

Conservation Advisory Council Agenda

Wednesday, February 27, 2019

1:30 p.m. – 4:30 p.m.

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

Follow-ups from previous meetings:

- **DEI data definitions, (ex. rural vs. very rural), emailed 2/21/2019**

1:30 Welcome, Old Business and Short Takes (*Hannah Cruz; information*)

Introductions, agenda review and approve February 1 meeting minutes

1:40 CAC Operations and 2019 Planning (*Hannah Cruz; discussion*)

CAC will review, revise as needed, and approve the draft 2019 operating principles. Tracked changes show additions from the 2018 meeting guidance document. Hannah proposes moving back to one document (operating principles). Comments on the 2018 meeting guidance document show suggestions for how to approach each item. CAC should review ahead of time and be prepared to discuss.

As time allows, findings from your February survey will be reviewed, and with CAC, Hannah will walk through anticipated topics for 2019 and their timing. If we are short on time, this discussion will be at the April meeting.

2:10 2018 Preliminary Annual Results (*Peter West; information*)

Preliminary results will be reviewed, including achievement to energy savings and generation goals by utility and program. Official annual results with financial information will be available April 15, 2019.

2:25 Residential Net Zero Specification (*Mark Wyman and Jeni Hall; discussion*)

Staff will lead early stakeholder engagement on program concepts and review different approaches to net zero in the residential sector. CAC, as well as RAC at its meeting earlier in the day, are asked to provide feedback on how or whether to introduce a new combined energy efficiency and solar program design. The packet includes a copy of Governor Brown's Executive Order 17-20; section 4(C) is relevant to this discussion.

3:20 Break

3:30 Overview of Market Research at Energy Trust (*Peter Schaffer; discussion*)

Overview of the range of market research underway at Energy Trust, including a few sample studies. Feedback from CAC on research you would like to have deeper conversations on will help identify potential 2019 agenda topics.

3:50 2019 Measure Development Preview (*Jackie Goss; discussion*)

A high-level summary of measures that will be reviewed and potentially revised in 2019. CAC to provide input on what measures should be brought back before any revisions are finalized in fall 2019.

4:20 Public Comment

4:30 Adjourn

Meeting materials (agendas, presentations and notes) are available [online](#).

Next CAC Meeting: Wednesday, April 10, 2019.

Conservation Advisory Council and Renewable Energy Advisory Council Joint Meeting Notes

February 2, 2019

Attending from the council:

Holly Braun, NW Natural
Kari Greer, Pacific Power
Charlie Grist, Northwest Power and
Conservation Council
Anna Kim, Oregon Public Utility
Commission
Lisa McGarity, Avista
Dave Moody, Bonneville Power
Administration
Julia Harper, NW Energy Efficiency Alliance
Kerry Meade, NW Energy Efficiency Council
Warren Cook, Oregon Department of
Energy
Danny Grady, City of Portland Bureau of
Planning and Sustainability

Josh Halley, PGE
Jason Salmi Klotz, PGE
Emily Moore, Northwest Energy Efficiency
Alliance (for Julia Harper)
Michael O'Brien, Renewable NW
Erik Anderson, Pacific Power
Frank Vignola, University of Oregon
Wendy Gerlitz, Northwest Energy Coalition
Al Spector, Cascade Natural Gas
Les Perkins, Farmers Irrigation District
Alexia Kelly, Electric Capital Management
Bruce Barney, PGE
Jason Busch, Pacific Ocean Energy Trust
Suzanne Leta, Sun Power

Attending from Energy Trust:

Tom Beverly
Hannah Cruz
Fred Gordon
Thad Roth
Peter West
Betsy Kauffman
Ryan Crews
Debbie Menashe
Dave McClelland
Justin Buttles
John Volkman
Dave Moldal
Jackie Goss

Cameron Starr
Julianne Thacher
Kenji Speilman
Mana Haeri
Alex Novie
Samuel Girma
Michael Colgrove
Lizzie Rubado
Mana Haeri
Eleni Eisenhart
Spencer Moersfelder
Steve Lacey

Others attending:

Alan Meyer, Energy Trust board
Henry Lorenzen, Energy Trust board
Elee Jen, Energy Trust board
Mark Kendall, Energy Trust board
John Fazio, NW Power and Conservation
Council
Dan Hua, NW Power and Conservation
Council
Jeffrey Tamburro, NW Natural
Rick Hodges, NW Natural

Matt Doyle, NW Natural
Josh Peterson, University of Oregon Solar
Monitoring Lab
Steven Simmons, Northwest Power and
Conservation Council
Massoud Jourabachi, Northwest Power and
Conservation Council
John Molnar, Rogens Machinery

Executive Summary

1. Staff from the Northwest Power and Conservation Council presented forecasted temperature trends and extreme weather events and highlighted the feasibility of using this information to assess potential impacts of climate change-driven weather forecasts on the future value of energy savings and future measure development at Energy Trust.
2. Staff provided an update on progress made in 2018 to the organization's Diversity, Equity and Inclusion initiative, including developing goals related to increasing participation in programs, and increasing trade ally participation and completed projects.
3. An interactive discussion took place about the development of the 2020-2024 Strategic Plan. Discussion centered on a list of future opportunities the organization could pursue and the council member's perspectives on whether the organization has the strengths and capabilities to play a role in each opportunity.

1. Welcome, Old Business and Short Takes

Hannah Cruz convened the meeting at 1:03 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 relayed that the November 27 meeting will move to November 20.

2. Guest Speaker: Northwest Power and Conservation Council

Senior Power Systems Analyst John Fazio and Power System Analyst Dan Hua presented forecasted temperature trends and extreme weather events. Dan Hua explained the research method, which analyzed 10 general circulation models selected for their comparability to climate conditions in the Pacific Northwest. A GCM is a model of how climate and weather work, and the relationship to whatever is driving it. Dan Hua described different emissions scenarios, which compared historical carbon emissions starting in 1950 with future emissions predicted by the models. Some scenarios included efforts to reduce emissions while others reflected business as usual. There are a wide range of predictions in the report, but they generally show a greater increase in temperature inland than at the coast. They also predict a greater number of days with temperatures over 90 degrees and a decrease in days where the temperature falls below freezing.

Jon Fazio presented about how climate change is expected to affect load forecast. He focused on one GCM, running it through a load forecasting model that used historical data to calculate the load at predicted temperatures through 2035.

Alexia Kelly: Why is the distribution more tightly clustered in the projections?

Jon Fazio: As you push the temperatures up, you get a more limited response [greater variation.]

Massoud Jourabachi: The response to temperature in winter is greater than in summer. Inland regions will have increased temperatures compared to coastlines, and most of our population is near the coastline.

Jon Fazio: We used the weighted average of four large cities in the region, including Seattle and Portland.

Jon Fazio compared regional average loads through 2035. In the future scenario, the level of adequacy stays the same, but the capacity need moves from winter to summer.

Alan Meyer: This is historical and adjusted historical. If it gets warmer in the summer, more air conditioning would cause the summer load to go up.

Massoud Jourabachi: Increased air conditioning is one of our assumptions. We brought information from our long-term model, which includes greater penetration of air conditioning.

Les Perkins: Did you factor in electric vehicles?

Jon Fazio: This report does not assume any additional electric vehicles.

Charlie Grist: You're picking up on two important things. Temperatures will change, and that has an effect on building loads, but temperature isn't the only thing. The value of energy efficiency also changes over time and is tied to how the electric system as a whole performs. Weather and population growth effect resources, so that dynamic can change. Our confidence has a great amount of uncertainty, and that is just one of the 10 models.

Jason Salmi Klotz: In 2014, the OPUC asked PGE and Pacific Power to do similar modeling in 2016. You'll see that they show similar results.

Charlie Grist summarized high-level conclusions. All the models do a good job of predicting historical temperatures, so we can assume they're relatively accurate. By the 2030s, the models predict there will be an increase of 1 to 1.5 degrees, which can have significant impact. Even that amount of change has a great effect on snowpack and therefore hydropower. There's also significant variation among the best GCMs, but they all predict an increase. The GCM we focused on predicts twice as many hot days, and that will change consumer behavior. The implication for Energy Trust is that temperature changes will impact savings for measures that are temperature-dependent, and the value of savings for utilities.

Fred Gordon: We were thinking of what questions we could even address today. Will conservation measures save more or less? Should we be converting daily temperature forecasts into degree days, and calculating that for base versus future scenarios? Models show we're already warmer. Second, what's the value of capacity savings in summer and winter, when the peaks are different? This is a more difficult question because it depends on how Oregon IOU prices relate to the hydro system, and on changing peak patterns. We could begin by working on the first question.

Frank Vignola: Have they also looked at wind and solar resources and how that impacts the model?

Jon Fazio: We didn't look at that. We kept that as a constant.

Frank Vignola: I've done over 30 years of solar, and direct production has increased by about 10 percent. It would also affect billing loads.

Jason Salmi Klotz: There is a 2015 Arizona study that shows rising temperatures and how that affects solar, thermal and wind generation. Both utilities should look at it.

Betsy Kauffman: If we have increased summer peaks, does that make solar more valuable?

Jon Fazio: The short answer is yes, but we haven't studied to what degree.

Jaimes Valdez: To what degree did the model predict customer-based generation?

Jon Fazio: We are assuming as time goes forward there will be more, and that trends will persist into the future.

Massoud Jourabachi: The structure is frozen, but to capture those kinds of effects we would bring in a consumer choice model, a long-term model. The amount of solar behind the meter goes up.

Fred Gordon: The importance of this analysis is to see the effects with all things being equal.

Jon Fazio: If you're interested in this, the full report is available in Nature magazine.

Anna Kim: What is the council going to do with this data?

Charlie Grist: That will be up to the council members. We'll soon be kicking off 2021 power planning and there is a lot of interest around climate change.

Anna Kim: Will this start showing up in different meetings?

Charlie Grist: We will soon start collecting input to find out what people are after.

Alexia Kelly: Did you also project out to 2040?

Charlie Grist: The models go way out, but this is an average around the 2030's.

Jon Fazio: The next power plan will go through 2036.

Massoud Jourabachi: We are extending the load forecast to 2050 because in most studies about penetration of electric vehicles, that's the long-term model. We did a report on the economic effect on the northwest that's not published, but we can forward it to you. It shows significant increases in peak energy.

3. Diversity, Equity and Inclusion Operations Plan

Staff provided an update on progress made in 2018 to the organization's diversity, equity and inclusion initiative, including developing goals related to increasing participation in programs, and increasing trade ally participation and completed projects.

Debbie Menashe gave an update on activities leading up to the formation of a Diversity Advisory Council over the next few months. Jessica Kramer reviewed the DEI goals relating to residential program participation, which aim to increase uptake in diverse communities.

Michael O'Brien: On the residential participation goal, the baseline shows 24 percent participation. Do we know what percentage of the community is diverse as a whole? Is that low or high?

Debbie Menashe: That's statewide, not by census track. It's the statewide average for what we've identified as communities of color.

Dave McClelland: The CAC has already seen the baseline data work, but RAC members have not. We will make sure to bring that to the RAC.

Jaimes Valdez: In terms of demographic information, at what point in Energy Trust programs is that collected, and how would customers self-identify?

Debbie Menashe: At this point we don't collect that, so the data was determined by geography not household.

Jessica Kramer reviewed the commercial participation goals, which will focus on small and medium businesses, and very rural businesses.

Kari Greer: Do you have definitions available for rural versus very rural?

Alex Novie: Yes, we will get this to you.

Jessica Kramer reviewed the industrial participation goal and the renewable participation goal. The renewables goal differs from the other sectors by addressing all three DEI indicators and looking at projects instead of individual customers.

Josh Halley: How do you differentiate between a racially diverse community versus a low-income customer?

Dave McClelland: Our current strategy is income-focused. We've been working for two years with a low-to-moderate income workgroup. It has been great to engage with community-based organizations, and we are now focused on developing an income-qualified offering. Layered on top of that, we'd like to do some geographic targeting to areas that are more rural or ethnically diverse. We now have a way of tracking success on that. But the focus is working with individual community-based organizations and supporting their work. Our recent solar innovation grants are one way to help build capacity at those organizations.

Josh Halley: That seems like a challenge.

Dave McClelland: Yes, we also don't collect demographic information, so we are going to look at the right level of asking those questions. This is one imperfect method, but a good place to start looking at it.

Holly Braun: Did you think about looking at the percentage of overall savings versus participants? Having the goal as a function of savings seems intuitive, but it didn't go that way.
Jessica Kramer: For the DEI goal, our focus is on increased participation and awareness. The assumption is that savings will follow.

Holly Braun: It's not bad, but I'm curious if the overall goal for the organization is saving energy, why is this focused on participation?

Ryan Crews: It does allow us to break out participation in large capital projects, so we can measure that. There will be a lot of ways to measure what we achieved, but we'll be slicing results in different ways, including savings. It is something we're thinking about. To be truly equitable we have to make our offers equally available, big and small. Partnerships being developed will help us figure out how to do that. We've narrowed it down to a small area where we can find diverse customers, but other organizations will know how to connect with them.

Jaimes Valdez: Incentive dollars would be another clear measurable way to determine impact. I would suggest adding that.

Emily Moore: Are you intending to track the cost of delivery separately? That would impact the cost-effectiveness of capturing those savings.

Ryan Crews: Yes.

Debbie Menashe: We can easily do that, but we don't have a metric, which is what you're suggesting. Thank you.

Cameron Starr presented on the first trade ally goal, which aims to increase enrollment of women and minority-owned businesses in Energy Trust's Trade Ally Network.

Kendra Hubbard: If there aren't diverse-owned businesses for Energy Trust to enroll, is there a way you can spur that? What if a robust population of women-owned solar companies doesn't exist yet?

Cameron Starr: We are also looking at the value to a contractor of joining our network. We are talking to Prosper Portland and a consulting group, to find out if there is a special package, we could create to support the new trade allies with training benefits or added incentives. We're trying to identify what the need is.

Kendra Hubbard: When prospective diverse trade workers are actually getting training, could they have a connection to Energy Trust to help start their own businesses?

Cameron Starr: Yes, for example when they are getting Construction Contractors Board training. We are trying to figure out how to integrate efficient training into the educational component. We are also leveraging our field staff. They are heavily involved reaching out to contractors. We'll be doing journey mapping to learn about barriers. For example, the barrier of working with more than one of our programs, which have different requirements. We're looking at this goal holistically to lower barriers across the board.

Alan Meyer: For context, what is the current total number of trade allies?

Cameron Starr: For trade ally contractors, about 1,400. Across the entire network, including retailers, the total is 2,300 to 2,400. In 2018, 118 new allies joined. With that, we think this goal is achievable, but it will take work. We also need to ensure that we support newly enrolled contractors once they have joined the network.

Cameron reviewed the second trade ally goal, which aims to increase the number of projects submitted by trade allies who are diverse. A recent survey showed that about half of contractors hadn't submitted a project in the last year.

Kendra Hubbard: I'd be interested to know which projects include energy-efficiency versus solar.

Cameron Starr: We have two solar contractors in that list, so there's room for improvement.

Kendra Hubbard: If they are doing some portion, the value of dollars spent will paint a different picture.

Lisa McGarity: Are you also going to look at it regionally?

Cameron Starr: Rural contractors are not left out of overall goals. We're implementing an increased cap for rural contractors to use business development funds. We have defined rural contractors and are looking at percentage of projects. We also opened up the offer to increase reimbursement to non-diverse contractors who are doing outreach to a diverse community. We're also looking at redesigning commercial and industrial business development offers.

Josh Peterson: Have you reached out to schools in Oregon to draw connections for future workers?

Cameron Starr: We haven't yet.

Josh Peterson: If you start early, you could grow your next generation.

Debbie Menashe: We have a scattering of those sorts of efforts, and these goals give us an opportunity to focus those efforts.

Josh Peterson: What's happening this year and next year will be different in 10 years.

Mana Haeri: New Buildings is doing work with internships to hire students to help meet net-zero goals. They're doing a lot with workforce development in design and construction.

Cameron Starr: Creating a more coherent program would be beneficial.

Debbie Menashe asked if there were any suggestions and whether any members saw points of intersection with their own organizations.

Holly Braun: I'm curious about intersection in a different way. When there is another advisory council, how does that interact with us? The diversity advisory council will monitor the DEI goals, but what is their expertise? Before, we had talked about stacking existing councils with people who are better at reaching underserved communities. Why is this group a stand-alone, and how do we learn from their expertise?

Debbie Menashe: We had the same discussion with the foundational DAC. They want to look at our core business mission and expand participation, so they're not operating in a vacuum. Part of the discussion was about interaction with RAC and CAC. There is an opportunity to review a meaningful advisory council role with this group that will give ideas to RAC and CAC.

Holly Braun: Who are the seven members?

Debbie Menashe listed all the members.

Charlie Grist: Thank you for putting your shoulder to this. I think you're out there on the leading edge, at least in the energy-efficiency realm. I hope you will share learnings with others around the region who are also starting to engage with this work. We have a lot to learn, and we will stumble but part of the value is to share those experiences.

Debbie Menashe: Thank you for giving feedback on the data work. We're going to present it at Efficiency Exchange in May. I'm proud of our staff for digging in.

4. Strategic Planning Development

Energy Trust staff lead an interactive discussion about the development of the 2020-2024 Strategic Plan that centered on a list of future opportunities the organization could pursue.

Hannah Cruz presented an overview of the internal strategic plan team and summarized the process to date to produce our next strategic plan. The latest activities lead to identifying a group of the most likely future scenarios expected to impact Energy Trust.

Jason Salmi Klotz: Regarding the opportunity around increased grid management tools, what's your thinking?

Fred Gordon: This is just the scenario for our environment, this does not necessarily describe us or our role. We're assuming it's going to be more important to deal with capacity and fluctuation

that come from wind, local and regional peak load. Increased sophistication would add value to the grid.

Hannah summarized the engagement that led to the scenarios being chosen and prioritized, explaining that the exercise to follow is meant to get feedback on the opportunities and think through a list of questions that was provided to the group earlier in the week on whether Energy Trust has the strengths and capabilities, and is uniquely positioned, to potentially play a role.

Mike Colgrove talked about roles for Energy Trust that relate to the future opportunities. Some are in line with Energy Trust's current scope, while others are beyond or tangential to the scope. Mike described a few examples for areas to innovate, evolve and improve upon that are within the organization's current scope, such as improving our ability to deliver targeted offerings and communicating customer benefit as offerings move more midstream and upstream.

Holly Braun: Why does maintaining customer connection matter as long as you get the savings?

Mike Colgrove: We have to explore to what extent that's important. Customers understanding that they received support, or a benefit, is important. When you don't have consumer facing materials in a transaction, how do you message that?

Jason Salmi Klotz: How does moving offerings mid- and upstream change your relationship with NEEA? PGE wants to work more closely between energy efficiency and demand response. This statement is very broad: understanding the interactivity.

Mike Colgrove: That's one of the opportunities on your worksheet, thinking about what that is. I think that engagement with you is what we're going to need. It's broad, partially because I don't know if anyone has fully defined what it could mean. We need to explore that. The targeted load management pilot has helped, but without further conversation with utilities, we don't know what role we should play. I don't know if there's a good answer right now.

Jason Salmi Klotz: You're asking us to help you define that role, but you should also ask input from OPUC and NEEA.

Mike Colgrove: Our residential program has already gone through changes that modified engagement mid- and upstream—I don't think it's new. It's evolving and we have to re-assess that relationship on an ongoing basis. How do we coordinate our work, building on one another? I don't think it will fundamentally change, but we'll have to continue having these conversations.

Lizzie Rubado introduced the group discussion activity. She passed out worksheets listing five roles and opportunities which Energy Trust could take part in the future. Participants were asked to complete questions on the worksheet, which asked to what extent the member thought Energy Trust was equipped to play a part, and how much they supported Energy Trust engaging in those roles.

Lizzie encouraged council members to participate to whatever extent they were comfortable, acknowledging that advisory members may feel uncomfortable expressing an opinion on behalf of their organization. She also noted that the responses would be confidential.

After participants completed their worksheets, Lizzie asked them to mark their answers on five posters, one for each role. They were asked to mark their positions on a continuum from strongly disagree to strongly agree for each of the five. After each participant added their feedback to the continuums, the group re-convened to discuss the results, as follows. There was not time to address all of the topics as a group.

A. If our natural gas utilities get involved in production and purchase of renewable natural gas, Energy Trust could use its existing expertise and relationships from renewable biogas electricity development to cultivate local sources of RNG at customer sites processing organic materials. Many respondents had a neutral response to supporting Energy Trust in this, but a few strongly agreed or agreed.

Elee Jen: I put neither, because you're talking about renewable biogas. I wanted to confirm if there is a high cost to participate in this market.

Michael O'Brien: When renewable natural gases burn, they still release greenhouse gases. We don't support that but wouldn't get in the way of others way who are trying to do it. It's very complex and not always clear what the impact is.

Al Spector: This is something we've been asking for and would support. You are positioned to incubate the resource within the region. We wouldn't necessarily want you to get into independent renewable natural gas business, but we support being a partner.

Holly Braun: We are in a similar position. We might have obligations around this, but we wouldn't want to get in the way and would support incentives and resources. In many cases, you're making a much better impact to air quality and emissions by capturing methane and harnessing it in a useful way.

Anna Kim: The OPUC is neutral to mildly supportive of Energy Trust having a role in renewable natural gas development, assuming that you're able to find a funding stream and the efforts would not impact delivery of the public purpose charge. This opportunity is one you are most uniquely positioned given your biogas expertise.

C1. In order to enable and support projects that may not be cost-effective, Energy Trust could quantify the economic value of non-energy benefits (like conserving water and other resources, improving health, better agricultural outcomes, and mitigating carbon and other environmental risks on energy-burdened populations) and use this to bring additional funding sources to the table.

Lizzie Rubado clarified that this opportunity refers to Energy Trust playing a role to quantify economic value of non-energy benefits in a deeper way, and then using that quantification to bring in additional funding sources from those who value those benefits. That may allow Energy Trust to carry out work that is not currently cost effective. Any changes to the cost-effectiveness test are the purview of the OPUC.

Les Perkins: We are on the strongly support side. From experience in a rural setting, lots of projects have benefits that haven't been quantified. There is too big of a gap, but we know from experience there are other benefits that need to be quantified.

Wendy Gerlitz: It seems like you're doing the same thing in both of those [C1 and C2] in terms of the process.

Lizzie Rubado: Yes, they're about the same 75 percent of the way, and then the ends are different.

Mark Wyman: We're talking about economic analyses. One creates parallel structure, the other opens up what we work with today and modify to assess all. They're different processes and ramifications.

Henry Lorenzen: I put down strongly disagree, because in my work on the council, it was a very time-consuming process even looking at one small thing, like getting people off of woodstoves.

Discussion went on for a long time and was complex. If you layered that into Energy Trust work, it would take enormous time and be controversial. I'm not sure what the ultimate benefit would be. If we want to prime projects that wouldn't make the cut, that can be done in other ways.

Anna Kim: I could marry both positions. Energy Trust is already working on different opportunities to quantify other benefits and funding streams, and the OPUC is supportive of that. We're not interested in funding costly, controversial quantifications, but ones that are reasonable to do are ok.

C2. In order to enable and support projects that may not be cost-effective, Energy Trust could quantify the economic value of non-energy benefits (like conserving water and other resources, improving health, better agricultural outcomes, and mitigating carbon and other environmental risks on energy-burdened populations) and add these as new value streams to the Total Resource Cost test.

Anna Kim: The OPUC defines what the cost-effectiveness test is, and we determine what measures could be given a cost-effectiveness exception. We are puzzled by the appearance of this in the list. That's within our purview and we're already in conversation about what the total resource cost test looks like. That's a conversation with OPUC staff.

D. Using a similar structure to our energy efficient/renewable energy market transformation programs, Energy Trust could play a role in administering funds to promote the purchase of electric vehicles and chargers, or to encourage the adoption of more efficient or demand response-enabled options of these technologies (to support charging during off-peak times to support grid flexibility objectives).

Frank Vignola: I don't think Energy Trust has much strength in that right now, but I'm very supportive of it. Energy Trust would have to develop some expertise.

Alexia Kelly: I strongly support, because there is a gap in electric vehicle infrastructure in Oregon. You're already equipped to do consumer-facing incentives, so it might not be a leap. It seems like a no-brainer, and there's more complex work around electric vehicle charging infrastructure.

Danny Grady: I think it's more of a question of your current administrative roles. Since it's not conservation or renewables, are you allowed to do it?

Lizzie Rubado: This scenario assumes a different funding source than our current funding. Your question about alignment with mission is a great one. How does vehicle electrification fit with our mission?

Emily Moore: From the NEEA perspective, it is a question in terms of wheelhouse, but potentially I see a complementary role. At NEEA, we're going to look at the infrastructure side of things. If Energy Trust takes on the consumer-facing role, that could complement our work.

Charlie Grist: I'm thinking about all of these in terms of scale. In my view, one huge contribution of Energy Trust is the development of the Trade Ally Network and relationships. I view that as a success and a unique attribute. Are the same skills as valuable in the electric vehicle world? It's so new that many groups may be vying for space ownership. You ought to think about whether there is anything in particular that's different for electric vehicles than for these other scenarios. It seems different to me because it could touch other markets you haven't touched.

Suzanne Leta: My overarching concern is how we make sure Energy Trust is not taking existing limited funds and using for one of these things. If these are within an expanding pot of money, and doing more in addition, using funds more efficiently, I'm generally supportive. It's unclear which of these would take funding away from current business.

Lizzie Rubado: The assumption is that other funding sources would be leveraged in order to pursue this larger work. But your point is still relevant. How do you manage scarce resources to serve a core mission, and where is there potential for distraction?

Anna Kim: It depends on the strategy. The OPUC is neutral assuming you can find the funds and the new activity wouldn't impact the public purpose charge.

5. Public Comment

There was no additional public comment.

6. Meeting Adjournment

The meeting adjourned at 4:05 p.m. The next Conservation and Renewable Energy Advisory Council meetings are scheduled for Wednesday, February 27, 2019.

2019 Operating Principles Conservation Advisory Council

February 2019

Per the Energy Trust bylaws and grant agreement with the OPUC, the Conservation Advisory Council (CAC) is one of several standing committees formed by the board of directors to provide advice in support of Energy Trust of Oregon energy efficiency programs.

From the CAC Charter:

The purpose of the Conservation [and Renewable] Advisory Councils is to advise the board and staff of Energy Trust of Oregon, Inc., regarding issues associated with Energy Trust energy efficiency and renewable energy policies and programs.

The Councils will:

- (a) Review and discuss selected energy efficiency and renewable energy issues prior to Energy Trust decision-making to ensure that the Board and staff have the best available information on such issues;
- (b) Help the Board and staff to identify alternative resolutions of such issues; and
- (c) Help staff identify matters for board consideration.

The CAC provides direct advice and input on budgets, program designs and strategies and the implications and programmatic response to policy or market changes. Final resolution of issues and all decision authority remains with the board of directors.

The following operating principles are a distillation of Conservation Advisory Council meeting discussions concerning the CAC role and meeting process. CAC Operating Principles were initially developed in 2004 to improve and enhance the CAC process, and went through an extensive review in 2018. The Operating Principles are reviewed by CAC members and Energy Trust staff at the beginning of the year, updated as needed and adopted.

Energy Trust staff has endeavored to incorporate these operating principles into the CAC meeting process as a way to enhance the effectiveness of advisory council meetings:

1. Meet in person at least 8 times per year, providing a phone conference line upon request if a CAC member needs to participate remotely.
2. Draft an annual CAC schedule to set expectations for the year and prioritize known issues/topics for the year to inform annual schedule and meeting agenda development. [Identify topics that can be brought early to CAC for feedback; topics could involve a significant change in program planning and delivery or shifts in market trends.](#)
3. Whenever possible, distribute meeting agendas, related materials and notes from the previous meeting one week in advance so that CAC members can review and be prepared to engage on topics. [Agendas to provide a summary of each topic that will be covered, along with the objective of the presentation.](#)

4. Identify agenda items as discussion, information or recommendation needed, [and seek to vary presentation styles to foster greater exchanges among CAC members and staff.](#)
5. Make presentations short and succinct; provide ample time for discussion. Structure the meetings to maximize dialogue between staff, CAC members and other interested parties who attend.
6. Ensure sufficient CAC member input and discussion on warranted topics before polling members for opinions. Document minority viewpoints as well as prevailing opinions.
7. Provide summaries of CAC input in board briefing materials or decision documents where applicable. Summaries should reflect the degree of CAC unanimity.
8. Encourage board member attendance at CAC meetings. Include board members on CAC distribution list to allow the board to review CAC minutes and to choose to attend meetings of interest.
9. Include time on agendas for open discussion and suggestions for future agenda items.
10. Brief new, incoming CAC members on their duties.

2018 Meeting Guidance Conservation Advisory Council

May 8, 2018

The Conservation Advisory Council has a set of 10 operating principles (see the 2018 Operating Principles document). These were affirmed in early 2018 as still relevant, but not complete. The CAC undertook a process to re-examine the role of CAC; how CAC members are engaged; what topics come to CAC and when; and how materials and issues are presented.

The notes and summary of this re-examination are in the [March 2018 meeting minutes](#). This document distills that information into a set of proposed, additional operating principles guiding CAC meetings through 2018. In early 2019 we will review this guidance and adjust, if needed.

Additions to the current operating principles (proposed):

- **Focus more on these key topic areas:**
 - Customer research and insights
 - Who are we serving, reach of programs; including insights from Big Data
 - Context—market trends, policy issues affecting programs
 - Includes research, evaluation, legislation, policy
 - Program innovations and new initiatives
 - Future sources of savings or decline,
 - Pilot prioritization and vetting,
 - Horizon planning; especially, expanding reach or changing costs
 - Challenges and barriers facing programs
 - Including policy and market barriers
 - Solicit and vet possible response approaches
 - Program delivery to historically underrepresented groups
 - Diversity/equity considerations; includes savings, costs, metrics
 - What's working and not working nationally
 - Include comparisons to others when available
 - Vet proposed changes
- **Bring items early in more draft form**
- **Expand agenda content to include**
 - Short, succinct summary of the topic
 - Objective statement, outcomes expected from the item
- **Vary meeting styles**
 - Utilize more facilitated, small-group settings and mini-breakouts
 - Foster more CAC member exchanges
 - Shorten and focus presentations
 - Provide more background in the meeting packet, assume CAC members will prepare
- **Notify of other Energy Trust meetings**
 - Provide links to agendas and materials from those meetings
 - For example, board Strategic Plan workshop, Evaluation Committees, Trade Ally Forums
- **Track and report on how CAC input is utilized**

Commented [HC1]: Staff proposes these topics be identified and revisited at the beginning of the year to guide how is brought to CAC, and keep that detail in the meeting notes

Commented [HC2]: Incorporated into 2019 Draft Operating Principles

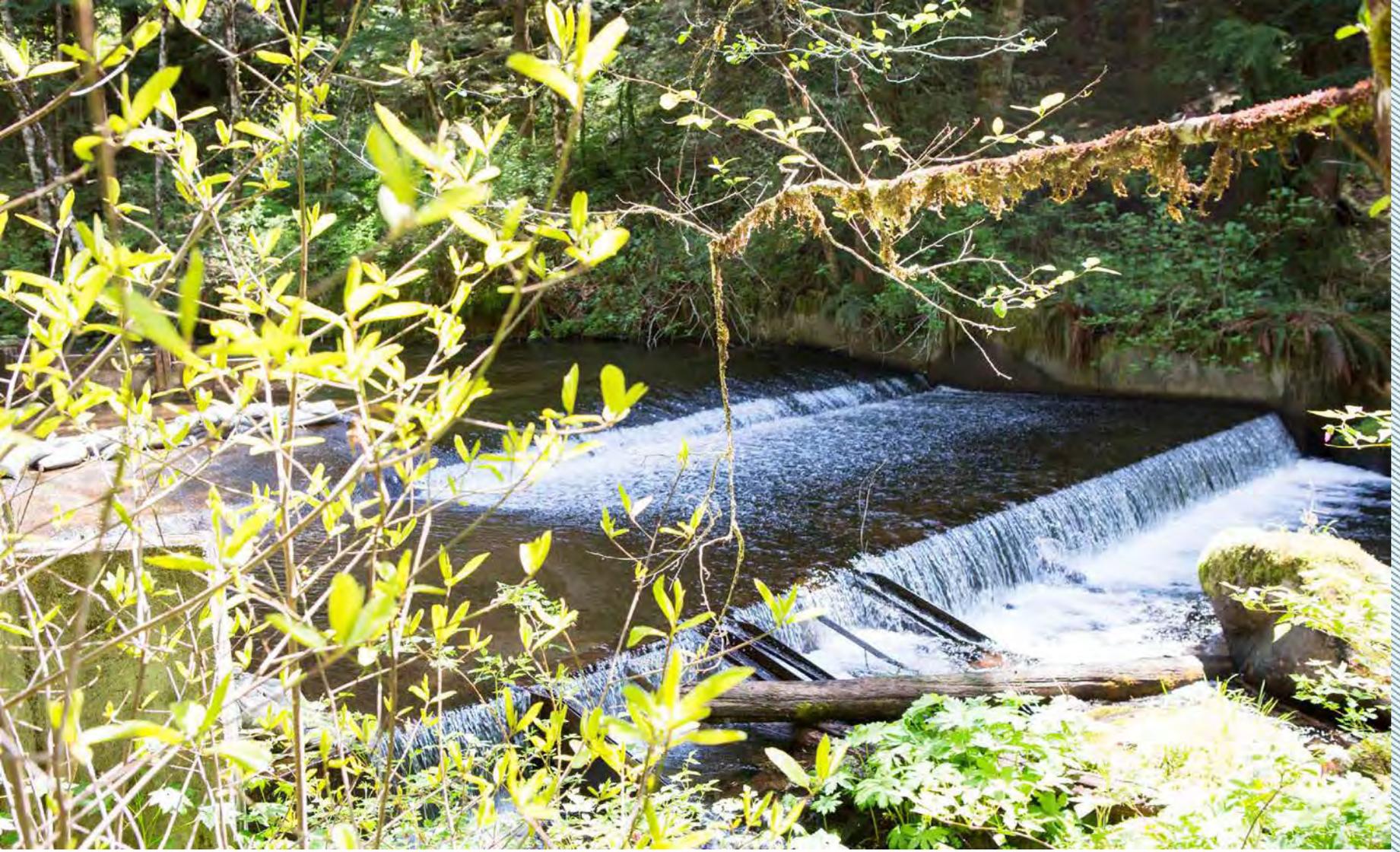
Commented [HC3]: Incorporated into 2019 Draft Operating Principles; confirm with CAC current approach is working

Commented [HC4]: Incorporated into 2019 Draft Operating Principles

Commented [HC5]: Within Operating Principles currently; confirm with CAC 2/27 on this approach

Commented [HC6]: Staff proposes to keep CAC informed of board meetings where strategic plan and budget are considered; encourages CAC members to view the Energy Trust Events calendar online

Commented [HC7]: Incorporated into 2019 Draft Operating Principles in regards to informing board



CAC Survey Findings

February 27, 2019

Survey Details

- Open 2.5 weeks
- Received 12 complete responses, out of 17
 - Thank you!
- Asked for feedback on
 - Usefulness of 2018 CAC agenda items
 - Preferred ways to give feedback to presentations
- Open questions on
 - Anything in particular you liked/disliked about a topic
 - Suggestions for 2019 agenda items



Main Findings

1. Most agenda topics were found to be useful
1. You like a variety of ways to provide feedback



How useful did you find 2018 agenda items?

Most useful

- Review of measure levels, incentives
- DEI data analysis
- Targeted load mgt*
- Strategic Plan workshop recap

Least useful

- Contract rebids
- Lighting tool research
- HPWH bonus
- A/C measure
- Q2 report

*** “most exciting meeting of the year”**

Lists are in no particular order



How do you like to give feedback?

Comfort zone

- After a presentation
- After a presentation with questions provided in advance

Alright, sometimes

- Large groups
- Small groups

Probably not

- By email after the meeting

“Getting out of our seats added a great dynamic”



Likes

- Strategy sessions to hear different POVs
- Hearing about how you're benefiting underserved customers
- Evaluation findings, resulting program changes
- Enough detail for substantive feedback

Dislikes

- Strategy session didn't translate to board meeting

Suggested 2019 Topics

- Cost-effectiveness challenges, how to overcome
- Policy and technology changes impacting energy efficiency
- Define “clean energy services”
- Present staff analysis to CAC before making decisions



Thank you

Hannah Cruz

Sr. Communications Manager

hannah.cruz@energytrust.org



2018 agenda items

- CAC meeting guidance, operating principles
- State legislative session, bill tracking and updates
- PMC/PDC contract rebids
- Savings attribution and potential transition from net to gross savings
- 2019 budget changes
- Board strategic planning workshop report-out
- 2020-2024 strategic planning sessions
- Residential measure decision-making approaches
- Review of measures and incentive levels for 2019
- Residential midstream heat pump water heater bonus
- Air conditioning measure analysis
- Lighting tool market research results
- Existing Multifamily market analysis
- Commercial Pay for Performance evaluation results and next steps
- Large electric customer funding analysis
- Research on underserved customers
- Targeted Load Management pilots
- Trade ally survey findings
- Guest speaker: PGE Smart Grid Test Bed
- Quarter 2 report and forecast
- 2019 action plans



2018 Key Topic Areas

Customer
Research,
Insights

Context: Market
Trends, Policy

Program
Innovations

Program
Challenges,
Barriers

Program
Delivery to
Underserved
Customers

National Stage

Program
Delivery

Organizational

CAC
Operations

2019 Agenda Items (draft)

Q1 2019	Q2 2019	Q3 2019	Q4 2019
CAC Operations, Planning	Avoided Costs Update	Measure Updates	2020 Budget Workshop, Changes
2018 Preliminary Results	Transition to Gross Plan	2020 Action Plans	Strategic Plan
Strategic Plan	Industrial SEM	Industrial SEM Light	DEI Update
DEI Data Analysis, Participation Goals, Trade Ally Network Goals	2019 Pilots, Inc. Residential PfP Pilot	Efficiency Forecasting	Industrial Cannabis
Measure Revisions Preview	Existing Multifamily Program Review	Customer Insights Survey	Existing Multifamily Program Review
Market Research Overview	Targeted Campaigns, Outreach	Large Electric Customer Funding Analysis	
Residential Net Zero Specification	Industrial Lighting Strategy		
Climate Change Impact	Small-Medium Business Strategy		
	Strategic Plan (2x)		
	DAC Update		
Meetings: Feb (2x)	Meetings: April, May, June	Meetings: July, Sept	Meetings: Oct, Nov

2018 Preliminary Annual Results

February 27, 2019



2018 preliminary results

Saved 54.0 aMW—**95%** of electric savings goal

Saved 7.5 MMTh—**114%** of gas savings goal

Generated 2.39 aMW—**126%** of renewable goal

Exceeded goals for 3 of 5 utilities



2018 preliminary energy efficiency results by utility

	Savings	Goal	% Goal Achieved	IRP target	% IRP Achieved
PGE	34.7 aMW	36.4 aMW	95%	36.1 aMW	96%
Pacific Power	19.3 aMW	20.2 aMW	96%	19.8 aMW	98%
NW Natural	6,478,420 annual thm	5,655,344 annual thm	115%	5,655,344 annual thm	115%
Cascade Natural Gas	592,940 annual thm	547,106 annual thm	108%	548,212 annual thm	108%
Avista	409,128 annual thm	349,520 annual thm	117%	349,520 annual thm	117%

Net savings; figures include NEEA



Preliminary efficiency results by sector

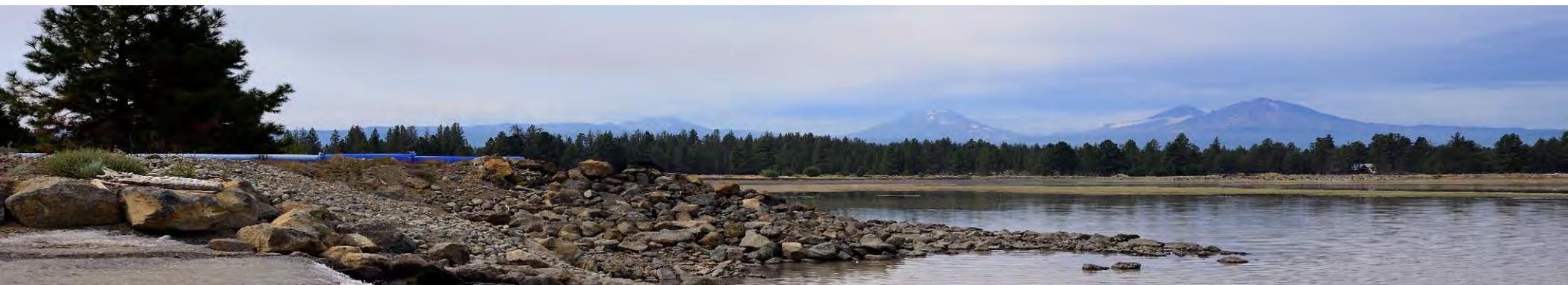
	Electric savings	% Achieved	Gas savings	% Achieved
Commercial sector	24.3 aMW	98%	2,485,103 annual thm	96%
Industrial and agricultural sector	16.8 aMW	87%	2,036,307 annual thm	191%
Residential sector	12.9 aMW	104%	2,959,078 annual thm	102%
Total	54.0 aMW	95%	7,480,487 annual thm	114%

Net savings; figures include NEEA



Preliminary generation results by program

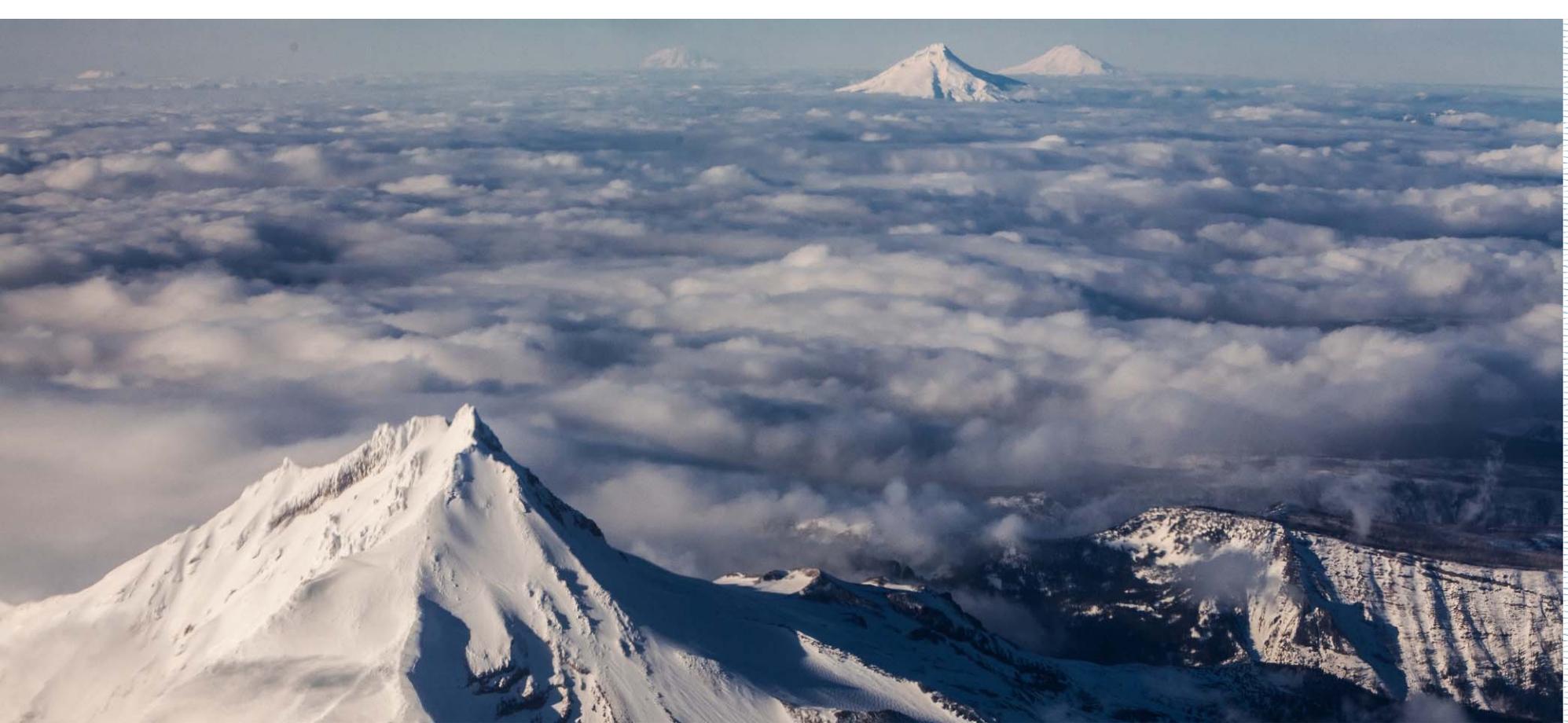
	Generation	Goal	% Achieved
Solar Electric	2.30 aMW	1.89 aMW	121%
Other Renewables	0.09 aMW	0 aMW	n/a
Total	2.39 aMW	1.89 aMW	126%



Preliminary generation results by utility

	Generation	Goal	% Achieved
PGE	1.33 aMW	1.08 aMW	124%
Pacific Power	1.06 aMW	0.82 aMW	130%
Total	2.39 aMW	1.89 aMW	126%





Thank you

Final OPUC Annual Report
available **April 15, 2019**

Available at:
www.energytrust.org/reports





Residential Net Zero Specification

Early Stakeholder Engagement
February 27, 2019

Agenda

- Background
- Definitions
- Discussion

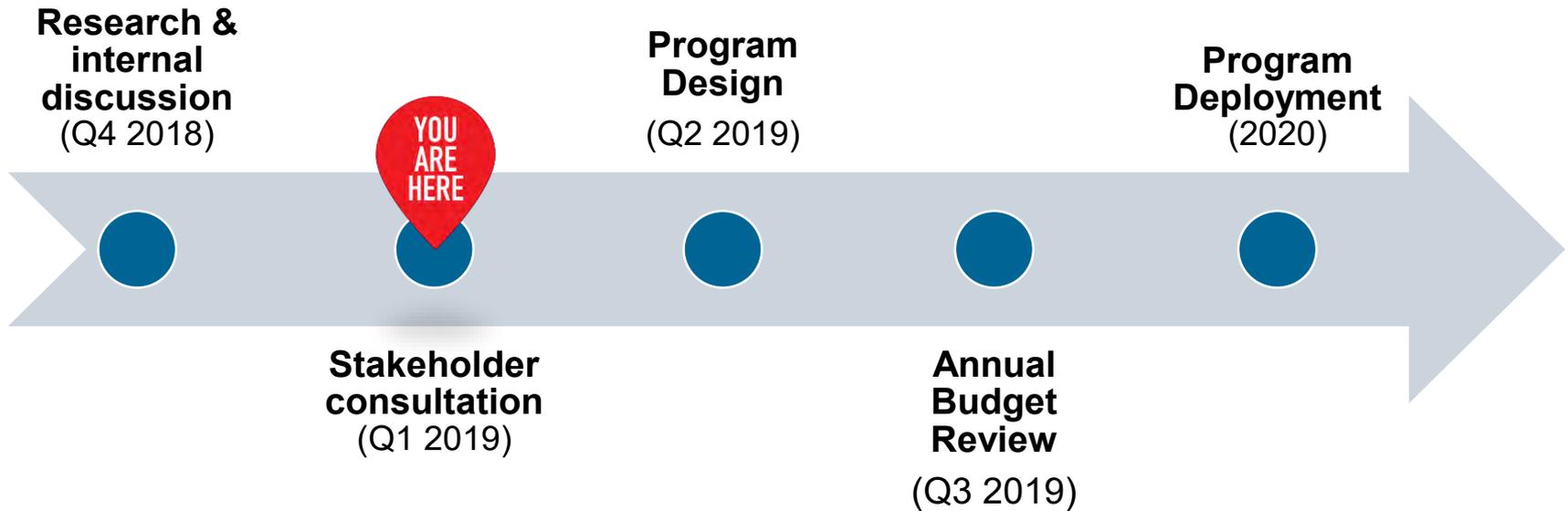
Background



Discussion Assumptions

- Target launch in 2020
- Fuel neutral
- Site based savings analysis
- No offsite renewable offsets
- Current net metering rules

Process



Residential New Construction and Solar Program Overview

EPS New Construction

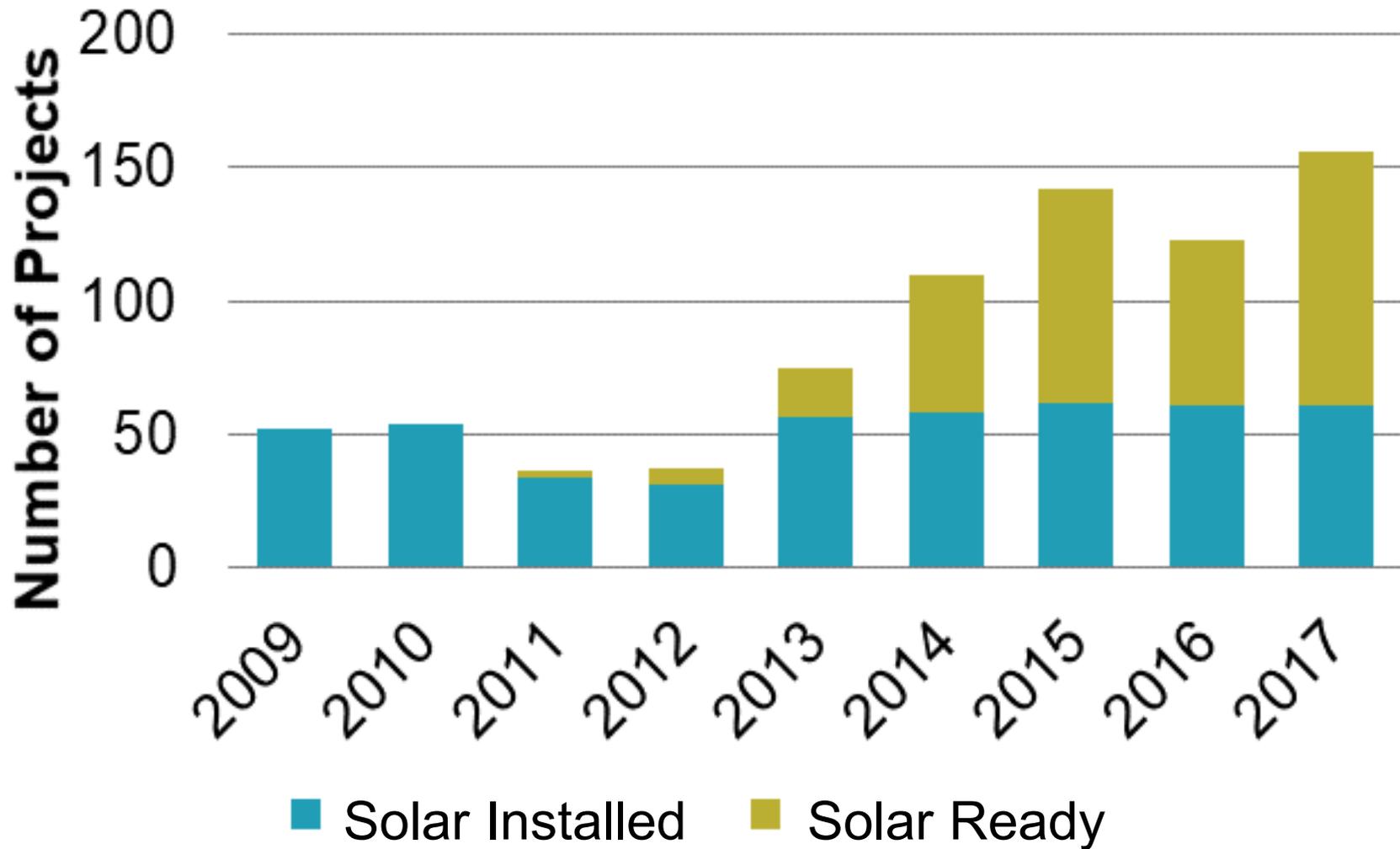
- Energy efficiency incentives based on therm and kWh cost effectiveness
- Supports energy-efficient improvements beyond code
- Launched in 2009 for new homes
 - More than 13,000 homes have received an EPS
- Builders works with trade ally verifiers from design phase through final verification
- Incentives based on modeled, site-based whole home savings

Solar

- Solar incentives based on above market cost
- Solar Trade Ally Contractors can offer solar incentives for commercial and residential systems
- All solar installations must meet Energy Trust above code requirements
- Incentives lower the upfront cost to the builder
- Homebuyers receive federal tax credits for solar
- New homes can also receive an incentive for being built to meet Energy Trust Solar Ready standards

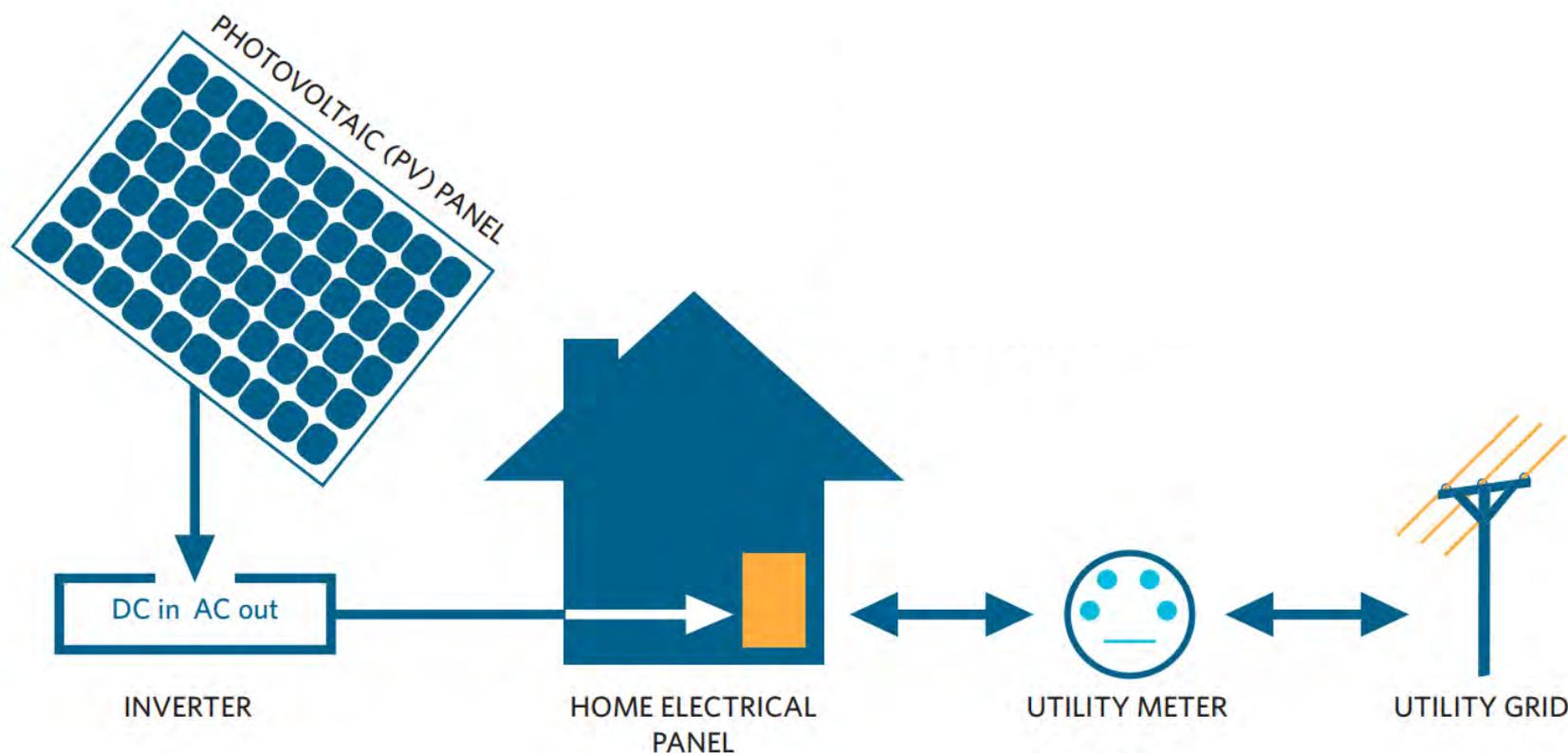


Solar - New Homes Market

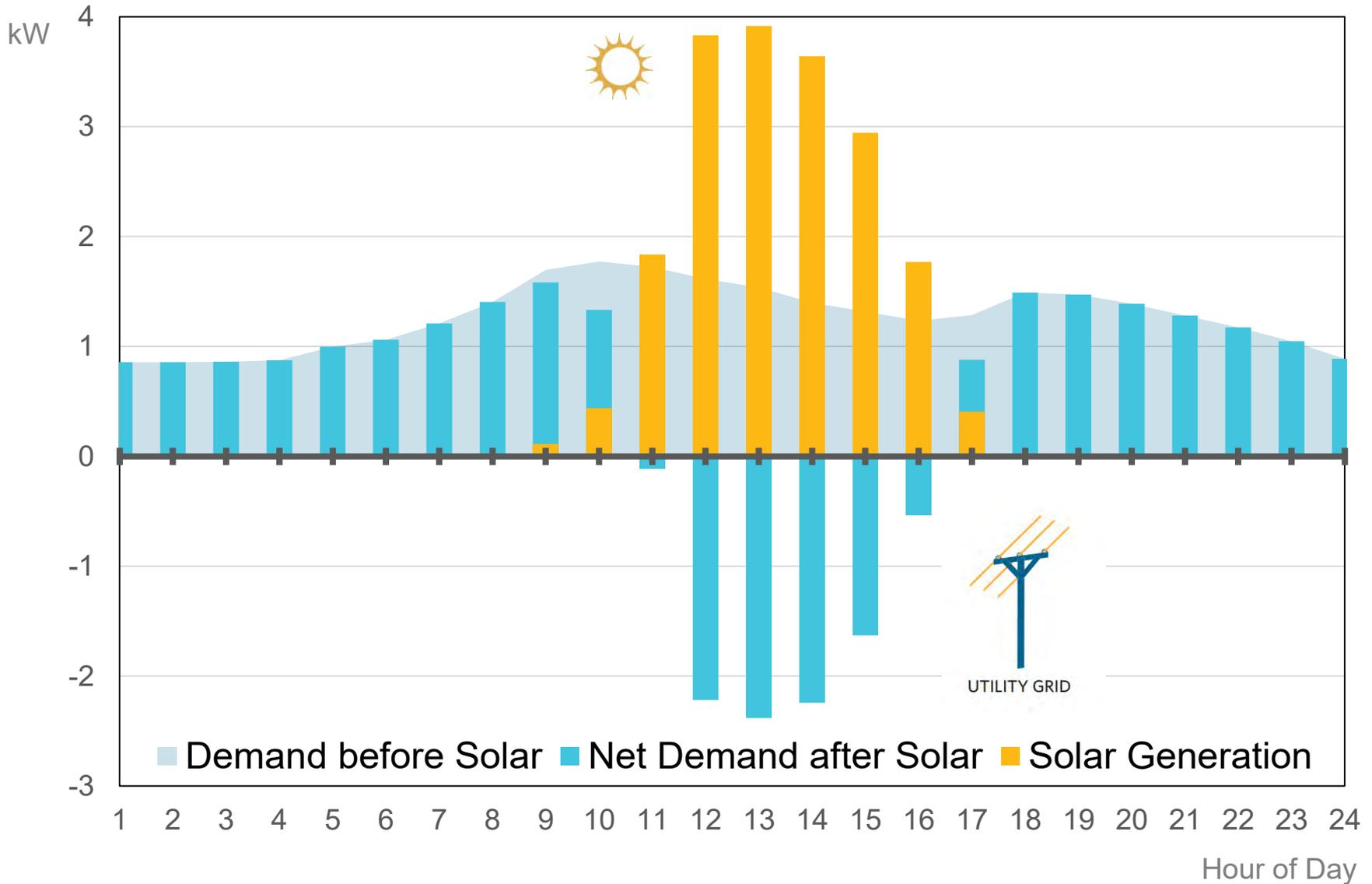


Solar – Annual Net Metering

- Solar offsets electricity (kWh) usage at the home.
- Surplus solar energy is converted to kilowatt hour credits that are applied to future electric bills.



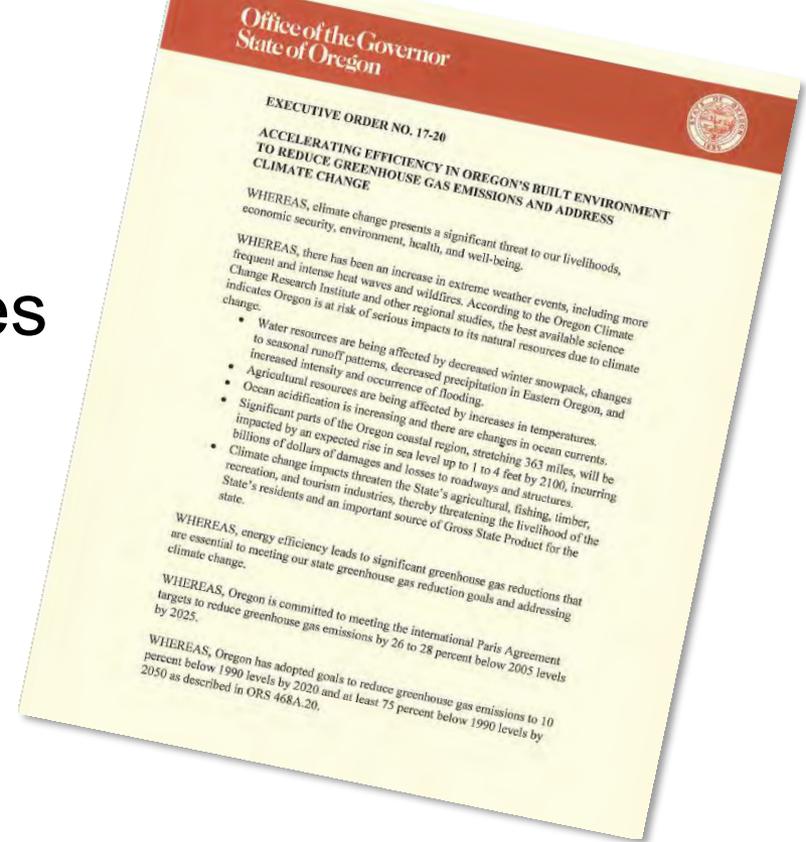
Solar – Daily Production



Market Context for Residential Net Zero

Executive Order 17-20

- Residential Building Codes Timeline



**Executive Order
17-20**

Nov. 2017

Zero Energy Ready

Oct. 2023



Oct. 2020

**- Solar Ready
- EV Ready**

Next?

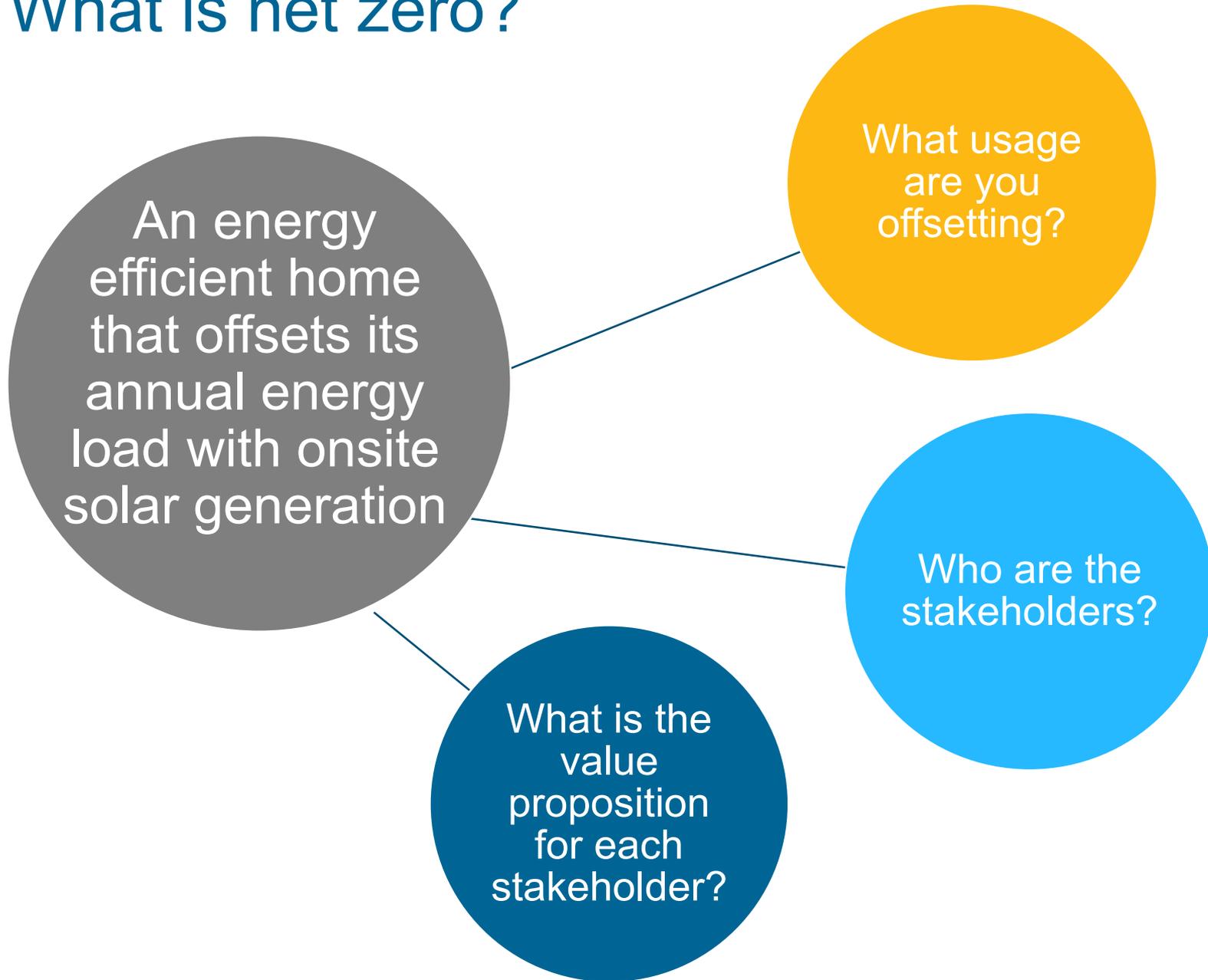
Value Proposition of Net Zero for Energy Trust

- Increase adoption of energy efficiency and solar
- Decrease cost of building energy efficient homes with solar
- Boost consumer confidence
- Build brand awareness



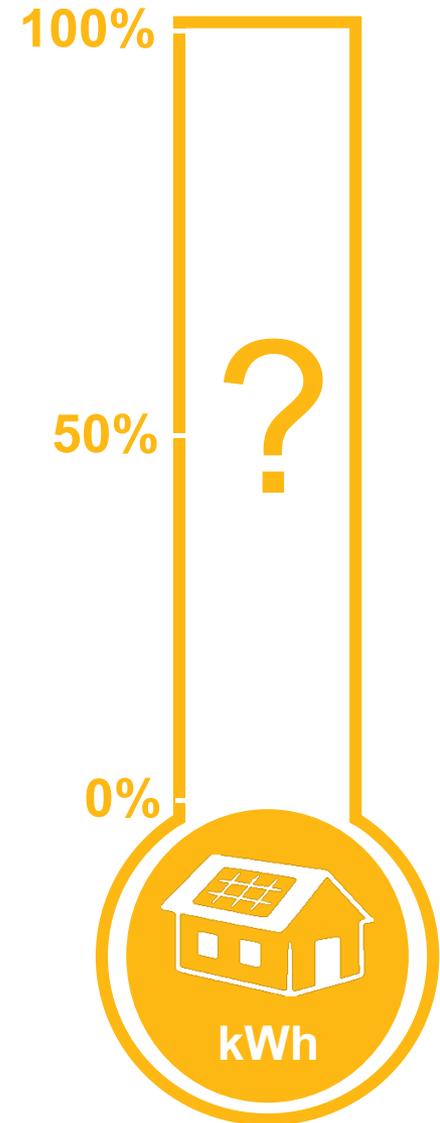
Definitions

What is net zero?



What is net zero?

- Zero all energy usage
- Zero all electric usage
- Zero some usage (California Code)
- *Smart Grid Responsive Home



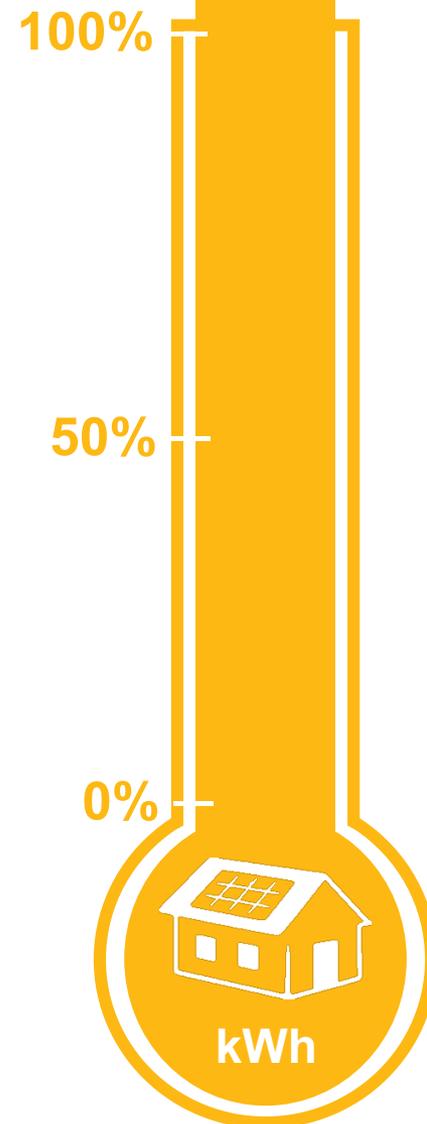
Zero all energy usage

Description

Annual energy usage onsite - both gas and electric – is converted to BTU and the solar array is sized to offset that combined total.

Considerations

- For mixed fuel homes, solar system generates more electricity than the home uses over a year
- Homebuyer does not receive the full benefit of their solar investment because any excess electricity is donated
- Home's electric bill is "zero"



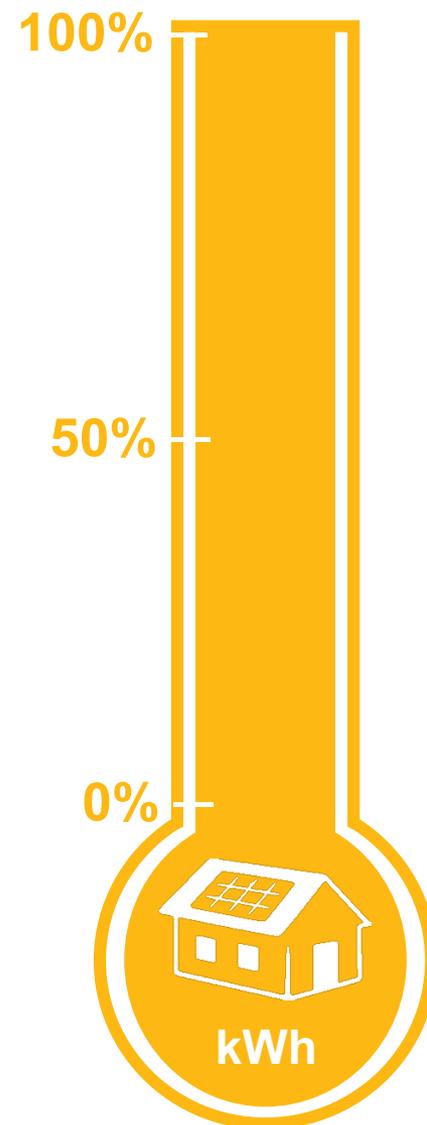
Zero all electric usage

Description

Annual electricity usage onsite is modeled and the solar array is sized to offset that total

Considerations

- For mixed fuel or all electric homes, solar system generates only enough electricity to offset the homes annual electric usage.
- Homebuyer does receive the full benefit of their solar investment
- Home's electric bill is "zero"



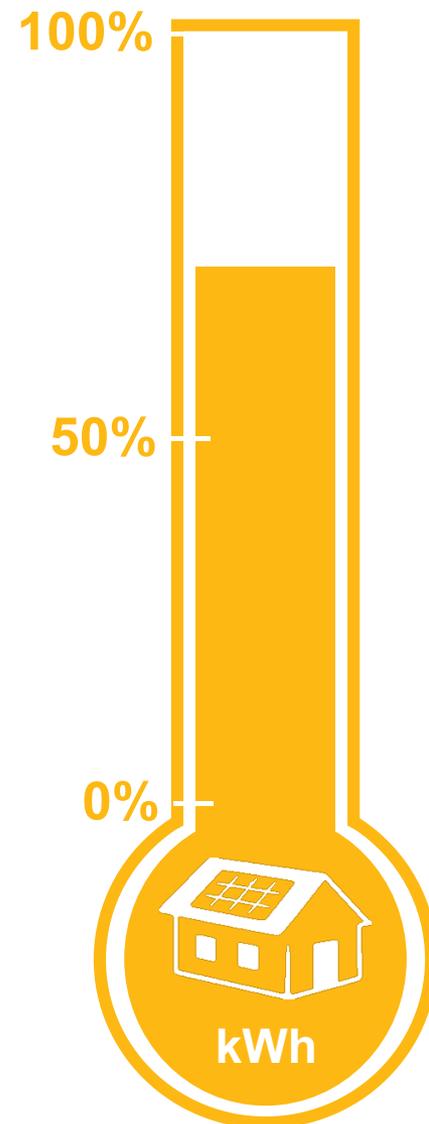
Zero some usage (California Code)

Description

Annual energy usage onsite - both gas and electric – minus the typical water heating and space heating loads is converted to BTU and the solar array is sized to offset the remaining total.

Considerations

- For mixed fuel or all electric homes, solar system generates less electricity than the home uses over a year
- Homebuyer does receive the full benefit of their solar investment
- Home's electric bill is not “zero”



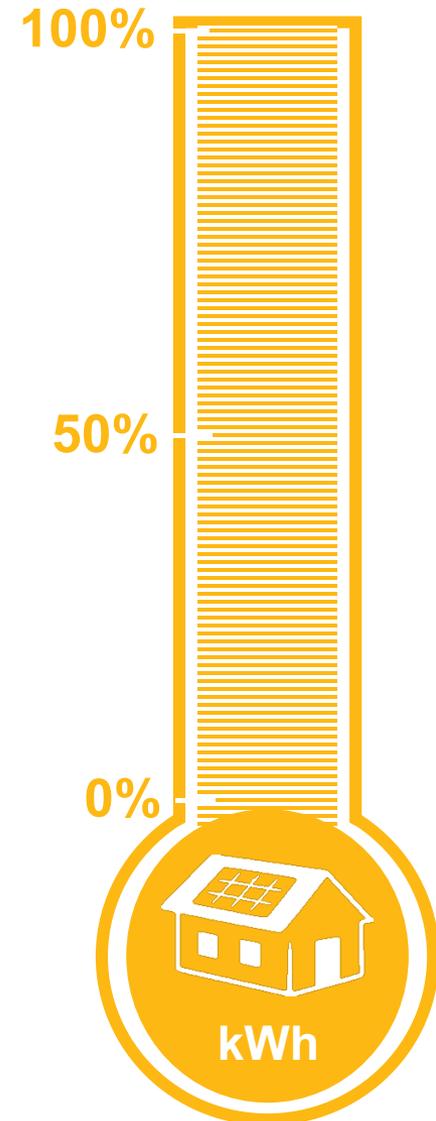
*Smart Grid Responsive Homes

Description

A program overlay that provides a menu of smart grid capable technology for builders to incorporate into their project that can benefit homebuyers and the electric grid.

Considerations

- Net Zero homes can cause excess solar generated during the day to “back feed” on the grid and contribute to an increase in evening peak.
- Combining energy efficiency, solar, and other smart grid enabled technology can make the home into a flexible resource which utilities can “activate.”



Discussion



Discussion Questions

1. What does net zero mean to your organization?
2. What should be taken into consideration when designing a residential net zero specification?
3. Of the options on the previous slides which do you feel is most appropriate for Energy Trust to consider?



Survey Questions

1. Residential net zero is a valuable framework to advance the goals of the EPS and solar programs
2. Residential net zero is a valuable framework to support Energy Trust's customers
3. Residential net zero is a valuable framework to support Energy Trust's trade allies
4. Energy Trust should have a role in shaping net zero in the residential context



Thank you

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Jeni Hall

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EXECUTIVE ORDER NO. 17-20

**ACCELERATING EFFICIENCY IN OREGON'S BUILT ENVIRONMENT
TO REDUCE GREENHOUSE GAS EMISSIONS AND ADDRESS
CLIMATE CHANGE**

WHEREAS, climate change presents a significant threat to our livelihoods, economic security, environment, health, and well-being.

WHEREAS, there has been an increase in extreme weather events, including more frequent and intense heat waves and wildfires. According to the Oregon Climate Change Research Institute and other regional studies, the best available science indicates Oregon is at risk of serious impacts to its natural resources due to climate change.

- Water resources are being affected by decreased winter snowpack, changes to seasonal runoff patterns, decreased precipitation in Eastern Oregon, and increased intensity and occurrence of flooding.
- Agricultural resources are being affected by increases in temperatures.
- Ocean acidification is increasing and there are changes in ocean currents.
- Significant parts of the Oregon coastal region, stretching 363 miles, will be impacted by an expected rise in sea level up to 1 to 4 feet by 2100, incurring billions of dollars of damages and losses to roadways and structures.
- Climate change impacts threaten the State's agricultural, fishing, timber, recreation, and tourism industries, thereby threatening the livelihood of the State's residents and an important source of Gross State Product for the state.

WHEREAS, energy efficiency leads to significant greenhouse gas reductions that are essential to meeting our state greenhouse gas reduction goals and addressing climate change.

WHEREAS, Oregon is committed to meeting the international Paris Agreement targets to reduce greenhouse gas emissions by 26 to 28 percent below 2005 levels by 2025.

WHEREAS, Oregon has adopted goals to reduce greenhouse gas emissions to 10 percent below 1990 levels by 2020 and at least 75 percent below 1990 levels by 2050 as described in ORS 468A.20.



EXECUTIVE ORDER NO. 17-20

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WHEREAS, saving energy by using less energy in buildings is one of the least cost ways to achieve emissions reductions in the energy system – often with a net financial savings over the life of these energy efficiency measures, in particular as energy efficiency technology continues to improve.

WHEREAS, studies have found that building codes in Oregon have had a 97 percent compliance rate; and as building codes become more energy efficient, we will continue to strive toward excellence in construction and building codes, which are applicable statewide and provide uniformity and predictability for building owners and contractors and equity for residents and businesses.

WHEREAS, Oregon is an international leader in energy efficiency, has in-state energy efficiency expertise, and a skilled workforce to continue to be a leader; and Oregon can build on its reputation through emphasis on state leadership, building codes for newly constructed buildings, and retrofits for existing buildings.

WHEREAS, energy efficiency is a critical and growing portion of the State's clean energy economy. Investments in energy efficiency sustain a workforce of over 40,000 jobs statewide; 70 percent of these are small businesses with 11 employees or fewer. Investments in energy efficiency result in an average annual increase of gross state product of over \$132 million, and the resulting reduction in energy costs generates an additional \$32 million per year.

WHEREAS, low income and other underserved communities often struggle to access energy efficiency programs that will save them money and improve housing quality over the long-term and the State can take steps to implement policies that increase the availability of energy efficiency to these residents.

WHEREAS, state government has a responsibility to lead by example in its adoption of energy efficiency to achieve a more cost-effective and clean energy future.

WHEREAS, energy efficiency actions increase the health, safety, and resiliency of Oregon's buildings and homes, resulting in lower health care costs borne by the State and its residents.



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WHEREAS, an energy system with distributed generation, energy efficiency, and storage capacity can build resiliency in the face of climate change related disruptions and other disasters.

NOW, THEREFORE, IT IS HEREBY DIRECTED AND ORDERED:

- 1. Definition.** For purposes of this Executive Order, “state agency” shall be defined as any agency within the Executive Department as defined in ORS 174.112, other than the Oregon Secretary of State, Oregon State Treasury, Oregon Department of Justice, and Oregon Bureau of Labor and Industries.
- 2. Statement of Policy.** It is the policy of the State of Oregon to establish an aggressive timeline to achieve net zero energy ready buildings as a standard practice in buildings across the state. Review and regular improvements to the energy provisions of the state building code will occur on at least a three-year cycle for residential and commercial buildings. Directives in this Executive Order related to energy efficiency, electric vehicle readiness, and solar installation readiness are essential to meeting this policy, as is a focus on retrofitting older, less-efficient buildings and demonstrating energy efficiency leadership in state-owned and state-leased buildings.
- 3. Energy Efficiency Leadership in State Buildings**
 - A. High Performance Energy Targets for Existing State Buildings.** State agencies will use high performance energy use targets for remodels in all existing state-owned buildings. Department of Administrative Services (DAS) and Oregon Department of Energy (ODOE) are directed to consider ASHRAE 100 Standard pathways and work with all state agencies to adopt targets for any remodels that begin after the date of this executive order. State agencies that are not meeting energy use targets will work with ODOE and DAS to undertake energy retrofits to increase the efficiency of their buildings. ODOE is directed to report on and track all state-owned building energy use to guide agencies to implement tactical and achievable energy use reductions. ODOE will work with all agencies to benchmark and identify buildings for retrofits. A database of all eligible state-owned buildings will be created by June 1, 2018.



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- B. Carbon-Neutral Operations for New State Buildings. DAS and ODOE are directed to work with state agencies to ensure that new state owned buildings permitted after January 1, 2022 and used primarily for office and other commercial work space are designed to be able to operate as carbon-neutral buildings defined with full fuel-cycle considerations that are inclusive of, but not limited to, off-site renewable energy and other provisions of ASHRAE standard 189.1. In addition, DAS and ODOE are directed to analyze feasible options with the Department of Environmental Quality that would lower the embodied carbon of building materials in new construction of state buildings.
 - C. Statewide Plug-Load Strategy. DAS and ODOE are directed to develop a statewide plug-load management strategy and strategies for other occupant behavior changes to reduce energy uses not regulated by codes and standards. DAS and ODOE will develop a plug load strategy by January 1, 2019, and DAS will update policies for behavior-based efficiency by January 1, 2020.
 - D. Energy Efficient Equipment. DAS, with support from ODOE, is directed to ensure that all equipment purchased by the state meets high-efficiency energy and water use specifications by incorporating efficiency standards into procurement requirements. DAS and ODOE will develop procurement requirements in the 2018-19 fiscal year.
 - E. Lifecycle Cost Analysis. ODOE is directed to analyze state building costs, including lifecycle energy and water use costs or savings, when considering energy and water upgrades for state buildings. By January 1, 2019, ODOE, working with DAS, will develop analysis tools that can inform the high performance energy use targets and carbon neutral requirements for state buildings referenced above.
- 4. Increasing Energy and Water Efficiency in New Construction Across the State**
- A. Solar Ready Building Construction. The appropriate advisory board(s) and the Department of Business and Consumer Services Building Codes Division (BCD) are directed to conduct code amendment of the state



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building code to require all newly constructed buildings will be ready for the installation of solar panels and related technologies by October 1, 2020 for residential structures and October 1, 2022 for commercial structures. BCD may establish limited specific exemptions to this solar-ready policy for buildings where solar applications are infeasible.

- B. Electric Vehicle Ready Building Construction. The appropriate advisory board(s) and BCD are directed to conduct code amendment of the state building code to require that parking structures for all newly constructed residential and commercial buildings are ready to support the installation of at least a level 2 EV charger by October 1, 2022. BCD may establish limited specific exemptions related to types of parking lots, such as temporary parking lots.
- C. Zero-Energy Ready Homes. The appropriate advisory board(s) and BCD are directed to conduct code amendment of the state building code to require newly constructed residential buildings to achieve at least equivalent performance levels with the 2017 U.S. Department of Energy Zero Energy Ready Standard by October 1, 2023.
- D. Increasing Energy Efficiency in Commercial Construction. The appropriate advisory board(s) and BCD are directed to conduct code amendment of the state building code to require, by October 1, 2022, that newly constructed commercial buildings, averaged across building types, will exceed International Energy Conservation Code and ASHRAE 90.1 by achieving at least equivalent performance levels with the measurable prescriptive energy efficiency portions of the most current version of ASHRAE 189.1 that are construction-related.
- E. Helping Key, Expanding Industries to Save Costs by Reducing their Energy Footprint. ODOE, in consultation with BCD, is directed to work with industry stakeholders to identify key high-energy use industries that have the potential to realize significant cost savings and energy savings through building code amendments as it relates to their industrial building types. ODOE and BCD are directed to provide the Governor with a report of its analysis and findings by January 1, 2019.



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- F. Improved State Standards for Appliances. ODOE is directed to work with appliance industry stakeholders to identify categories of appliances for improved efficiency standards, while considering appliance standards of other states, potential efficiency gains, potential costs, and supply chains for the regional market for appliances. ODOE is directed to provide the Governor with a report of its analysis and identify categories of appliances for improved efficiency by November 1, 2018.
- G. High Efficiency Water Fixtures. The appropriate advisory board(s) and BCD are directed to conduct code amendment of the state building code to require high-efficiency water fixtures in all new buildings by January 1, 2020.
- H. Increased Water Efficiency in On-Site Reuse. The appropriate advisory board(s) and BCD are directed to conduct code amendment of the state building code to require water efficiency improvements in all newly constructed commercial buildings through standards for capture and safe reuse of water for irrigation purposes by October 1, 2025.

5. Increasing Energy Efficiency through Retrofits of Existing Buildings Across the State

- A. Energy Trust of Oregon Pilot Programs. Oregon Public Utility Commission (PUC) is directed to work with the Energy Trust of Oregon and interested stakeholders to expand meter-based savings pilot programs, including pay-for-performance pilot programs, by January 1, 2019. PUC shall consider inclusion of pilot programs, which do not significantly raise energy efficiency delivery costs, and that focus on existing single family homes, multi-family residential buildings, commercial buildings, and methods to incentivize energy efficiency in building stock that is significantly below current building code requirements.
- B. Prioritizing Energy Efficiency in Affordable Housing to Reduce Utility Bills. ODOE, PUC, and Oregon Housing and Community Services (OHCS) are directed to work together to assess energy use in all affordable housing stock and develop a ten-year plan for achieving



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maximum efficiency, as well as a continuum of efficiency levels up to maximum efficiency in affordable housing across the state by January 1, 2019. As part of the assessment, the agencies shall consider new resources and best practices and shall seek assistance from Energy Trust of Oregon and Bonneville Power Administration. OHCS is directed to expand its existing multi-family energy program and green energy path requirements, including a manufactured home replacement program through pilot programs and initiatives, while considering multiple values from energy efficiency improvements, such as health and habitability.

- C. Coordination of Data. ODOE and PUC are directed to support and assist private sector partners in efforts to coordinate sharing of data that shows projected energy use reductions in the region. This data will be made available to the public to inform energy efficiency policies, as appropriate, by January 1, 2020.
 - D. Evaluation of Energy and Resiliency Efforts. ODOE and PUC are directed to evaluate the state's distributed energy resources and the efficiency of energy systems needed to improve Oregon's recovery from a disaster situation. ODOE and PUC are directed to provide the Governor with a report of their analysis and findings by January 1, 2019.
6. **Analysis of Cost.** State agencies are expected to implement this Executive Order using the least cost methods available. ODOE and BCD, in consultation with DAS, PUC, and OHCS, are directed to adopt a cost-analysis tool through a process that involves meaningful public input by December 1, 2019. State agencies shall use this cost analysis tool to determine whether any directive in this Executive Order should be deferred for one year or, if specific to a building code related directive, to the next building code cycle, due to significant cost at the time of implementation of that directive. All state agency processes for determining deferment of a directive in this Executive Order must include at least one public meeting that allows interested stakeholders to provide input.



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7. **Implementation.** The implementation of this Executive Order shall be coordinated through a Built Environment Efficiency Working Group, which will also identify any structural barriers or barriers to information sharing that may slow the progress of any directive in this Executive Order. The Built Environment Efficiency Working Group will review directives in this Executive Order, seek input from interested stakeholders, and recommend opportunities to provide equitable access to clean energy by removing barriers to achieving energy efficiency in the built environment to the Governor and state agencies. The Built Environment Efficiency Working Group shall include the following agencies: DAS, ODOE, BCD, PUC, and OHCS. Agencies shall implement each directive in this Executive Order using their existing internal processes and established rulemaking procedures, including recommendations from any boards. This Executive Order is intended to be consistent with obligations under federal and state law and shall be interpreted as to not violate any requirement of federal or state law.

8. The Governor encourages the Secretary of State, the State Treasurer, the Attorney General, and the Commissioner of the Bureau of Labor and Industries to adopt policies and practices to accelerate efficiency in the built environment consistent with measures in this Executive Order. DAS and ODOE are directed to assist the above-mentioned officials and entities of state government in accomplishing these objectives as they may request.

Done at Portland, Oregon, this 6th day of November, 2017.



Handwritten signature of Kate Brown in blue ink.

Kate Brown
GOVERNOR

ATTEST:

Handwritten signature of Dennis Richardson in green ink.

Dennis Richardson
SECRETARY OF STATE



Market Research at Energy Trust

2/19/2019

Market Research at Energy Trust

- For Energy Trust, market research
 - Typically examines the present and/or future potential customers for a product or service
 - Focuses on better understanding the awareness, targeting, acquisition and retention of a customer base
- Energy Trust does about 8-10 market research projects each year. We also answer market research questions in evaluations or internally with existing data.

Types of information collected for market research may include:

- Customer analysis (awareness, attitudes, usage, etc.)
- Supply chain models
- Consumer choice information
- Market segmentation
- Market trends
- Pricing/cost research
- Positioning/branding research





Water-Energy Nexus Market Study





Research Objectives

- Assessed Energy Trust's program participation in water and wastewater efficiency projects.
- Summarized capital planning and project cycles for water and wastewater.
- Provided a summary of relevant energy efficiency technologies and practices.
- Provided a summary of market barriers to energy efficiency projects.
- Provided strategies for achieving deeper savings in the water and wastewater sector.



Key Findings

- Wastewater and water treatment sectors consume an estimated 408 GWh per year!
- Since 2004, Energy Trust has completed approximately 400 efficiency and renewables projects in the water and wastewater segment.
- Energy Trust has been able to maintain steady participation in these sectors, but significant energy saving potential still exists.



Residential Windows Research



Research Objectives

- Identify the key manufacturers serving the Oregon market.
- Estimate the current and five-year projections for the size and shares of efficiency tiers for the windows market in Oregon.
- Assess the incremental cost of energy-efficient windows, including the incremental cost at different efficiency levels and what drives these costs.
- Determine how a midstream or upstream program could most effectively increase the adoption of energy efficient windows.



Key Findings

- Approximately 650,000 residential windows are sold in Oregon each year, split relatively evenly between the new construction and replacement market.
- Efficient windows (below 0.30 U-value) had approximately 66% market share in 2017, forecasted to go up to 72% market share in 2022.

U-Value Tier	Market Share (2017)	Estimated 2022 Market Share
> 0.35	4%	4%
0.31 to 0.35	30%	24%
0.28 to 0.30	51%	40%
0.25 to 0.27	11%	24%
0.20 to 0.24	3%	6%
< .20	1%	2%
Total	100%	100%



New Buildings Market Research



Research Objectives

- Key goal was to obtain feedback on new construction market's landscape of stakeholders, project scopes and program phases (i.e., design, planning, installation or completion)
- Research focus was on participants that had recent experience with the New Buildings program
- Completed interviews with 90 respondents, primarily with building owners and developers.



Key Findings

- Respondents that had completed multiple projects tended to use the same service offerings.
- About half of the respondents considered renewables for their project and half of those indicated that Energy Trust influenced their decisions.

Other projects completed in 2018

- C&I Lighting Tool Research
- Customer Insights Survey
- Residential Air-conditioning Viability Study
- Residential Grow Light Research
- Residential Lighting Market Research
- Trade Ally Survey





Thank you

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2019 Measure Development Activities

2/27/19

Measure Updates

Energy Trust reviews each measure every 3 years or more frequently.

- Most updates are small corrections or adjustments
- Other updates are re-designs of offerings or strategies
- Measures marked with * are likely to be retired
- New measures are introduced as new offerings or sometimes as pilots

We have not yet completed this work for 2019. Everything here is tentative.

We're looking for CAC's input regarding which measures you want further engagement on before they're completed this fall.

Industrial Measures

Routine updates

- Greenhouse measures
- Welders
- Motor rewinds
- Compressed air

New measures

- Municipal water leak detection
- Cannabis dehumidification



Commercial and Industrial Lighting

Lighting measures are reviewed every year due to increasing LEDs in baselines.

We're exploring midstream delivery for various lighting types as pilots or new offerings.

Routine updates

- TLEDs
- High and low bay luminaries
- LED fixtures and lamps
- Exterior lighting
- Exit signs*

New measures

- Networked lighting controls (NLC) pilot
- Small customer TLED giveaway

Commercial and Multifamily Measures

Routine updates

- Grocery measures
- Vent hoods
- Boilers
- Furnaces
- Computer room small AC
- Showerheads and aerators
- Advanced power strips in commercial settings*
- Building operator certificate

New measures

- New multifamily building measures
- Pool pumps and heaters
- Rooftop unit controls
- Broilers
- Small commercial thermostat pilot

New Building Codes

A new Commercial Building Code will be effective near the end of 2019. We will update many New Buildings measures to use the new code as baseline for 2020.

Potential redesign of Market Solutions offerings:

- Multifamily
- Schools
- Offices
- Retail

Update to New Buildings Lighting Calculator.

Multifamily Direct Install

The Existing Multifamily program will review and possibly make changes to the direct install track.

- LED lighting
 - In unit
 - Common areas
- Showerheads and aerators
- Advanced power strips



Existing Multifamily Circulation Pumps

Redesign of recirculation pump measures

- Domestic hot water recirculation
- Radiant heat circulation (new)
- Efficient pumps and controls

Potential to be leveraged by Residential, Existing Buildings and New Buildings.

NEEA and RTF are also working with these measures toward a future midstream or upstream offering.

Residential and Multifamily Measures

Routine updates

- Showerheads and aerators
- Clothes washers
- Tankless water heaters
- Heat pump water heaters
- Smart thermostats
 - Hardware and optimization

New measures

- Air conditioning
- Grow lights
- Dryers
- Fireplaces and tankless in new homes



Ductless Heat Pumps

There could be significant changes to DHP offerings

- Residential and Multifamily DHPs are under exceptions which expire at the end of 2019.
- We have recent DHP evaluations and will incorporate those findings.
- Exploring new delivery options.

Update or Redesign

- Residential
 - Single family
 - Manufactured homes
- Multifamily
- New multifamily and lodging

New measures

- Existing Buildings is exploring adding a DHP calculator

Weatherization

All weatherization measures are being reviewed in all programs

- Insulation
- Windows
- Manufactured homes duct and air sealing
- Pipe insulation

Many of these measures are not cost effective and are under exception in Residential and Multifamily programs.

We plan to review recent evaluations and other data sources, and include cooling savings in analysis.

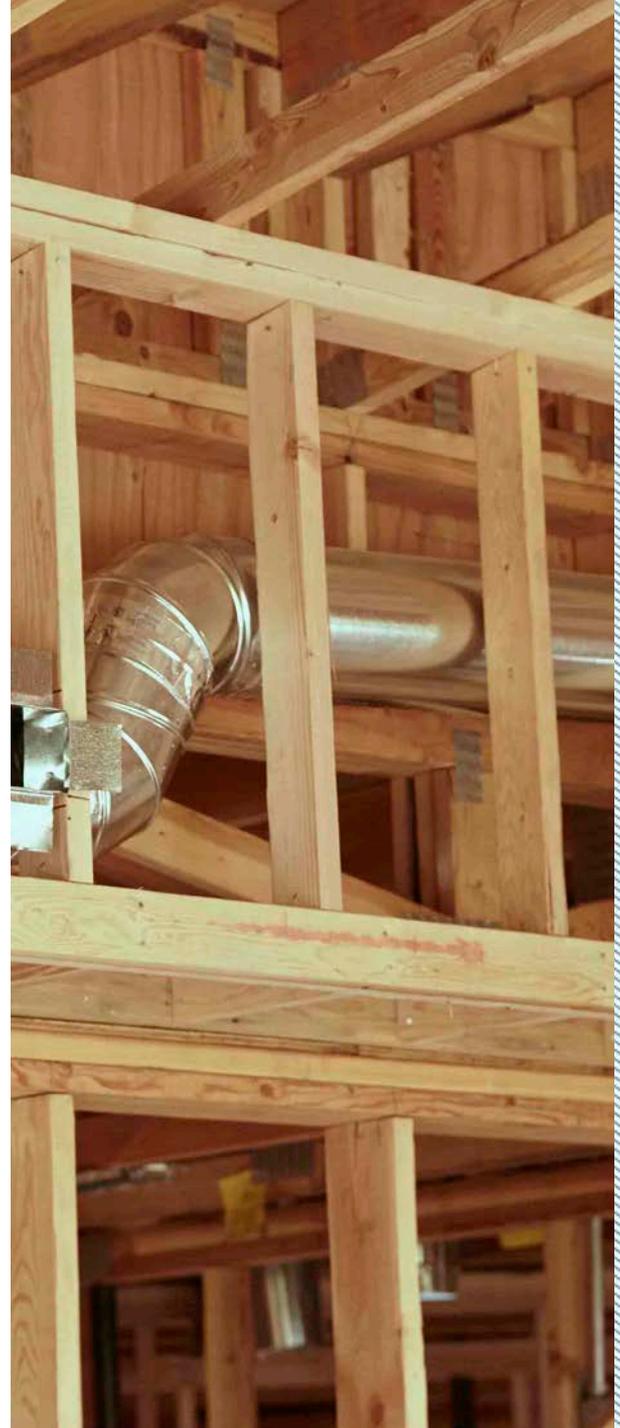
Exploring complementary funding and other program design changes.

Energy Performance Score (EPS) New Homes

The EPS program includes several pathways under exceptions, expiring at end of 2019.

We will review past projects to learn how builders achieve each path and hope to re-design cost effective pathways.

We think this will be a lot of work but will result in measures that are not much different from the customer's perspective.



Residential Lighting

Residential lighting is updated every year due to the dynamic market and shifting prevalence of LEDs in baselines.

Routine updates

- Retail LED lamps and fixtures
- Kits



Summary and Discussion

What measures would you like further engagement on before they're completed?

Major updates to

- Lighting in all sectors
- Weatherization in all sectors
- Ductless heat pumps in Commercial, Residential and Multifamily
- New Buildings and New Homes whole-building offerings
- Existing Multifamily Direct Install

Many more measures will get minor routine updates.
Several new measures and pilots

Measure development efforts are underway and most will be done by late summer to inform budgets.



Thank you

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