultural and municipal water and wastewater customers. The program provides services and incentives through three primary delivery tracks. The program is designed and managed in-house by staff, and is delivered to market through the support of contractors and other market actors.

1. The **standard tracks** focus on simpler, common equipment measures, typically installed through Energy Trust trade allies and other vendors. They are delivered by standard track Program Delivery Contractors (PDCs) that focus on trade ally outreach and training, new measure and calculator tool development, project verification and delivery of savings from lighting, irrigation, small compressed air, variable frequency drives and other standard and calculated measures.
2. The **custom track** allows for a comprehensive approach to gas and electric process efficiency projects, retrofits and operations and maintenance improvements. Custom PDCs are industrial efficiency experts who act as long-term energy efficiency account managers for industrial customers of all sizes and types in assigned geographic territories, delivering approximately half of all Production Efficiency savings. Allied Technical Assistance Contractors provide analyses in support of the program for custom projects.
3. The **energy performance management track** provides training, tools and technical support of industrial Strategic Energy Management (SEM) coaches to help customers save energy by establishing or improving energy management practices in the workplace. SEM offerings aim to secure and deepen customer commitment to energy management and improve capability to drive persistent, measureable improvements in the energy intensity of their operations. The energy performance management track includes both first year SEM for new participants and Continuous SEM for graduates who would like to further improve their energy management practices.

Production Efficiency 2018 Strategic Focus

- Implement and improve standard, custom and industrial SEM offerings.
- Increase outreach, technical services and other support to the agriculture sector and to small- to medium-sized industrial customers to boost savings in these areas.
- Increase the number of gas projects completed in all tracks to help reduce fluctuations in annual savings from larger projects.
- Work with other organizations such as NEEA and Pacific Northwest National Laboratory to help deploy emerging technologies, including tests of new applications of existing technology such as smart controls, energy information systems and advanced lighting design.
- Improve internal processes and systems, including use of data and information to support program activities and technical management of all tracks.
- Dedicate outreach and contractor recruitment resources to promote participation of rural, minority- and women-owned businesses in Energy Trust's ally network.
- Adapt design, implementation and operations to accommodate the increasing volume of small projects. Since 2015, staff have seen an increase of almost 30 percent in project volume and expect this growth to continue.

Production Efficiency 2018 Activities—Ongoing

Continuously improve program design and services

- Work with standard track PDCs to recruit, train and support trade ally vendors to sell efficient products, equipment and systems.
- Develop marketing and outreach strategies and streamline delivery to small- to medium-sized industrial customers.
- Deploy custom PDCs as long-term account managers and technical consultants for all types and sizes of industrial customers.
- Refine and expand Continuous SEM offering.

Broaden participation

- Recruit new participants into first-year and Continuous SEM, adding 15-20 new SEM participants.
- Provide rural outreach and services to farmers, irrigators and their vendors, including leveraging and collaborating with other agencies and nonprofits who are active in agriculture.
- Drive geographic diversity of gas and electric savings through outreach to trade allies, associations and other market actors across the state.
- Update and implement marketing, communication and event strategies to meet the needs of smaller customers and to support program outreach. Many marketing activities will continue, including direct marketing, materials to support PDC outreach, a quarterly customer newsletter, sponsorship of the NW Industrial Energy Efficiency Summit and the Oregon Manufacturing Awards. These activities and the My Business advertising campaign will be retooled, as needed, to address market opportunities.
- Work with utilities and other industry partners to improve awareness of the benefits of efficiency and services available for small- to medium-sized industrial customers.

Develop new measures and approaches to save energy

- Promote integration of lighting controls and other best practices in comprehensive lighting projects through ongoing promotion of advanced lighting strategies.
- Promote the regional diagnostic tool lending library to build capacity of industrial and agricultural customers to diagnose energy waste and savings opportunities.
- Continue to provide outreach, technical services and incentives to reduce energy use of new or expanding cannabis production facilities. Engage with local market actors and peers in other states to accelerate efficiency solutions and inform planning and strategies.

Production Efficiency 2018 Activities—New

Continuously improve program design and services

- Release RFP for revised commercial and industrial lighting tool.
- Support targeted demand-side management efforts with partner utilities.
- Implement actions to regain compliance on 838 funding limitations for >1aMW customers.

- Review custom track design, release Request for Qualifications and contract with Custom Track program delivery contractors.
- Explore opportunities to streamline technical analysis studies for small and medium customers.

Broaden participation

- Focus on strategies to build community of energy champions (SEM and possibly other participants) to encourage cross pollination of ideas and identify deeper savings opportunities for customers
- Launch the first combined Commercial and Industrial SEM cohort, which will take place in Northeast Oregon.
- Explore a North Coast SEM cohort for commercial and industrial customers.
- Implement a tablet-based scoping tool to quickly identify opportunities and improve outreach to small and medium customers.
- Look for opportunities to reach historically under-participating customers and communities.

Develop new measures and approaches to save energy

- Launch training and a pilot for advanced integrated controls for lighting in 2018.
- Research non-lighting indoor agriculture measures and the interactive effects of efficiency upgrades with process lighting.
- Continue to develop new measures and calculator tools for small compressed air, irrigation, refrigeration and other common measures.

Production Efficiency 2018 Key Assumptions, Risks and/or Challenges

- The energy savings goal and budget assumes that the current economic and policy environment will not change in significant ways compared to 2017.
- The program expects a lower level of participation from large energy users in PGE territory (greater than 1 aMW) as a result of the new, lower spending caps at the site and customer levels. The new caps are in place to bring spending for large energy users served by PGE under the SB 838 funding cap.
- Production Efficiency costs and savings are historically difficult to forecast due to unpredictable project completion timelines and variable savings for large projects. It may be necessary to tap reserves if savings and costs are higher than budgeted to continue to acquire all cost-effective savings.
- As the program serves more small-medium customers, it will need to manage program costs and tactics to scale delivery. Smaller projects are generally less cost-effective. Program cost-effectiveness may decrease as the number of large projects are limited and the number of small projects grows.
- Market trends and analysis indicate that the lighting replacement market will continue to be very strong in 2018.

Production Efficiency 2019 Expected Changes

- No changes expected for 2019 at this point.

Residential Sector—Residential

Residential Program Description

Energy Trust's Residential sector provides electric and gas energy-efficiency solutions for residential customers of single-family homes, manufactured homes and newly constructed homes. The program is delivered through Program Management Contractor (PMC) CLEAResult, Retail promotions through Program Delivery Contractor (PDC) Ecova, and Whole Home EPS, through PDC TRC. Incentives are available for energy-efficient HVAC and water heating equipment, lighting, appliances and weatherization. Delivering these efficiency services through a number of key market channels. Energy Trust incentives and technical assistance are provided through three vehicles:

5. **Trade ally contractors, builders, retailers, manufacturers and verifiers** deliver offerings through:
    - **Standard incentives** for heating systems, fireplaces, insulation and windows upgrades. Participants receive an incentive check after the qualifying energy-efficient project is completed.
    - **EPS whole-home offering** focuses on builder and verifier resources necessary for increasing the energy-efficiency of newly constructed homes, providing incentives, educational opportunities, trade and program ally support, and quality assurance.
    - **Increased Savings Within Reach incentives** are available for income qualified moderate-income homeowners, reducing the up-front cost of energy upgrade projects. Incentives are paid to the trade ally and passed onto customer through lower upfront project costs. An on-bill loan repayment option is also available for customer of PGE, Pacific Power and NW Natural gas.
    - **Incentives and no-cost offerings for upgrades to existing manufactured homes** including HVAC and weatherization upgrades. Homeowners receive an incentive check for the energy upgrades. No-cost air sealing and free contractor-installed LEDs and showerheads are also available for owners of manufactured homes.
    - Support, incentives, education and collateral for new manufactured home retailers and manufacturers.
6. **Products purchased at retail**, including lighting and showerheads, water heaters, appliances and smart thermostats. Energy Trust provides incentives midstream to manufacturers and retailers to reduce the cost of these products at the time of purchase. For smart thermostats, the participant receives a check after filling out an online application.
7. **Incentives paid to distributors** encourage the stocking and sales of fireplaces with electronic ignitions and efficient gas and electric water heaters.

Residential 2018 Strategic Focus

- Transition program management to new PMC and program delivery to two new PDCs, one for whole-home EPS offerings and one for midstream retail offerings.
- Bolster participation among diverse customer and trade ally groups through enhancements of targeted offerings and data driven outreach
- Prepare to respond to reduced savings from lighting and water conservation devices by focusing on measures and program designs that drive new types of participation.

- Engage the supply chain to increase cost-effective savings acquisition.
- Identify opportunities for operational efficiencies in incentive processing, trade ally management, quality assurance, consolidated measure analysis and submission processes across multiple sectors.
- Increase capabilities to support demand-side management efforts with utilities and geographic targeting objectives

Residential 2018 Activities—Ongoing

Product and service development

- Transition whole-home EPS offering to the updated Oregon Residential Energy Code, which represents an average improved baseline of 6 to 8 percent above the 2014 Oregon Specialty code.
- Support the City of Hillsboro's sustainability objectives for the development of South Hillsboro. Work with additional municipalities to share best practices for community-based strategies to drive efficient new construction practices
- Continue pilot to assess energy savings potential and program design for replacement of older vintage manufactured homes with newly constructed, efficient manufactured homes
- Complete 2017 pilot delivery and evaluation of automated thermostat optimization with a goal of developing additional savings opportunities from smart thermostats. This is accomplished through the deployment of additional software algorithms to communicate with and control smart thermostats.
- Pilot delivery and develop best practices guide in the design and installation of ductless heat pumps as primary heating systems in residential new construction.

Customer acquisition

- Continue marketing campaigns to maintain awareness and drive participation.
- Simplify customer experience through instant incentive offerings.
- Coordinate with Oregon Housing and Community Services, Community Action Partnership of Oregon and agencies serving low-income populations to develop energy-saving strategies.
- Use energy saver kits as a customer engagement tool.
- Dedicate outreach and contractor recruitment resources to promote participation of minority- and women-owned businesses in Energy Trust's ally network.

Operations management and fulfillment

- Offer full portfolio of residential incentives to electric and gas customers.
- Expand midstream offerings for water heaters and gas hearths with electronic ignition.
- Offer incentives for self-installed web-enabled smart thermostats to homeowners and builders, and promote thermostat optimization to Nest Thermostat customers.
- Support and expand energy-efficiency advancements in moderate-income and rental homes, with focus on heating system upgrades.
- Provide broad field services to support trade allies and builder participation with consistent engagement throughout the state.
- Continue collaboration with utilities and Craft3 on process improvements for financing with repayment through utility bills.

Residential 2018 Activities—New

New product and service development

- Develop a methodology to produce a five-year measure savings assessment, incorporating market intelligence, emerging technology roadmaps, resource planning, customer acquisition strategies and existing IRP assessments.
- Deploy an automated meter data analytics platform to engage trade allies, program delivery staff and Energy Trust evaluation staff to improve work quality, energy savings outcomes and standard baseline assumptions for measure analysis.
- Update new construction quality control and workflow processes to facilitate an increasingly consultative approach to increase the program's influence on the new construction market.
- Transition from heat pump offering from Heating Seasonal Performance Factor (HSPF) requirements to requirements that optimize heat pump sizing and controls for the broader market.
- Engage stakeholders to develop a consensus-based net-zero home specification for gas and electric heated homes. Use best practices and technical roadmap for future residential energy code updates.

Customer acquisition

- Support a five-year measure savings assessment by developing an accompanying plan identifying future customer acquisition strategies.
- Develop a competitive solicitation and enrollment for trade allies to offer specialized services in under-participating market segments
- Contract with community-based organizations, in coordination with CCS, to ensure residential offers and promotions engage underserved communities. Contracted activities may include advising program management contractor on best practices and/or delivery of services to engage customers.
- Engage with Home Energy Score stakeholders to support adoption of Home Energy Scores and promote energy efficiency improvements.
- Diversify distribution of incentives across the supply chain to increase savings acquisition and participation.
    - Explore strategies to maintain gas fireplace savings by moving fireplace efficiency upgrade incentive to distributors along with electronic ignition.
    - Transition clothes washer incentives from a customer incentive check to instant discount that focuses specifically on lower-cost, efficient models.
    - Increase measure uptake of ductless heat pumps in new manufactured homes by working closely with Northwest Energy Works and developing and coordinating relationships between retailers and ductless heat pump installers.
- Support demand response activities or efforts to enable customers to shift or reduce energy consumption during periods of high-energy use, including areas with capacity constraints.

Operations management and fulfillment

- Track and monitor the impact of the discontinuation of Residential Energy Tax Credit (RETC) to determine impacts on retail prices and demand for measure technologies
- Develop efficiencies and enhance customer service through incentive processing changes, including implementation of direct deposit payments and automated communications to high volume participants
- Explore more efficient quality assurance protocols, including new technologies, program partners and available data resources.

Residential 2018 Key Assumptions, Risks and/or Challenges

- Transition to new consolidated program and implementation structure.
- The program will be under several cost-effectiveness constraints, including the sunset of RETC.
- A strong home improvement market will continue to bolster window and equipment purchases.
- Energy Saver Kit strategy consolidation and order form enhancements will reduce overall savings from water- and energy-saving devices in kits while improving installation rates. As the kit strategy evolves, some combinations of products may not be cost-effective but could be supported through new strategies to use LEDs to engaged new, underserved customers.
- As the new construction residential building code goes into effect, we assume a consistent market penetration of EPS build homes
- Increased LED market share and reduced incremental cost will significantly reduce lighting savings and increase program run rate; this may reverse current efforts to expand participation of smaller retailers in rural areas.

Residential 2019 Expected Changes

- The residential delivery structure is expected to continue to evolve.
- The program will expand on specialized ally participation opportunities to align with identified critical low participation areas.
- The program will continue to expand income-qualified program offers and no-cost offerings.
- The program will diversify distribution of incentives across the supply chain to increase savings acquisition and participation across the service territory.
- Staff will continue to manage reductions to lighting and showerhead savings potential.
- Staff will evaluate pilots to determine opportunities for program integration.

Residential Sector—Southwest Washington

Southwest Washington Program Description

Residential programs in southwest Washington acquire cost-effective gas savings by engaging with builders and homeowners. Energy Trust engages with builders to increase energy efficiency of newly constructed homes through incentives, education, trade and program ally support and quality assurance. For single-family and small multifamily homeowners, Energy Trust provides energy savings through incentives for efficient space heating and controls, water heating, insulation, windows, water conservation and behavioral actions, education, trade ally support, financing with repayment through utility bills, and market interventions.

Southwest Washington 2018 Strategic Focus

- Transition to consolidated delivery of Washington residential PMC services with New Homes Program Delivery Contractor TRC.
- Bolster participation among diverse customer and trade ally groups through further enhancements of targeted offerings and outreach based on continuous data input.
- Continue outreach that builds on existing relationships with trade allies while continuing to enhance participation through engagement across the supply chain to increase cost-effective savings acquisition.
- Grow the residential incentive portfolio by introducing multifamily measure options.
- Coordinate with NW Natural stakeholder and trade ally relationships to drive participation in Existing Homes core measures and EPS homes.
- Monitor and incorporate new gas saving technologies and products into the program.
- Continue to grow and develop builder and verifier networks through outreach activities to support increased market share of EPS homes.
- Prepare for 2019 Washington Residential Energy code changes, including monitoring and tracking updates and participation in stakeholder groups.
- Identify opportunities for operational efficiencies in incentive processing, trade ally management, quality assurance, and consolidated measure analysis and submission processes across sectors.
- Ensure program is forecasted, budgeted and managed to meet performance criteria as defined by the Washington Utility and Transportation Commission (WUTC) and as specified in the 2018 NW Natural WA Energy Efficiency Plan, including incentive to delivery ratio, Utility Cost Test and Total Resource Cost Test results. Provide rationale as to why the portfolio should still only be evaluated on Utility Cost Test.

Southwest Washington 2018 Activities—Ongoing

- Work with NW Natural to ensure program delivery is in alignment with goals.
- Work with NW Natural to ensure compliance to Washington Utilities and Transportation Commission regulatory requirements and to provide robust and accurate reporting.

- Explore and execute on strategies to increase incentive spending compared to total program delivery costs. Strategies and activities include supply chain and midstream efforts for gas fireplace electronic ignition and gas tank water heaters, Nest Seasonal Savings, Energy Saver Kit distribution and introduction of a consumer facing tankless water heater measure.
- Collaborate with NW Natural on marketing campaigns and strategies.

Existing Homes

Expand participation

- Support trade ally experience through customized in-person engagements that facilitates incentive application submission.

Grow program offerings and explore new savings opportunities

- Increase engagement across the supply chain to increase cost-effective savings acquisition of thermostat optimization, fireplace electronic ignition and midstream water heaters.

Streamline program operations

- Collaborate with Craft3, a nonprofit Community Development Financial Institution, to improve processes for financing with repayment through utility bills.
- Reduce administrative impacts through improved program quality assurance processes, leveraging technology innovations, program partners and available data resources.
- Launch updated Energy Saver Kit measures; showerheads, shower wands, as well as kitchen and bathroom aerators.

New Homes and Products

Maintain and grow program offerings and increase market penetration

- Promote EPS™, a home energy performance score, through engagement, training and support of verifier and builder networks.
- Collaborate with Bonneville Power Administration Simple Steps, Smart Savings™ to offer discounted showerheads at retail stores.

Technical and design assistance

- Support administration of third-party field quality assurance, including coordination with verifiers to maintain quality assurance and quality control procedures.
- Provide outreach and technical services to help participating builders maximize energy savings.

Streamline program operations and refine delivery strategy

- Collaborate with Axis software provider company, Pivotal, to identify database improvements.
- Leverage permit data to target builder recruitment and engagement with existing trade allies.

Southwest Washington 2018 Activities—New

Existing Homes

Expand participation and increase market share of efficient equipment

- Engage trade allies and other interested stakeholders to increase market share of smart thermostats.
- Engage with community stakeholders and allies to drive participation and offerings aligned with community needs.

- Reach new and diverse customer through targeted marketing.

Grow program offerings

- Add offerings for small multifamily customers in Washington with support from Lockheed Martin.

Explore new savings opportunities

- Assess introduction of additional small multifamily incentives in the residential portfolio as part of a midyear WUTC tariff filing.

Streamline program operations

- Develop efficiencies and enhanced customer service through incentive processing changes, including direct deposit payments and automated communications
- Evolve quality assurance protocols to reduce administrative impacts, including exploration of new technologies, program partners and available data resources.

Deepen relationships with customers

- Leverage data analytics to target email marketing.
- Ensure culturally appropriate messaging for multiple Hispanic target markets through consulting with IZO Marketing.

Refine delivery strategies

- Diversify distribution of incentives across the supply chain to increase savings and participation across the service territory.

New Homes and Products

Expand participation and increase market share of efficient equipment

- Customize EPS market actor and stakeholder support.

Comprehensive market delivery

- Identify market engagement strategies to support builder retention and recruitment.

Increase market penetration

- Support real estate market engagement across residential programs.

Deliver technical assistance and design support

- Provide early design assistance to builders and verifiers to identify more savings opportunities at the design phase.

Southwest Washington 2018 Key Assumptions, Risks and/or Challenges

Existing Homes

- A strong home improvement market will continue to bolster energy upgrade purchases with Energy Trust's strong trade ally participation and awareness and endorsement being a key component of participants' to choose the more efficient option.
- Additional financing options in the market will continue to compete with On-Bill Repayment
- Midstream engagement relies on market actors' acceptance of data reporting requirements.

New Homes and Products

- New construction will continue to be robust in Clark County. High market adoption and participation in EPS New Homes is expected. The program will work to ensure accurate forecasting and budgeting for an evolving and expanding market.

Southwest Washington 2019 Expected Changes

- Expand specialized ally participation opportunities to increase low participation areas.
- Diversify distribution of incentives across the supply chain to increase savings acquisition and participation across the service territory.
- 2018 Washington Residential Energy code changes will impact 2019 planning and evaluation and 2020 New Homes administration and savings trends.

Northwest Energy Efficiency Alliance

Northwest Energy Efficiency Alliance Program Description

Northwest Energy Efficiency Alliance identifies and drives market transformation programs to accelerate and sustain market adoption of energy-efficient products, services and practices across commercial, industrial and residential sectors, working in coordination with Energy Trust. NEEA researches and assesses emerging energy-efficiency opportunities and facilitates coordinated regional strategies to permanently remove market barriers and leverage the collective scale and power of the region. NEEA's role in market transformation efforts varies by program, and generally focuses on activities with market participants upstream from Energy Trust and utility customers.

Northwest Energy Efficiency Alliance 2018 Strategic Focus

Fill the energy-efficiency market transformation pipeline with new products/services/practices.

- Identify new opportunities through scanning, research and market partner engagement.
- Assess the potential and confirm the viability of newly identified emerging technologies, including technical analysis and assessment of market barriers.
- Screen, select and prepare technologies to enter the market transformation pipeline.

Create market conditions that will accelerate and sustain the market adoption of emerging energy-efficiency products, services and practices.

- Influence market actors to increase availability of energy-efficient products and services.
- Improve/ensure product quality.
- Build market knowledge and capability to support new products, services or practices.
- Identify and develop market resources that capitalize on the compelling value proposition for a new product, service or practice.
- Increase product awareness.
- Develop strategies to address price/first cost issues.
- Influence and support the successful implementation of more stringent building codes and appliance standards.

Accelerate and sustain market adoption of efficient natural gas products/practices/services resulting in increased consumer choice and efficiency of natural gas use in the Pacific Northwest

Northwest Energy Efficiency Alliance 2018 Activities—Ongoing

Fill the pipeline with new energy-efficiency products, services and practices.

- Advance an initiative to replace packaged commercial rooftop units with a combination dedicated outdoor air system, heat recovery ventilator and variable capacity heat pump driven by a natural gas engine.
- Advance an initiative to drive adoption of optimized motor driven circulator systems for reduction in thermal energy losses of hot water systems.

Accelerate and sustain market adoption of energy-efficient electric products, services and practices.

- **Heat Pump Water Heaters:** Increase emergency replacement penetration through targeted installer training and manufacturer incentives; support increased utility midstream program adoption; gather research and data necessary to advance the federal standard for small tanks.
- **Ductless Heat Pumps:** Develop improved consumer awareness/confidence/valuation tools.
- **Retail Product Portfolio:** Expand Energy Star engagement to grow influence on manufacturers; Improve data management and analysis to better inform decisions and provide value to funders; refine and finalize evaluation approach.
- **Super-efficient Heat Pump Dryers**: Complete market research to segment market and increase confidence and demand for super-efficient dryers; refine super-efficient dryer technology roadmap; support voluntary and Federal standards processes.
- **Manufactured Homes:** Offer incentive and technical support to manufacturers to build NEEM 2.0 to help overcome cost and knowledge/capability barriers.
- **Next Step Homes:** Identify, validate and propose long-term state-specific energy code targets and measures; increase coordination and consistency between home certification programs in the region; garner utility support for builders and market partners to improve knowledge/awareness and reduce costs; develop and deliver technical training to improve builder knowledge/awareness.
- **Reduced Wattage Lamp Replacement**: Negotiate and refine distributor contracts to prioritize aggressive restocking efforts; develop/improve distributor market intelligence reports.
- **Luminaire Level Lighting Controls**: Deliver installer and distributor training to improve knowledge/awareness; leverage distributor platform to engage distributors and gather data; develop marketing strategies to support utilities in driving awareness; influence annual product specification revisions; leverage third-party research and customer demonstrations to inform program strategies.
- **Commercial Code Enhancement**: Assess and rank technologies/practices for inclusion in 2018 Washington state code proposals; explore collaboration opportunities with Next Step Homes initiative to leverage strategies and processes to influence and support code adoption.
- **Window Attachments**: Collaborate with Attachment Energy Rating Council (AERC) on test procedures and rating protocols to establish standard measurement for product performance; drive increased manufacturer membership in AERC to improve product availability, performance and differentiation; support ENERGY STAR labelling process to improve Low-E Storm Window product differentiation and standards; build product confidence through support for regional demonstration projects.
- **Commercial and Industrial infrastructure programs**: Support City of Portland disclosure ordinance with marketing and technical assistance for commercial real estate (CRE) to improve awareness/adoption among target audience; actively promote, support and grow Strategic Energy Management (SEM) Hub as fundamental resource and customer engagement tool; continue convening/facilitating NW SEM Collaborative; coordinate planning with sponsors and execute 2018 regional Industrial Technical Training (ITT) plan; continue Trade Ally NXT Level support and collaboration with utilities through promotional activities and evaluation of program impact.

Accelerate development and adoption of efficient natural gas products, practices and services.

- **Efficient Gas Water Heaters:** support launch and adoption of non-powered .67 Energy Star water heater; support development and complete testing of efficient gas heat pump water heaters from other manufacturers; submit draft WA code proposal for residential gas storage water heater damper requirements.
- **Combination Space and Water Heating Product:** Collaborate with manufacturers on design/build/test of combi units; identify and/or test additional technologies for combi units.
- **Rooftop HVAC:** Complete product field tests of condensing gas roof top units (RTU); engage in state building code process to establish path for additional make up air efficiency option.
- **Efficient Gas Dryers:** Continue Energy Star product lab testing, finalize lab testing of modulating valve and heat recovery next tier product and provide data to DOE and ENERGY STAR; engage extra-regional partners to expand influence with manufacturers; educate manufacturers on performance challenges.
- **Hearth Products:** Influence product development of a low capacity hearth; draft code proposal to influence WA state building code to eliminate standing pilot lights.

Northwest Energy Efficiency Alliance 2018 Activities—New

Fill the pipeline with new electric energy-efficiency products, services and practices.

- Explore advancement of initiatives in the following areas:
  - Residential— CO2 Combined space and water heating
  - Residential – Ultra High Definition TV's
  - Residential – Connected / Advanced Thermostats focusing on control of central and zonal systems
  - Residential/Commercial – Inverter-driven Packaged Terminal Heat Pumps
  - Residential/Commercial – Expand understanding of other window attachments including blinds and films
  - Commercial – Occupancy control of HVAC and task / ambient HVAC
  - Commercial/Industrial/Agricultural—Pump Operator Certification
  - Industrial – Smart compressed air valves
  - Agricultural – Pivot Commissioning

Accelerate and sustain market adoption of energy-efficient electric products, services and practices.

- **Heat Pump Water Heaters:** Complete market research to allow deeper analysis of potential audience and how to leverage other programs and partners; Explore methods for partnering with market actors to turn emergency replacements into planned replacements; explore funder interest in leveraging retail platform for a regional midstream approach for water heaters.
- **Ductless Heat Pumps:** Investigate and implement cost containment strategies such as Quick Connect, Do It Yourself, Bulk Buys and non-traditional installers; Seek and leverage additional market transformation partners such as climate, health and advocates for hard-to-reach population.
- **Retail Product Portfolio:** Establish planning and coordination process for federal standards to maximize influence and impact.

- **Super-efficient Heat Pump Dryers:** Leverage market test information to hone consumer, manufacturer and retail value propositions; develop retailer trainings; explore paired laundry opportunities; investigate new emerging technology for super-efficient dryers.
- **Manufactured Homes:** Provide utility outreach and support to plan NEEM 2.0 incentive programs to reduce product cost; provide retailer sales tools and resources needed to sell NEEM 2.0 in order to improve knowledge/capability and clarify value proposition.
- **Next Step Homes:** Collaborate with Commercial Code Enhancement to create State Action Plans to achieve long-term code targets; coordinate with city and utility activities to achieve Climate Action plans.
- **Reduced Wattage Lamp Replacement**: Explore opportunities to expand distributor platform by bundling additional NEEA and utility pilot programs and continuing Low-Watt push; leverage Jan. 2018 Federal Standard to reinforce Low-Watt restocking and reduced 32 watt shipments to region.
- **Luminaire Level Lighting Controls**: Develop training to familiarize installers and designers on product specifics; engage with key sales influencers (manufacturer reps, specifiers and designers); leverage Integrated Design Labs to build awareness.
- **Commercial Code Enhancement**: Complete and update State Coordination Plans for next code change cycles; implement market intervention strategies to improve coordination between utility programs, market practice and code process; convene utility design group for information exchange and lessons learned.
- **Window Attachments**: Develop and test consumer messaging/marketing strategies; develop retail engagement strategy to improve availability/awareness of products; collaborate with utilities and RTF to develop downstream programs and incentives.
- **Commercial and Industrial infrastructure programs**: Develop commercial real estate (CRE) marketing plan to increase traffic to Navigator (BetterBricks site) and Spark tools; assess CRE value proposition and program activities with funder work group; investigate future role of NEEA in regional Strategic Energy Management (SEM) success and facilitate growth of North American-wide collaborative; launch Trade Ally NXT Level 2 training and differentiate value to trade allies.

Accelerate development and adoption of efficient natural gas products, practices and services.

- **Efficient Gas Water Heaters**: Support expansion of utility rebates for ENERGY STAR water heaters to address low demand/awareness and prime the market for more efficient products; increase engagement with additional manufacturers to drive development of other gas heat pump water heater products.
- **Combination Space and Water Heating product**: Collaborate with manufacturers to develop installation best practices and product sales tools; build awareness and demand through technology education and supply chain development; conduct product characterization to define cost, size and performance parameters required for success.
- **Hearth products**: Partner with burner manufacturer to socialize testing results with major OEMs and influence product development of Low Capacity Hearths; participate in codes and standards process to eliminate standing pilot light in Washington State building code.
- **Gas Dryers**: Utilize Retail Products Platform to incentivize retailers to stock specified products; investigate additional gas dryer technologies.

- **Rooftop HVAC**: Implement supply chain and commercial building outreach strategy focused on educating and engaging the market, honing value proposition and overcoming adoption barriers; recruit one commercial facility for field study; identify and address utility program launch requirements.

Northwest Energy Efficiency Alliance 2018 Key Assumptions, Risks and/or Challenges

Key assumptions:

- Funding will continue at current level.
- Deep collaboration with funding partners will continue.

Key risks and challenges:

- Less active federal/state bodies could slow work to drive change through codes and standards.
- Regulatory or governing body decisions could curtail investments in energy efficiency, including elimination/expiration of tax credits.
- Unpredictable economic and market dynamics with manufacturers, retailers and other supply chain participants could impact activities.
- There could be a Regional Technical Forum backlog for getting measures approved.
- Timely utility program uptake by funders could be impacted by issues with cost-effectiveness.
- Inconsistency in incentive approaches across the region can create market confusion.
- Ongoing viability of key market partners like Energy Star, Attachment Energy Ratings Council could be threatened.
- Achieving regional consensus on value and prioritization of programs or infrastructure could result in reduced scope of work.
- Engagement with extra-regional partners may not be successful in driving necessary scale for program/product development.
- Mid-cycle Assessment for Natural Gas Market Transformation could result in reduced scale/scope of work.

Northwest Energy Efficiency Alliance 2019 Expected Changes

- Active engagement in the Reduced Wattage Lamp Replacement initiative will come to an end.
- Additional new emerging technologies and products will be identified to fill the pipeline.