Agenda

Conservation Advisory Council
Wednesday, August 1, 2018
Special joint CAC and RAC lunch from 12:00 – 1:30 p.m.
Regular CAC meeting from 1:45 p.m. - 5:00 p.m.
421 SW Oak St., #300, Portland, OR 97204

12:00 Strategic Planning Development *(discussion)*
A joint CAC and RAC interactive discussion about early foundational work for the development of the 2020-2024 Strategic Plan.

Lunch will be provided for CAC and RAC members

1:30 Break

1:45 Welcome, Old Business And Short Takes (*information)*
Introductions, agenda review and approve June meeting minutes

1:50 Production Efficiency Program Delivery Contractor RFP Results *(discussion)*
Production Efficiency Sector Lead Amanda Potter will inform CAC of the results of a competitive request for proposals for three Production Efficiency program delivery contractors and the Energy Trust board decision to approve contracts with Energy 350, Cascade Energy and RHT Energy Solutions.

2:00 2019 Measure Reviews: Introduction and Overview *(discussion)*
Director of Energy Programs Peter West will introduce the topic, and Engineering Manager Mike Bailey will provide an overview of measures reviewed for program consideration in 2019, including changing measures, expiring measures and new measures or pilots. Mike will provide a summary of major market trends and issues facing lighting and water conservation measures

2:50 Break

3:05 2019 Measure Reviews: Existing Multifamily Program Market Research and Early Discussions *(discussion)*
Existing Multifamily Program Manager Kate Scott will review findings from a market analysis and early discussions staff are having on opportunities and impacts for the program.

3:35 2019 Measure Reviews: Residential Heat Pump Water Heater Incentive Change *(discussion)*
Residential Program Manager Ryan Crews will detail midstream water heater program results, describe how the water heater market has changed in 2018 and request input on a proposed incentive increase for heat pump water heaters.

4:00 2019 Measure Reviews: Irrigation Measure Update *(inform)*
Industry and Agriculture Senior Program Manager Jessica Kramer will provide an update on the status of irrigation measures.

4:10 Pay for Performance Pilot Evaluation Findings *(discussion)*

Commercial Program Manager Kathleen Belkhayat and Engineering Manager Jon Eicher will present an overview of the Pay for Performance pilot and evaluation followed by discussion of recommended action moving forward.

4:40 Public Comment

5:00 Adjourn

The next Conservation Advisory Council is Friday, September 14, 2018. The agenda tentatively includes measure reviews for 2019, updates on in-progress 2019 program action plans, and research and analysis on underserved customers.

Meeting materials (agendas, presentations and notes) are available online https://www.energytrust.org/about/public-meetings/conservation-advisory-council-meetings/.

Conservation Advisory Council Meeting Notes

June 20, 2018

Attending from the council:
Seth Wiggins (for JP Batmale), Oregon Public Utility Commission
Holly Braun, NW Natural
Roger Kainu (for Warren Cook), Oregon Department of Energy
Wendy Gerlitz, NW Energy Coalition
Danny Grady, City of Portland Bureau of Planning and Sustainability
Kari Greer, Pacific Power
Lisa McGarity, Avista
Dave Moody, Bonneville Power Administration
Jason Klotz, Portland General Electric
Al Spector, Cascade Natural Gas
Becky Robbins, Northwest Energy Efficiency Alliance

Attending from Energy Trust:
Hannah Cruz
Oliver Kesting
Michael Colgrove
Debbie Goldberg Menashe
Fred Gordon
Tom Beverly
Mike Bailey
Jessica Iplikci
Lindsey Diercksen
Kenji Spielman

Others attending:
Sara Fredrickson, CLEAResult
Lindsey Hardy, Energy Trust board (by phone)
John Molnar, Rogers Machinery
Jeffrey Tamburro, NW Natural
Dan Reese, CLEAResult

Executive Summary:

- CAC finalized review of their operating principles and a meeting guidance document that guides staff in how to engage CAC.
- Staff provided a recap of the board's May strategic planning workshop, including a high-level overview of the dashboard, reviewing the board's discussion on Energy Trust's unique role of value and competitive strengths.
    - Both CAC and RAC will be engaged numerous times over the next year on the development of the Strategic Planning work plan and drafting, including a joint lunch at the next meeting where they will explore Energy Trust's strengths and capabilities.
    - CAC asked the meaning behind the word "sustainable" in the purpose statement; which could be a discussion the board Strategic Planning committee has
    - The utilities see customer outreach meetings as a good opportunity to engage with their customers
- The results of the New Buildings PMC RFP was highlighted, including the board's approval of CLEAResult. Staff reviewed some key enhancements coming out of the RFP proposal that will be looked at for including in the New Buildings 2019 action plan; specifically, engaging the office market, and enhancing the program's work with multifamily projects including researching development of a low-income package
- CAC reviewed the results of a lighting tool market research. After assessing the dynamic lighting market, and the pros/cons of the existing Excel-based lighting tool for Existing Buildings, Existing Multifamily and Production Efficiency, staff will keep the existing tool and make improvements over time. CAC agreed with that assessment. BPA noted they found similar issues with their tool and came up with the same approach for going forward.

- Staff led an in-depth discussion on attribution at Energy Trust and whether the organization should continue reporting using net savings or change to reporting in gross savings. Net savings exclude free ridership and include spillover. Energy Trust is one of a small number of program administrators in the Pacific Northwest using net savings. Determining the net effect is difficult. CAC asked questions about how programs will know when to exit a market, and to learn more about why net reporting was settled on originally and whether changing to gross reporting will have any unintended consequences. There may be additional discussion on this topic at CAC, staff is looking into it. If any changes are made to how the organization reports savings, it would be determined in 2019 in time for 2020 budgeting.

1. Welcome, Old Business and Short Takes

Hannah Cruz convened the meeting at 1:35 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 asked if there were concerns or changes to the notes from the last meeting. No changes were noted, and the council adopted the notes.

2. CAC Guiding Documents

Hannah reviewed the operating principles and draft meeting guidance documents. Together, the two documents guide staff on what to bring to the council and how the information is presented.

Holly Braun: I hope the two can be considered as a package for now, but consolidated in 2019. It feels more tidy that way.

Lisa McGarity: I felt that the meeting guidance document was more specific to 2018 identified needs while the operating principles are more general.

Hannah Cruz highlighted in the operating principles the connection between CAC and the board of directors.

Holly Braun: It was good to review how we fit in. As summaries of our comments are brought to the board, it would help us to be more of an advisory group for them.

Al Spector: There is an opportunity to flesh that out more and add more clarity to our role in advising staff and the board.

Hannah Cruz: We now have a portion of the board meetings where we summarize CAC meetings.

It was noted that the charter sections A-C could be further explained. Hannah Cruz will relook at the language.

Holly Braun: On the meeting guidance document, it says to notify CAC regarding other public meetings. Are those set for the year and can that be sent out in an email?
Hannah Cruz: Most public meetings are set in the fall for the next year. We have them listed on our online events calendar and there is a one-page PDF online, too.
Holly Braun: Can we add that as a standard item at the end of these meetings?
Hannah Cruz: Yes, I can add that to our meeting agendas.

3. Recap of Strategic Planning Workshop

Energy Trust has begun work on its next five-year strategic plan. The strategic planning process will involve input from the Conservation Advisory Council and Renewable Energy Advisory Council over the next year. Hannah Cruz and Debbie Menashe presented a brief update on progress to the current 2015-2019 Strategic Plan, provided highlights on the strategic planning discussions that took place at the board of director's annual strategic planning workshop in May, and provided a high-level draft of the upcoming strategic planning development process. All materials related to the current plan and development of the upcoming plan are available online at www.energytrust.org/strategicplan.

Holly Braun: In the current purpose statement, what is meant by the word "sustainable?"
Debbie Menashe: My recollection is "sustainable" is meant to be an effect that is ongoing and can be sustained. This is a good question for the board Strategic Planning Committee to consider with the next plan.

Kari Greer: Do you have feedback or reports on customer focus groups?
Hannah Cruz: Yes, I will send them to the council.

Lisa McGarity: The online home energy survey gives recommendations. Is that data stored anywhere, and do you use it when reaching out to customers?
Debbie Menashe: The data is stored and provides opportunities for leads.
Hannah Cruz: We will share more details after the meeting.

Debbie Menashe: The last session of the workshop was the kickoff to the next strategic planning cycle. There is a formalized role for RAC and CAC to advise the board on strategic planning, and we plan to engage RAC and CAC regularly. With the guidance of a facilitator, the board started its strategic planning discussions by identifying Energy Trust's "unique role of value" and competitive strengths to discern what we do better than other organizations. When we say unique role of value we mean, "What do we uniquely deliver as a sustainable value into the market we serve?"

Lisa McGarity: One great thing in that discussion was around what you do that no one else can do. It's a very good to think about.

Debbie Menashe: Another part of the workshop was a presentation by OPUC staff. They delivered a strong voice of support for us and what we're doing. They view us as a national leader and tout our programs nationally. Their presentation was intended to give the board an equal sense of what's going on in the policy, industry and technology landscapes. Importantly, SB 1149 expires in 2025, which immediately follows the next planning period. SB 1149 was the initial basis for our funding and structure. We have to consider the impact of that sunset during the 2020-2024 period. The OPUC said it will work closely with Energy Trust and with stakeholders to discuss this due to its importance to state energy policy.

Lisa McGarity: I recall a graph of the SB 1149 portion of the funding. What does that represent as a proportion of the budget?
Hannah Cruz: That is about 40 percent [post-meeting correction: approximately 35 percent of the 2018 budgeted revenues are from SB 1149].
Debbie Menashe: SB 1149 is also 100 percent of funding for renewables and doesn't include gas funding, which is separate.

Holly Braun: My impression of the OPUC's presentation is that they support you but want you to stick to energy efficiency and not carbon reduction and other sustainability efforts. They would

work with you on metrics. There is openness, but not to change the mission. It was very positive.

Hannah Cruz: They want to help us dig into our forecasts and plans. The OPUC's Jason Eisdorfer mentioned that he was skeptical about what some charts indicated, and he wanted to dive in further.
Holly Braun: Each cycle, the savings potential always seems to be dropping off a cliff, but then we find savings. It's not as dramatic on the gas side. We've dug into it with Energy Trust in the past. I can bring some of that to CAC. It's in our NW Natural IRP. Your assumptions make up about half of the potential changes in avoided costs.
Fred Gordon: Efficiency was built up from our side. The timing and magnitude of electric savings from LED lighting has been a challenge for everyone to forecast. We have made efforts to improve our forecasts by including placeholders for unknown new measures and potential mega projects, but yes the graphs still show a big drop off in a few years after lighting. The current gas forecast is flat.

Debbie Menashe reviewed the high-level development schedule, including ongoing check-ins and engagement with CAC.

Lisa McGarity: How far out are the customer meetings scheduled? How far out will you be able to provide a schedule of where and when the meetings will be held?
Debbie Menashe: The public outreach meetings will happen from May through October 2019. We'll look at that as part of our communications and outreach plan. Your help will be appreciated. It's the first time we've had Avista with us in the process.
Kari Greer: Margie Harris [Energy Trust's former executive director] went to some Pacific Power events to talk about the strategic plan years ago. It was a great opportunity to engage with people.

4. Results from New Buildings Program Management Contract Request for Proposals
Jessica Iplikci presented the results of a request for proposals for a New Buildings Program Management Contractor. Staff had an early start to the rebid this year to help tee up planning for 2019 and 2020. The board of directors supported the staff recommendation to initiate a contract with CLEAResult. The background on the RFP and staff recommendation is included in the CAC packet, including the current objectives of the program, which includes standard, market solutions, Path to Net Zero, technical support and studies. The program team has had a lot of success in engaging owners and designers. It's a busy market. Core elements of the program will continue with enhancements from the RFP. The regional outreach model with statewide outreach will continue with expanded market reach to a broader range of market actors; training and education will continue with expanded content specifically geared for contractors and subcontractors and made available through an on-demand web platform; and new measures and technologies will be developed to expand the program's energy-saving opportunities.

Jessica noted staff plans to enhance how the program engages with the office market. One of the more recent New Buildings presentations for CAC was a market penetration analysis across a dozen building types. It highlighted low penetration in the office market. Staff gained new ideas and partnerships through the RFP that improve outreach and engagement with the office market, leverage the market solutions package for office and bring new relationships with brokers and property managers. There is a lot of demand for office space. Staff is hopeful that owners will be ready to modify their buildings, enabling the program to intervene.

Jessica said the program is looking to enhance work in multifamily projects by building on the program's success and high penetration and by adding new technologies as they become better understood. The plan is to research development of a low-income package by examining assumptions, use cases and new energy-saving strategies. Staff will also look at where they can better understand the financials of projects and develop a tool to help guide the thinking around payback and level of investment. First cost is the focus.

Lisa McGarity: How are you thinking about reaching building owners that have leased spaces?
Jessica Iplikci: Building relationships is one way. Tenants may be harder to identify, but the brokers and property managers are the ones to target. We are looking for the PMC to subcontract to bring those relationships and deliver the current incentive structure through market solutions.

Lisa McGarity: In Southern Oregon, a handful of contractors do the work, so the more they can champion energy efficiency, the better. What kind of outreach have you done with those contractors?
Dan Reese: I don't know the specifics except maintaining relationships with the local contractors in regions around the state. We'll continue working with them as we have in the past.
Jessica Iplikci: Depending on how the owner and tenant plan to modify their spaces, we hope to have the relationships in place to influence decision makers and make it easy to include upgrades. Part of this is better understanding the leasing structures. Once this is worked through, contractors can more easily include efficiency upgrades in their projects. One of the benefits of outreach staff located throughout the state is having a connected network that can dovetail into projects when they are ready to go. These relationships are important.

Jason Klotz: I'm assuming you contacted PGE?
Hannah Cruz: In regards to more specifics on 2019 budgeting and program activities, we will approach each utility in August and throughout the fall.

Lisa McGarity: You need to know the different actors and how they come into the market. It would be a helpful exercise.
Jessica Iplikci: We typically develop a logic model to look at the barriers and interventions.

5. Lighting Tool Market Research Findings

Lindsey Diercksen and Kenji Spielman provided information about the lighting tool research results. Energy Trust was investigating the possibility of developing a new lighting tool, and first conducted research to understand the challenges, benefits and the need of a new lighting tool. Staff reviewed lighting project volume and saw trends of increased LED projects and less savings per project. The current tool is Excel based, which poses some limitations yet is also a one-stop-shop for contractors using the tool. Based on CAC feedback, staff conducted research on other types of lighting tools in use not only in the Pacific Northwest but by program administrators in other regions. Feedback was received from staff, trade allies and other program administrators.

Lisa McGarity: How do they receive updates on the current Excel tool?
Lindsey Diercksen: The trade ally coordinator maintains it online through a portal for trade allies to download.
Kenji Spielman: Because it's one big download, it adds to the consistency. It added to people's familiarity with the tool. However, many distributors have their own tools they are using in parallel with ours.

Lisa McGarity: I'm assuming formulas are locked, so where do problems with formula corruption come from?
Lindsey Diercksen: Updating one portion of the tool sometimes causes inadvertent breakages in other parts.
Kenji Spielman: There are performance issues inherent to Excel, also.

Lindsey noted staff came into the project thinking that an online tool would be the solution. The third party evaluators asked the staff and users if they were interested and willing to move in that direction, and received both pros and cons to such a change.

Roger Kainu: If some are happy with the product, why are they carrying around their own?
Lindsey Diercksen: They felt that a single tool used by everyone could take away their competitive advantages. They worried that non-energy benefits such as operations, maintenance, and safety might not be included in a new tool. The online tool was also associated with previous poor experiences. We often think these things can be easy to use, but it doesn't always give the programs and the end users more flexibility.
Kenji Spielman: Many trade allies work in multiple territories, and they have one overarching tool the company uses. If the trade ally is only in Energy Trust territory, then it is possible they could just be using our tool.

Lisa McGarity: Are there other tools that could be uploaded later?
Kenji Spielman: We researched the needs and wants of stakeholders before looking into other solutions.

Lindsey Diercksen: Offline capability might be a big selling point. It didn't seem like enough value was there for the end user to build offline capability. Research didn't focus on the tool solutions in phase two as much as the other administrators and program needs.

Lindsey said coordination is important across programs as the lighting tool is used in both Production Efficiency and Existing Buildings programs.

Lindsey noted that based on market dynamics and feedback, the first recommendation is to hold on developing a new tool, and to refine the existing tool going forward.

Dave Moody: We've had a similar conversation with almost exactly the same result at BPA. Excel is unwieldy and hard to update. We struggle with that also.

Roger Kainu: I agree with your decision to hold on a new tool, and to think about whether there is a role for a national level effort that could go after federal funding. The Oregon Department of Energy can put together a proposal. I can remember this being an issue 15 or 20 years ago. Contractors have their own bandage approach.

Danny Grady: As you do move forward with refining the tool, consider the end users, like how to streamline the information needed in the lighting tool from contractor bids.

Lisa McGarity: I suggest you consider how many more years you plan to be in the lighting market and the savings you can find from exploring an easier tool with a sales piece for trade allies and more to meet the customer's needs. If you're going to do this for five years, and are using a lot of staff, it may be worth considering the trade-off.
Lindsey Diercksen: That's a good point. We need to look at the return on investment of different options.

6. Attribution Proposal and Discussion

Fred Gordon presented on attribution at Energy Trust; in other words, how Energy Trust counts the savings it reports and forecasts. The main question is how much effort Energy Trust should attempt to measure and quantify our influence on what led to savings from a specific engagement with Energy Trust. This is a discussion about what things Energy Trust measures, how Energy Trust defines things and where Energy Trust focuses its efforts. Free riders and spillover are difficult to measure. Currently Energy Trust reports in net savings, which is gross savings minus free riders plus spillover. Net savings are used because Energy Trust is working on the margin of an already active market. Energy Trust's forecast for efficiency can be added into load forecasting, so that's where the organization started. It was a conceptual match, but not a fit that can be validated.

Holly Braun: If reporting changed, would NW Natural's IRP team independently forecast savings without Energy Trust forecasts?
Fred Gordon: Utilities use our gross savings now. This is one of those things that changed since when we first started. Utilities have learned how to dovetail with our gross estimates. It's not as important as it used to be.

Fred noted there are many methods for understanding free ridership. Staff tries to simplify the definition by asking if the customer would have done it anyway without Energy Trust incentives. Staff also uses a sales mix based on past market conditions for things like LED light bulbs. This market baseline approach avoids the net versus gross issue because it considers sales of all products, efficient and inefficient. This proposal does not change that practice.

Jason Klotz: How do you currently assess free ridership? Is it through you or a contractor?
Fred Gordon: We use Fast Feedback surveys conducted by a contractor.

Jason Klotz: Would this be used as part of the criteria in a white paper for exiting a measure? Will this continue in the future?
Fred Gordon: We'll still consider our market influence and serve customers. We will still need to develop measure exit plans.

Lisa McGarity: Do you ask about price points? Like: "Would you buy this at $X?"
Fred Gordon: Not currently. If you ask hypothetical questions, people make up answers. It can end up being useless. High free-ridership may mean it doesn't matter or it may mean that the respondent can't remember.

Fred said the Northwest Power and Conservation Council uses gross savings, as do BPA and the consumer-owned utilities.

Holly Braun: What's the difference between market transformation and efficient equipment in the baseline?
Fred Gordon: For market baseline, you're looking at the mix of products in the market and the difference this year. For market transformation, you're forecasting the way things will go without you. You are trying to accelerate and enhance.

Fred said that for the 41 percent electric savings and 50 percent gas savings that are from a net analysis (the other savings coming from market transformation and market baseline analysis) gross savings are about 13 percent higher. In some programs, it may be as much as 30 percent. It's not huge overall, but it's significant. It would change some cost/benefit ratios incrementally and impact goals. There are issues with asking people whether they would have done something. There are many things in the market that influence the answers. Some of

Energy Trust's work is invisible in the market to the customer. Sometimes the contractor stocked the efficient product. The questions can become hypothetical and less meaningful. Midstream programs are invisible to participants. It's harder to follow Energy Trust's influence. For instance, behavioral programs teach customers to operate without Energy Trust, and multi-party initiatives like PACE or home energy scoring with the City of Portland make it difficult to tell who helped the customer.

Al Spector: How is this taken into account for IRP versus programmatic planning?
Fred Gordon: It's how each utility wants it to work.

Al Spector: There can be a difference between how you're tracking versus what's set in the IRP. There can be a variance. Theoretically, you can develop a gross target for Cascade Natural Gas and true it up for your planning and reporting, and come out with less. In gross, you can achieve a target but on paper it would appear you missed it.
Fred Gordon: We agree to the adjustments in advance with the utility. The numbers can translate.

Al Spector: Do you see a savings gain through spillover, or more of a market loss through free ridership?
Fred Gordon: We estimate spillover at about 1 percent. It's very small. Spillover is far less reliable than free ridership. How much of a bias is there? It's hard to measure.

Lisa McGarity: What does the OPUC require?
Fred Gordon: JP found some reference to net savings in his research with the OPUC in an IRP document from prior to 2002. The OPUC has required net by verbal contract, but no one can find it written down. It's more about IRP rules. We have talked to the OPUC staff about this.

Holly Braun: The Washington Utilities and Transportation Commission has NW Natural report in gross.

Fred said gross savings plus spillover seems to be the best option for the utilities, and that's the staff recommendation. He noted that by the time free ridership gets up to about 60 or 80 percent, Energy Trust is probably no longer supporting the measure. There are likely other indicators along the way.

Becky Robbins: Will you do the evaluation factor and line loss factor?
Fred: This change does not impact our use of realization rates or accounting for line losses.

Fred said he is sharing this with several groups, as shown in the slides. It will take changes in Energy Trust tracking, IT systems, goals and communications. It would be a change by fall 2019 to be ready for the 2020 budget.

CAC members discussed the pros and cons of the potential change, as well as areas where they may need more information.

Holly Braun: We talked about this years ago. The cause and effect isn't just linear—not A causes B. There are tentacles. The contractor designs their business model around it, and the customer does their action based on that and isn't aware of your influence. This makes a ton of sense. This topic would be good in the World Café-style workshop. It's very foundational and there are lots of implications. If you're doing gross and not net, things can still be cost effective in terms of what you offer. It may not lead to furnace incentives coming back, but if you move to

gross, are there other measures that come back into focus? It feels like there's a lot to work on with that.
Fred Gordon: It's true that there are a lot of factors and tentacles in the market. You can pick baselines based on current sales, like we do, or sales from other times, like what is done in Washington. For furnaces, we looked at the sales patterns and determined if we needed to be there, and the answer is yes in lagging markets.

Holly Braun: Will we have a chance to do a workshop on this?

Kari Greer: Pacific Power just had our bi-monthly meeting with Energy Trust, was that the engagement with us, or will there be more?
Fred Gordon: There will be more engagement.

Wendy Gerlitz: This won't change total resource cost test calculations but will it change utility calculations. How will they change?
Fred Gordon: We haven't looked at it measure by measure. This change won't impact individual measure cost effectiveness. We net out free riders at the program and utility level. That 13 percent savings improvement bounced around over the years. They are aggregated to be more meaningful.

Lisa McGarity: The gross method gives you a better overview of what's being contributed to the system. The programs are for the least-cost resource being purchased. Exiting a market is really complex.

Al Spector: Gross may be the right direction. The magic may be in baseline setting and incremental savings. For Cascade Natural Gas' Washington process, we look at new measure versus turnover or replacement. It's probably similar for Energy Trust. We can kind of look at the incremental when we're trying to build out therm savings. It takes some of the voodoo away from it. It would be helpful to have more of a workshop. I'm optimistic about this.

Dave Moody: This makes a world of sense to me. It's difficult to measure.

Holly Braun: We can't just answer it sitting around a table like this. We did net for a reason. It would be good to explore it before going to the board or OPUC.

Al Spector: In the documentation you put together, the organization intended to go beyond the savings going on at the time. Are there other ways to demonstrate that value add without taking the net approach?

Dave Moody: It doesn't sound like you're moving away from the base case now. The delta seems to be what's efficient versus market average. You don't care if it's free ridership. It's the system impact.
Al Spector: I agree, and that's what the language seemed to point to. You can capture that intent without using the net approach.

Al Spector: Is this the price at which we can achieve a certain amount of savings?
Fred Gordon: That's part of our work with the OPUC. We have to do more to get there.

Jason Klotz: Preliminarily, PGE was the holdout on moving to gross, but we need to see some details about when and how.

Fred Gordon: This isn't for today, but one big question is how do we move forward? That's a question for our program staff. We can give market research. We can give an unbiased version of, "Can you do this without us?"

Lisa McGarity: The whole reason free ridership is looked at is cost effectiveness. You can't count the savings, but you still have the costs. The commission has to look at where those numbers stand.

Kari Greer: I think we should speak with our internal team to discuss it. It would be good to flesh out what we think is in rule.

Hannah Cruz: It sounds like there are still questions about a better understanding of the objectives and intent behind originally using net and whether those objectives, if still needed, will be met through a change to gross. In addition, you are asking about when and how programs would know to exit a market in a gross world.

Al Spector: Since you merged comments as mine and Holly's. I think we would be favorable to this if we work out the odds and ends. I support moving to gross, but if we find we agree with the original intent of net we need to understand how we clarify the differences for regulators. I'm initially in favor.

Holly Braun: NW Natural just had our semi-monthly meeting and this didn't come up. As we're just discussing the role of CAC, this does seem like the type of thing we can flesh out if it's needed and helpful.

Fred Gordon: Is this a whether question or a how question? If it's what is the meaning of X, it's broader than a how-question.

Holly Braun: I'm thinking it's in the how. If you're calculating the cost effectiveness of something versus claiming savings, you can run through a white board exercise to see the implications of the change. That would be helpful.

Hannah noted she will take the remaining questions internally to staff to understand what further engagement could be had at CAC.

7. Public Comment

There were no public comments.

8. Meeting Adjournment

The meeting adjourned at 4:40 p.m. The next Conservation Advisory Council meeting will be held on Wednesday, August 1, 2018.

Production Efficiency
PDC recommendation

August 1, 2018

Energy Trust of Oregon

New Custom track program design in 2019

Custom PDC teams to provide:

- Customer outreach and account management
- Strategic energy management (SEM) coaching and modeling
- Technical support and studies

Milestone	Date
RFP posted	March 26, 2018
Intent to respond due	April 3
Webinar	April 5
Proposals due	April 27
Interviews conducted	May 21 - 23
Internal selection	June 14
Recommendation to board	July 25

RFP Overview

Energy Trust of Oregon

Review team

- Energy Trust staff – 11
  - Programs
  - Finance, Legal and IT
  - Planning and Evaluation
  - Communication and Customer Service

- External reviewers – 2
  - BPA Industrial expert
  - Diversity, Equity and Inclusion expert

Proposal scoring

Criteria	Weight
Cost and Energy Savings	40%
Strength and Cohesion of PDC Team	25%
Strength of Proposal	20%
Diversity, Equity and Inclusion	15%

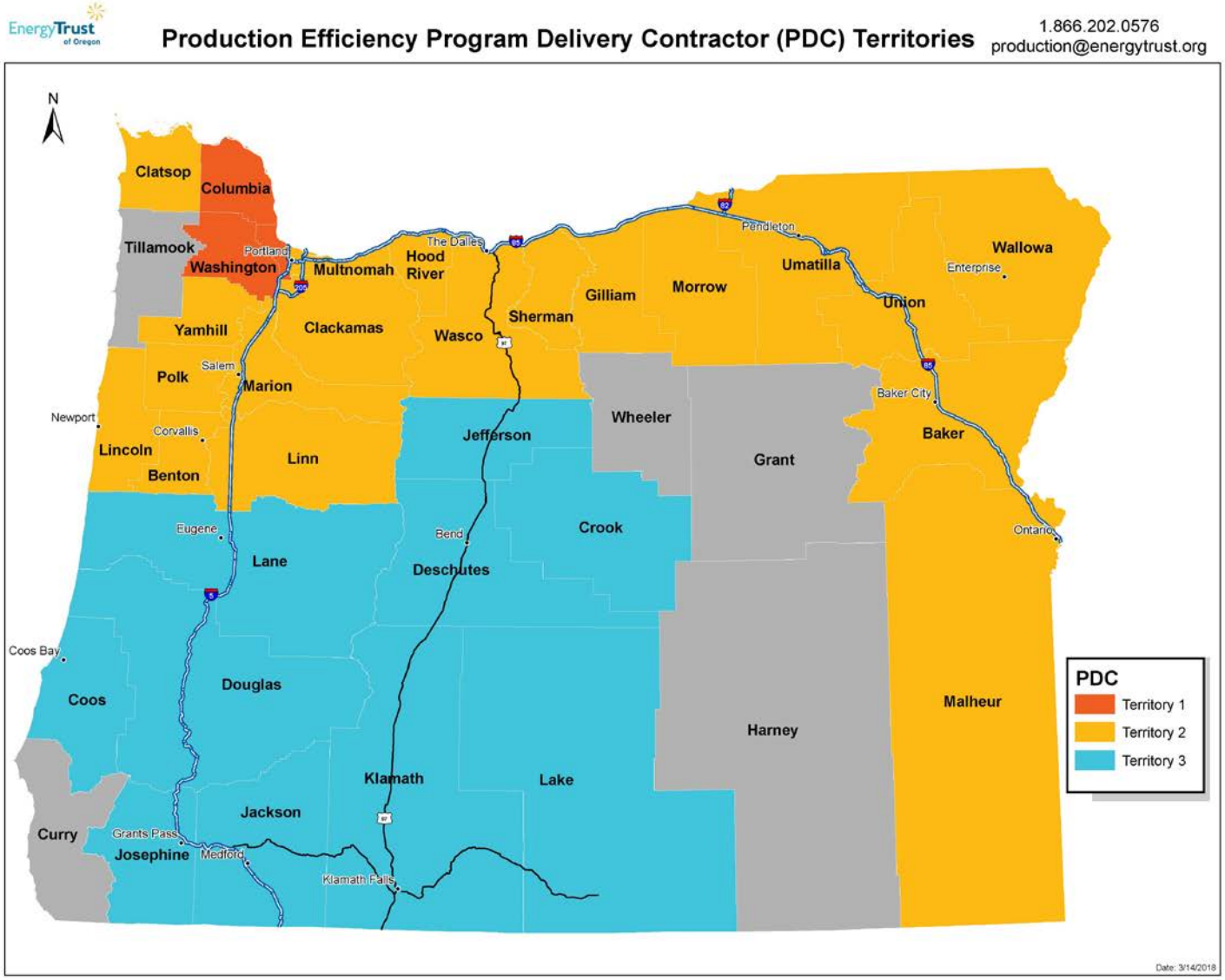
Recommended PDC contracts

Territory 1: Cascade Energy

Territory 2: Energy 350

Territory 3: RHT Energy

PDC Territory Map



Energy Trust provides technical services and cash incentives to customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas, and Avista.

Strengths of Cascade Energy proposal

- Strong industrial expertise to drive deeper savings and help evolve the Production Efficiency program.

- Demonstrated regional and national success in delivering industrial energy efficiency programs.

- Strong SEM experience and skill set as long-time SEM coaches for the Production Efficiency program.

Strengths of Energy 350 proposal

- Demonstrated success delivering PDC services for the Production Efficiency program
- Strong set of technical account managers and engineering staff.
- In-house delivery for outreach, technical and SEM services expected to yield streamlined project implementation.

Strengths of RHT proposal

- Demonstrated success delivering PDC services for the Production Efficiency program
- Strong customer relationships and trust that has been developed over many years. Intimate knowledge of the territory.
- Experienced, proven SEM coaching subcontractor.

2019 Measure Review

CAC Presentation

August 1, 2018

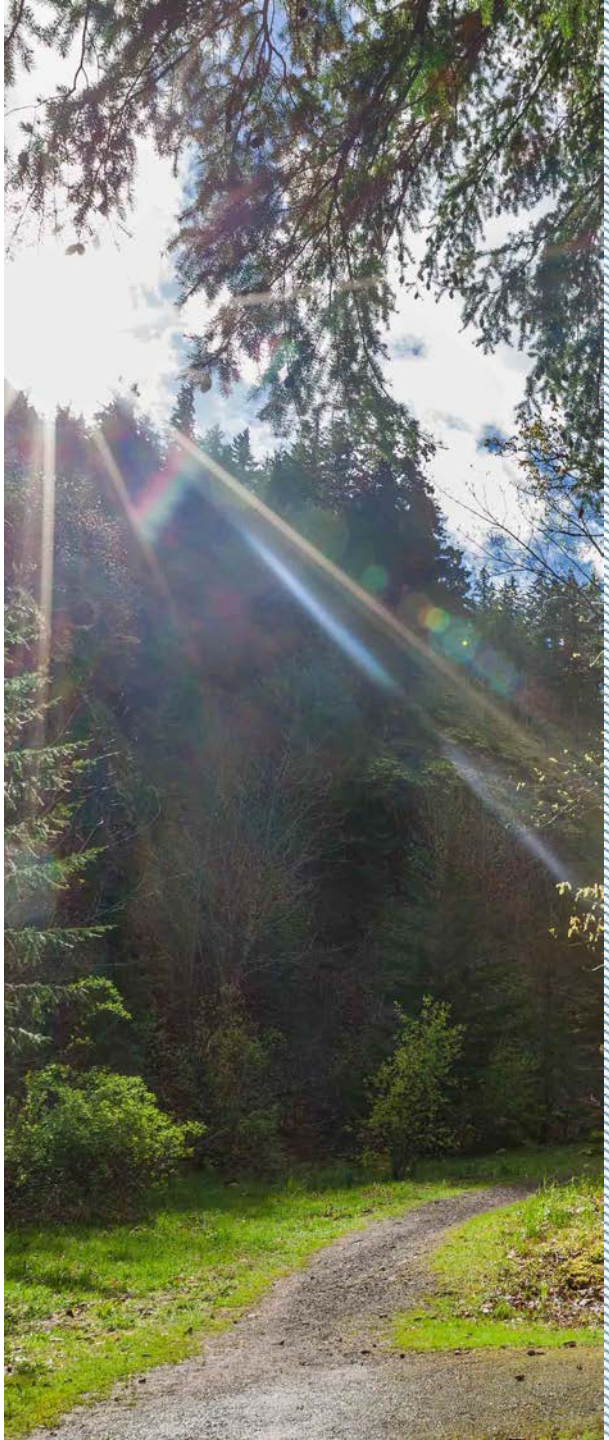
Energy Trust of Oregon

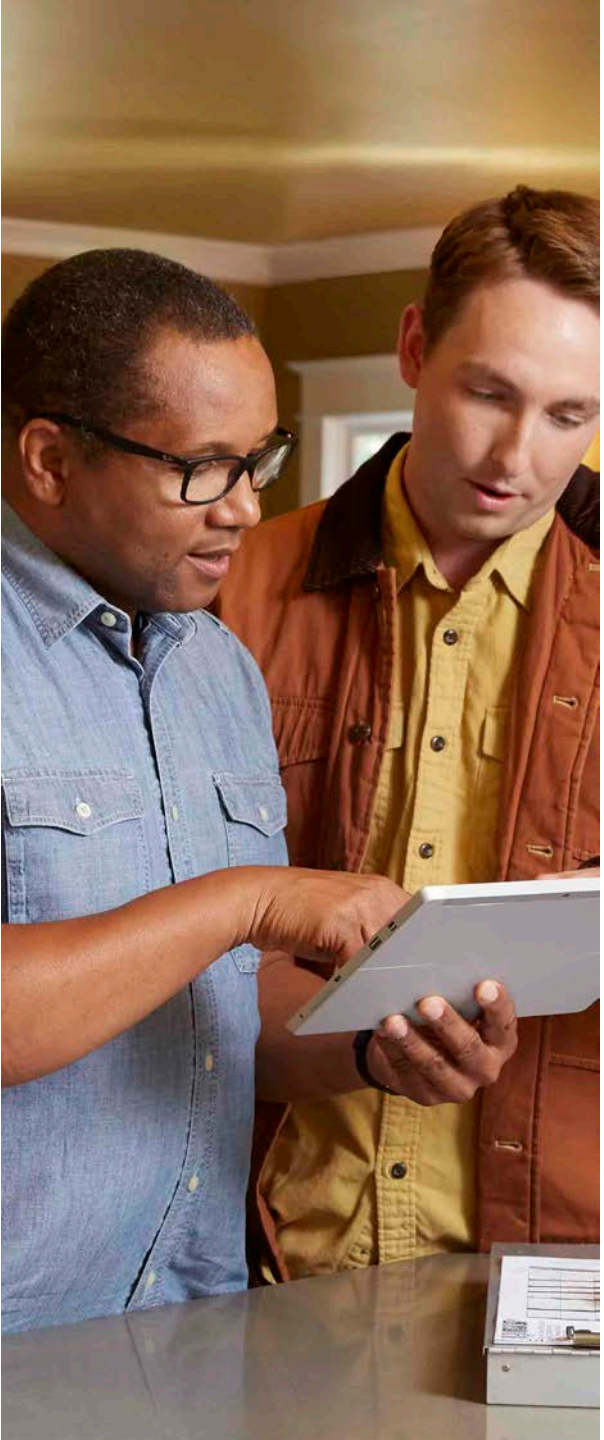
Agenda

- 2019 measure development update
- Lighting measure issues
- Water conservation measure issues

Measure approval document update summary

- 147 total currently active measure approval documents (MADs)—each with multiple measures
- 25 published Q4 2017
- 31 published 2018 YTD
- 26 currently in progress
  - Includes four anticipated exception requests
  - Does not include new MADs in development
- 16 expiring MADs





New measures approved

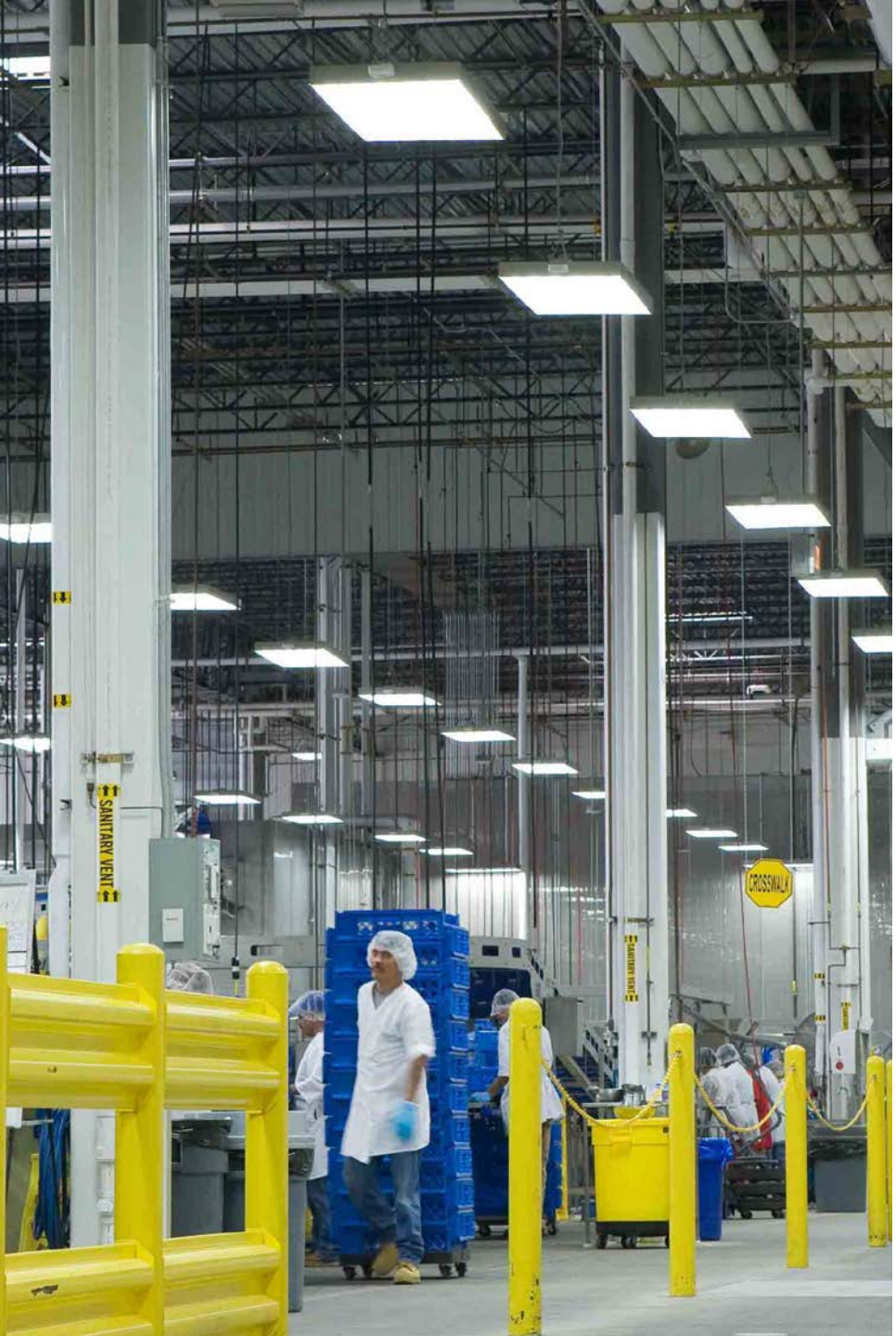
- Manufactured homes early retirement (gas path in development)
- Commercial condensing tankless water heater < 200 kBtu
- Market-rate ducted heat pumps in manufactured homes
- Air-cooled variable refrigerant flow (VRF) multi-split heat pumps
- Residential thermostat optimization pilot
- Shift model top-loading clothes washers

Exception Requests

- EPS Path 1—extended expiration of exception (granted May 22 – valid until December 2019)
- Irrigation measures—request submitted
- NEEM 2.0 gas manufactured homes—in development
- Commercial and industrial TLEDs 3’ and 5’ —in development
- Direct installation of smart thermostats gas paths—in development

Expiring MADs

Measure Approval Document	Applicable programs
Condensing unit heaters	Existing Buildings, New Buildings, Production Efficiency
Commercial and industrial lamp replacement	Existing Buildings, Multifamily, Production Efficiency
Hotel room HVAC occupancy sensor	Existing Buildings, New Buildings
Residential pool pump	Existing and new residential
Windows predictive savings tool	Existing Buildings, New Buildings
Multifamily duct insulation, 4 living units or less	Multifamily
Wine tank insulation	Production Efficiency
Commercial ice makers	Multifamily, New Buildings, Production Efficiency
Data center power distribution	New Buildings
Data center uninterruptible power supply	New Buildings
Data center water-cooled chiller	New Buildings
On-site wastewater treatment	Existing and new residential
Multifamily wall heater	Multifamily
Multifamily electric water heaters	Multifamily
Multifamily water submetering	Multifamily
Turbopot	Existing Buildings



In progress

- Eight commercial and industrial lighting MADs
- Four residential lighting MADs
- Seven water conservation MADs (aerators, showerheads, kits)
- Four others—irrigation, efficient motors, residential clothes washers

Energy Trust of Oregon

Context: Market trends and issues

Lighting—market trends

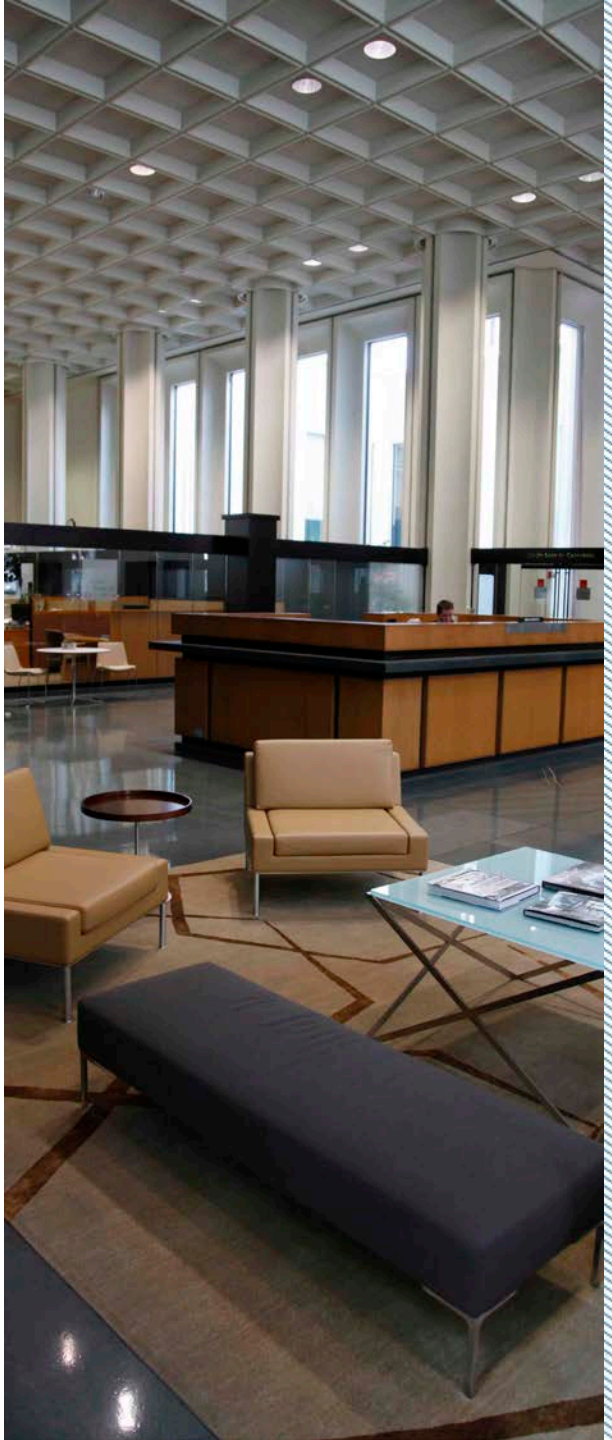
Increasing market adoption of LEDs in all sectors

- Continued LED price declines
- Increased consumer and business awareness
- New LED products—filament bulbs and “value LEDs” (non-ENERGY STAR)
- Increasing TLED market share
- Market mix baselines—per-lamp kWh and non-energy benefits reduced as baseline becomes more efficient

EISA

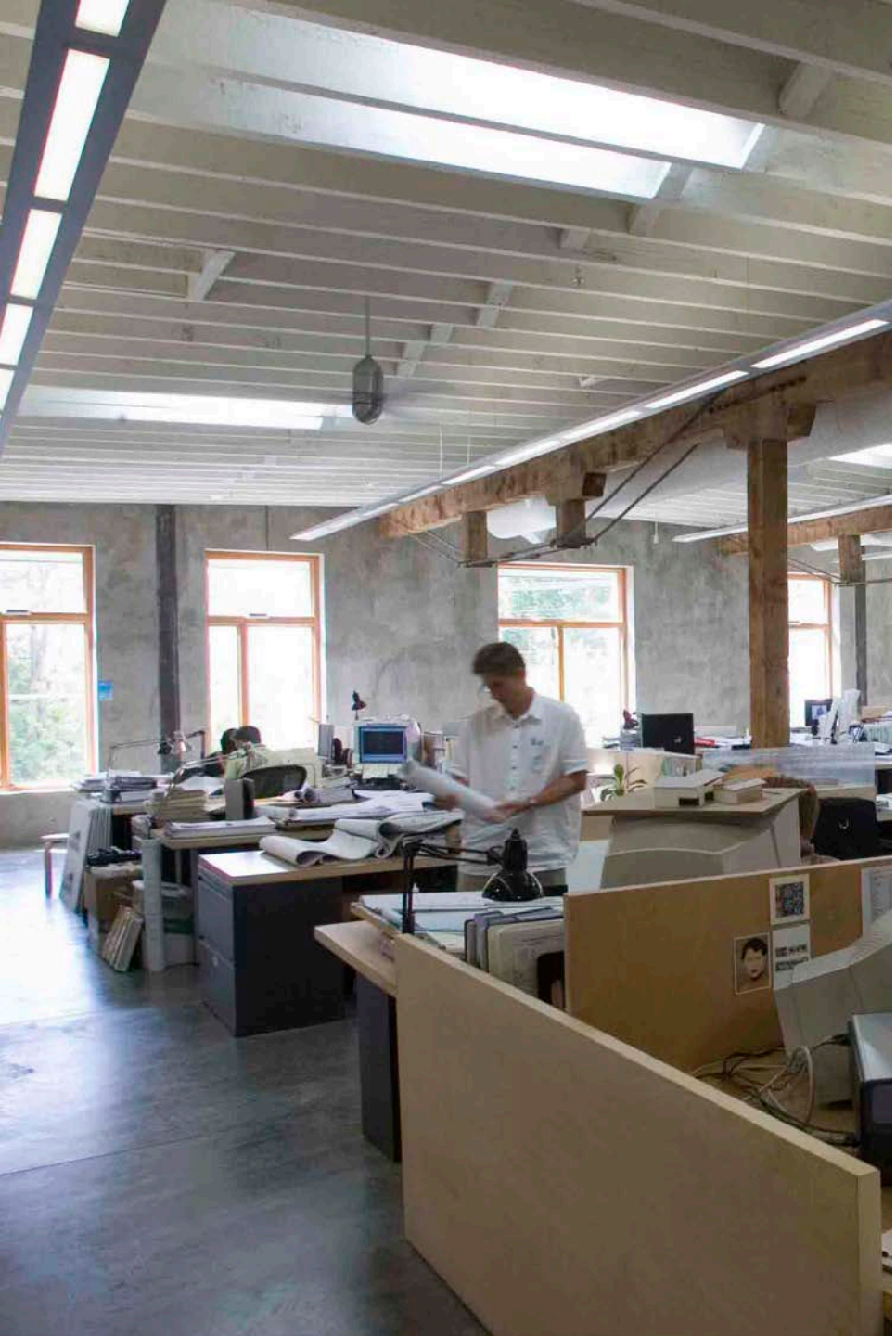
Energy Independence and Security Act (EISA) back stop goes into effect Jan 1, 2020

- Signed into law in 2007
- 45 lumen/watt requirement eliminates halogens and incandescents
- 2017 rulemaking expanded scope —greatly reduced exclusions
- Decline of CFLs means LEDs become effective baseline
- Manufacturer lawsuits settled
- Requires Act of Congress to repeal



Impact of EISA

Measure	Sector	Savings (kWh)	Total NEB (Annual $)	Maximum Incentive ($)	TRC BCR
Screw-in A-Lamps, medium base (49, without EISA)	Commercial	18	$2.64	$4.34	1.453
Screw-in A-Lamps, medium base (49, with EISA)	Commercial	6	$0.23	$1.36	0.217
Screw-in PAR/Directional Lamps, less than 20 watts	Commercial	49	$7.56	$14.58	2.689
Screw-in PAR/Directional Lamps, less than 20 watts (with EISA)	Commercial	48	$0.86	$8.88	0.599
Res retail general purpose (144, without EISA)	Residential	4	$0.11	$1.60	2.253
Res retail general purpose (144, with EISA)	Residential	1	$0.00	$0.66	0.412
Res retail reflector (144, without EISA)	Residential	5	$0.18	$2.30	2.091
Res retail reflector (144, with EISA)	Residential	2	$0.00	$1.29	0.559
MF direct install general purpose (139, without EISA)	Residential	10	$0.55	$6.05	1.839
MF direct install general purpose (139, with EISA)	Residential	2	$0.00	$1.47	0.242
MF direct install reflector (139, without EISA)	Residential	10	$1.15	$6.08	2.744
MF direct install reflector (139, with EISA)	Residential	4	$0.00	$2.59	0.425



EISA Plan

- 2019 measures assume EISA repealed or delayed
- If EISA still in place early 2019, plan to terminate measures for 2020
- Monitor market closely to determine best timing to ramp down

Water savings measures

- These are old, long-standing measures
- Measures based on circular reference assumptions
- Limited direct data
- Baseline has improved over time (lower flow rates)
- Updates to data and analysis have resulted in reduced energy and non-energy benefit savings

NEW Regional Technical Forum aerator model

Modeling Assumptions

Parameter	Kitchen	Bathroom	Source
Hot Water Volume at reference rated flow rate (2.0 kitchen, 1.5 bathroom)	2.7 gallons / person / day	0.9 gallons / person /day	SBW SF and MF studies
Mixed Water Temperature	93°F	86°F	Cadmus MI metered study
Hot Water Heater Inlet/Outlet Temperatures	Inlet: 53°F Outlet: 128°F		HPHW research, RTF Showerhead measure, 7th Plan Aerator analysis
Hot Water %	53%	44%	Computed
% Constant Duration	50%	75%	CAT guess. Rationale: •Bathroom: used primarily for washing/rinsing, but some filling and waiting for hot water. •Kitchen: some water used for filling pots, filling sink, drinking, waiting for hot water. Some washing/rinsing.
Throttling Rate	50%		CAT guess. Consistent with SBW MF study.
People per faucet	SF: 2.4 MH: 2.5 MF: 1.8 Any: 2.3	SF: 1.0 MH: 1.2 MF: 1.4 Any: 1.1	RBSA II. Estimate of occupants in region divided by estimate of number of faucets in region
In-Service Rate	By Request: 55% Direst Install: 87%		Average of measured findings from 14 Energy Kit and 2 Direct Install evaluations

Regional Technical Forum aerator analysis impact

			ETO 2018	RTF - Aerators v1.0		ETO - Modified RTF as of 7/23/18	
Sector	Type	Flow Rate (GPM)	Savings (kWh)	Savings (kWh)	% of ETO 2018	Savings (kWh)	% of ETO 2018
SF	Kitchen	1.5	152	43.2	-72%	47	-69%
SF	Bath	1	182	25.5	-86%	28	-85%
MF	Kitchen	1.5	152	32.7	-78%	54	-64%
MF	Bath	1	182	34.8	-81%	44	-76%

- Therm and non-energy benefit impact similar to electric impact
- Savings reduction is due to improved baseline efficiency, lower mix temperature and percent constant flow—original measure assumptions from 2005
- We assume 15-year life versus 10 years for Regional Technical Forum
- Measures still cost-effective

Aerator flow assumption sensitivity

			ETO - Modified RTF							
			25% Constant Duration		50% Constant Duration		75% Constant Duration		100% Constant Duration	
Sector	Type	Flow Rate (GPM)	Savings (kWh)	% of ETO 2018	Savings (kWh)	% of ETO 2018	Savings (kWh)	% of ETO 2018	Savings (kWh)	% of ETO 2018
SF	Kitchen	1.5	23	-85%	47	-69%	70	-54%	93	-39%
SF	Bath	1	9	-95%	18	-90%	28	-85%	37	-80%
MF	Kitchen	1.5	27	-82%	54	-64%	82	-46%	109	-28%
MF	Bath	1	15	-92%	29	-84%	44	-76%	59	-68%

- Lack of direct data on portion of constant duration versus constant volume water use
- Agree all or nothing are both wrong
- Regional Technical Forum “guess” (yellow) results in “best fit” model results

Water next steps

- MADs almost finalized
- Expected to still be cost-effective
- Large savings and non-energy benefit reductions for aerators —biggest impact for multifamily direct installations
- Showerheads expect slight decrease in retail, slight increase in multifamily

Thank you

Mike Bailey, PE

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EnergyTrust of Oregon

Existing Multifamily Market Analysis & Program Trends

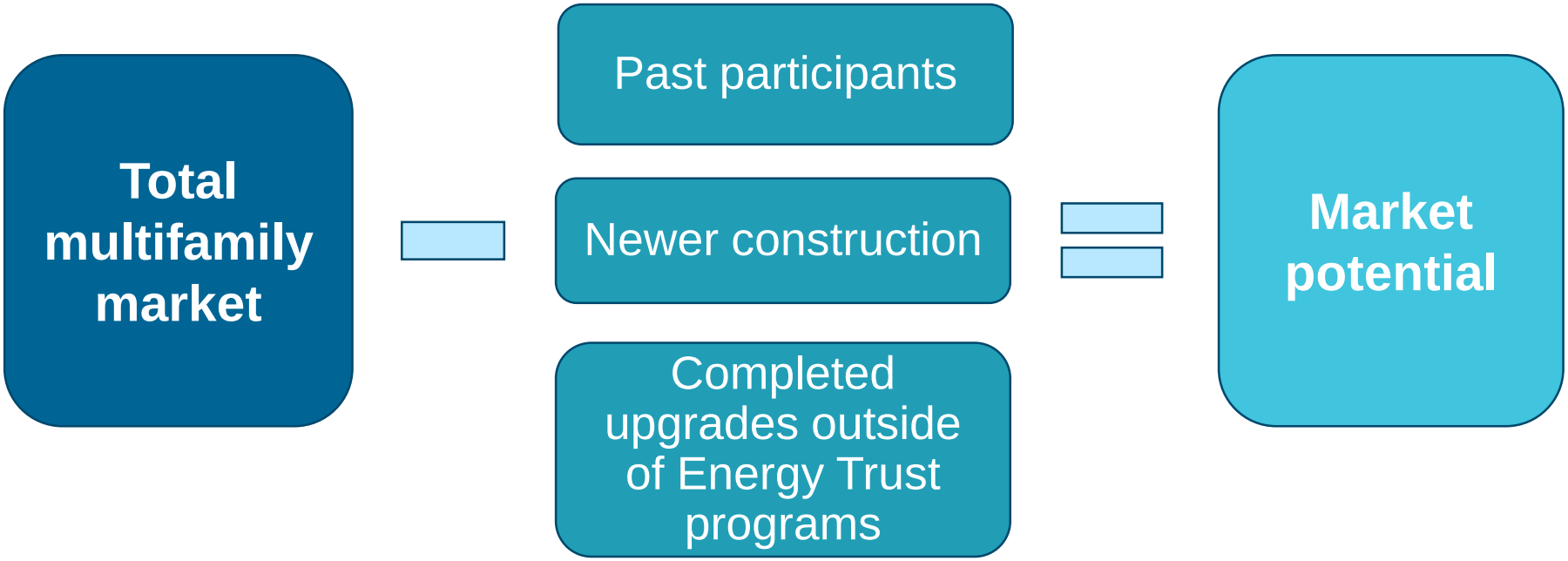
Conservation Advisory Council, August 1, 2018

EnergyTrust of Oregon

Agenda

- Market overview
- Program participation trends
- Direct-install track trends
- 2019 considerations

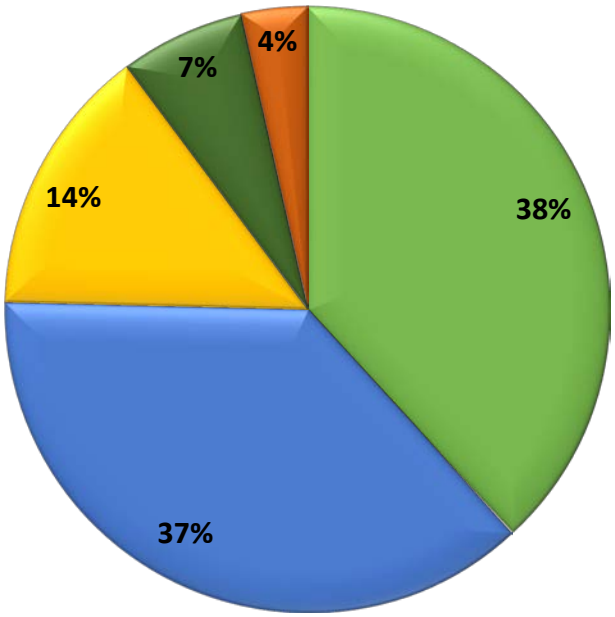
Existing Multifamily market analysis



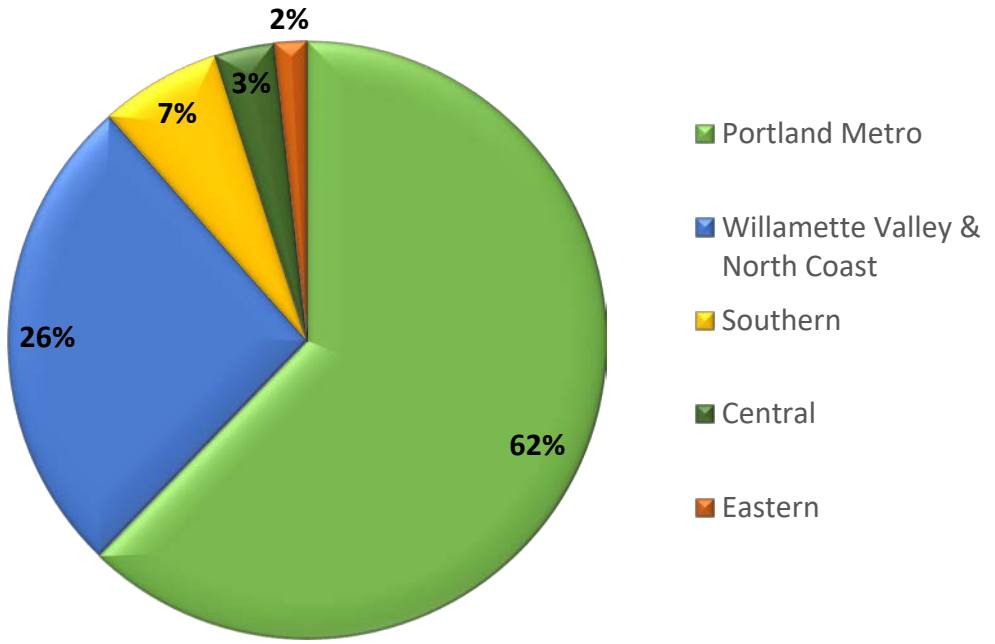
Market Overview

Market overview: regions

Eligible Multifamily Properties by Region

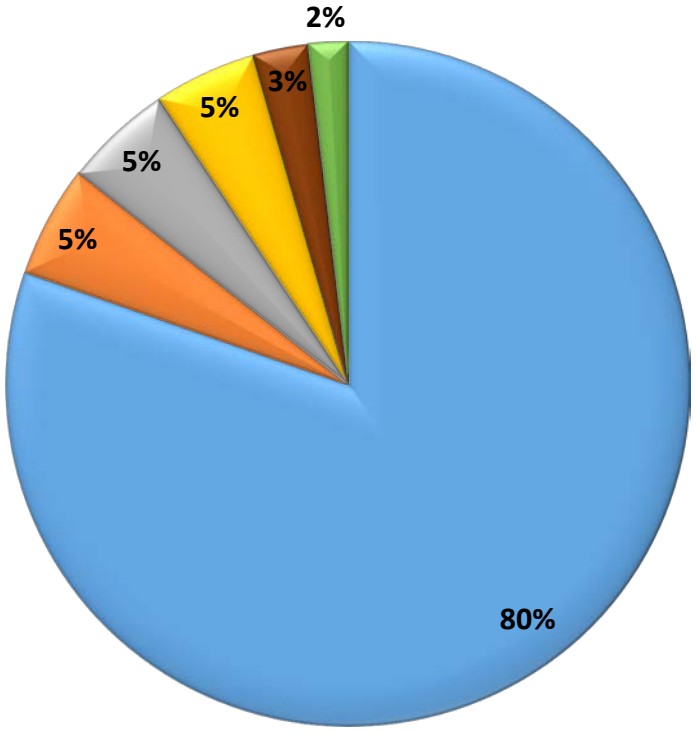


Eligible Multifamily Dwelling Units by Region

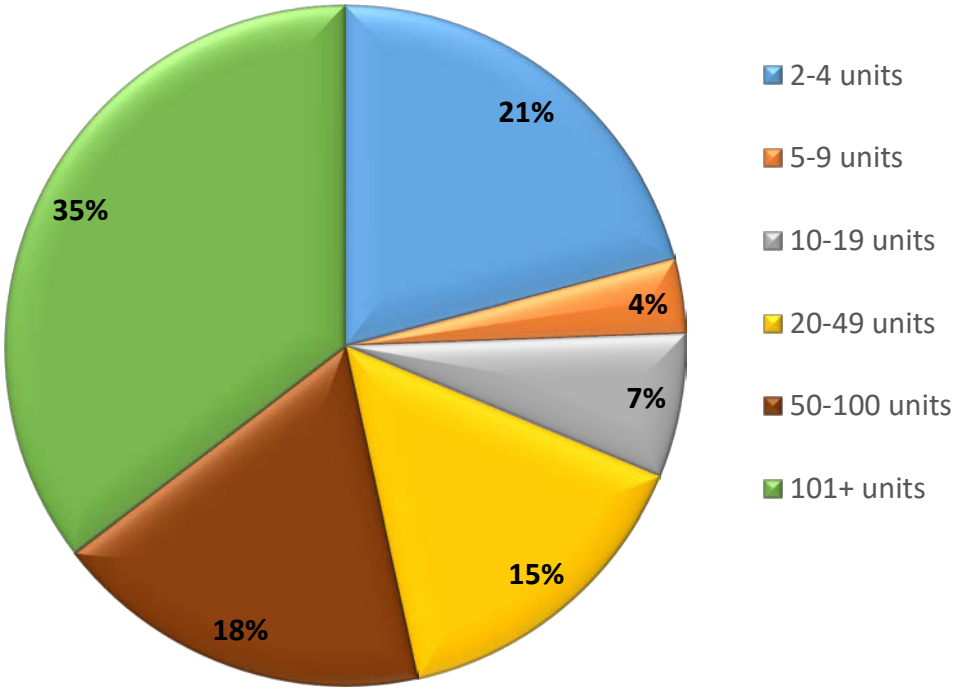


Market overview: property size

Eligible Multifamily Properties by Property Size

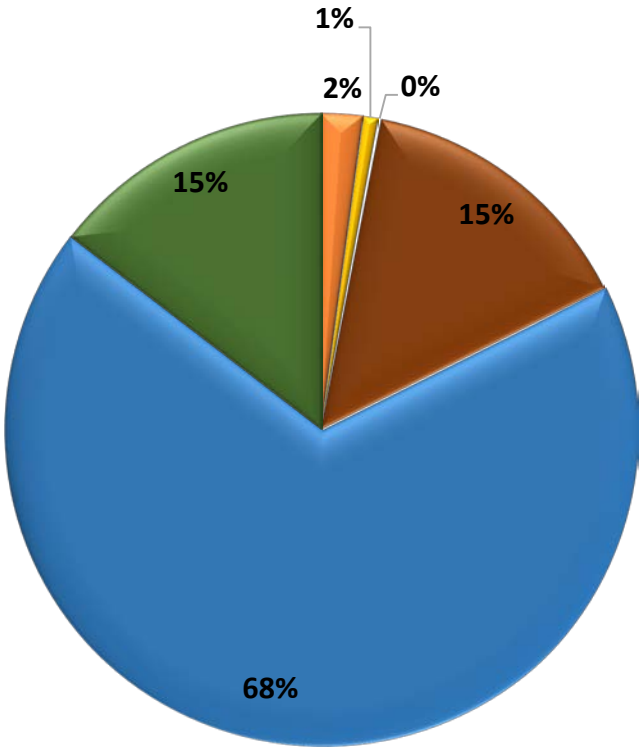


Eligible Multifamily Dwelling Units by Property Size

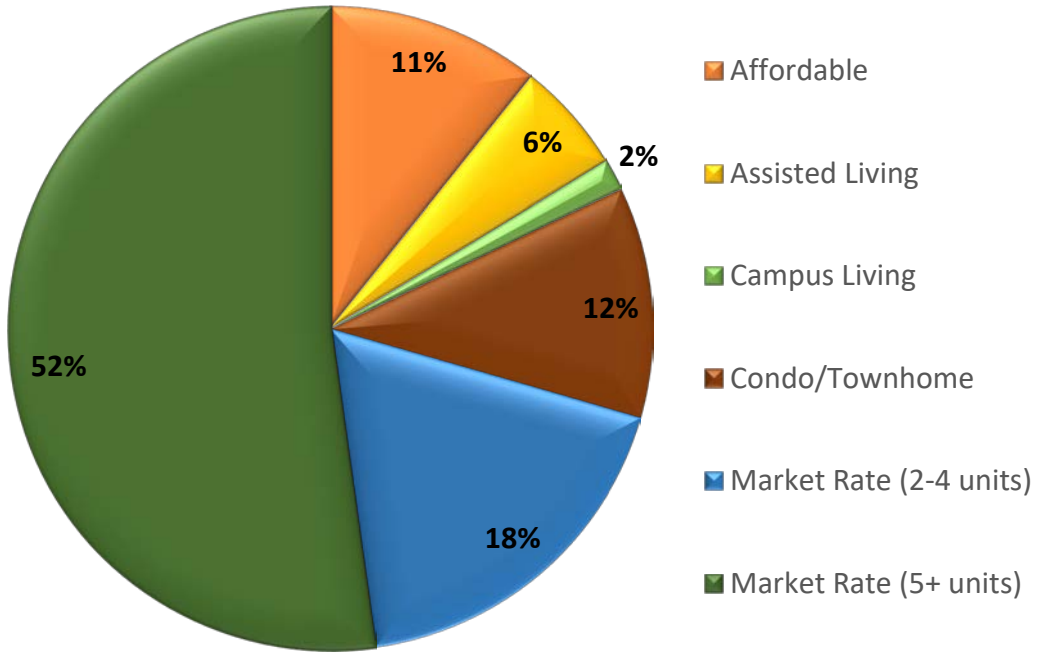


Market overview: market segments

Eligible Multifamily Properties by Market Sector

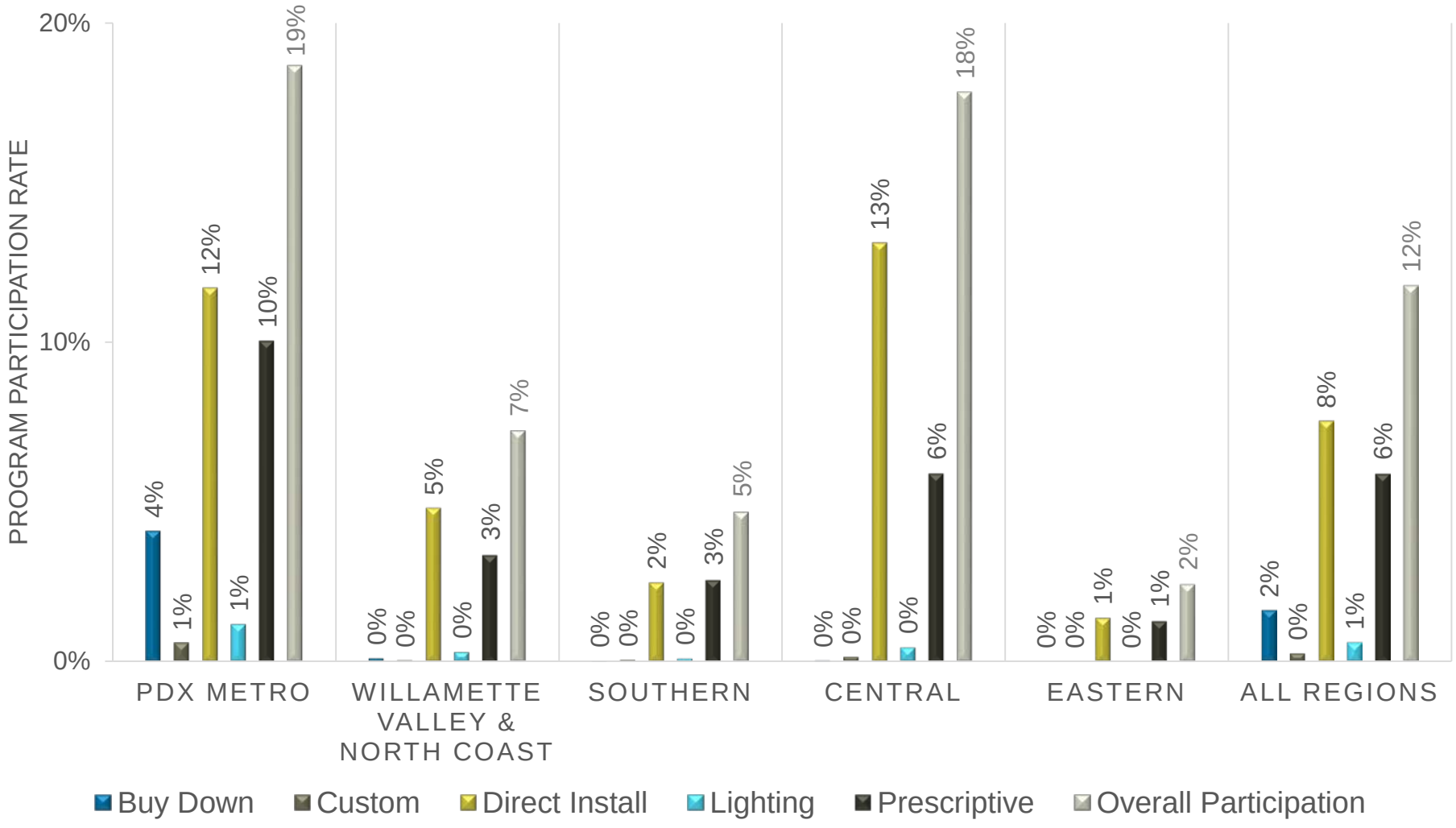


Eligible Multifamily Dwelling Units by Market Sector

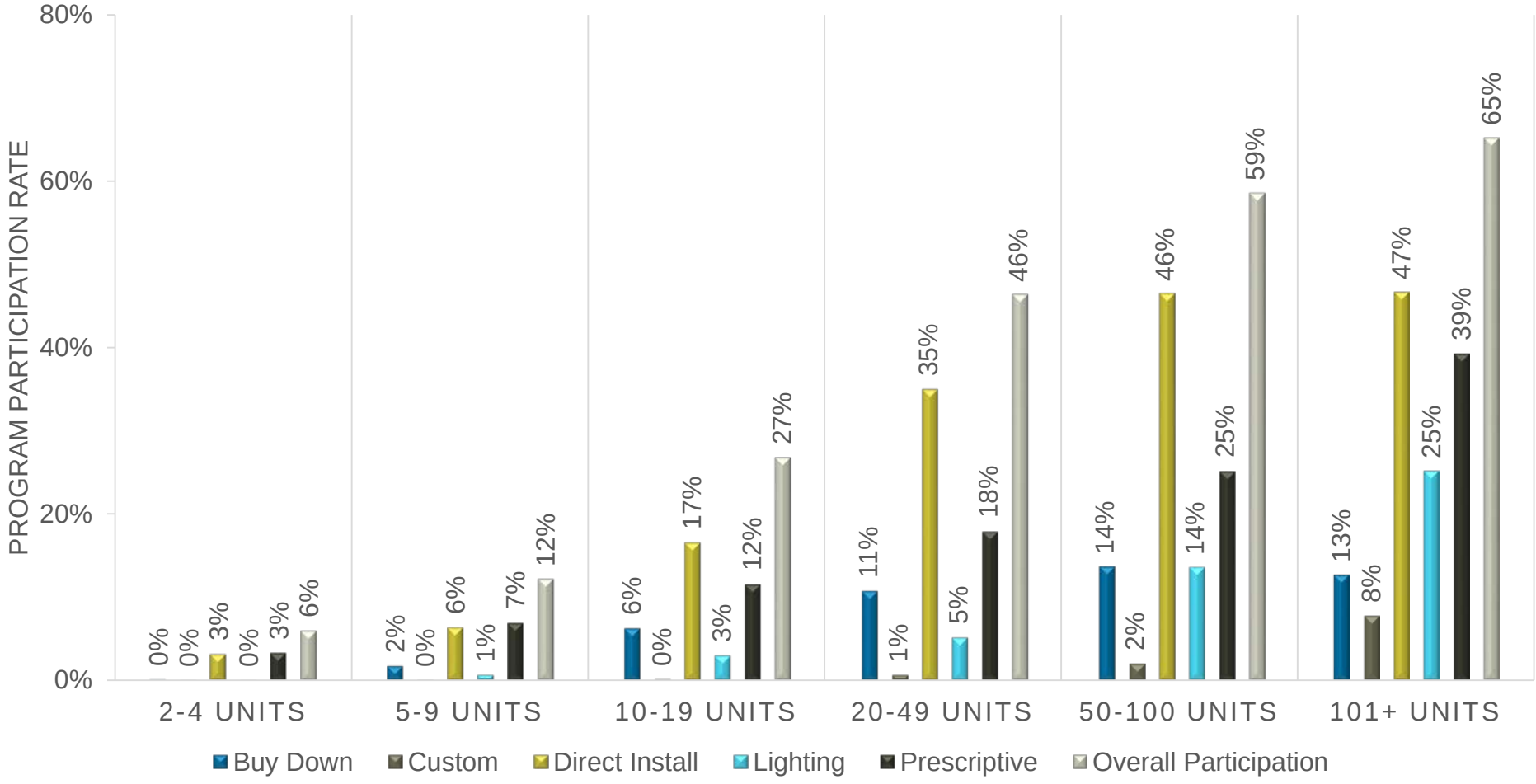


Program Participation Trends

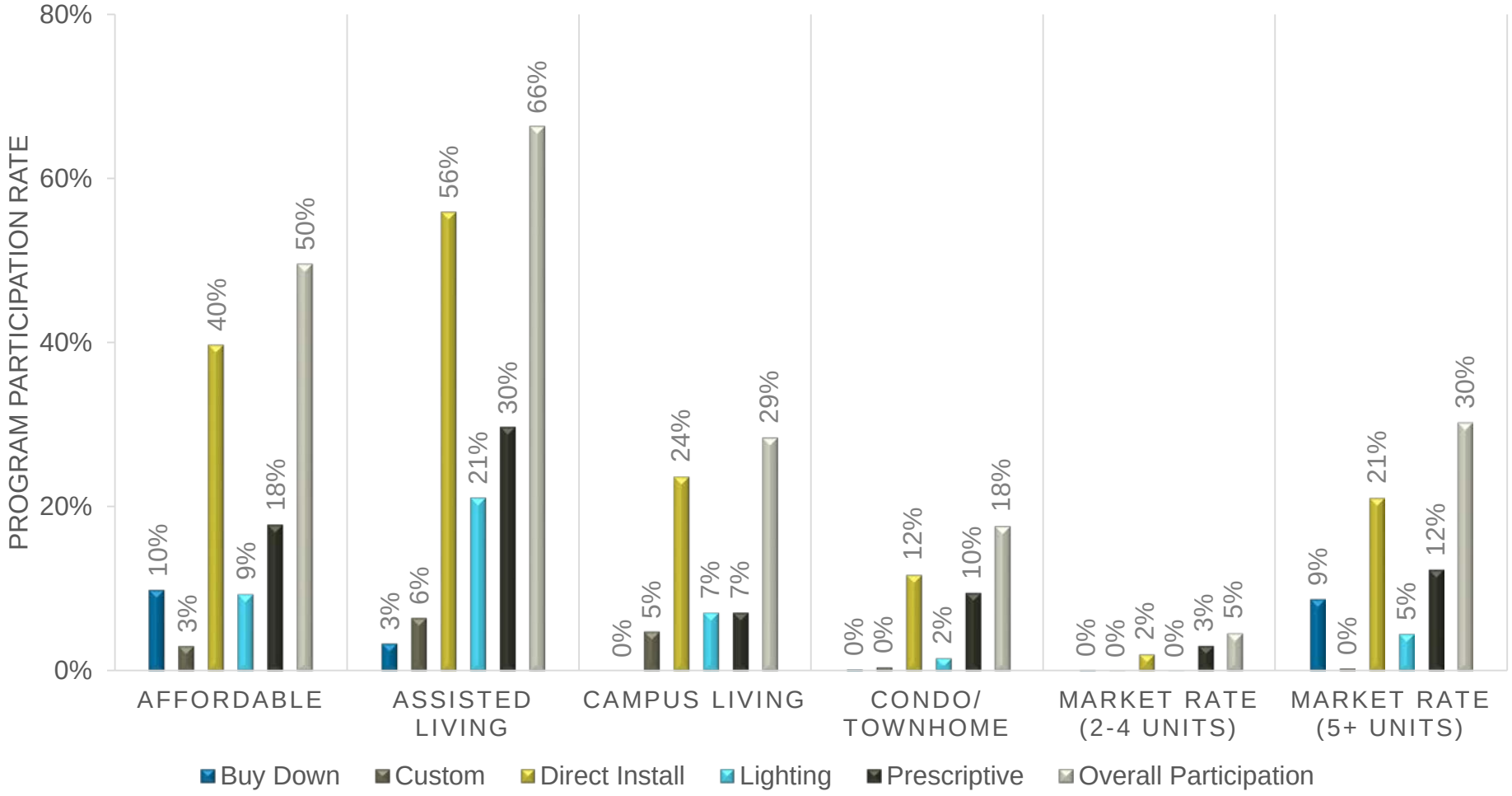
Program participation: region



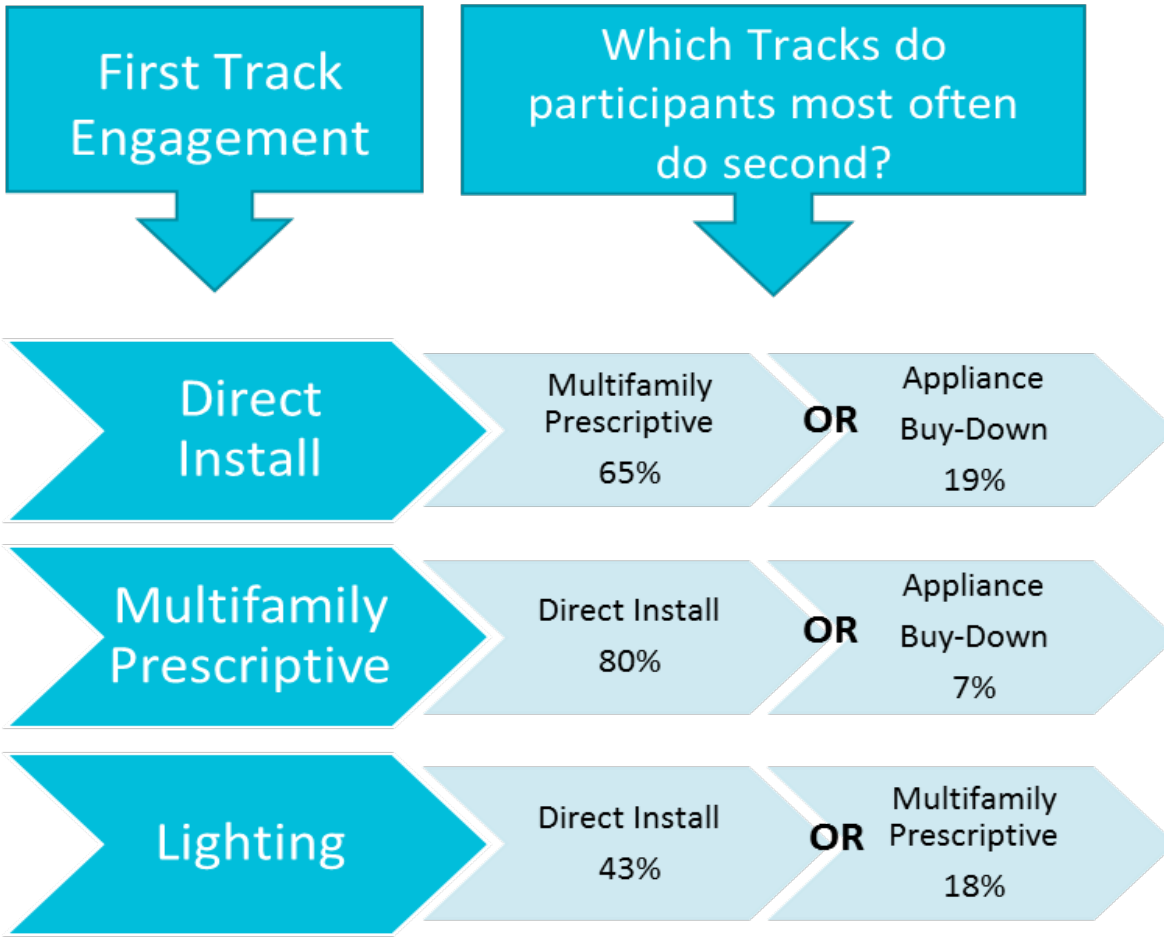
Program participation: property size



Program participation: market segments



Customer participation pathways

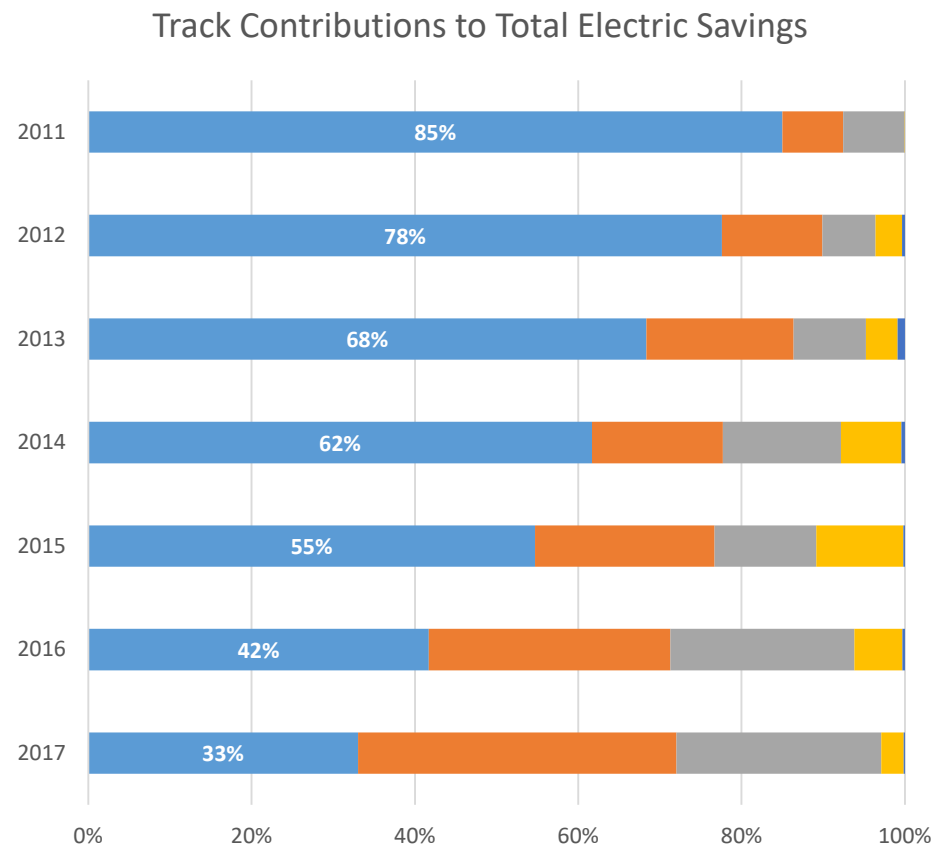


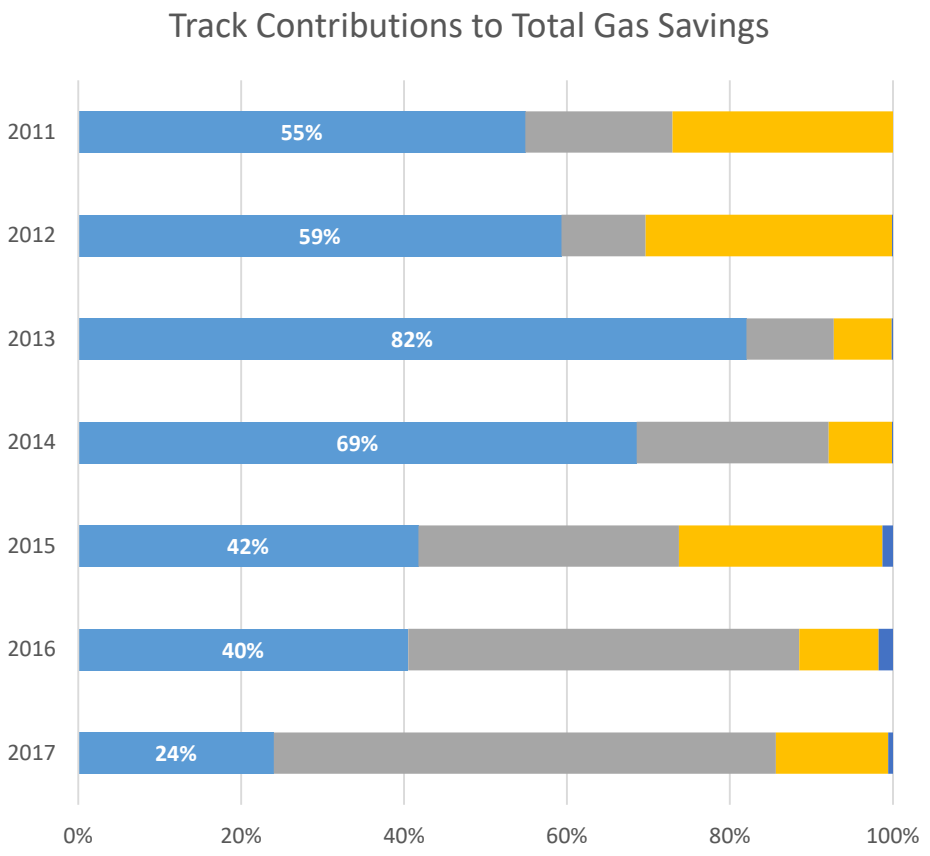
Key takeaways

- Lots of remaining opportunity in all regions, market segments and property types
- Direct-install strongest performing track—serves as entry point for additional projects
- Large areas of opportunity in small multifamily properties and non-metro regions
- Focus on re-engagement opportunities with larger past participants
- Importance of tailored engagement strategies to reach new customers

Direct-install Trends

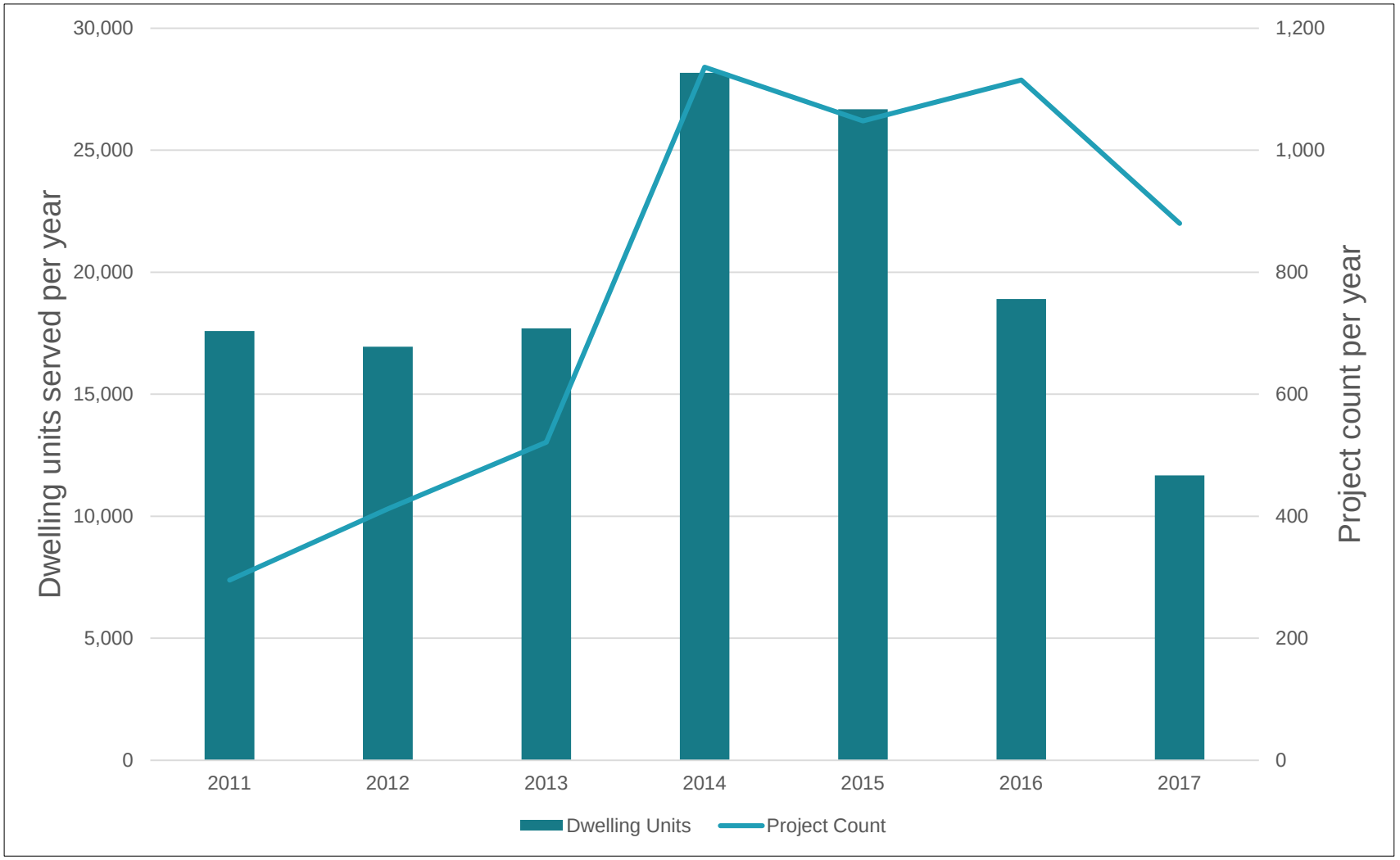
Direct-install: savings trends



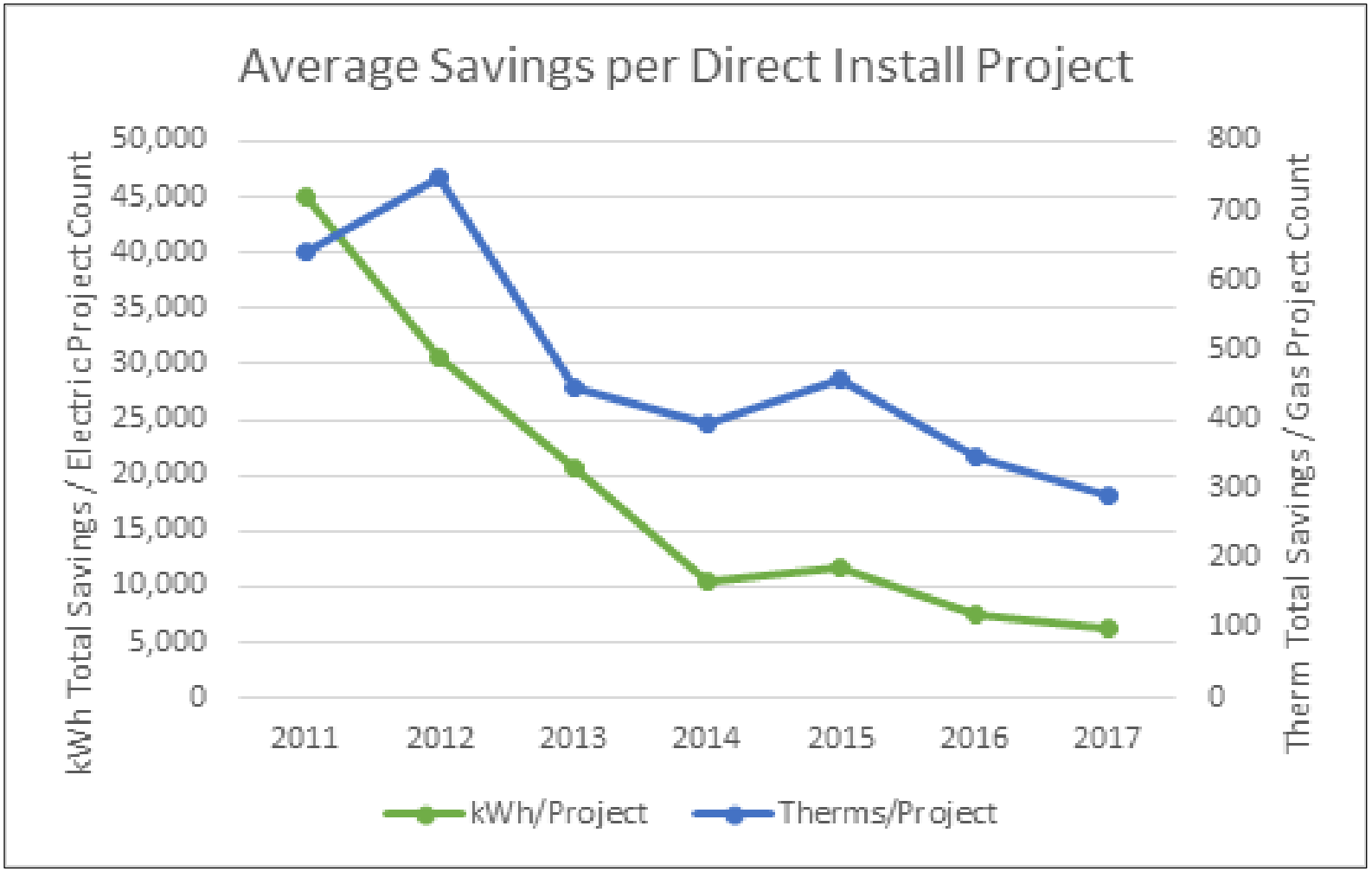


Direct Install Lighting Prescriptive Custom Buy Down

Direct-install: project size trends



Direct-install: project size trends



2019 Considerations

- Direct-install measure level savings reductions
  - Non-energy benefits also impacted
  - Monitor impacts on program-level cost-effectiveness
  - Explore program redesign opportunities for 2020

- Ongoing trends:
  - Increased market saturation
  - Increased project volume with lower savings per project
  - Increased cost-of-acquisition for new customers

- Continued focus on reaching lower-participation customer groups

Thank you

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EnergyTrust of Oregon

Midstream water heater market update

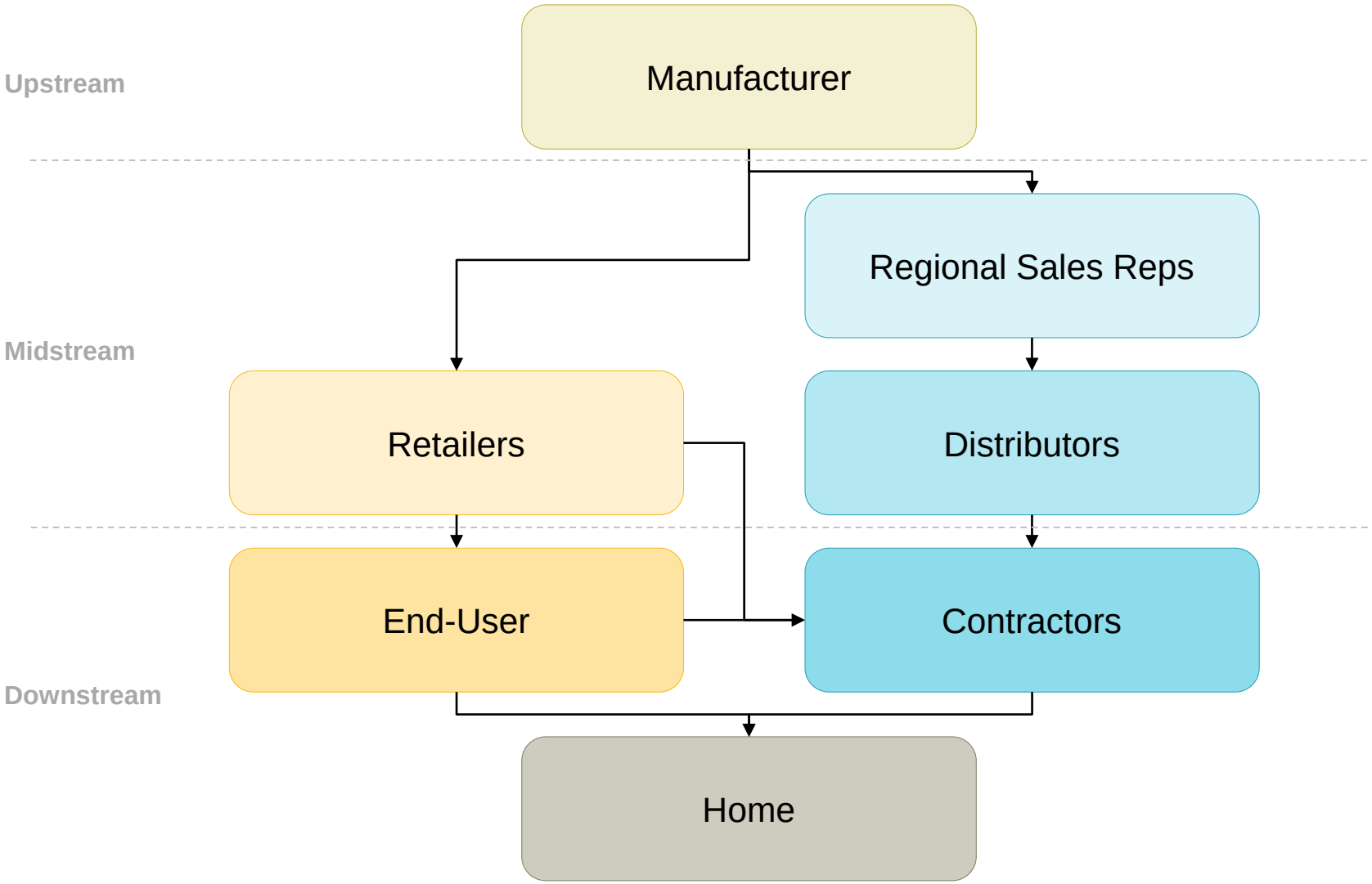
August 2018

EnergyTrust of Oregon

Agenda

- Midstream program
- Market changes
- Proposed actions
- Discussion

Water heater supply chain

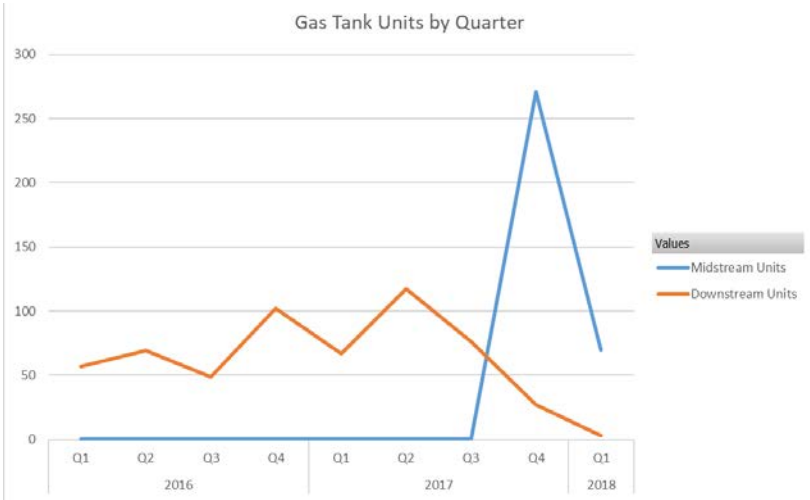


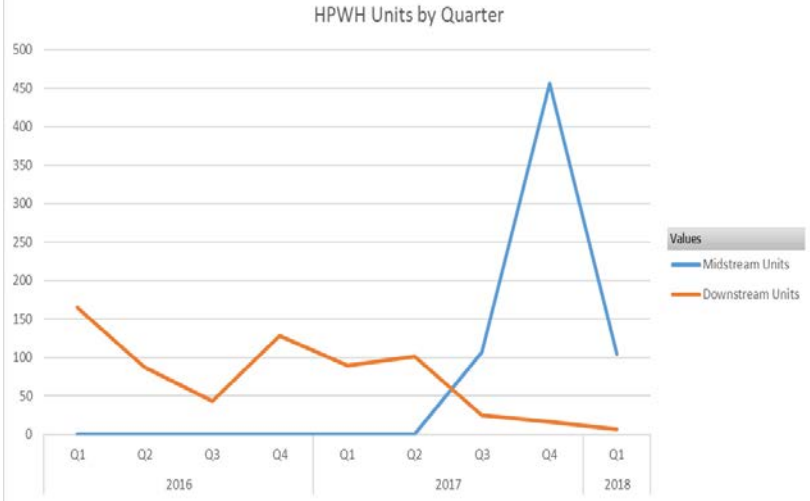
Midstream program basics

- Transitioned to a midstream offer in mid-2017
- Incentives:
  - $300 per heat pump water heater (HPWH) (Tier 3)
  - $100 per gas tank water heater with energy factor 0.67 or greater
- Incentives provided to distributors and retailers
  - Encourages stocking and sale of efficient units
  - Simplifies incentive process for customers and contractors
  - Shifts reporting burden to retailers and distributors

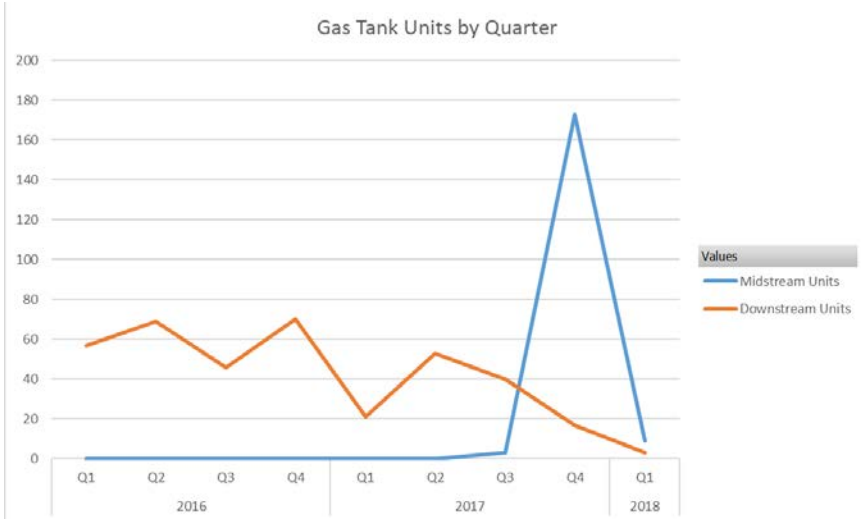
2017 midstream transition results

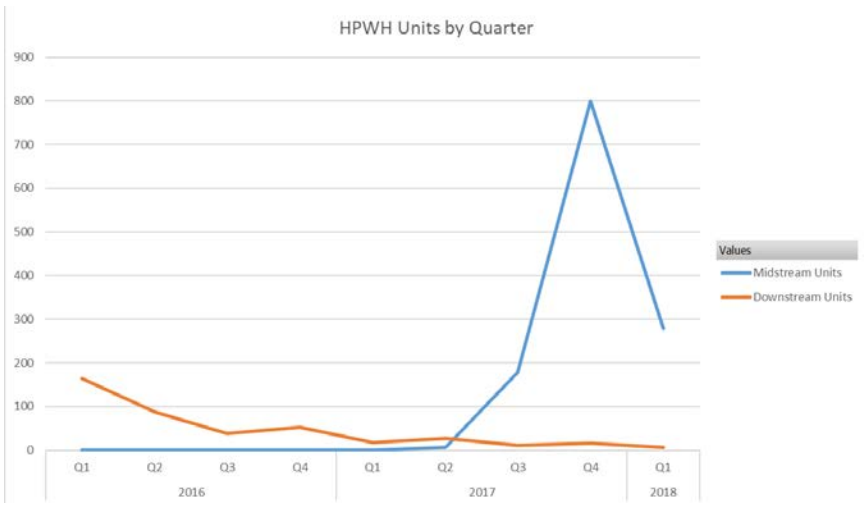
RETAIL CHANNEL



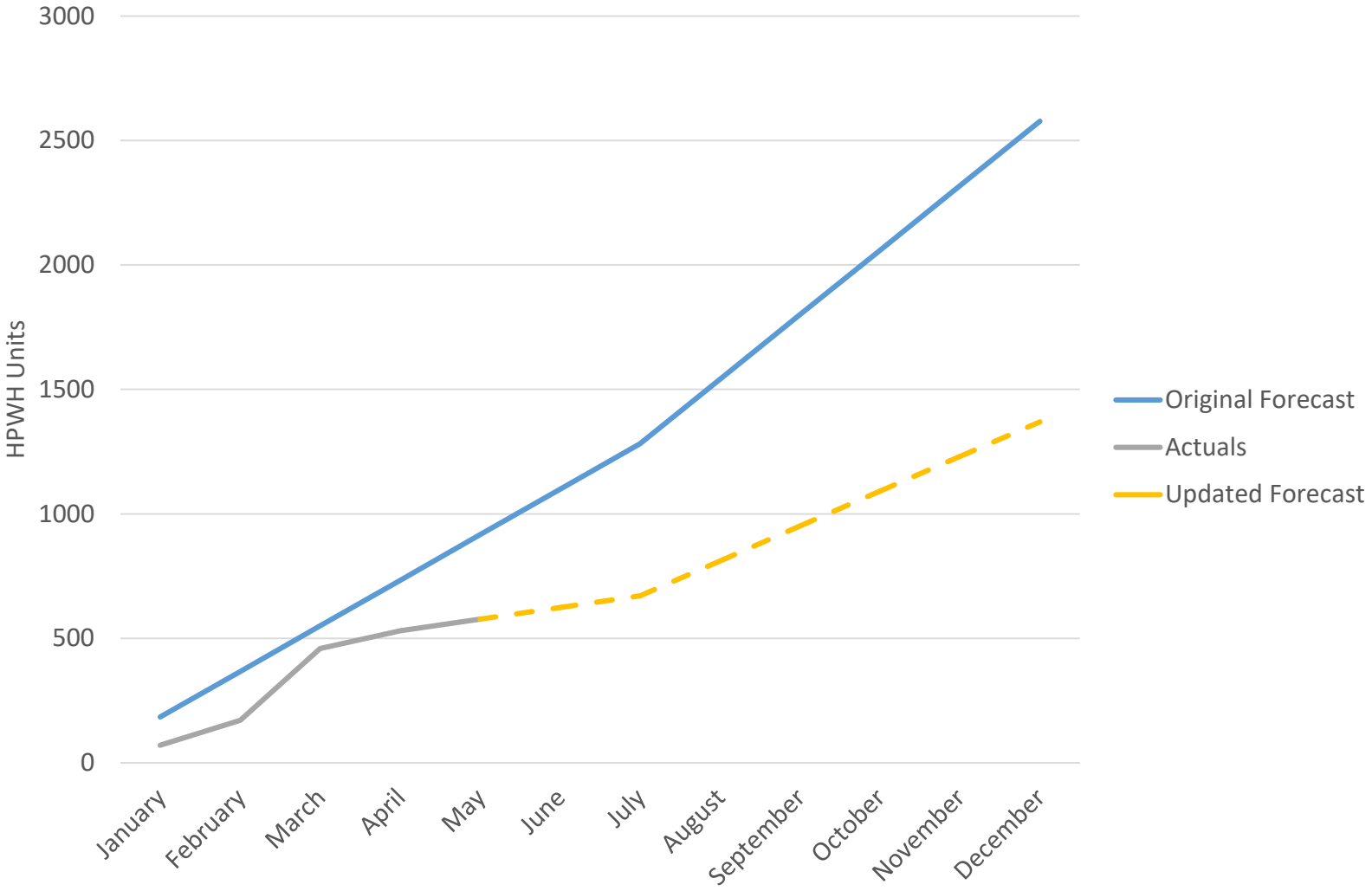


DISTRIBUTOR CHANNEL

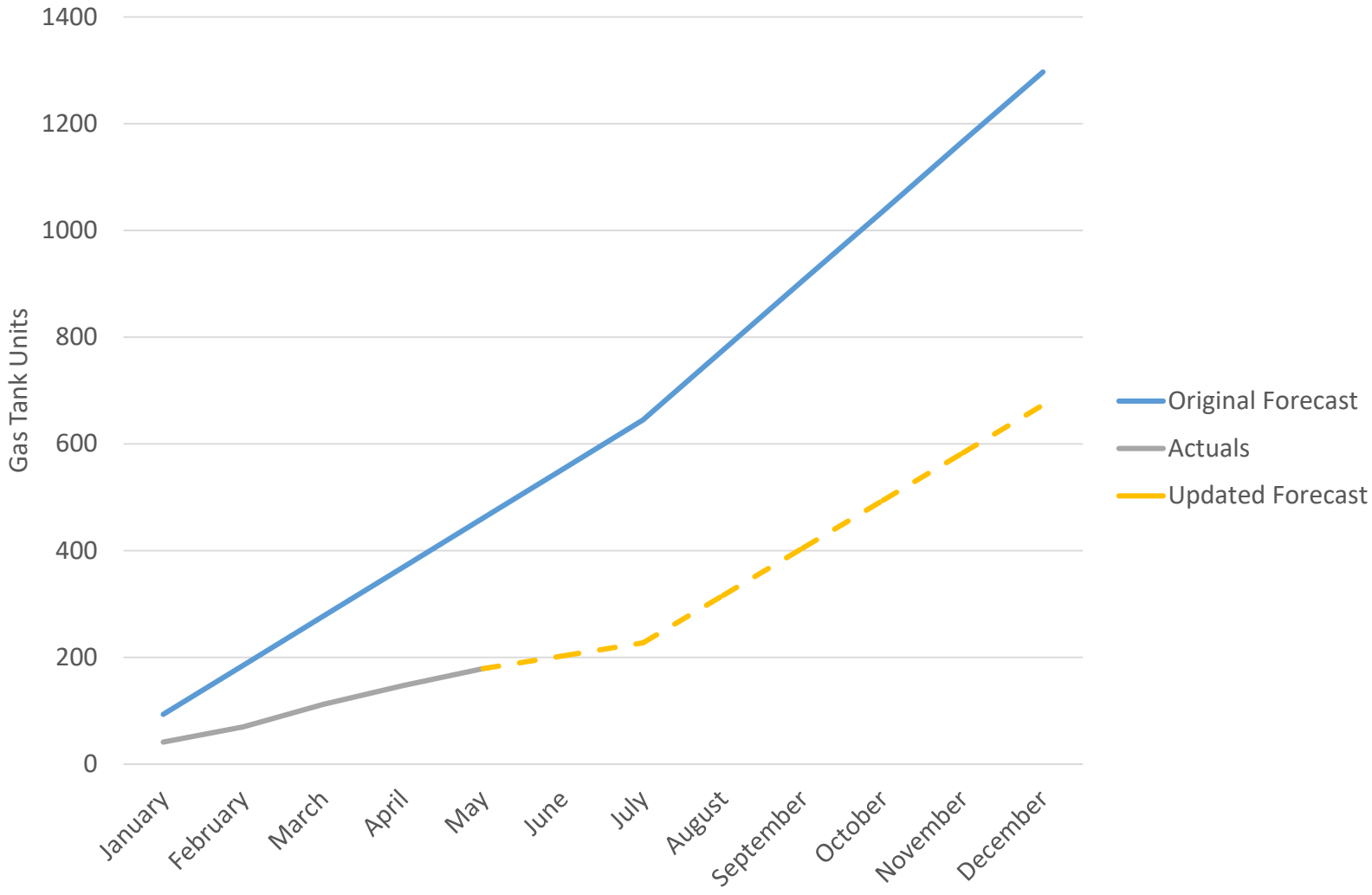




2018 midstream heat pump water heater results

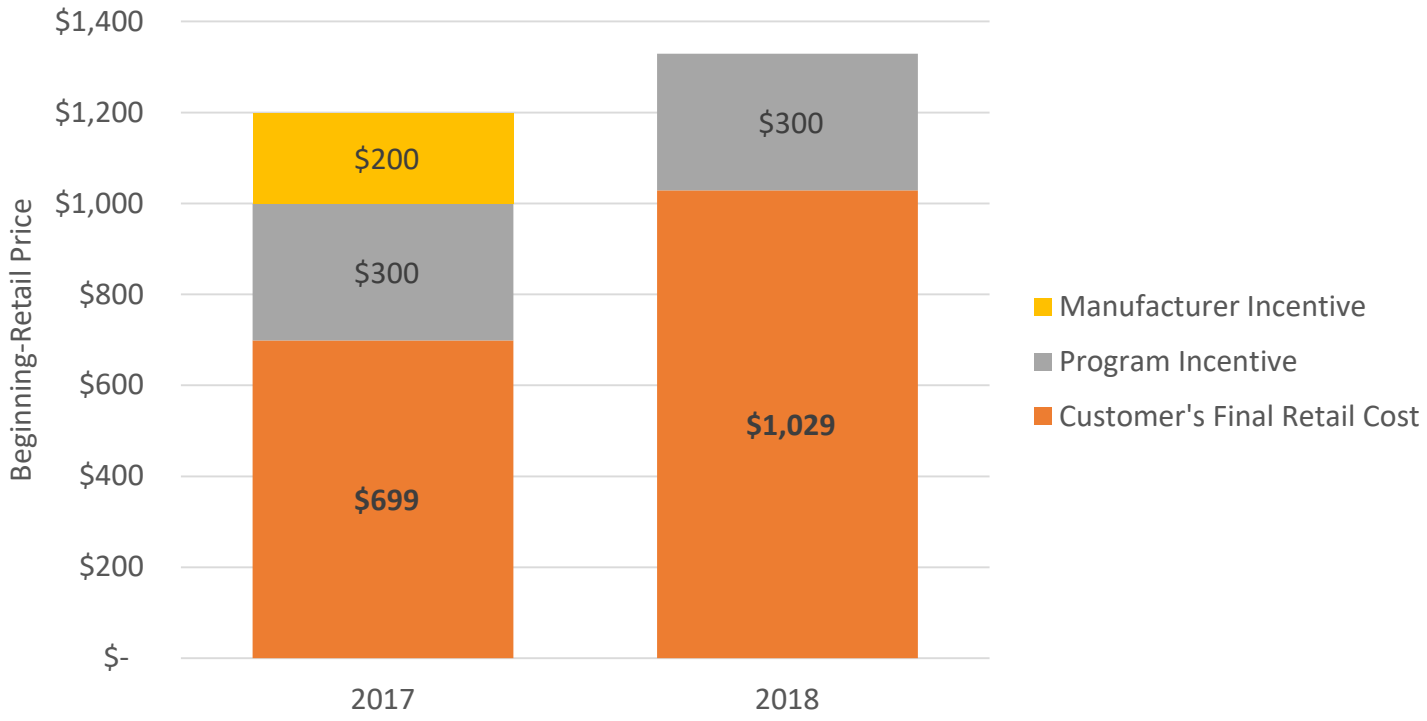


2018 midstream gas tank results



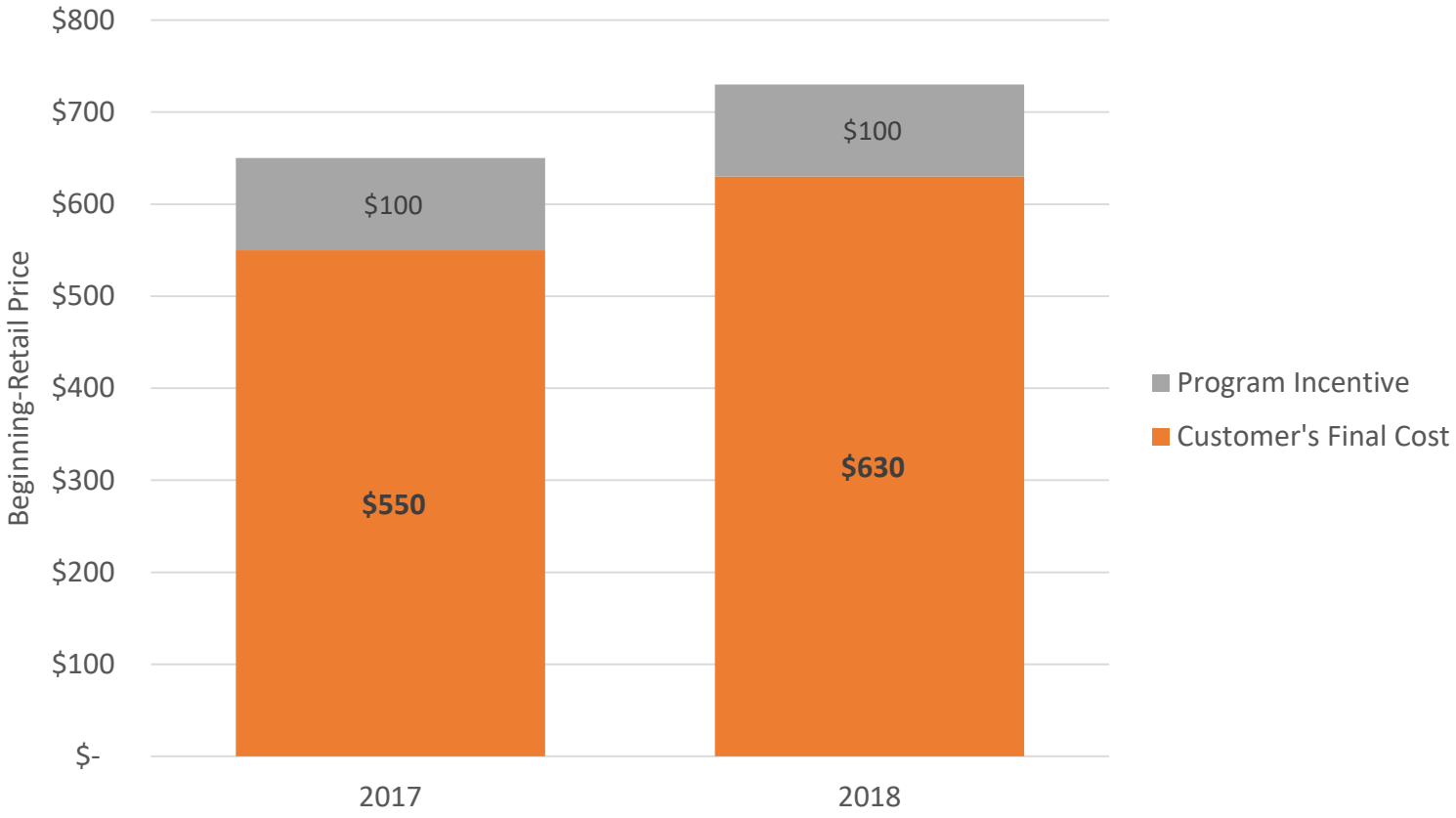
2018 changes to heat pump water heater cost

- NEEA discontinued $200 HPWH manufacturer incentive
- Sunset of state and federal tax credits ($300-$900)
- Manufacturer raised prices by $130 per unit on average due to increased cost of raw materials (i.e. steel tariffs)



2018 changes to efficient gas tank cost

- Manufacturer raised prices 10-15 percent due to increased cost of raw materials (i.e. steel tariffs)



Other challenges

- Maintaining retailer interest in efficient models
- Distributors are having difficulty with reporting and justifying the effort required to participate
- Installers are resistant due to difficult sell and the additional time and complexity of installations

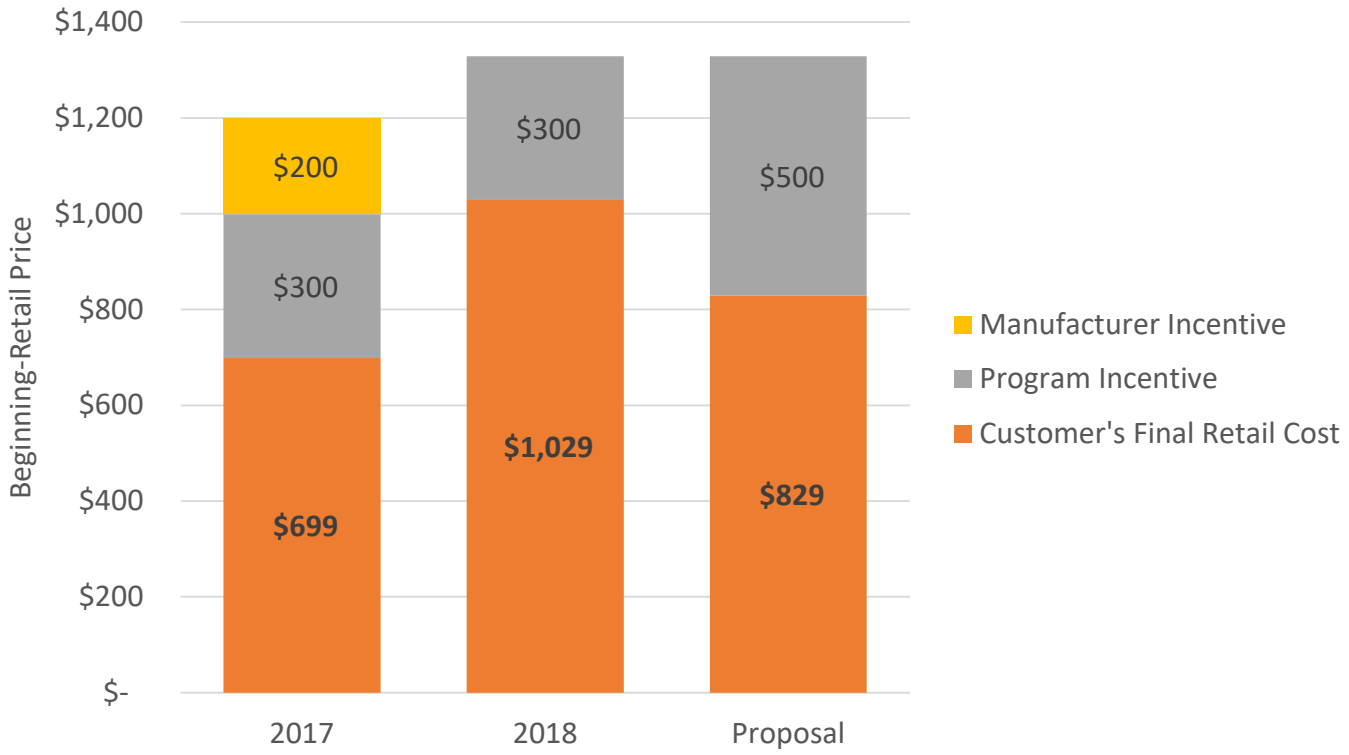
Measure details

- Current HPWH measure allows for a maximum incentive of $892 per unit

- Current gas tank measure only allows for a maximum incentive of $100 per unit (under measure exception)

Proposed actions

- Launch lead generation and marketing campaigns
- Increase HPWH incentive from $300 to $500 per unit

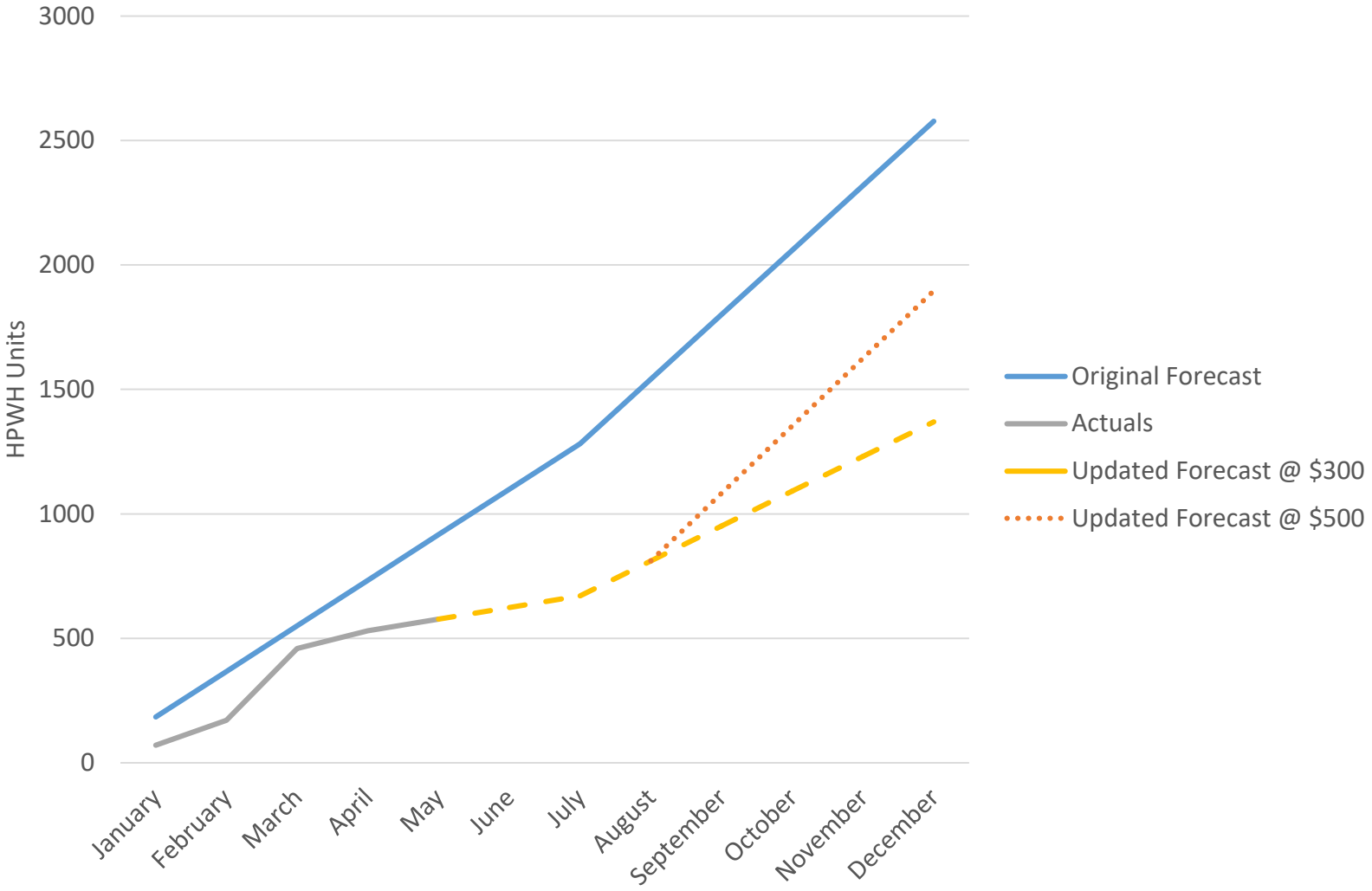


Benefits

- Generates market demand
- Improves price relative to inefficient options
- Motivates retailers to maintain stocking of efficient products
- Helps motivate distributors to participate
- Creates consistency across regional midstream water heater programs, which simplifies coordination with market partners

2018 midstream HPWH

Results comparison



Discussion questions

- Is increasing the HPWH incentive an appropriate response to the identified market changes?

- Are there other factors we should consider in making a final decision?

Thank you

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EnergyTrust of Oregon

Production Efficiency Irrigation Measures Update

Overview

Due to recent updates in data and analysis regarding PE Irrigation Hardware Measures, one measure that was to expire in 2018 and four in 2019 per OPUC Order are now determined to be cost effective. One measure that was set to expire in 2018 is now above 0.8, and the Program is requesting an updated exception for that measure from the OPUC. Two more measures set to expire in 2018 remain below 0.8 and will sunset.

2019 Updates

In March 2018, RTF Irrigation Subcommittee updated the irrigation hardware measure analysis significantly from prior versions which changed the savings and costs for most measures. Some of the RTF's changes do not fit within Energy Trust's program design:

- Several Energy Trust measures are not included in the updated RTF workbook. (Measures 8-15 in the tables below). The RTF replaced these with a packaged sprinkler measure which does not pass Energy Trust's cost-effectiveness test. Energy Trust will maintain discrete sprinkler measures.
- The RTF savings for some measures assume that all components be replaced, rather than replacing only damaged or leaking components. The RTF total-replacement methodology reduced savings per component dramatically. Energy Trust will continue to offer incentives for replacement of leaking components.
- The RTF updated hours of operation for Western WA/OR measures from 1,000 hours/year to 1,605 based on Energy Trust project data. This results in an increase in savings for measures typical in the western part of Oregon. Energy Trust incorporated this change into all our measures, including those no longer supported by RTF.
- RTF incorporated changes to flow rates and lift/pump head resulting in increases in savings for some measures and decreases for others. Energy Trust incorporated this data into all measures, including those no longer supported by RTF.
- RTF included some Energy Trust cost data in their update; however, Energy Trust used our cost data for all measures.

Energy Trust revised the irrigation measure suite for 2019, incorporating updated RTF savings where possible. For measures where RTF did not meet Energy Trust's needs, we merged old and new RTF data and assumptions with our program's own cost information to create the most up-to-date measures possible.

Prevalence

In 2017, the two retiring measures made up 1.29% of the Small Industrial program's electric savings.

Exit Strategy for Sunset Measures

Effective 1/1/2019, Rotating Type Low Pressure Sprinkler Replacement and Impact Sprinkler Rebuild or Replacement will sunset. These measures are currently sold through 33 vendors. The 2017 median customer incentive for the Low Pressure Sprinkler Replacement was $434.00 and Impact Sprinkler Rebuild or Replacement was $113.00.

Program managers will inform vendors of this incentive change in early December 2018. This will allow them time to complete sales in process and inform their customers about submitting their 2018 paperwork by 12/31/18. Cascade Energy, the Program Delivery Contractor, will deliver this information to each of the impacted vendors.

Cost Effectiveness details

Cost-effectiveness for 2018 and 2019 measures are given below. The 2018 table shows actual 2018 incentives while the 2019 table shows the maximum incentive.

Table 1 Cost Effectiveness of 2018 measure set, with exception information

	Measure	Measure Life (years)	Savings (kWh)	Incremental Costs ($)	Incentive ($)	UCT BCR at Incentive	TRC BCR	2017 Exception Decisions
1	Pipe Press and Repair	8	77	$19.93	$10.00	2.6	1.3	
2	New Goose Necks	15	6	$4.61	$1.65	2.2	0.8	Expires 12/31/2019
3	Base Boot Gasket Replacement	8	1,215	$276.84	$175.00	2.3	1.5	
4	New Drains	5	203	$15.13	$1.00	38.8	2.6	
5	New Drop Tube or Hose Extension for Low Pressure	10	6	$7.20	$2.40	1.0	0.3	Expires 12/31/2018 UCT Exception denied, incentive changed to pass
6	Flow Controlling Nozzle Impact Sprinkler Replacement	4	26	$6.27	3.75	1.0	0.6	Expires 12/31/2019 UCT Exception denied, incentive changed to pass
7	Gasket Replacement	5	139	$4.34	$2.75	9.7	6.1	
8	Low-Pressure Regulator Replacement	5	40	$6.13	$5.00	1.5	1.23	
9	Multi-Configuration Nozzle Low Pressure Sprinkler Replacement	5	71	$4.57	$3.00	4.5	3.0	
10	Multi-Trajectory Impact Sprinkler Replacement	5	53	$5.42	$4.00	2.5	1.9	
11	Multi-Trajectory Low Pressure Sprinkler Replacement	5	18	$5.42	$1.00	3.4	0.6	Expires 12/31/2019
12	Worn Impact Sprinkler Nozzle Replacement	4	27	$2.12	$1.50	2.6	1.9	
13	Rotating Type Impact Sprinkler Replacement	5	68	$18.33	$4.00	3.2	0.7	Expires 12/31/2019
14	Rotating Type Low Pressure Sprinkler Replacement	5	24	$18.33	$4.00	1.2	0.3	Expires 12/31/2018
15	Impact Sprinkler Rebuild or Replacement	5	23	$13.66	$3.75	1.2	0.3	Expires 12/31/2018

Table 2 Cost Effectiveness of 2019 Irrigation Measures

#	Measure	Measure Life (years)	Savings (kWh)	Incremental Costs ($)	Maximum Incentive ($)	UCT BCR at Max Incentive	TRC BCR	2019 Exception Request and notes
1	Pipe Press and Repair	8	132	$12.80	$12.80	3.4	3.4	
2	New Goose Necks	15	11	$3.51	$3.51	1.9	1.9	
3	Base Boot Gasket Replacement	8	2,113	$200	$200.00	3.5	3.5	
4	New Drains [Replace Leaking Drains]*	5	304	$3.53	$3.53	16.4	16.4	
5	New Drop Tube or Hose Extension for Low Pressure	10	11	$5.21	$4.55	1.0	0.9	TRC Increased from 0.3 to 0.9 Requesting exception
6	Flow Controlling Nozzle Impact Sprinkler Replacement	4	29	$4.37	$4.20	1.0	1.0	
7	Gasket Replacement [Replace Leaking Gaskets]*	5	227	$2.07	$2.07	20.9	20.9	
8	Low-Pressure Regulator Replacement	5	63	$6.74	$6.74	1.8	1.8	
9	Multi-Configuration Nozzle Low Pressure Sprinkler Replacement	5	90	$2.81	$2.81	6.1	6.1	
10	Multi-Trajectory Impact Sprinkler Replacement	5	67	$8.32	$8.32	1.6	1.6	
11	Multi-Trajectory Low Pressure Sprinkler Replacement	5	22	$3.96	$3.96	1.1	1.1	
12	Worn Impact Sprinkler Nozzle Replacement	4	58	$0.82	$0.82	10.4	10.4	
13	Rotating Type Impact Sprinkler Replacement	5	88	$9.07	$9.07	1.9	1.9	
14	Rotating Type Low Pressure Sprinkler Replacement	5	38	$11.24	$7.23	1.0	0.6	Energy Trust will sunset measure
15	Impact Sprinkler Rebuild or Replacement	5	3	$9.82	$0.65	1.0	0.1	Energy Trust will sunset measure

Pay for Performance Pilot Evaluation

August 1, 2018

Energy Trust of Oregon

History in Oregon, at a glance

- Current docket: 1678

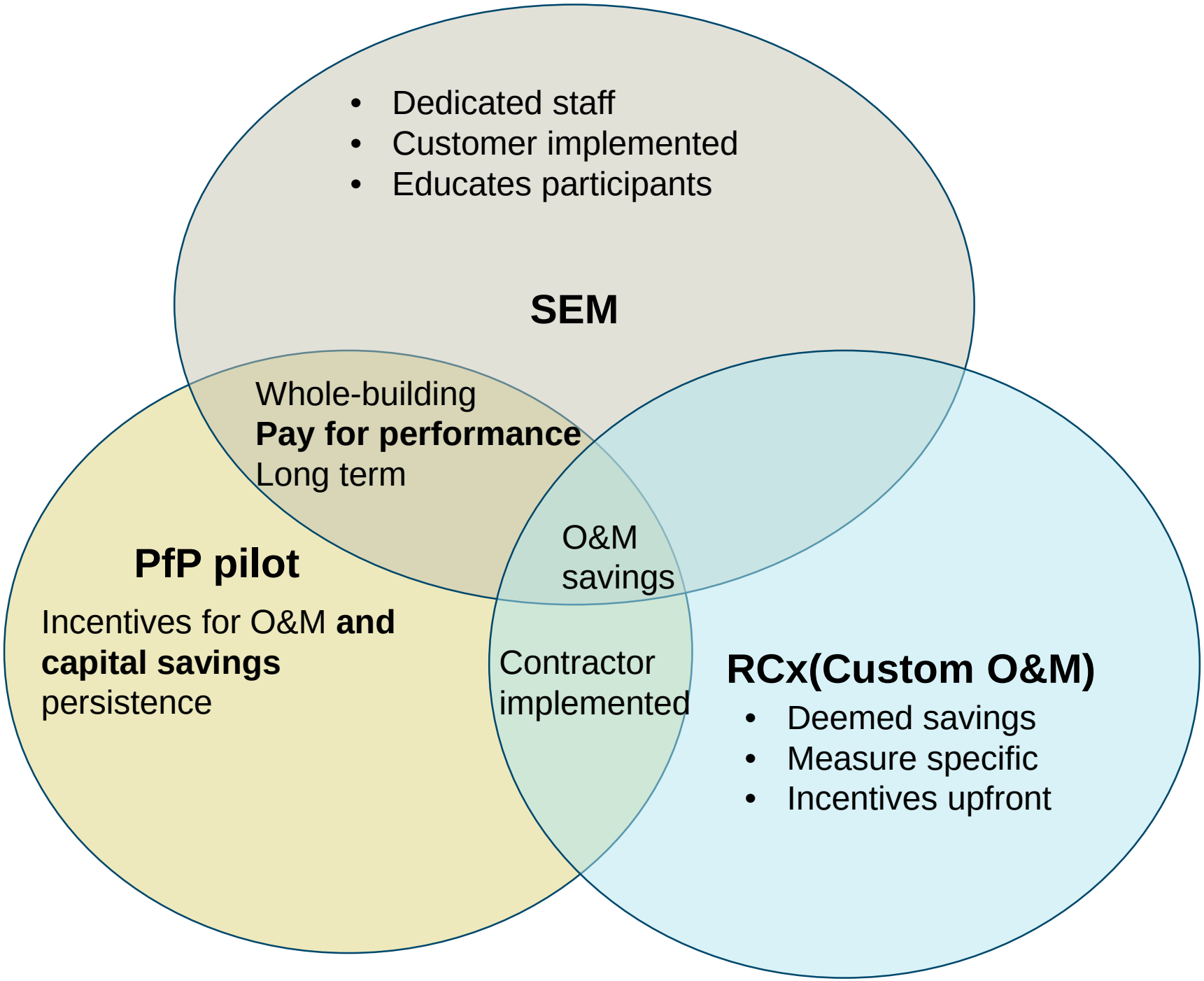
- 2012: EE PPA pilot feasibility request (1573)
- 2013: Public comment & workshop
- 2014: **Order No. 14-056** approving pilot (phase I) and released RFP
- 2015-2017: Phase I pilot period
- 2017: Development of phase II using feedback on phase I

Pay for Performance offering overview

Measures include operations and maintenance, behavioral and capital

Incentives paid annually for three years (based on meter readings)

Pay for Performance Allies are a key element– contract between customer and Ally


• Dedicated staff
• Customer implemented
• Educates participants
SEM
Whole-building
Pay for performance
Long term
O&M
savings
PfP pilot
Incentives for O&M and capital savings persistence
Contractor implemented
RCx(Custom O&M)
• Deemed savings
• Measure specific
• Incentives upfront

Purpose of evaluation

Understand

- Low enrollment of contractors
- Lack of project enrollment to-date

Evaluation activities

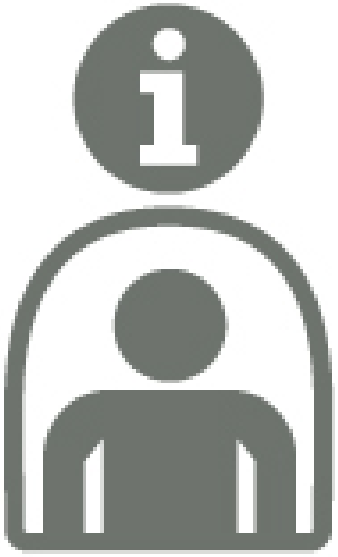
- Interviews with:
  - Contractors
    - Allies
    - Non-allies
  - Staff and PMC
  - Other utilities and implementers

Evaluation findings: positive remarks

- Consolidation of multiple measures and potential for deeper savings
- Clear and organized materials—thought-out program design
- Rigorous measurement helps prove value to customers
- Opportunity to address persistence of savings

Evaluation findings: barriers

- Target market confusion and limitations
- Making the business case to contractor and customer
- Ally requirements and turnaround for applications
- Time and complexity of projects
- Incentive structure—timing and amount
- M&V requirements



Unique qualities of Energy Trust offering

Energy Trust PfP offering	Other utility PfP offerings
Measure level cost-effectiveness	“measure blind”
5% minimum savings	15% minimum savings
Building focus: office, retail, grocery	Building focus: government/institutions

Energy Trust and other PfP offerings

Energy Trust element	Other offerings
Trade Allies deliver services	All
Trade Allies not compensated for lead development	All
Incentive levels	All
Leads difficult to find	Most
Upfront costs for technical development not eligible for incentives	Some
Trade Allies required to do modeling	Few

Suggested areas for input

- What is the market?
- Value to customer?
- Redundancy with other program offerings
- Proposed changes to design?
  - Payment upfront and over time
  - Expand eligibility for enrollment

Proposed next steps

Thank you

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EnergyTrust of Oregon