Conservation Advisory Council Agenda
Wednesday, April 10, 2019
1:30 p.m. – 4:30 p.m.
421 SW Oak St., #300, Portland, OR 97204

Follow-ups from previous meetings:

- Residential net zero specification survey results from CAC and RAC are appended to the February notes.
- Updated operating principles are included in this meeting packet. The final version accepts the tracked changes from February, and now includes changes to provide remote participation options and include a feedback loop on any topics the board takes up. Does CAC want to further consider documenting expectations of members?
- The suggestion to have a guest speaker present on the state’s 10-year energy burden in affordable housing plan has been added to the list for a possible future meeting.
- The market research study on the energy and water nexus in water/wastewater treatment plants will be available online soon, and an email sent to CAC with the link.

1:30 Welcome, Old Business and Short Takes (Hannah Cruz; information)
Introductions, agenda review and approve February 27 meeting minutes
Review previous meeting follow-ups

1:40 Residential Pay for Performance Pilot Update (Mark Wyman; discussion)
Staff will provide background on the Residential Pay for Performance pilot that launched in Quarter 2, 2019, including design principles, portfolio types and pricing, research questions, and risks and unknowns.

2:10 Industrial Strategic Energy Management Initiative (Kati Harper; discussion)
Staff will present on changes underway in the industrial Strategic Energy Management initiative. Staff is looking for CAC input on the four identified focus areas that will be prioritized for implementation by the end of 2019.

2:40 Multifamily Program Assessment Introduction (Kate Wellington; discussion)
Staff is delivering an early update on challenges facing the Existing Multifamily program, and an assessment staff will conduct this year to identify possible changes to make to the program in 2020. Staff is looking for early input from CAC and will return at a later CAC meeting with more information.

2:55 Break

3:10 2020-2024 Strategic Plan Development Update (Debbie Menashe; information)
Staff will provide an update on the process and development of Energy Trust’s 2020-2024 Strategic Plan. The board will consider the draft plan at its upcoming Strategic Planning Workshop on May 16 and 17; CAC is welcome to attend.

3:30 Update on Energy Trust Gross Reporting Transition (Fred Gordon; information)
Staff is coming back to CAC with an update on changes that will be implemented starting in 2020 on how Energy Trust reports savings. This agenda item follows up on a previous CAC discussion; to see the original presentation and paper, refer to the June 2018 meeting packet online (starting on page 62) https://www.energytrust.org/wp-content/uploads/2018/06/CAC-Packet-June-2018.pdf.
3:45  **Update on Energy Trust Avoided Costs** *(Spencer Moersfelder; information)*
Staff is delivering on update on electric and gas avoided costs, with forecasted values increasing for both. These values will be used for developing the 2020 budget.

4:15  **Public Comment**

4:30  **Adjourn**

Meeting materials (agendas, presentations and notes) are available online.  
**Board public strategic planning workshop**: Thursday, May 16 and Friday, May 17 at Energy Trust  
**Next CAC Meeting**: Wednesday, May 22, 2019
Conservation Advisory Council Meeting Notes Summary

February 27, 2019

Attending from the council:
- John Frankel, NW Natural (for Holly Braun)
- Charlie Grist, Northwest Power and Conservation Council
- Lisa McGarity, Avista
- Dave Moody, Bonneville Power Administration
- Julia Harper, NW Energy Efficiency Alliance
- Warren Cook, Oregon Department of Energy
- Danny Grady, City of Portland Bureau of Planning and Sustainability
- Wendy Gerlitz, NW Energy Coalition
- Tim Hendricks, BOMA
- William Gehrke, Citizens’ Utility Board of Oregon
- Kari Greer, Pacific Power
- Anna Kim, Oregon Public Utility Commission
- Jason Klotz, Portland General Electric

Attending from Energy Trust:
- 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 Spellman
- 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
- Elee Jen, Energy Trust board
- Chad Gilless, Stillwater Energy
- John Molnar, Rogers Machinery
- Alicia LaRoche, Evergreen
- Joe Marcotte, Lockheed Martin
- Shelly Beaulieu, TRC
- Mark Lyles, New Buildings Institute

1. Welcome, Old Business and Short Takes
Hannah Cruz convened the meeting at 1:34 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/. The meeting was recorded on Go To Meeting. If you’d like to refer to the meeting recording for further detail on any of these topics, email info@energytrust.org.

2. CAC Operations and 2019 Planning
   Topic summary
Hannah Cruz conducted an annual review of the CAC operating principles, including the 2018 Operating Principles document and an additional 2018 Meeting Guidance document. The operating principles spell out CAC engagement for the year, including how many meetings are
held, how members are engaged and what discussion topics are brought to the group. Hannah asked the group to review her recommended updates, which combined the two documents into one by incorporating some Meeting Guidance information into the operating principles. Recommended changes were presented using tracked changes. The group had the opportunity to provide feedback on the document before being finalized for 2019.

After finalizing the Operating Principles, Hannah presented the results of a survey that CAC members recently participated in. CAC provided feedback on meeting topics brought forward in 2018. Overall, the respondents found most of the 2018 topics to be useful. Respondents also indicated they prefer to provide feedback about meeting topics in a variety of ways, mostly after a presentation. CAC noted in the meeting they do like small group discussions.

**Discussion**
CAC inquired about the process for relaying takeaways from their meetings to Energy Trust’s board of directors. Hannah clarified that the board is provided with CAC meeting notes, and she provides high-level updates on CAC discussions during board meetings.

CAC asked whether Energy Trust was getting what they needed from the group and emphasized that they want to be helpful contributors. Peter West mentioned the group will have a valuable role in strategic planning, and their perspectives help Energy Trust understand if we have considered all aspects of a topic.

CAC noted the Operating Principles could also list the expectations of CAC members.

CAC recommended showing key takeaways at the beginning of each presentation to provide visibility for members who don’t have time to read the whole presentation.

Regarding the survey, CAC discussed the level of detail desired in a presentation and concluded that they preferred to have more detail available for those who may be less informed on a topic.

**Next Steps**
Hannah Cruz will compare the CAC charter to the Operating Principles to ensure the expectations of CAC members is documented in one of the two documents, and will then finalize the Operating Principles, providing the final copy in the next meeting’s packet.

The results of the survey and CAC discussion will be used to inform upcoming topics for 2019 CAC meetings.

### 3. 2018 Preliminary Annual Results

**Topic summary**
Peter West shared preliminary annual results for 2018. Official annual results will be available on April 15, 2019. The results show that Energy Trust is expected to achieve 95 percent of the electric savings goal, 114 percent of the gas savings goal and 126 percent of the renewable energy generation goal. The shortfall in the electric savings goal is largely due to lower-than-expected savings from the commercial sector in Pacific Power territory and a megaproject in PGE territory; the savings not acquired in 2018 from the megaproject are expected to come in during later years.

**Discussion**
Pacific Power asked how Energy Trust’s work with schools intersects with Oregon Department of Energy’s schools funding. Peter West explained that Energy Trust coordinates with ODOE to ensure customers receive the maximum benefit without duplicating incentives.
CAC expressed interest in how diversity, equity and inclusion efforts and progress will be incorporated into annual reporting moving forward. Hannah said quarterly reports now contain highlights of DEI activity and there will be a section devoted to DEI in the 2019 annual report.

Next Steps
No next steps.


Topic summary
Mark Wyman (residential) and Jeni Hall (solar) presented on program concepts and different approaches to net zero in the residential sector. Energy Trust is developing a net-zero offering for residential homes that is targeted for launch in 2020 to prepare for Governor Brown’s Executive Order 17-20. Staff is currently in the process of gathering stakeholder feedback. The new offering will combine elements of the existing EPS New Construction and residential Solar programs and aim to increase adoption of energy efficiency and solar while decreasing the cost of combining both elements in one project.

Jeni and Mark reviewed possible ways of defining net zero in homes and asked CAC for input on which definition made sense for Energy Trust to use in this offering. Some definitions assume all energy use will be offset, while others assume all or some electric use or consider “smart home” grid benefits.

Discussion
CAC inquired about potential cost-effectiveness concerns, and the program clarified that the cost-effectiveness for new construction, which is a custom program, is based on a number of representative prototypes for each tier that are updated on an ongoing basis. The Solar program works under above-market costs as opposed to cost-effectiveness but has a set of requirements that go beyond current code requirements.

CAC discussed whether the new homes would automatically be built EV ready, and if the energy load from transportation would be included in the zero energy calculation. It is currently not included in the model but may still show up in the home’s energy footprint.

CAC discussed the idea of how integrating energy efficiency and solar incentives would ultimately decrease costs. The goal is to decrease the cost of solar and working something into common practice will generally bring costs down. Net zero is an overarching brand and can be a rallying point to make sure the solar trade allies and builders are working in closer alignment, which will decrease the cost of collaboration to get to net zero on the energy efficiency side.

Earth Advantage noted that they have been doing this work through their Zero Energy and Zero Energy Readiness programs. Until recently, gas homes were excluded from the Earth Advantage program due to a site definition of net zero energy use. They have now moved to a source energy definition, which allows gas homes to participate but that necessitates oversizing the solar system. Having the system oversized can ensure enough load for a future electric vehicle, and they see that as a win.

Bonneville Power Administration noted that the zero-all energy use definition could lead to gas homes not reaping the full benefit of their solar systems and could inadvertently lead to fuel switching. On the other hand, the zero-some energy usage definition would be hard to brand and communicate in the market. Zero-all electric usage is the most viable near-term option for implementation.
NW Natural stated that power is generated to a large degree with fossil fuels, a source-based approach would have the most integrity. Within the three options, the zero-all electric option would be best to determine zero or near-zero.

CUB noted that for PGE, the basic charge is subsidized. The customers who are receiving the full benefit of the solar investment would have larger fixed charges even though they’re not using the grid. If you market zero-all electric energy costs, there could be negative feedback from customers who pay increasing base costs.

Oregon Department of Energy noted that there is a national definition of net zero from the U.S. Department of Energy that refers to zero regulated load. Staff should consider what “zero” in Governor Brown’s Executive Order refers to, and the original proposition was related to reducing carbon emissions and producing low-load homes. That changes the formula and means you wouldn’t necessarily have to offset with renewables on-site. The low-load home is a great way to go but would also necessitate homeowner education and explaining that they would need to make behavioral changes to get to zero.

**Next Steps**

The members filled out a survey handout with their feedback, which has been aggregated by staff and added to these notes. See Attachment 1.

**5. Overview of Market Research at Energy Trust**

**Topic summary**

Peter Schaffer presented market research underway or recently concluded at Energy Trust, including sample studies. He explained that Energy Trust completes around eight to ten 10 market research projects each year with the goal of better understanding how to target, acquire and retain a customer base with regard to our services and offerings. These projects could take many forms including customer analysis, supply chain models, consumer choice information, market segmentation, market trends, pricing, cost research and branding research.

Peter reviewed a few examples of recent studies. One study sought to understand capital planning and project cycles for the water and wastewater sector, while another study researched the market for energy-efficient windows for residential homes.

**Discussion**

Bonneville Power Administration expressed that all of the studies were of general interest, especially the wastewater study.

Avista expressed interest in the low-income energy affordability study that was performed by Oregon Housing and Community Services, ODOE and the OPUC.

**Next Steps**

Hannah will send a link to the wastewater study when it has been posted online and will add the energy affordability study as a topic for 2019, depending on available time.

**6. 2019 Measure Development Preview**

**Topic summary**

Jackie Goss provided a high-level summary of measures that will be reviewed and potentially revised in 2019. CAC is being given the opportunity to review the draft list in case there are measures to bring back to a future meeting. The majority of the measure revision work will be completed by the end of July before staff begins developing the 2020 budget and action plans.
Energy Trust reviews all of our measures at least every three years, but some measures are updated more frequently than that. Measures that have exceptions tend to have a two-year exception which means they must be reviewed every other year. Measures that are highly dynamic or have some kind of deadline such as a code change may have a shorter time between reviews as well. At minimum, measures are re-tested to ensure they are cost effective. For other measures, we review the assumptions and the data that went into them to ensure that we’re claiming appropriate savings and offering appropriate incentives.

**Discussion**
NEEA noted they’d like to partner on midstream lighting.

CAC noted a lot of these measures are going to affect moderate-income customers more.

CAC discussed the non-energy benefits of some measures, like ductless heat pumps in both residential and multifamily settings.

CAC asked how complementary funding is used by staff in cost-effectiveness tests. We have guidance from the OPUC on how we can work with other partners who have funding available. This provides direction on how we treat that funding in our cost-effectiveness test when the payments from other organizations are reflective of other non-energy values. Using this guidance, we can use their contributions to reduce the cost used in the Total Resource Cost test.

**Next Steps**
Staff will inform OPUC staff of reviews for measures that might have a large impact on savings and will bring back to CAC any measures that show, post review, a potential for a large savings change.

7. **Public Comment**
There was no additional public comment.

8. **Meeting Adjournment**
The meeting adjourned at 4:22 p.m. The next meeting is Wednesday, April 10, 2019.
Attachment 1: Residential Net Zero Specification

Compiled survey responses and highlights from the discussion at CAC and RAC on February 27, 2019.

Key points that should be considered in program design:
- How and whether to incorporate EV adoption and usage
- How the program would interact with carbon programs at the city, county and state level
- Creating a net zero specification that works for both home buyers and builders
- The importance of branding/marketing/communicating the concept to home buyers
- Coordination with other groups in Oregon and Washington defining net zero

Survey Responses (15 total):

1) Net Zero is a valuable framework to advance the goals of the EPS and Solar programs
   - 20% Strongly Disagree
   - 47% Disagree
   - 33% Neutral

2) Net Zero is a valuable framework to support Energy Trust’s customers
   - 13% Strongly Disagree
   - 60% Disagree
   - 27% Neutral

3) Net Zero is a valuable framework to support Energy Trust’s trade allies
   - 7% Strongly Disagree
   - 7% Disagree
   - 67% Neutral
   - 20% Agree

4) Energy Trust should have a role in shaping net zero in the residential context.
   - 13% Strongly Disagree
   - 53% Disagree
   - 33% Neutral

Highlights from the discussion at both RAC and CAC for each of the Net Zero concepts discussed

Zero all energy usage
- I would be concerned the homeowner might use more energy because they are overproducing and not getting the benefit.
- If you are encouraging a home buyer to build out a solar system that is larger and more expensive, does it tacitly encourage fuel switching?
- At scale, does this produce grid management issues? That could drive utility cost up.
- The potential for oversized solar to accommodate gas load could exacerbate issues with grid constraints.
- I am concerned that there could be some perverse incentives (or disincentives) under the [zero] all energy [usage] (gas+electric) definition of net-zero.
- It could work if our net metering policy is changed.
Zero all electricity usage
- Would an [zero all] electric energy only approach drive more all electric new construction vs gas?
- Cost to customer is something to consider whether the market will adopt. Zero all electric use or some would probably increase participation.
- Considering challenges with the other two methods this zero all electric usage seems most viable.
- Options 1 (zero all energy usage) or 2 (zero all electric usage) offer the most understandable process. We think option 2 (zero all electric usage) has more integrity than option 3 (zero some energy usage).

Zero some energy usage
- You will struggle with communication/marketing this to home buyers.
- Eliminating the space and water heating load is not the way to go.
- Cost to customer is something to consider whether the market will adopt. Zero all electric use or some [energy usage] would probably increase participation.

Grid Responsive
- Smart homes should be an aspect of net zero homes. Storage is very important. Makes more grid neutral, if can be integrated, multitude of benefits.
- I think the smart grid responsive homes should definitely be overlaid on whatever "net zero" definition is chosen. Far less expensive to integrate when home is built than to add distributed energy resources later.

General
- Make sure to coordinate with Washington as I understand they are fairly far down this road.
- Energy Trust’s skillset is in providing training and standardization to the community and trade allies. Seems like there is value to the state of [Energy Trust] developing a "standard program".
2019 Operating Principles
Conservation Advisory Council
April 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.

Excerpts the CAC charter (full charter language at the end of this document):

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.

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.

**CAC Operating Principles**

1. Meet in person at least 8 times per year, with staff providing remote participation options for CAC members and other attendees.
2. Draft an annual CAC schedule to set expectations for the year and prioritize known 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 packets, briefing materials or decision documents where applicable. Summaries should reflect the degree of CAC unanimity. Inform CAC of board decisions on discussion topics or recommendation topics previously reviewed by the council.

8. Encourage board member attendance at CAC meetings. Include board members on CAC distribution list to allow the board to review CAC packets 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.
Purpose: 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 operate in accordance with this charter.

Council functions:

1. 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.

Council composition:

2. The Councils will aim for a membership of 10-18 each, to keep Council logistics manageable. The Councils should have members with backgrounds from a broad range of interests and organizations.

3. Energy Trust staff will consult with individuals and organizations with experience and interest in energy efficiency and renewable energy and appoint Council members after obtaining the consent of the board Policy Committee.

4. Members who do not attend meetings for six months will be asked if they wish to continue membership; a year’s non-attendance may be deemed withdrawal from the Council.

Council meetings and procedures:

5. The Councils will meet as needed, typically on a monthly basis.

6. Meetings shall be open to the public.

7. Members will be invited to suggest topics for meeting agendas. Agendas and background materials shall be made available to Council members and the public a week in advance if possible.

8. All Council members shall be provided an opportunity for comment; audience comments will also be solicited.

9. Staff shall prepare fair and balanced meeting notes and provide them to Council members and the Board. Notes will document Council consensus and/or majority and minority views.

10. The Councils will maintain operating principles.
Key Takeaways

• Energy Trust launched a Residential Pay For Performance Pilot on April 1, 2019

• The pilot will operate for up to two years, with one additional year of measure and evaluation

• The pilot utilizes site-specific, weather normalized meter data to determine savings
Oregon Residential Pay For Performance: Milestones

- **June 2017**: Open Energy Efficiency selected as analytics provider.
- **July 2018**: CALTRACK 2.0.
- **November 2017**: Executive Order 17-20 directs Energy Trust to explore residential “meter-based” programs.
- **November 2018**: Energy Trust Methods Paper.
- **April 2019**: Residential Pilot Launch.
Oregon Residential Pay For Performance (P4P) Design Principles

SAVINGS CALCULATED OFF 12 MONTHS WEATHER NORMALIZED BASELINE AND 12 MONTHS POST-TREATMENT USAGE DATA

USE CALTRACK AS THE FOUNDATION FOR SAVINGS METHODOLOGY, IMPLEMENTED THROUGH OPEN EE PLATFORM

SAVINGS ARE MEASURE-AGNOSTIC
## Pilot overview

<table>
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<tr>
<th>Feature</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>2 year limited deployment</strong></td>
<td>Three aggregators</td>
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<td></td>
<td>Portfolios based on dominant treatment type</td>
</tr>
<tr>
<td><strong>Layered onto deemed savings</strong></td>
<td>Savings + incentives paid on performance above deemed assumptions</td>
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<td></td>
<td>Lifetime value established by deemed weighted average measure life</td>
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<tr>
<td><strong>1 year performance period</strong></td>
<td>Two enrollment periods per year</td>
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<td></td>
<td>Comparison group analysis nets exogenous change</td>
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<td><strong>Contractor-facing market test</strong></td>
<td>Three contractors act as aggregators of projects</td>
</tr>
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<td></td>
<td>Contractors have access to performance dashboards</td>
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Limits and Exclusions

- Sites with solar
- Missing meter data
- Fuel switching
- Account changeovers
- “Synthetic baselining” or non-routine adjustments
Sample Portfolio Life Cycle

Example: deemed savings 15 therms per treatment, savings above deemed priced at $10/therm

Year 1: Deemed Savings
15 therms per site

Portfolio

15 * 4 = 60 therms
Claimed

Standard customer incentive

Year 2: Metered Savings

Savings Calculations

Comparison group analysis
Pre/post weather normalize

Site | Savings
--- | ---
A   | 10
B   | 30
C   | 15
D   | 25

Portfolio Payment:
(80 – 60) * $10 = $200
Pay for Performance Portfolio Types

Priority Measures

weatherization
- insulation
- windows

HVAC
- heating systems
- HVAC controls
- water heaters

whole home
- HVAC + weatherization
### Pay for Performance Portfolio Pricing

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Incentive ($)</th>
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<tbody>
<tr>
<td>Gas Weatherization</td>
<td>$10.97/therm</td>
</tr>
<tr>
<td>HVAC</td>
<td>$7.52/therm</td>
</tr>
<tr>
<td>Whole Home</td>
<td>$9.92/therm</td>
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<tr>
<td>Electric Weatherization</td>
<td>$1.44/kWh</td>
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<tr>
<td>HVAC</td>
<td>$0.75/kWh</td>
</tr>
<tr>
<td>Whole Home</td>
<td>$1.31/kWh</td>
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*Per unit pilot program incentives screen at 1.3 on the utility cost test*
Aggregator Engagement

1. All Staff Engagement
2. Review Portfolio Progress
3. Portfolio Payment
4. Document + Apply Learnings
Research Questions

1) Do P4P designs enable better targeting of interventions with variable outcomes?

2) Do P4P designs improve measure cost effectiveness?

3) Do P4P designs create new participation opportunities for lagging markets?

4) Is the market ready for a “pure” P4P approach with no guaranteed (deemed) incentives?

5) How persistent are the energy savings from P4P?
Risks, Unknowns and Considerations

- UCI data quality
- Account changeovers
- Non-routine events
- Suitability of incremental measures
- Forecasting yield
Thank you

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Industrial SEM: Developing a Streamlined Approach
Conservation Advisory Council
April 10, 2019
Agenda

- Streamlined Strategic Energy Management (SEM) development
- Background
  - Production Efficiency’s SEM offerings
  - First Year SEM evolution
- Streamlined SEM focus areas
Key Takeaways

- SEM is a significant contributor to industrial sector savings

- Evolving SEM offerings to reach and serve more customers, primarily small to medium

- There are 4 focus areas staff has identified for streamlining and is looking for CAC feedback on
Streamlined SEM 2019 Development Activities

- Currently collecting input and looking at implementation feasibility

- Identified 4 focus areas for streamlining:
  - Role compression
  - Reduce on-site time
  - Streamline modeling
  - Streamline completion reports

- Looking to test streamlined SEM in Q4 2019 with 8-10 sites
Industrial SEM
Background
Strategic Energy Management

• Holistic approach to improving energy performance over time

• Focused on organizational culture, employee engagement, and implementing no- and low-cost projects (O&M and behavioral based projects)

• Training, coaching and technical support and cash incentives

• Savings are claimed using a top-down energy intensity model
Production Efficiency SEM Suite of Offerings

• **First Year SEM**
  - Duration: 14 months, one-time enrollment
  - Format: Cohort model, 1:1 is also available
  - Material Covered: Intro to SEM, standardized curriculum

• **Continuous SEM**
  - Duration: 12 months, annual renewal
  - Format: 1:1, planning to test a cohort element
  - Material Covered: Standard elements of energy management, but customizable for the site’s needs
SEM Savings Over Time
Electric (Working Savings, in Millions)

- 2010: 26 M
- 2011: 21 M
- 2012: 30 M
- 2013: 44 M
- 2014: 35 M
- 2015: 15 M
- 2016: 11 M
- 2017: 16 M
- 2018: 14 M
SEM Savings Over Time
Gas (Working Savings, in Thousands)

<table>
<thead>
<tr>
<th>Year</th>
<th>Working Savings (in Thousands)</th>
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<tbody>
<tr>
<td>2010</td>
<td>0 K</td>
</tr>
<tr>
<td>2011</td>
<td>163K</td>
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<tr>
<td>2012</td>
<td>81K</td>
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<td>2016</td>
<td>57K</td>
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<tr>
<td>2017</td>
<td>9K</td>
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<td>2018</td>
<td>143K</td>
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Industrial SEM Participation 2009-2012
Industrial SEM Participation 2009-2018
Evolution of First Year SEM Offering

2010-2014
Variety of approaches and delivery formats, targeting different markets

2014-2015
Merging the SEM offerings

2015-Present
Current Offering

Acronym Legend
• CORE - CORE Improvement
• IEI - Industrial Energy Improvement
• ROC - Refrigeration Operator Coaching
First Year SEM Outcome

• Anticipated:
  • Increased enrollment numbers, especially small and medium participants
  • Wider delivery throughout service territories
  • More gas savings

• Actual:
  • First Year enrollment has declined
  • Recruitment is still focused on obtaining anchor sites before extending enrollment to smaller sites
  • Delivery is still focused in urban areas
  • No change in gas savings
Focus Areas for Streamlining
Focus Area 1 – Role Compression

**Current State:**
- Site required to dedicate staff to serve three distinct SEM roles
- And send a minimum of 2 people to each workshop

**Participation Barrier:**
- Smaller sites have less personnel, they tend to wear multiple hats

**Proposed Solution:**
- Allow for greater flexibility to compress roles
- Reduce requirement to minimum of 1 person at each workshop

**Monitoring:**
- Track use of this option; workshop attendance; and engagement completion
Focus Area 2 – Additional Coaching

Current State:
• Beyond official on-site activities, SEM Coaches are expected to maintain monthly contact

Delivery Barrier:
• More enrollments with smaller sites, with more geographic diversity will become more costly to reach sites individually

Proposed Solution:
• Maintain monthly contact via group call format with multiple sites

Monitoring:
• Track use of this option; call attendance and frequency; and engagement completion
Focus Area 3 – Energy Intensity Modeling

Current State:
• Energy intensity models used to claim savings, alternative modeling methods are used

Delivery/Participation Barrier:
• Savings tend to come from 3-5 projects
• Data quality issues
• Models aren’t always possible

Proposed Solution:
• For smaller sites, pivot to an alternative method earlier

Monitoring:
• Track use of this option; hours spent modeling
Focus Area 4 – Completion Report

Current State:
• At the end of every SEM engagement, a site receives a lengthy completion report

Delivery Barrier:
• Lengthy completion reports are resource intensive and are a barrier to scaling

Proposed Solution:
• Pare down the completion report to the essentials
• Move to have the modeling details live in the modeling tool

Monitoring:
• Survey report audiences; track effort spent drafting and reviewing
2019 Streamlined SEM Development Timeline

Q1 2019
- Research
- Input Sessions
- Identify Focus Areas

Q2-Q3 2019
- Refine Focus Areas
- Seek Feedback on Focus Areas
- Develop
- Targeted Recruitment

Q4 2019
- Targeted Testing with 8-10 Sites
Thank you

Kati Harper
Program Manager,
Industry & Agriculture

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Existing Multifamily Program Assessment
Conservation Advisory Council
April 10, 2019
Introduction

• What is the Multifamily Program Assessment?
• Program overview
• Objectives
• Challenges
• Timeline
• Questions
Customer segments

• Market rate housing
• Affordable housing
• Assisted living
• Campus living
• Condos & townhomes
• Homeowners Associations
• Individual unit owners
• Tenants
Program offerings

• Direct-install of instant-savings measures (LEDs, water devices, advanced power-strips)
• Incentives for standard prescriptive measures, common area lighting, custom savings opportunities, distributor buy-down
• Technical services
Objectives

Maintain a resilient and robust program with a suite of cost-effective offerings that will meet the diverse needs of multifamily customers in Energy Trust service territory.

- Ensure offerings reach and serve all multifamily customers
- Decrease market confusion and improve customer and contractor experience
- Explore non-energy benefits and cost-effectiveness approaches
- Increase participation rates by all multifamily customer segments
Program challenges

• Measure-level savings reductions
• Future measures at risk
• Market saturation
• Increased cost of acquisition
# Project timeline

<table>
<thead>
<tr>
<th>Phase 1: Exploration</th>
<th>Phase 2: Options/Impacts</th>
<th>Phase 3: Concepts &amp; Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2019 through March 2019</td>
<td>April 2019 through June 2019</td>
<td>July 2019 through January 2020</td>
</tr>
<tr>
<td>• Working sessions</td>
<td>• Continued working sessions</td>
<td>• Present early concepts to CAC, Board &amp; other stakeholders</td>
</tr>
<tr>
<td>• Customer segments</td>
<td>• Stakeholder engagement</td>
<td>• Determine changes for program optimization in 2020</td>
</tr>
<tr>
<td>• Resource potential</td>
<td>• Savings resource planning</td>
<td>• Present recommendations for program updates and structure for 2020 rebid</td>
</tr>
<tr>
<td>• Cost-effectiveness</td>
<td>• Develop and prioritize early concepts</td>
<td></td>
</tr>
<tr>
<td>• Program delivery models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Vision planning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Questions?

Kate Wellington
Multifamily Program Manager

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Discussion Outline

- Process to Date
- Draft Plan Outline
- Next Steps
Process to Date
Who’s involved in our strategic planning?

- Board Strategic Planning Committee with Internal Staff Strategic Planning Team
- Board of Directors
- Engagement with OPUC, utilities, CAC, RAC, staff, stakeholders
- Outreach to stakeholders and general public

+ Board and staff are taking a collaborative approach to the development of the plan
Approach for the 2020-2024 Plan

Approve Plan

Draft Plan

Building Blocks

Kickoff at the May 2018 Strategic Planning Workshop

Next milestone: May 2019 Strategic Planning Workshop
May 16-17 at Energy Trust
Approach for the 2020-2024 Plan

Approve Plan

Draft Plan

Building Blocks
Draft Plan Outline
1. Vision and Purpose
2. Organizational Values
3. Context
4. Role
5. Focus Areas
6. Strategies
7. Metrics of Success
8. Signposts
Next Steps
Upcoming Discussions on the Draft Plan

- Energy Trust All Staff Engagement on Organizational Values  **April 17**
- Meetings with Advocate Groups  **April 17**
- Strategic Planning Committee  **April 22**
- Board Workshop  **May 16-17**
- CAC and RAC Draft Plan Review  **May 22**
- Draft Plan Public Outreach  **Summer 2019**
- Approve Final Plan (expected)  **October 2019**
Questions
Thank You

Internal Staff Strategic Planning Team

Mike, Hannah, Cheryle, Fred, Debbie, Spencer, Lizzie, and John
Catching up

• Net adjustment applied primarily to retrofit, behavioral and add-on measures
  • e.g., Add wall insulation to existing building, SEM or add control functions

• For new construction and replacement equipment (e.g., replace failed water heater) we adjust for market effects by tracking and claiming savings above market efficiency levels
  • No plans to changes to this

• In 2018 staff proposed to set goals and track savings in terms of “gross” kWh and therms
  • Support from CAC (June meeting), board Evaluation Committee, Board and OPUC (with conditions)
OPUC: Clarify how you will decide about measure exit

• Net adjustment rarely the primary driver to change or exit incentives
• We will continue fast feedback survey and ask about influence, but not creating a number that, by agreement, is no longer meaningful
• The process brings together all data, and considers direct market goals and influence, and implications beyond the single measure
• CAC involved for measures where they care the most
• Others involved as appropriate
Preparing for the Change

• Finalizing description for OPUC
• Planning changes to IT and reporting systems
• Preparing to build up savings forecast for 2020 budget in “gross” terms
• Will report net for 2019, then discontinue
Questions and Comments

Fred Gordon
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Agenda

- Key takeaways
- What are avoided costs?
- High-level overview of the results of this update
- Electric details
- Gas details
Key Takeaways

• Avoided costs are the primary component of value in the numerator of the Benefit/Cost ratio we use to screen measures and programs for cost-effectiveness

• Energy Trust routinely updates avoided costs to reflect the current value of energy savings in relation to utilities’ supply side resources

• Avoided cost forecasted values went up for both electricity and gas for the first time in a while
What Are Avoided Costs?

• Avoided costs reflect the forecasted value of energy savings in relation to supply side resources as determined by each utility’s integrated resource planning.

• Stream of values over the next 20 years extended to cover the measure lives of the most long lived measures.

• Different end uses have different values based on whether they save during utility peak periods.

• They are the primary component of value in the numerator of the Benefit/Cost ratio we use to screen measures and programs for cost-effectiveness.
What Are Avoided Costs? (continued)

• Energy Trust routinely updates avoided costs to reflect the current value of electric and gas energy efficiency
• We just finished updating avoided costs for 2020 planning
• The last time we updated avoided costs for Oregon was for 2018 planning
• We will updated avoided costs again in Fall/Winter 2019/2020 for 2021 planning
Components of Avoided Costs

1. Price of power or gas
2. Extra cost to provide it at peak times
3. Cost of systems to deliver it
4. Benefits of reduced risk of extreme costs
5. Carbon compliance costs
6. 10% regional power act credit which gives energy efficiency an extra boost and covers unknowns
Outcomes of the 2020 Avoided Cost Update

• Avoided cost forecasted values went up for both electricity and gas for the first time in a while

• Capacity values and forward prices forecasts went up for both electricity and gas
  • Increase in capacity value reflects refinement of methodology to quantify capacity values and growing capacity constraints for gas
  • Increase in forward prices reflects higher price forecasts to purchase/generate electricity and gas
Electric Details

• On average 2020 electric avoided costs increased by 8% compared to 2018 values when weighted by 2018 achievements.

• Refined Generation Capacity Deferral Value calculation methodology
  • End uses that coincide with utility defined peak have higher values.

• Values up for most end uses with the exception of end uses that don’t save much during peak times when capacity is more constrained.
  • Increases of 4% to 285% (for air conditioning!)
  • Outdoor lighting is down 6%.
Gas Details

• 2020 gas avoided costs increased for all gas end uses compared to 2018 values
  • For flat load profiles increases of 13-18%
  • For residential and space heating measures increases of 25-36%
Questions?
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Supplementary Slides
Contribution of Each Component to Overall Weighted Average Electric Avoided Cost Changes
Commercial Avoided Cost Comparison of Representative Electric Measures

- Custom Building Controls 15 Yr ML
- TLED 14 Yr ML
- Package Terminal Heat Pump 12 Yr ML
- Commercial SEM 5 Yr ML
- Exterior Lights 20 Yr ML

Avoided Cost NPV $/kWh (2020$)

2018 Avoided Costs
- $0.00
- $0.20
- $0.40
- $0.60
- $0.80
- $1.00
- $1.20

2020 Avoided Costs
- +33%
- +11%
- +6%
- +16%
- -6%

2018 Avoided Costs
- 2020 Avoided Costs
Industrial Avoided Cost Comparison of Representative Electric Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>2018 Avoided Costs</th>
<th>2020 Avoided Costs</th>
<th>Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat 15 Yr ML</td>
<td>$0.70</td>
<td>$0.74</td>
<td>+4%</td>
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<tr>
<td>Industrial SEM 5 Yr ML</td>
<td>$0.20</td>
<td>$0.23</td>
<td>+15%</td>
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<tr>
<td>Irrigation 5 Yr ML</td>
<td>$0.10</td>
<td>$0.14</td>
<td>+42%</td>
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<tr>
<td>2-shift Industrial 15 Yr ML</td>
<td>$0.90</td>
<td>$1.01</td>
<td>+11%</td>
</tr>
</tbody>
</table>
Residential Avoided Cost Comparison of Representative Electric Measures

Avoided Cost NPV $/kWh (2020$)

- General Purpose LED 12 Yr ML: +4%
- Showerhead 15 Yr ML: +9%
- New Construction EPS 30 Yr ML: +4%
- DHP 18 Yr ML: +0%
- HPWH 18 Yr ML: +13%
- Central AC 15 Yr ML: +285%

2018 Avoided Costs vs. 2020 Avoided Costs
Contribution of Each Component to Overall Average Gas Avoided Cost Changes
Commercial Avoided Cost Comparison of Representative Gas Measures

Avoided Cost NPV $/Therm (2020$)

- Commercial SEM, 5 yrs: +36%
- Commercial Boiler, 35 yrs: +25%
- Commercial Gas Fryer, 12 yrs: +17%
- Commercial Cust. Heat Recovery, 25 yrs: +28%

2018 Avoided Costs vs. 2020 Avoided Costs

- 2018 Avoided Costs
- 2020 Avoided Costs
Industrial Avoided Cost Comparison of Representative Gas Measures

- **Industrial SEM, 5 yrs**
- **Custom Industrial Process, 15 yrs**
- **Custom Industrial Boiler, 35 yrs**

<table>
<thead>
<tr>
<th>Measure</th>
<th>2018 Avoided Costs</th>
<th>2020 Avoided Costs</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial SEM, 5 yrs</td>
<td>$0.00</td>
<td>$2.00</td>
<td>+17%</td>
</tr>
<tr>
<td>Custom Industrial Process, 15 yrs</td>
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<td>$4.00</td>
<td>+17%</td>
</tr>
<tr>
<td>Custom Industrial Boiler, 35 yrs</td>
<td></td>
<td>$10.00</td>
<td>+13%</td>
</tr>
</tbody>
</table>
Residential Avoided Cost Comparison of Representative Gas Measures

Avoided Cost NPV $/Therm (2020$)

- RES Tank Water Heater, 13 yrs: +18%
- RES Showerhead, 15 yrs: +18%
- Residential Insulation, 45 yrs: +25%
- New Home Construction, 35 yrs: +26%
- Residential Hearth, 20 yrs: +32%
- Residential Windows, 45 yrs: +25%