Agenda

Conservation Advisory Council
Wednesday, June 20, 2018, 1:30 p.m. - 5:00 p.m.
421 SW Oak St., #300, Portland, OR 97204

1:30 Welcome, old business and short takes
Introductions, agenda review and approve May meeting minutes

1:45 2018 meeting guidance, operating principles *(discussion)*
CAC members will review and approve the draft 2018 Meeting Guidance document and the CAC Operating Principles.

2:05 Update on Strategic Planning Workshop and Next Steps *(inform)*
Legal Counsel Debbie Menashe and Sr. Communications Manager Hannah Cruz will present an update on the timeline, process and plans for engaging CAC in the development of Energy Trust's 2020-2024 Strategic Plan. This will include a brief overview of status to achieving the current strategic plan goals and objectives, and summary of feedback delivered from the OPUC to Energy Trust's board during the May Board Strategic Planning Workshop.

2:50 New Buildings PMC RFP Results *(discussion)*
New Buildings Program Manager Jessica Iplikci will inform CAC of the results of a competitive request for proposals for a New Buildings program management contractor and the Energy Trust board decision to approve a contract with CLEAResult. Please review the information provided on the current program design as background for discussion on program enhancements and focus areas that will inform high-level 2019 planning for the program.

3:05 Break

3:20 Lighting Tool Market Research Findings *(discussion)*
Industry and Agriculture Sr. Program Manager Lindsey Diercksen and Planning Engineer Kenji Spielman will provide a status update on the commercial and industrial lighting tool project, reviewing draft recommendations and providing an overview of the lighting tool market research.

3:50 Savings Attribution Changes *(discussion)*
Director of Planning and Evaluation Fred Gordon will review Energy Trust's practice of reporting savings net of market effects and recommendations for possible change.

4:50 Public Comment

5:00 Adjourn

The next Conservation Advisory Council is August 1, 2018. The agenda tentatively includes measure reviews for 2019 action plans, research and analysis on underserved customers, results of an RFP for Production Efficiency program delivery contractors and a 2020-2024 Strategic Plan exercise.

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

Conservation Advisory Council Meeting Notes

May 9, 2018

Attending from the council:
JP Batmale, Oregon Public Utility Commission
Holly Braun, NW Natural
Warren Cook, Oregon Department of Energy
Tony Galuzzo, Building Owners and Managers Association
Wendy Gerlitz, NW Energy Coalition
Danny Grady, City of Portland Bureau of Planning and Sustainability
Kari Greer, Pacific Power
Lisa McGarity, Avista
Tina Jayaweera, NW Power and Conservation Council
Dave Moody, Bonneville Power Administration
Jason Klotz, Portland General Electric
Al Spector, Cascade Natural Gas

Attending from Energy Trust:
Mike Bailey
Gwen Barrow
Amber Cole
Hannah Cruz
Jack Cullen
Andy Eiden
Emily Findley
Jackie Goss
Andy Hudson
Marshall Johnson
Steve Lacey
Scott Leonard
Spencer Moersfelder
Thad Roth
John Volkman
Mark Wyman

Others attending:
Sara Fredrickson, CLEAResult
Lindsey Hardy, Energy Trust board (by phone)
Rick Hodges, NW Natural
Mitt Jones, Cadmus
Don MacOdrum, TRC
Alan Meyer, Energy Trust board
John Molnar, Rogers Machinery
Jeffrey Tamburro, NW Natural
Aquila Velonis, Cadmus

Executive Summary:

- Air conditioning measure analysis:
  - Staff presented findings on the cost-effectiveness of a potential air conditioning measure.
  - The committee discussed potential measure design, benefits to utilities and non-energy benefits.
- Follow-up from World Café-style discussion at March Conservation Advisory Council meeting:
  - Staff reviewed the agenda topics identified by the committee as top priorities, as well as the best practices prioritized for meeting design.
  - Staff proposed operating principles and meeting guidelines based on this input. The committee requested more time to review the operating principles and meeting guidelines before finalizing.
- Preliminary changes to the 2019 budget development schedule:
  - Staff presented draft changes to the development and engagement schedule for the upcoming 2019 budget process, which begins in summer 2018.
  - Draft changes include a new workshop in mid-October aimed at giving Conservation Advisory Council and Renewable Energy Advisory Council a fuller picture of the budget and more engagement in the process.

1. Welcome, Old Business and Short Takes

Hannah Cruz convened the meeting at 1:35 p.m. The agenda, notes and presentation materials are available on Energy Trust's website at www.energytrust.org/about/public-meetings/conservation-advisory-council-meetings/.

Hannah asked if there were concerns or changes to the notes from the last meeting. No changes were noted, and the council adopted the notes.

Hannah reviewed changes in council membership. Three potential members will be considered by the Board Policy Committee on May 10, 2018:

- Dave Moody, manager of efficiency programs, to replace Brent Barclay in representing the Bonneville Power Administration. Dave has a deep understanding of efficiency programs, regional issues and the many stakeholders in this industry. Previously, Dave served as manager of the Energy Efficiency Marketing group at BPA.
- Jason Klotz, emerging technologies project manager, to replace Garrett Harris in representing PGE. Jason manages PGE's emerging technology work. Prior to joining PGE, Jason worked at the Oregon Public Utility Commission (OPUC) where he led work on greenhouse gas regulation, environmental compliance, electric vehicles, energy storage and demand response.
- Will Gehrke, economist, to replace Liz Jones at the Citizens' Utility Board of Oregon (CUB). Will is an economist at CUB, has worked on a number of energy efficiency dockets and is well-versed in analysis of conservation measures. Will previously worked for the Florida Public Utility Commission as a regulatory analyst.

Hannah invited the council to the Board of Directors Strategic Planning Workshop on May 17 and 18 in Portland.

2. Air Conditioning Measure Analysis

Planning Manager Spencer Moersfelder and Aquila Velonis from Cadmus presented findings from the second phase of an air conditioning study. The February 2017 presentation to the council on the first phase of the study is included in the packet materials online.

Spencer Moersfelder: Stakeholders are surprised that Energy Trust doesn't currently have a cost-effective air conditioning measure. In response to this, we conducted a more in-depth review. We released a request for proposals for consultants and selected Cadmus.

Jason Klotz: Weather modeling went back 40 years. Are we looking at air conditioning and energy efficiency because we're seeing an increase in peak energy usage?
Aquila Velonis: In phase one, we started by looking at modeling runs from the Regional Technical Forum SEEM models that rely on Typical Meteorological Year (TMY) 2 and TMY3 weather data. Combined, this data only runs up to 2005 and we wanted to assess possible impacts of more recent temperature trends on cooling loads. We gathered weather data from weather stations around Oregon going back at least 30 years and performed modeling runs with this data.
Jason Klotz: Is there some kind of weighted factor that has to do with accelerated warming in the last few years?
Aquila Velonis: We didn't weight the results or weather data across years. We ran models for every single year. For the purposes of this presentation, it shows the range in results of the lowest temperature year, median temperature year and highest temperature year (in terms of cooling degree days).
Jason Klotz: Was there a corollary between the increased number of warming days and air conditioning usage?

Aquila Velonis: A relationship between the increased number of warming days and air conditioning usage can be seen in the increased cooling degree days and the modeled consumption within our results. In addition, the most recent Residential Building Stock Assessment (RBSA) data show a higher saturation of mechanical cooling systems than the previous RBSA.

Holly Braun: Did you conduct this study to see if you could incent air conditioning cost-effectively?
Spencer Moersfelder: That's right. Air conditioning hasn't been cost-effective in the past. We talked to a climate scientist at Oregon State University (OSU). She said that we needed to be cautious about making assumptions about temperature increases using weather trends. Any data that represents less than 30 years isn't representative of full weather cycles. We went back a long way in time to satisfy that. For some weather stations we went back even further. We're cautious about making statements about what we saw because we're not weather experts and because short-term weather trends are not necessarily representative of long-term climate patterns.

Aquila Velonis: The main purpose of looking at a long history of weather is to look at the upper and lower bounds of weather over that period. We focused our results on that range to see what scenarios were cost-effective. We looked at scenarios with ranging incremental costs and equipment lifetimes, as well as changes in summer peak capacity benefits.

Jason Klotz: You could capture summer peak capacity if you teamed with utilities on demand response.
Spencer Moersfelder: That's not our purview.
Jason Klotz: I understand, but you could be doing that.
Spencer Moersfelder: We are doing that with thermostats.
JP Batmale: Thermostats are cost-effective in and of themselves.

Jason Klotz: For windows, we could quantify additional avoided cost value from capacity benefits.
Spencer Moersfelder: Interesting. We're participating in OPUC-hosted workshops to discuss the approach to more accurately value capacity benefits. These capacity benefits could push avoided costs higher.
Jason Klotz: You could sit down with Josh Keeling to talk about air-conditioning window units. They could make work faster. I don't know where Pacific Power would be on that, but it would be cost-effective to us if we could team up with you on cost-effective air conditioning.

Aquila Velonis continued with the findings for central air conditioning.

JP Batmale: On slide 6, what's driving low, medium and high?
Aquila Velonis: These represent the weather. In the 40 years of weather data we looked at, low represents the lowest temperature year (in cooling degree days) we found on record. The same is true for high (in cooling degree days). Median is the median temperature year (in cooling degree days) we found. It basically gives a range of weather within a 40-year period.
Jackie Goss: The cost-effectiveness analysis takes the results from the high year and assumes that these savings will persist for 15 years because of the life of an air conditioning system. It's an optimistic look at how much energy the air conditioning units might save.

Jason Klotz: What was the highest temperature year and the next highest?
Aquila Velonis: Depending on the weather station, 2015 represented the highest temperature year (in cooling degree days) for 8 of the 14 stations. Again, depending on the weather station

the next highest was 2014. (Temperature variations can be found in slides 21, 22 and 23 showing cooling degree days by year and by weather station.)

Aquila Velonis continued with results. We're not just looking at the highest temperature year. The median weather year, which is most typical, is relatively close to being cost-effective in all three zones with the low-cost scenario. It is cost-effective under the higher avoided cost scenario in all three zones.

Spencer Moersfelder: We think the council can provide value by sharing your thoughts on designing a potential program offering. We value input on what the Residential program should consider and what we can influence through program design.

Aquila Velonis continued with a scenario analysis for air conditioning window units. Spencer continued with conclusions.

Holly Braun: What is the base level for high-efficiency units?
Aquila Velonis: We used the federal standard for both window (CEER 10.9) and central air conditioners (SEER 13).

Jason Klotz: JP, was there a study on what PGE expected for Pacific Northwest weather trends?
JP Batmale: There was data in the PGE 2016 Integrated Resource Plan. PGE worked with OSU on weather data. We did not incorporate a weighted average toward hotter years, but took a 30-year average.
Jason Klotz: Did it show an increase in peak load? Did that drive a need for a new peaking plant?
JP Batmale: Yes. The percent of homes with air conditioning has gone up.
Jason Klotz: When talking internally for demand response, heat pumps count as air conditioning.
Spencer Moersfelder: Regardless of weather patterns, air conditioners run when it's hot. They correspond with PGE peaks and increase peak load. Overall, there is a relationship between measures that reduce peak through energy efficiency and demand response measures that shift loads to non-peak times. This has impacts on avoided costs that still need to be sorted out.

Hannah Cruz: How do other energy efficiency programs talk about weather trends?
Spencer Moersfelder: There is curiosity about whether temperatures are increasing and what this means for programs.

Tony Galuzzo: Are we solving for new homes, existing homes or both?
Aquila Velonis: Both.

Aquila Velonis: Incremental costs represent the additional cost of more efficient central air conditioning units when an existing unit fails and needs to be replaced. If we started to assume full cost for central air conditioners, it would have a negative impact on the cost-effectiveness of central air conditioners.
Tony Galuzzo: You would replace with more efficient units?
Spencer Moersfelder: We would upgrade to units that are more efficient than customers would have bought otherwise, assuming their previous systems failed. We would assume the price of a new system would be cost-prohibitive without incentives.

Jason Klotz: What are the incremental costs of going from a central air conditioning system to a window unit?

Spencer Moersfelder: We didn't look at that in this study. We would look at it in a heat pump measure, but this study only focused on air conditioning.

Spencer continued with considerations for program design.

Holly Braun asked about the second bullet on slide 10, which reads: "While not conclusive, contractor prices appear to include additional markups for efficient equipment." Additional costs are associated with efficient equipment?
Aquila Velonis: Yes.
Al Spector: Contractors recognize the value of energy efficiency, so some might increase their costs.

Wendy Gerlitz: PGE has interest in demand response, like turning off air conditioners for a period of time to save energy. Is there a difference in performance between units that leads people to use one unit more than another?
Spencer Moersfelder: By offering efficient air conditioning, we would reduce peak load. By shifting when the unit is operating, we would move load to a time that doesn't coincide with peak demand. Determining how to value that capacity is intricate, and we're still working to resolve it. Energy Trust is responsible for the energy efficiency side, so we would coordinate with utilities on a cost-effective measure that intersects with their demand response objectives.
Wendy Gerlitz: Is this analogous to a non-energy benefit? There is value to utilities in shifting peak. In the cost-effectiveness formula, there is already a placeholder for other values. This could be included as another placeholder.
Spencer Moersfelder: The avoided costs that Energy Trust uses to determine the cost-effectiveness of measures do include value associated with saving energy during peak times. The avoided cost value associated with demand response still needs to be worked out.

Dave Moody: Is any of this technology capable of demand response?
Aquila Velonis: There are additional costs for controls and switches, which we didn't include in the study.
Jason Klotz: You wouldn't want switches on an outdoor unit. If a window unit is not capable of demand response, you could put a switch on it. You could package it with a thermostat measure to be cost-effective and get both energy efficiency and demand response savings.

JP Batmale: In the avoided cost on slide 8, what was the value of additional capacity?
Aquila Velonis: It was at least 2.5 times higher.

JP Batmale: In terms of Energy Trust managing demand response value and capacity value, Energy Trust currently focuses on energy efficiency and utilities focus on reducing peak load. For now, will Energy Trust stick to that?
Spencer Moersfelder: That's how we understand our role. We're doing what we can to coordinate with utilities on intersecting interests.

Kari Greer: Are you still considering a regional rollout? Not statewide?
Spencer Moersfelder: We're not that far along at this point. Program planning needs to happen first.
Lisa McGarity: If rolling out regionally, it would be great to offer incentives for window units at the retail or distributor level.

Warren Cook: Buying down the extra markup might be all you need to do, but you might also need that non-energy benefit to push back on consumers.

Alan Meyer: You could define energy efficiency to include capacity, but our charter is about energy conservation. When studies indicate water heaters shift energy usage from on-peak to off-peak times, they actually use more water. You could argue that there's a benefit to doing that, but our founding legislation clearly says conservation.
JP Batmale: But are we properly assessing the value to the utility at peak?
Alan Meyer: We need you to interpret that for us. Other utilities offer incentives for whole-house exhaust fans, but we're told we can't do that. Should we investigate it as a step?

Tony Galuzzo: Contractors are marking up more efficient equipment. Similarly, people who buy Hondas are more commodity shoppers who drive the price point down. Hondas are heavily shopped. People who buy Acuras are willing to invest in the luxury portion, so the seller can ask for more margin on their side. But energy use is about how efficiently people drive cars, regardless of brand. So it might make more sense to incent smart technology.

3. 2018 Conservation Advisory Council Planning Workshop Follow-up
Staff and council members reviewed the outcomes of the World Café exercise conducted at the March meeting. Council members were asked to review the appendix to the March meeting minutes prior to this meeting.

Hannah Cruz: We sent out a draft meeting guidance document based on the feedback we received at the March meeting. The second page lists the top six agenda items for council meetings that received the most votes from council members:

1. Customer research and insights—who are we serving, reach of programs; including insights from big data
2. Context—market trends, policy issues affecting programs; includes research, evaluation, legislation, policy and policy barriers to Energy Trust work
3. Program innovations and new initiatives—Future sources of savings, pilot prioritization, horizon planning; especially, expanding reach or changing costs, and vetting approaches and delivery contracts
4. Challenges/barriers facing programs—including policy barriers
5. Program delivery to historically underrepresented groups and diversity/equity considerations—including savings, costs, metrics
6. What's working and not working nationally, including benchmarking

Holly Braun: Since items six and seven show the same score, what prompted the cut off?
Hannah Cruz: My understanding was item seven on board vetting was addressed during the meeting by the board members present.
Amber Cole: The workshop included a debate on what level of review the board conducts on items the council reviews. Alan Meyer and Lindsey Hardy offered clarity on what the board focuses on, which is not at the more detailed level of what the council reviews. We wanted to reflect that in the print out, but not list it as an agenda topic for the Conservation Advisory Council.

Hannah Cruz: Is this list of six in the right priority order for the council? Looking at the full list, do you see anything lower down the list that should be given higher priority?
Alan Meyer: My assumption was that we would still cover these low-priority topics, but with less focus.
Hannah Cruz: That's right. It sounds like the six topics here are accurately reflected as the highest priority.

Hannah Cruz: Is the sixth topic about delivery contracts?

Alan Meyer: It's about how contracts work between trade allies, Program Delivery Contractors and Program Management Contractors.

Holly Braun: The item on collaborative opportunities with partners feels more like an objective than a topic.

Hannah Cruz: For the benchmarking topic on what's working and not working nationally, Peter West and I have a question on how to bring in comparisons for other parts of the country. Would this be topically based, like looking at what others are doing around air conditioning? Or would it be at the level of measure or program design?
Dave Moody: I'm more interested in the measure-level.
Holly Braun: Both levels interesting.
Hannah Cruz: Because we could spend a lot of time doing this, we're looking for what it can help inform.
Warren Cook: Not all comparisons are useful to us.
Alan Meyer: The topic was about what's working or not working, *including* benchmarking.

Hannah Cruz asked Dave Moody if he would be interested in presenting on what the Bonneville Power Administration is doing. He said that it would be valuable.

Hannah Cruz: The topic on the budget and action plan process is near the end of this list. It was not highly prioritized by the council. It's important for us to present our strategies and assumptions that shape the budget each year, and to get feedback. We don't want to lose that. Steve Lacey will talk more about how we're implementing feedback. We still plan to bring our budget to the council, but we'd like to try a different approach that focuses on discussing drivers.
Kari Greer: How much budget detail do you need to bring here? As a utility, we get the details on a regular basis.
Lisa McGarity: For others on the council who do not represent utilities, it might be interesting to see and comment on the overall budget and big changes coming.
Hannah Cruz: It will take us a few tries to hit the right level of detail. We'd like to keep hearing your feedback.

Hannah Cruz: In the one-pager on meeting design, is there anything missing from this list?
Al Spector and Warren Cook: The list is well done.

Holly Braun: Can we have more time to give feedback on the one-pager?
Hannah Cruz: Yes. We can discuss more at the June meeting.

Holly Braun: Will we update the operating principles based on the draft meeting guidance document?
Hannah Cruz: Council members asked to add more guidance to the operating principles. Going forward, the operating principles and meeting guidance document will guide staff and the council.
Holly Braun: I missed the February meeting when the operating principles was discussed. I could use more time to review. If we eventually incorporate the new page into our operating principles, we don't need to finalize by June. I'd like to review more finely. It sounds like you're open to that.
Hannah Cruz: Yes, I will add this to the June agenda.

Lisa McGarity: Another thing to add is that since this was a new exercise. It should include a check-in to see how it's working. It could be halfway through the year or at the beginning of next year.

Alan Meyer: Excellent exercise. We came out with a common understanding of why we're here. Over time, we had come up with different ideas. It's good to pull it back together again.

4. Preliminary Changes to 2019 Budget Development Schedule

Director of Operations Steve Lacey presented a high-level overview of draft changes to the development and engagement schedule for the upcoming 2019 budget process, which begins in summer 2018. Steve noted staff is taking into account feedback received from the council over the past several months and proposing incremental improvements to the 2019 budget process.

Warren Cook: This approach eliminates the previous pinch point of having to get a draft budget out to the Conservation Advisory Council and Renewable Energy Advisory Council early in October that won't be same as what the board sees in November.
Amber Cole: Everyone will get a better, fuller picture by looking at the same material at the new board workshop in mid-October where the advisory councils and others are encouraged to attend.
Steve Lacey: It will be a more engaging process for the board.

Holly Braun: If the packet comes out on October 10, we'll have a week to review it before the workshop. A week is good, we just have to stick to it. The workshop helps flesh out questions, and then we have two more weeks to comment.
Amber Cole: This timing is experimental. We can get you a detailed schedule so you can plan and set time aside.

5. Public Comment

There were no public comments.

6. Meeting Adjournment

The meeting adjourned at 4:00 p.m. The next Conservation Advisory Council meeting is Wednesday, June 20, 2018.

Renewable Energy Advisory and Conservation Advisory Council Joint Session Meeting Notes

May 9, 2018

Attending from the councils

Erik Anderson, Pacific Power
JP Batmale, Oregon Public Utility Commission
Warren Cook, Oregon Department of Energy
Tony Galuzzo, Building Owners and Managers Association
Wendy Gerlitz, Northwest Energy Coalition
Danny Grady, City of Portland Bureau of Planning and Sustainability
Kari Greer, Pacific Power
Lisa McGarity, Avista
David Moody, Bonneville Power Administration
Michael O'Brien, Renewable Northwest
Adam Schultz, Oregon Department of Energy
Frank Vignola, University of Oregon
Dick Wanderscheid, Bonneville Environmental Foundation
Jason Zappe, PGE

Attending from Energy Trust

Mike Bailey
Shelly Carlton
Quinn Cherf
Amber Cole
Hannah Cruz
Andy Eiden
Becky Engel
Sue Fletcher
Matt Getchell
Jeni Hall
Joe Hernandez
Marshall Johnson
Jed Jorgensen
Oliver Kesting
Steve Lacey
Scott Leonard
David McClelland
Dave Moldal
Pati Presnail
Thad Roth
Zack Sipple
Art Souza
Greg Stokes
Scott Swearingen

Others attending

Thomas Farringer, EC Electric
Rick Hodges, NW Natural
Alan Meyer, Energy Trust board
John Reynolds, Energy Trust board

Executive Summary

Staff presented a new budget process proposal, seeking feedback. Staff and council members discussed questions about the process of aligning with utility integrated resource plans (IRPs), potential challenges and risks.

The meeting convened at 12:10 p.m.

1. Budget Review Process

Energy Trust staff Hannah Cruz, Jed Jorgensen, Oliver Kesting and Pati Presnail presented a budget process proposal, which addresses the objectives to improve communication

effectiveness and involvement of stakeholders in the development of the organization's annual budget and action plans. Staff has presented the new process to Energy Trust's management team, Oregon Public Utility Commission (OPUC) staff, utility staff and Energy Trust's board finance committee to collect feedback. Staff requested feedback from the Renewable Energy Advisory Council and Conservation Advisory Council during this exploratory phase. If the proposal is supported by the board of directors and remains viable through implementation planning processes later in the year, the goal is to implement this budget process for the 2020 planning year.

Staff acknowledged the lengthy and intensive workload that is required to build the budget for all parties involved, and the challenges in aligning the budget process with stakeholders' business processes, such as IRP processes. Staff also acknowledged some perceptions that feedback is not well incorporated into the final product. Therefore, stakeholders would like to be involved earlier in the process to digest information and provide input, and ultimately be more collaborative in the process.

Alan Meyer: Is the budget part of the business plan?
Oliver Kesting: The business plan includes the three-year sector strategy, three-year program action plans and the draft budget ranges.

Alan: You note a five-year strategy process but three-year budgets. That equals 6 years in total?
Pati: It's intentionally staggered.

John Reynolds: Do you anticipate the most change in year three?
Oliver Kesting: We have less visibility that year, so yes, there could be more change. The ranges are intended to provide some flexibility through reserves and across years, and we would anticipate less certainty in year three. That should be considered when determining the ranges.

Frank Vignola: During legislative years, they may make changes that impact your plan and budget. How will that be factored in? Why not a two-year or four-year plan?
Oliver Kesting: We will need to take legislative implications into consideration.

Lisa McGarity: Are IRP plans in three-year cycles?
Oliver Kesting: Each utility has a different schedule for their IRP so there isn't a way to get perfect alignment for everyone.

Suzanne Leta: I am glad to see Energy Trust condense the budget parts of the process and put more focus on the planning. I don't see anything about ensuring more integration with the efficiency and renewable energy work you do. I encourage you to increase this, especially for distributed projects.
Oliver Kesting: We can possibly address this integration in the work groups.

Alan Meyer: Do reserves refer to flexibility with utilities?
Pati Presnail: Yes.

Alan Meyer: Do you look at changes to the way we conduct forecasting? One concern is needing to have more confidence in later years' forecasts.
Pati Presnail: We are always open to new ways to complete forecasting. Working groups hopefully will also bring some new processes.

John Reynolds: One potential advantage is that in years that have a big spike at the end of the year, we would spend less time in the later part of the year planning.

Michael O'Brian: The action cycle in year three aligns with the planning year for the subsequent budget cycle. Is that a lot to do at the same time?
Jed Jorgensen: The planning years will be heavy, yes, but we currently run a budget process every year while managing programs, so we are not overly concerned.

Alan Meyer: I like the collaborative aspect of this. I'm reasonably sure stakeholders can dedicate resources to this. Can Conservation Advisory Council member organizations dedicate resources to this?
Wendy Gerlitz: As long as we know the schedule and it is predictable, I don't think it's a concern for our organization.
Adam Schultz: Outside organizations may not have staff continuity over the five-year process. That could be a challenge or a downside.

Wendy: I don't understand how this does or does not integrate with IRP processes. Can you explain?
Oliver Kesting: IRP processes for each utility are all on different timelines. IRPs feed into our plan, and our plan feeds the utility IRPs. We are trying to give a longer-term vision for our plan so we can provide that to the utilities.

Frank: The IRP planners end their processes at the end of the calendar year. Can you shift your planning cycle to fall between October and September, so it's done before the end of the calendar year?
Oliver Kesting: We looked at shifting to a different budgeting calendar and didn't see a lot of advantages.
Jed Jorgensen: In other states where similar programs' fiscal years aren't tied to the calendar year, we observed a shift in programmatic "hockey sticks," when the majority of savings and generation activity occurs, to the fiscal calendar. There isn't a benefit there in and of itself.

Suzanne Leta: Have you tried to identify cost savings with this new plan? Will this save Energy Trust money?
Oliver Kesting: That will have to be evaluated in the next phase of planning. We don't see a lot of reduction in staff time. It's more a shift in timing to a time of the year that is less time intensive and dedicated to achieving energy goals, and a deeper focus on engaging stakeholders.

Hannah Cruz: What do the council members think about the three-year versus annual process regarding action planning? Do you desire more engagement every year?
Warren Cook: Once we get used to the schedule, it'll be alright. There's opportunity to obfuscate one program over another because there's distance between the budget and action planning. Is the five-year strategic planning process an unchangeable number?
Jed: It would require a change in our grant agreement with the OPUC.

Warren Cook: The Oregon Department of Energy budget process is similar in the distance between budgeting and implementation. We face similar challenges.

Wendy Gerlitz: Sometimes program changes are presented to the Conservation Advisory Council that are controversial or important, because they have special dynamics. It would be good for staff to anticipate those issues and bring them to the council sooner in the process. It

feels too late to give advice and that you don't have time to incorporate our feedback. Can you bake into the process issues identification and bring them earlier?
Oliver Kesting: Yes, the purpose of the work groups is to be more proactive in identifying issues and getting stakeholder input earlier.
Jed Jorgensen: That is also the intention of the key drivers and metrics: to identify what we should look at and project over time, so we can identify problems.

Warren Cook: In years when a utility's IRP process aligns with this process, is there a risk that the IRP plan could be better defined? Or can there be IRP-responsive changes?
Oliver Kesting: We'll explore that in the next phase.

Lisa McGarity: Have you looked at past performance as an indicator for how a three-year plan will work? How accurate are you with annual plans now and how comfortable are you on a three-year plan?
Pati Presnail: Our ability to manage that has improved over the last several years. We have a philosophy to go after all cost-effective savings. When you forecast, you're predicting a future, and there will naturally be unknowns. The budget ranges and the impact of reserves will be complex.

Alan Meyer: The forecast is key. When we do three-year plans, we have to have an accurate forecast of the three years.
Pati Presnail: There have been years in the past that staff only looked at one year. We have changed how we look at that, and now emphasize a longer view as best as we can.

Staff thanked the councils for their feedback. The next steps are to present the budget review recommendation to the board at its June 6 meeting.

The meeting adjourned at 1:15 p.m.

2018 Meeting Guidance
Conservation Advisory Council

DRAFT 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 comes 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

2018 Operating Principles
Conservation Advisory Council

Reviewed February 2018

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. The Operating Principles are reviewed by CAC members and Energy Trust staff at the beginning of the year, updated as needed and adopted. The following items were generally agreed to be the way that CAC should operate in 2018 with future discussions planned to ensure they are comprehensive (see the 2018 Meeting Guidance document).

Energy Trust staff has endeavored to incorporate these 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.
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.
4. Identify agenda items as discussion, information or recommendation needed.

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.

Energy Trust Strategic Planning Update

June 20, 2018

Energy Trust of Oregon

Agenda

- Progress to 2015-2019 Strategic Plan goals and objectives
- Takeaways from the Annual Board Strategic Planning Workshop
- Overview of the 2020-2024 Strategic Plan Development

*The full Board Strategic Planning Workshop packet, including the Strategic Plan Dashboard, is online at www.energytrust.org/wp-content/uploads/2018/05/Board_Packet_180517.pdf

Progress to 2015-2019 Strategic Plan Goals and Objectives

2015-2019 Strategic Plan

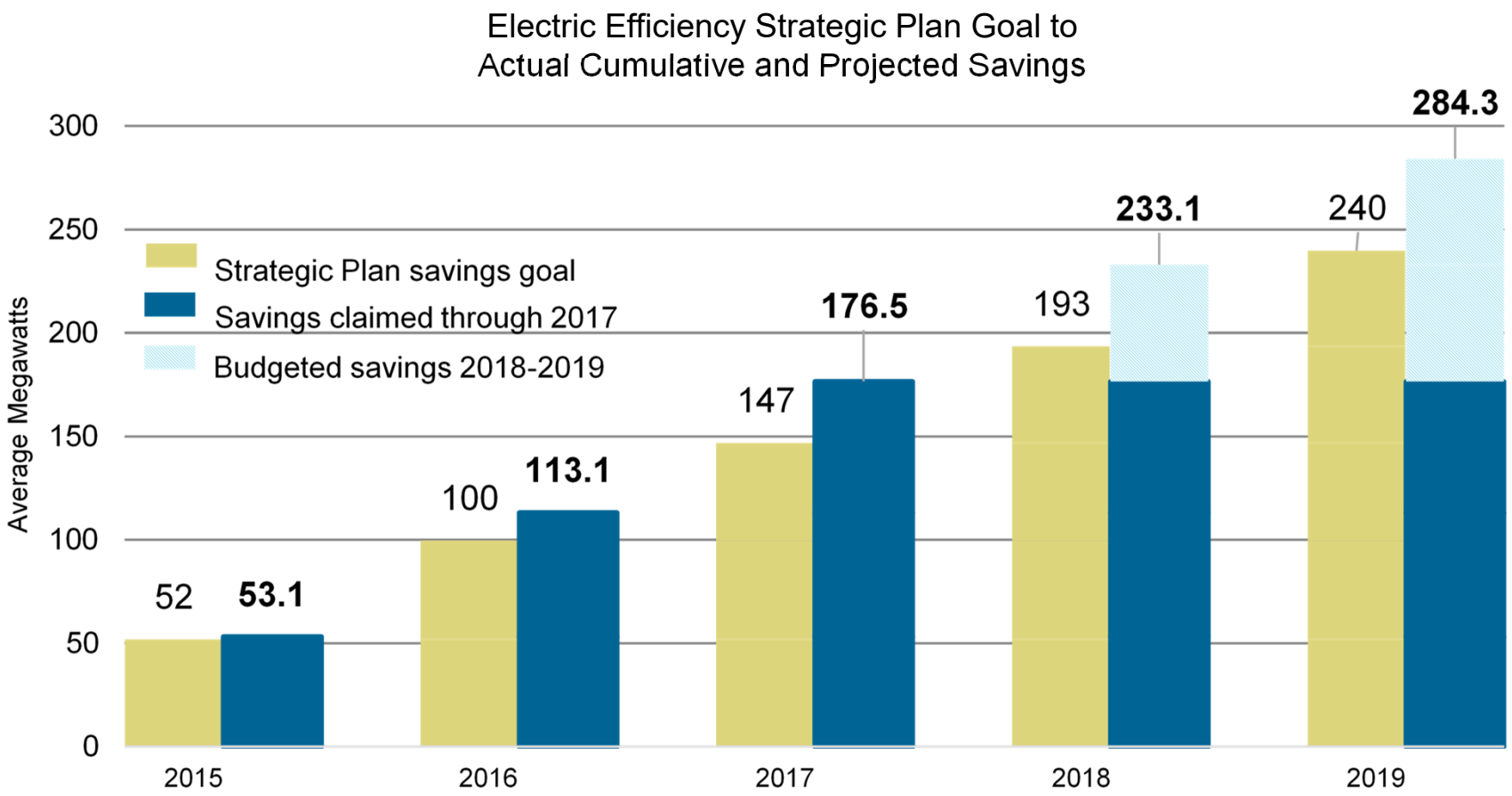
Vision

Energy Trust envisions a high quality of life, a vibrant economy and a healthy environment and climate for generations to come, built with renewable energy, efficient energy use and conservation.

Purpose

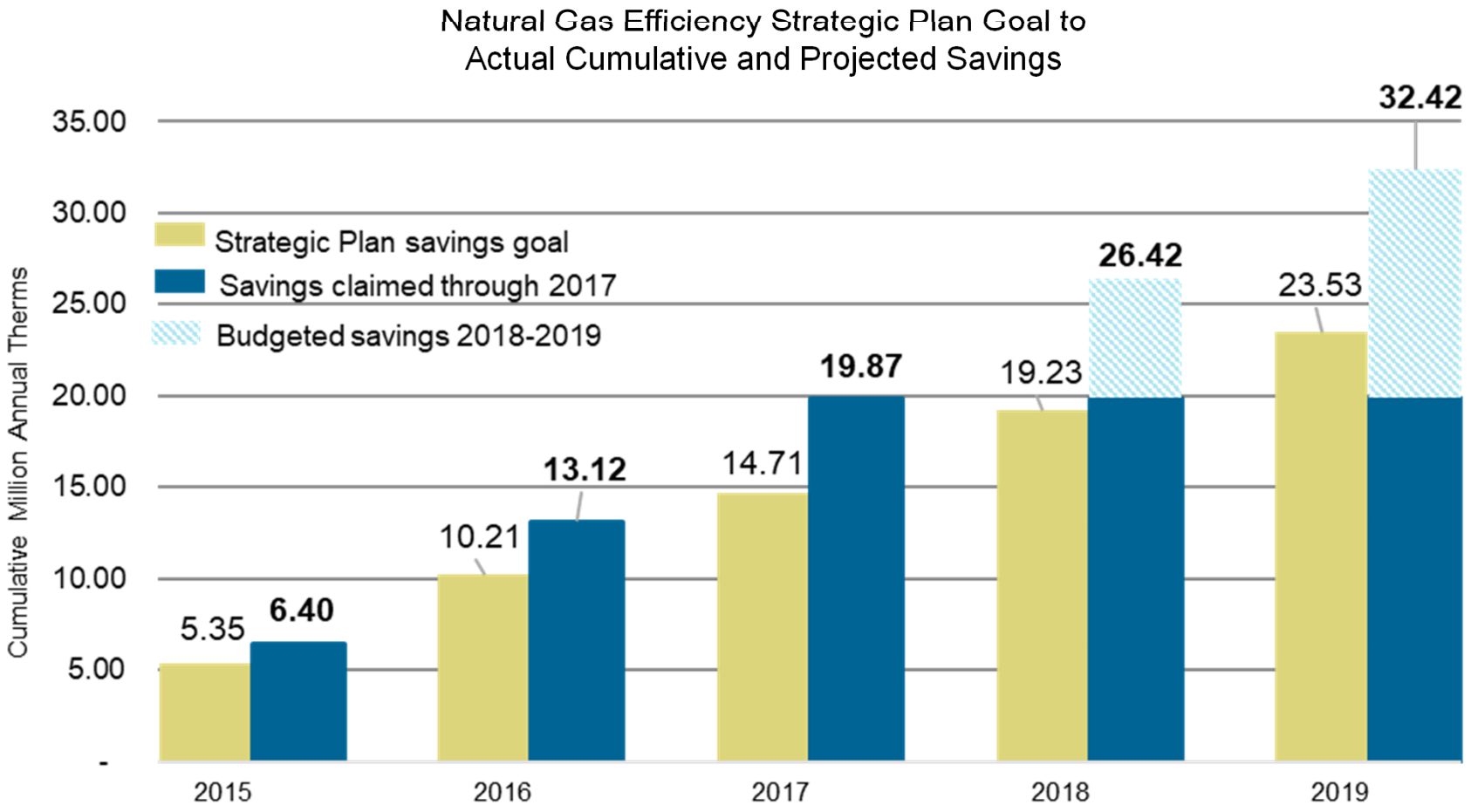
Energy Trust provides comprehensive, sustainable energy efficiency and renewable energy solutions to those we serve.

Tracking to Exceed 240 aMW Savings Goal



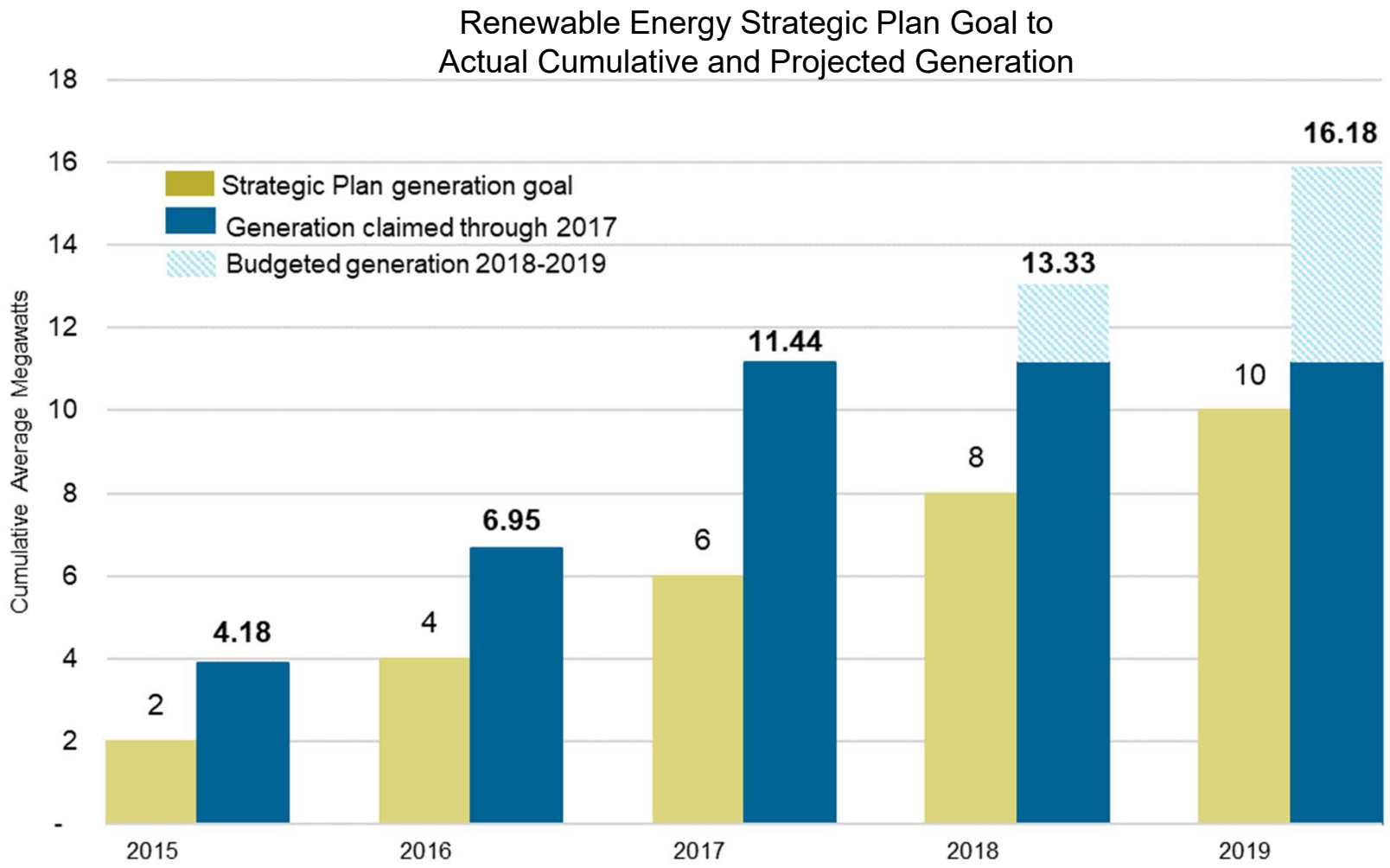
aMW: average megawatt

Tracking to Exceed 24 MMTh Savings Goal



MMTh: Million annual therms

Exceeding Renewable Generation Goal



Emerging Efficiency Resources

Energy Trust

- Testing and implementing technologies ready for deployment

NEEA

- Upstream activities stimulating production and development of new energy-saving resources

Combined objective

- Move technologies through “pipeline” to become additional savings resources for programs

Expand Participation: Market Research and Evaluation

Identify Gaps and Opportunities

Participation data analysis | Residential customer survey

Customer focus groups | Diversity Advisory Council exploration

Address

Informed program planning with results from surveys and data analyses

Continued marketing efforts to Hispanic and Asian American customers

Developed DEI Operations Plan, lens and 2018 action plan

Report

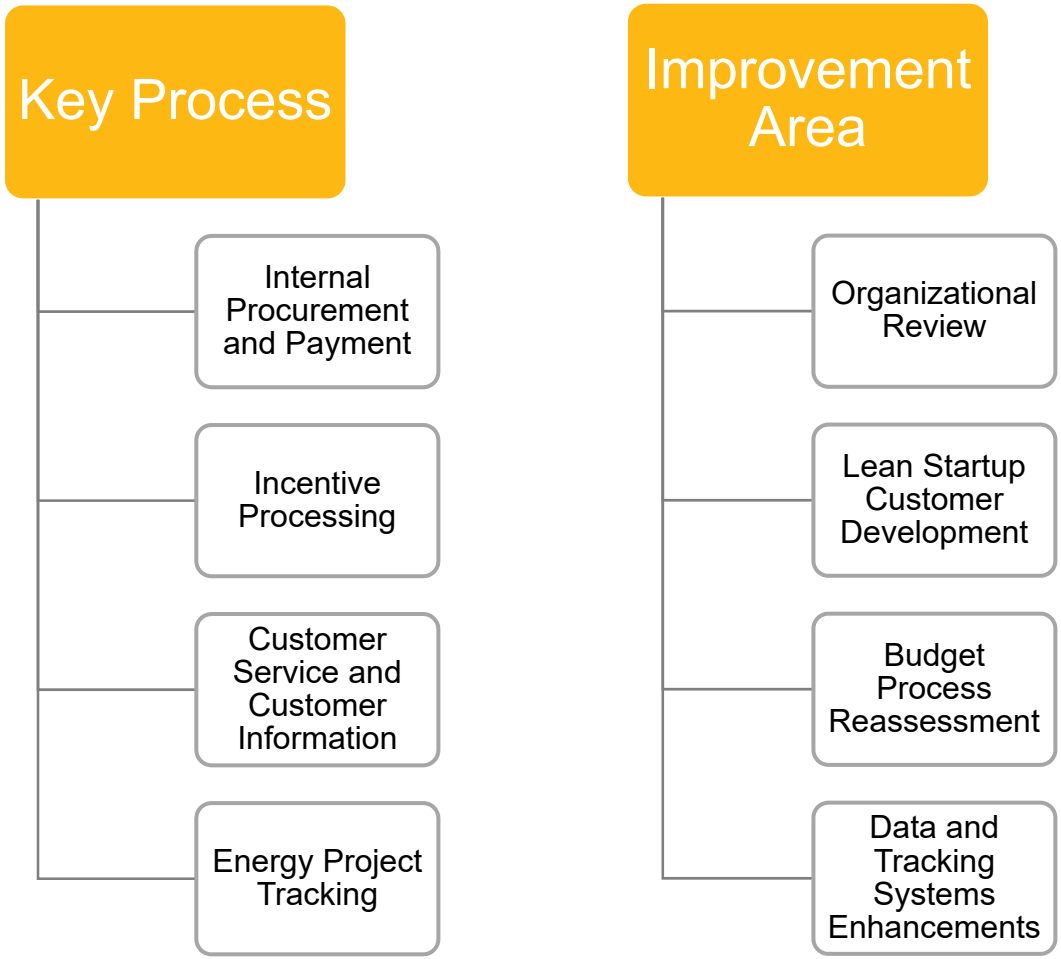
Shared results internally and in annual reports to the OPUC and board

Reviewed DEI Operations Plan with stakeholders

Expand Participation: Program Design and Execution

New Customers and Markets
Itemize new initiatives to reach new and underserved markets
Itemize expanded initiatives to reach new and underserved markets
Itemize continued initiatives that are meeting savings and generation goals
Evaluate initiatives and report back to the committee

Improving Operational Effectiveness



New Opportunities to Propel the Organization

- Complementary initiatives, including
  - Manufactured home replacement
  - Low- and moderate-income solar
  - Local government building efficiency policies
- Response to policy initiatives, including
  - Multiple OPUC dockets
  - Tax credit expirations
  - SB 978 legislation monitoring
- Load and demand management with utilities, including
  - Demand management activity report
  - Targeted load management
  - Continued smart thermostat explorations

Takeaways from the Annual Board Strategic Planning Workshop

Board Discussion on Energy Trust Strengths, Unique Role of Value

The board, staff and public discussed:

1. What is Energy Trust's unique role of value today?
2. What are Energy Trust's competitive strengths?
3. What does Energy Trust do better than all or most organizations?

Report-outs of Strengths, Unique Role of Value Discussion

Energy Trust has

- A combination of trust, expertise, experience and neutrality
- Clear mission, focus and goals
- Customer relationships
- Developed network
- Talented staff
- Stable funding that allow the organization to concentrate on its central tasks

OPUC Perspective on Upcoming Strategic Plan

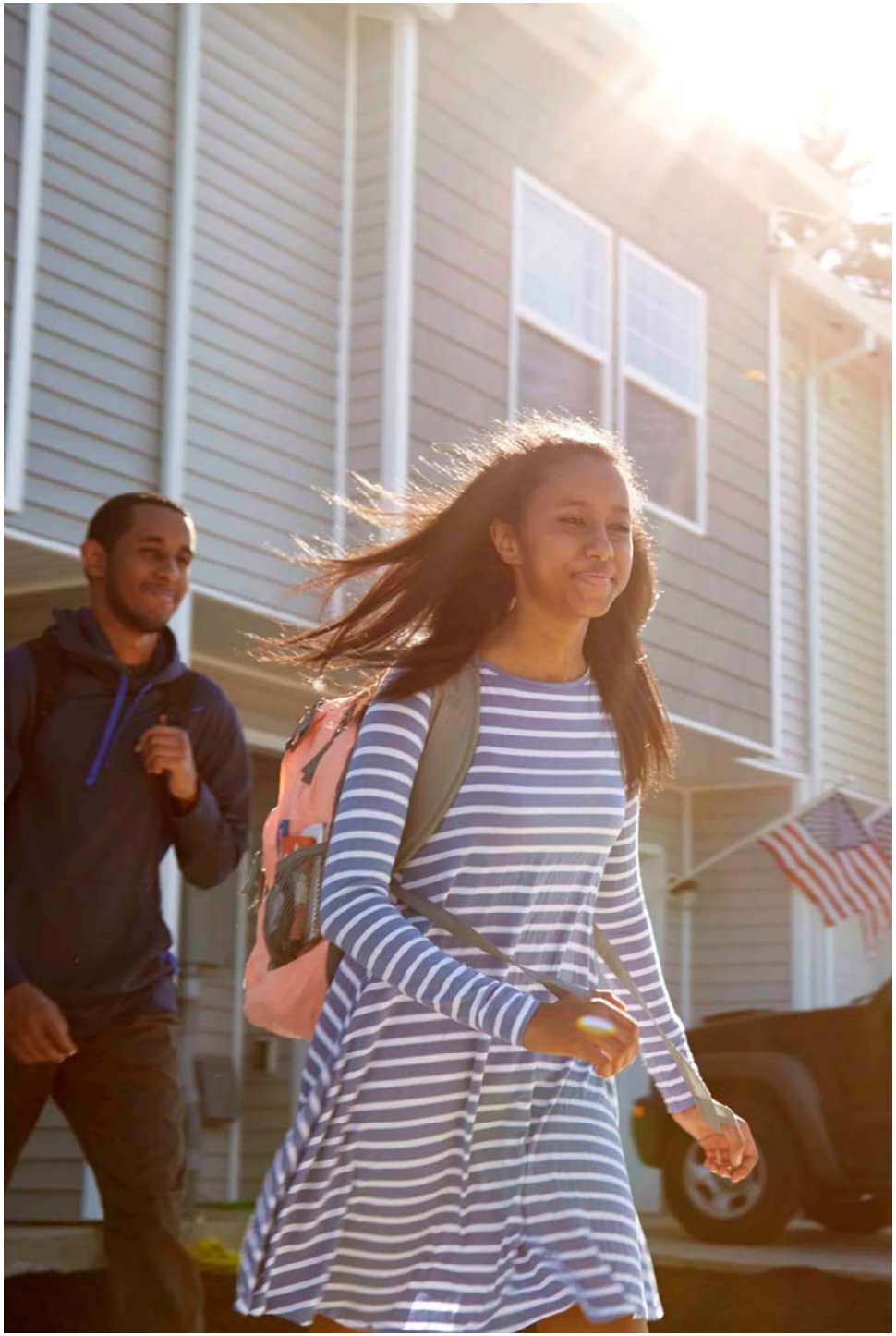
- Energy Trust is effectively delivering on its mission
  - Nationally known programs and staff expertise
- Energy Trust and the OPUC are partners in this work
- Energy Trust's core mission and success are being counted on in regional, state and utility plans
  - Examples) Power Council Seventh Power Plan, Oregon greenhouse gas goals, PGE decarbonization study
- Energy Trust is part of Oregon's energy future:
  - Evolving energy resource
  - Technologies
  - Energy industry
  - Policy landscape

Overview of the 2020-2024 Strategic Plan Development

Draft Development Approach

- Board Strategic Planning Committee and staff drafting the plan
- Engaging the full board, CAC, RAC, OPUC, utilities, existing and new stakeholders, and the public through the process

Schedule Overview	
July – September 2018	Finalize work plan for strategic plan development Strengths and capabilities discussion at August CAC/RAC
October – Spring 2019	Staff intake, plan drafted Detailed schedule ready in October, including report-outs and additional plan development engagement at CAC/RAC meetings
May 2019	Draft reviewed at Board Strategic Planning Workshop
June – September 2019	Draft out for public comment; revisions
October 2019	Board approval



Thank You

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Energy Trust of Oregon

2018 New Buildings Program Overview

Energy Trust of Oregon's New Buildings program influences commercial design and construction practices by providing incentives to support high-performance buildings. Outreach managers work closely with building owners and design teams to influence a broad range of market actors, helping customers incorporate energy-efficiency and renewable energy strategies into their projects.

The strategic areas of focus for 2018 are to:

- Influence decisions in early design and early decision-making.
- Accelerate adoption of high-performance and net-zero design and construction.
- Develop and deliver pilots and new measures, and conduct market research and evaluations.
- Prepare for advancing codes and standards.

Targeted market and program offerings (emphasis added in **bold** to note the specific program offering) delivered in 2018:

- **Path to Net Zero** supports design and construction that exceeds code by 40 percent.
- Custom solutions using **whole-building energy modeling**, technical assistance, early design assistance, and **standard and custom measures**.
- **Market solutions** are building-type-specific incentives packages.
- On-site renewable energy and **solar system incentives**, and support for solar-ready feasibility, design, construction and installation.
- **Early project support, studies and technical assistance** to help designers integrate energy-efficiency and on-site solar and identify energy strategies that support resilience.

Delivery and strategic market transformation activities in 2018 include:

- Outreach and delivery to a wide-ranging market with many building/facility types and sizes across both private and public sectors.
- Train and educate targeted audiences of design professionals and building owners.
- Promote results from the 2017 Net Zero Fellowship and additional small project grant opportunities.
- Coordinate with Northwest Energy Efficiency Alliance (NEEA) to leverage regional activities in several key areas: NEEA's enhanced codes pathway, commercial lighting, and planning to support market development of emerging technologies, including advanced HVAC.

Additional information about Energy Trust's goals and activities in 2018 can be found on Energy Trust's website and in the 2018 Annual Budget and 2018-2019 Action Plan.

Board Decision
Authorize a Program Management Contract for the New Buildings Program

June 6, 2018

Summary

Approve negotiation and execution of a program management contract with CLEAResult Consulting, Inc. for a term of three years with two optional one-year extensions.

Background

- The Energy Trust New Buildings program is a significant component of Energy Trust's commercial energy efficiency suite of program offerings. For 2018, the Energy Trust New Buildings program projects 54,849,649 kilowatt hours saved at $0.362 per unit and $0.033/kWh levelized, and 936,040 therms saved at $2.394 per unit and $0.205/therm levelized.

- In January 2018, Energy Trust staff launched a competitive selection process for a Program Management Contractor to deliver the New Buildings program.
- The competitive selection process included the following public communications in Q1:
    - Notified the public and stakeholders, presented to Energy Trust's Conservation Advisory Council, and issued a press release about the RFP and schedule;
    - Consulted with a diversity, equity and inclusion expert to provide input on the draft RFP and the program's communication of diversity, equity and inclusion goals, strategies and objectives;
    - Released the RFP in February for program delivery of new or enhanced strategies for the New Buildings program;
    - Hosted a webinar to introduce the program to potential respondents;
    - Provided written responses to questions submitted by potential respondents; and
    - Engaged the review team, which was comprised of Energy Trust staff and two external reviewers (a representative from the Northwest Energy Efficiency Alliance with deep knowledge of market transformation and commercial sector programs, and a diversity, equity and inclusion expert).
- In response to the RFP, Energy Trust received nine intents to respond, with many respondents indicating an interest in teaming. Two final proposals were submitted.
- Staff completed the following evaluation and selection process:
    - Conducted a pre-qualification review for completeness and adherence to financial, legal and minimum requirements;
    - Conducted in-depth reviews of proposals, providing preliminary scores based on written proposals;
    - Drafted detailed written questions to respondents;
    - Conducted interviews with both respondents;
    - Completed final scoring.

Discussion

Based on and through the evaluation process as outlined above, staff concluded that CLEAResult presented the superior proposal and recommends that Energy Trust proceed to contract with CLEAResult for New Buildings program management services.

Reviewers identified the following strengths of CLEAResult to support their conclusion:

- Ability to deliver cost-effective energy savings, reach customers and meet Energy Trust's annual energy savings goals and the longer-term goal of market transformation.
- Focus on strategic program design that delivers a cost-effective savings and allows codes and standards to advance while innovating to reach new and higher levels of energy efficiency.
    - Capacity to provide comprehensive engineering analysis to develop new measures for the commercial market, improve benefit-cost-ratios, and engage new allies with enhanced training and education that supports broad market adoption throughout Energy Trust's regions.
    - Ability to develop innovative market-specific incentive packages for business customers seeking simplified solutions or specifications that can result in significant energy efficiency while also strengthening outcomes for future codes.
    - Create equity through program design developments that provide specific solutions for our wide-ranging commercial market.
- Ability to deliver the program with a well-qualified team that can engage diverse commercial customers and increase market saturation with enhanced tools, resources and targeted market strategies.
    - Identification of specific technologies for multifamily markets, including subsidized and unsubsidized multifamily developments, and ensuring project delivery into communities needing direct outreach, engagement and energy strategies.
    - Development of financial and decision-making tools, specific to developers/owners of low-income and affordable housing.
    - Effective strategies to influence a broad and diverse market of industry professionals in the commercial design, engineering, construction and real estate market.
    - Program delivery model that includes cohesive offerings to meet the high, middle and low-end of the market reaching across a variety of building types, ownership models and sizes.
    - Ability to extend Path to Net Zero without affecting other markets and ability to apply learnings to other market segments.
- Capabilities to develop new training and education strategies to market actors, designed to support market transformation and drive increased market demand for high-performance buildings. Strategies include increased offerings for training and education, new on-demand webinar capabilities and content; and strategies to reach contractors and subcontractors.

- Broad understanding of market dynamics for commercial development, and an ability to build partnerships with organizations that can streamline the delivery of new program capabilities.
    - Demonstrated understanding of the challenges and opportunities in the commercial sector and leverage learnings from emerging technology pilots and new approaches.
    - Deployment of a new delivery strategy to expand simplified incentives packages into the office market to address a gap in the program's overall market penetration.
    - Support rural and non-urban markets with effective staffing to deliver offerings statewide.
- Demonstrated ability to support business systems, communications protocols and the organizational culture needed to foster effective collaboration with Energy Trust.
- Processes and controls to support program management, forecasting and goal attainment.
- A cost-competitive proposal that best aligns strategic goals and objectives, program delivery and innovation that drives future savings opportunities, and best positions Energy Trust to adapt to shifts in future savings opportunities.

Recommendations

Authorize staff to negotiate and sign a New Buildings program management contract with CLEAResult for an initial term of three years, with the potential for up to two, one-year performance-based extensions and a total contract term not to exceed five years. If the board agrees, in accordance with the requirements of our Grant Agreement with the Oregon Public Utility Commission (OPUC), staff will provide notice to the OPUC that we are entering into this agreement that would exceed two years in term.

RESOLUTION 841

AUTHORIZE A PROGRAM MANAGEMENT CONTRACT FOR THE NEW BUILDINGS PROGRAM

WHEREAS:

1. **With assistance from a selection committee including outside parties, staff has conducted a fair and open procurement process to select a program management contractor to manage New Buildings program services for the next 3-5 years;**
2. **CLEAResult Consulting, Inc. was selected and contract terms are being negotiated;**
3. **Staff has assumed and estimated a total first-year program management budget for 2019, including first-year incentives, contracted delivery, and possible performance compensation of approximately $21,131,372 million, which includes approximately $6,135,922 million in program delivery, $92,847 in solar delivery, $12,183,809 in incentives, and internal Energy Trust costs.**
4. **Actual savings and costs will be reviewed by the Energy Trust board as part of the annual budget and action plan process. Based on current assumptions, staff estimates the following program savings and fully loaded costs in 2019:**

	Electric	Gas
Savings	**56,510,692 kWh**	**1,039,233 therms**
$/Unit Savings	**$0.328/kWh**	**$2.523/therm**
Levelized Cost	**$0.030/kWh**	**$0.216/therm**

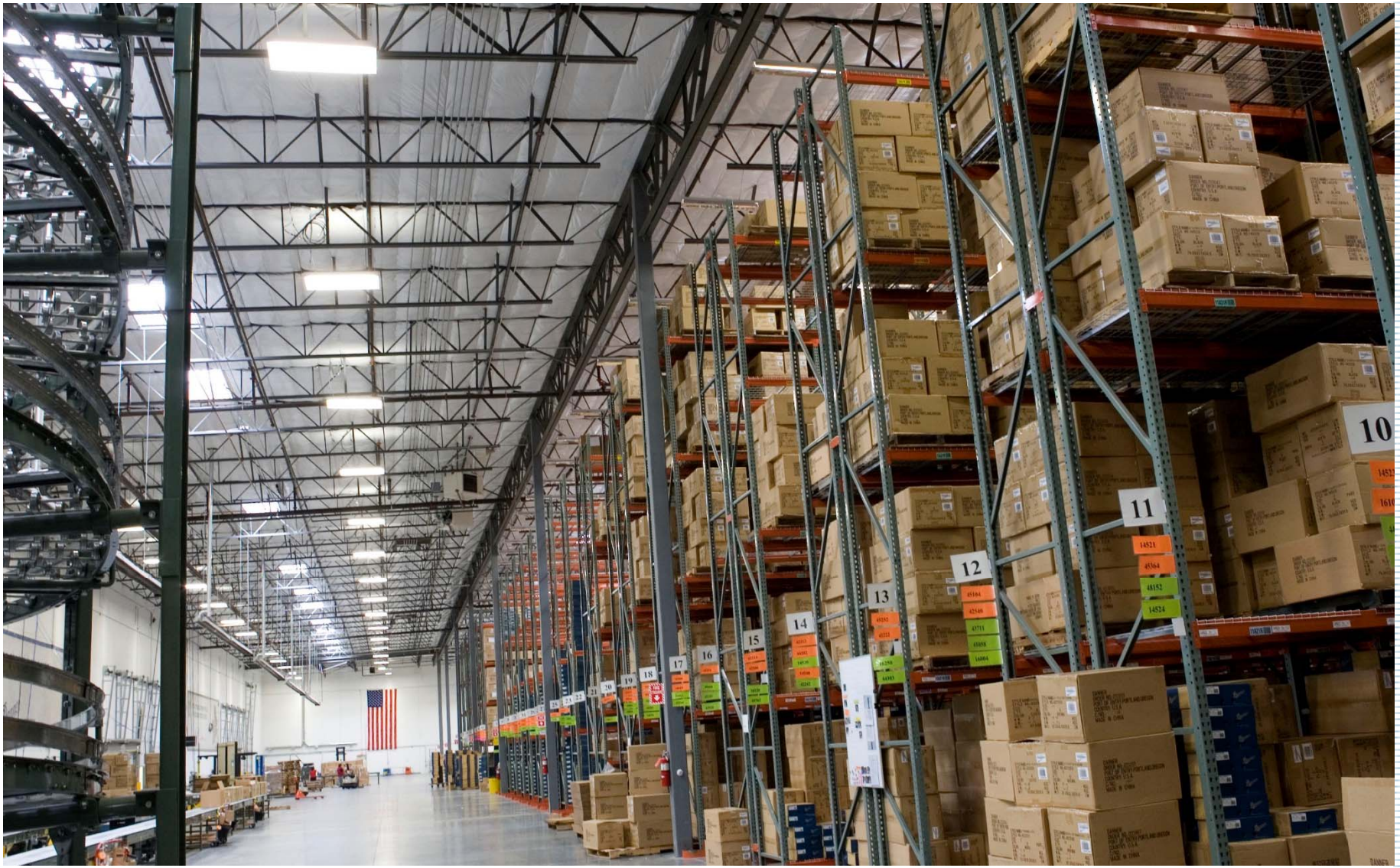
It is therefore RESOLVED:

1. **Subject to determination of a final contract amount based on the board-approved 2019 budget, the executive director or his or her designee is authorized to enter into a contract with CLEAResult Consulting, Inc. to manage the New Buildings program for an initial term from January 1, 2019, through December 31, 2021.**
2. **First-year contract costs and savings goals included in the contract shall be consistent with the board-approved 2019 budget and two-year action plan. Thereafter, the contract may be amended consistent with the board's annual budget and action plan decisions and the executive director or his designee is authorized to sign any such contract amendments.**
3. **The final contract may include a provision allowing staff to offer one-year extensions beyond the initial term if the program management contractor meets certain established performance criteria. In no event would the total term of the contract plus extensions exceed five years.**
4. **Before extending this contract beyond the initial term, staff will report to the board on the program management contractor's progress and staff's recommendation for any additional extension time periods. If the board does not object to extension, contract terms would remain as approved in the most recent action plans, budgets and contract at the time of extension, and the executive director or his designee is authorized to sign any such contract extensions.**

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed:



Lighting Tool Project Update

Market Research Findings and Recommendations

June 20, 2018

EnergyTrust of Oregon

Agenda

- Background
- Lighting Tool Project Process
- Review research goals and methods
- Review research findings: Phase 1 and 2
- Preliminary recommendations
- Discussion

Background

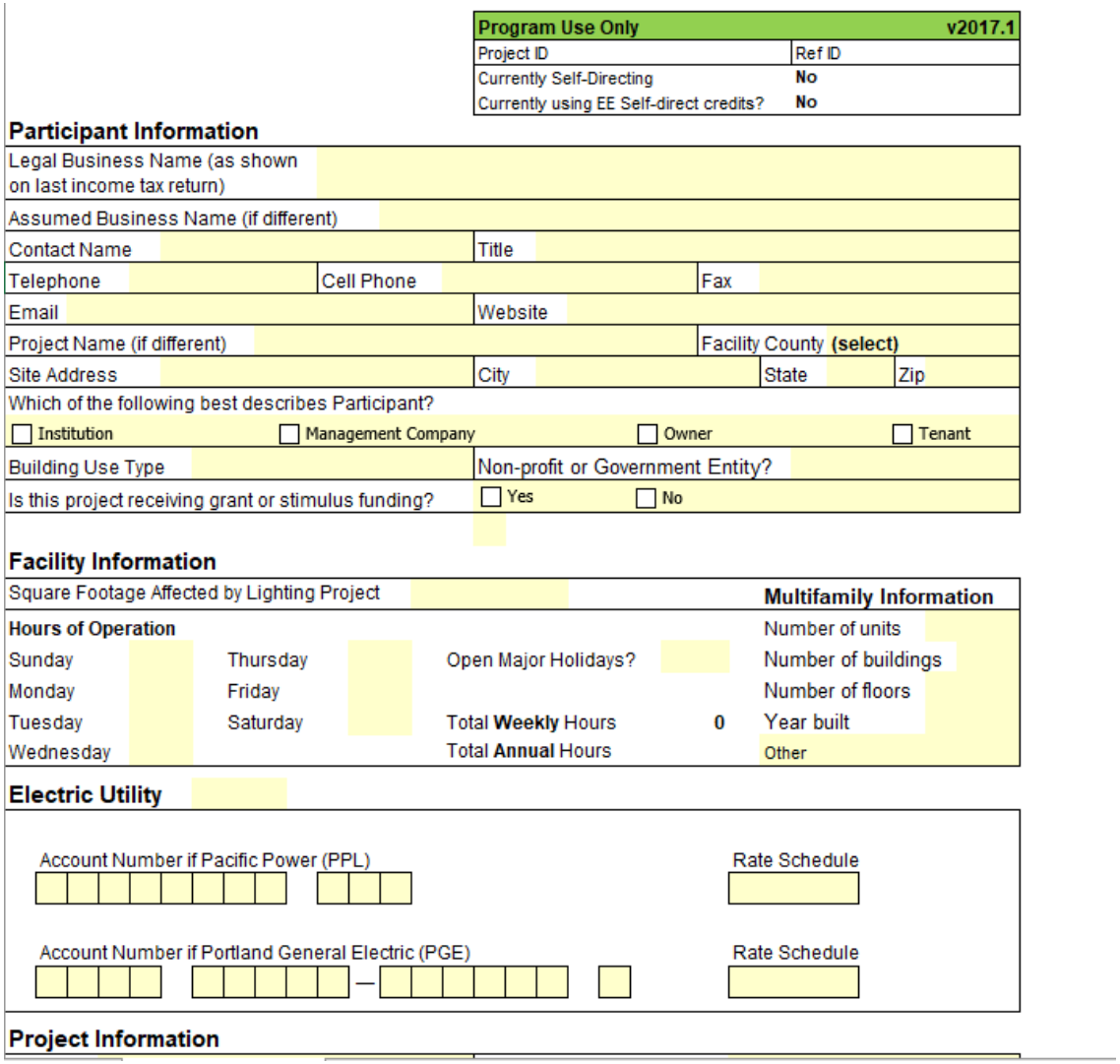
Opportunity statement

- Lighting is a large portion of both commercial and industrial savings
  - Accounts for approximately 30 – 40 percent of savings for the programs

Current state

- Cannot easily calculate incentives that are based on multiple factors and baseline conditions
- Cannot accommodate more macros
- Is not easily integrated with Energy Trust's systems
- Contains valuable data that is not able to be extracted and stored in Energy Trust's systems

The Lighting Tool



Program Use Only	v2017.1
Project ID	Ref ID
Currently Self-Directing	No
Currently using EE Self-direct credits?	No

Participant Information

Legal Business Name (as shown on last income tax return)				
Assumed Business Name (if different)				
Contact Name		Title		
Telephone	Cell Phone		Fax	
Email		Website		
Project Name (if different)			Facility County **(select)**	
Site Address		City	State	Zip

Which of the following best describes Participant?

☐ Institution ☐ Management Company ☐ Owner ☐ Tenant

Building Use Type	Non-profit or Government Entity?
Is this project receiving grant or stimulus funding?	☐ Yes ☐ No

Facility Information

Square Footage Affected by Lighting Project					**Multifamily Information**
Hours of Operation					Number of units
Sunday		Thursday		Open Major Holidays?	Number of buildings
Monday		Friday			Number of floors
Tuesday		Saturday		Total **Weekly** Hours 0	Year built
Wednesday				Total **Annual** Hours	Other

Electric Utility

Account Number if Pacific Power (PPL) | Rate Schedule

Account Number if Portland General Electric (PGE) | Rate Schedule

Project Information

The Lighting Tool

PROJECT INFORMATION

Project ID		**Ref ID**	
Project Name	<Enter on Participant.Info s	**Proposed By**	<Enter on Participant.Info sheet>
Contact	<Enter on Participant.Info s	**Company**	<Enter on Participant.Info sheet>
Contact Phone	<Enter on Participant.Info s	**Prepared On**	
Parpared By	<Enter on Participant.Info s	**Annual Hours**	<Enter on Participant.Info sheet>
Business Type	<Enter on Participant.Info s	**Annual Hours**	<Enter on Participant.Info sheet>

Initial or Final	Date Proposed	Project Coordinator
Initial	<Enter on Participant.Info sheet>	

ALL LIGHTING PROJECTS MUST BE SUBMITTED FOR REVIEW AND P

This worksheet is an estimate only. All lighting measure factors and potential incentive a
purposes only. **This worksheet is NOT an incentive offer, application, or commitme**

Key Steps in Energy Trust Review/Application Process:

1. We will review your submitted lighting analysis
2. If we identify lighting measures in this analysis that may be eligible to pre-qualify authorized representative will issue an ***Incentive Application – Lighting (Form***
3. Complete, sign and submit the ***Form 120L*** to apply for Energy Trust incentives before you or your contractor move ahead to purchase any lighting measure eq or other installation activities occurring before Energy Trust's issuance of a ***Form***

	EXISTING EQUIPMENT							PROPOSED EQUIPMENT							PROJECT COST		kW, kWh	
	Interior / Exterior	Location Area/Room	Existing Equipment *Category (Choose first)*	Existing Equipment *Specific fixture, lamp type (Choose from drop-down second)*	Measure Description	Watts per Fixture	Fixt Qty	Proposed Equipment *Category (Choose first)*	Proposed Equipment *Specific fixture, lamp type (Choose from drop-down second)*	Measure Description	Custom	Watts per Fixture OR per Lamp	Fixt Qty OR Total No. Lamps	Annual Operating Hours	Labor & Material Cost (each)	Total Cost	Ave. kW Saving	kW Bef
1																		
2																		
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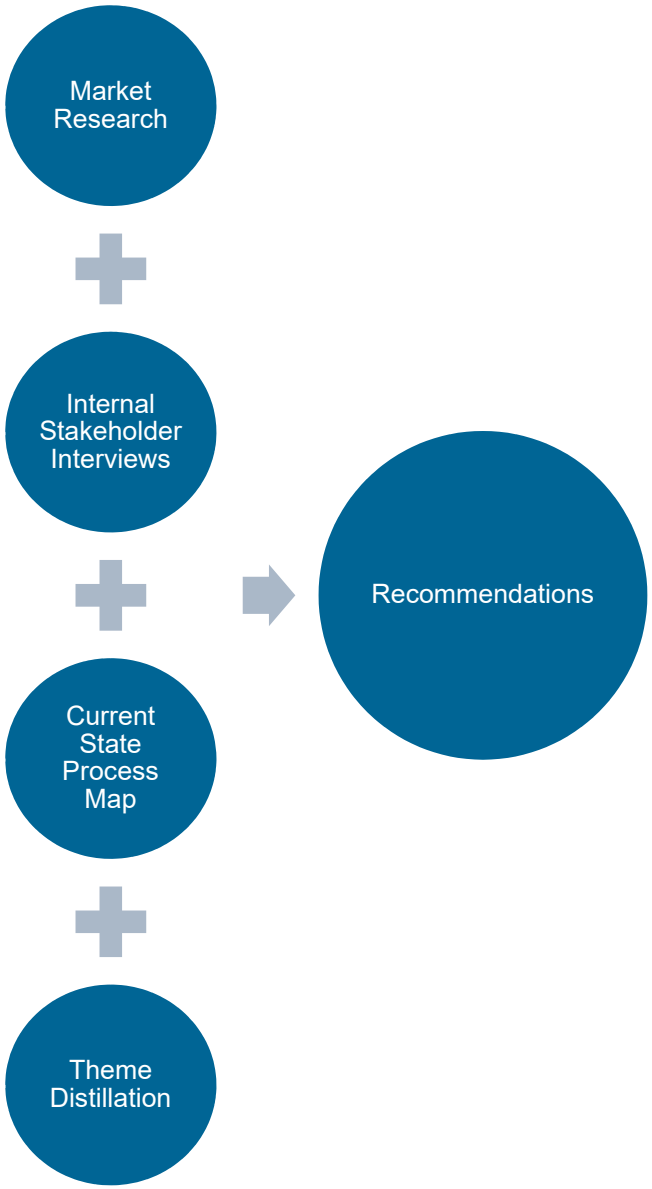
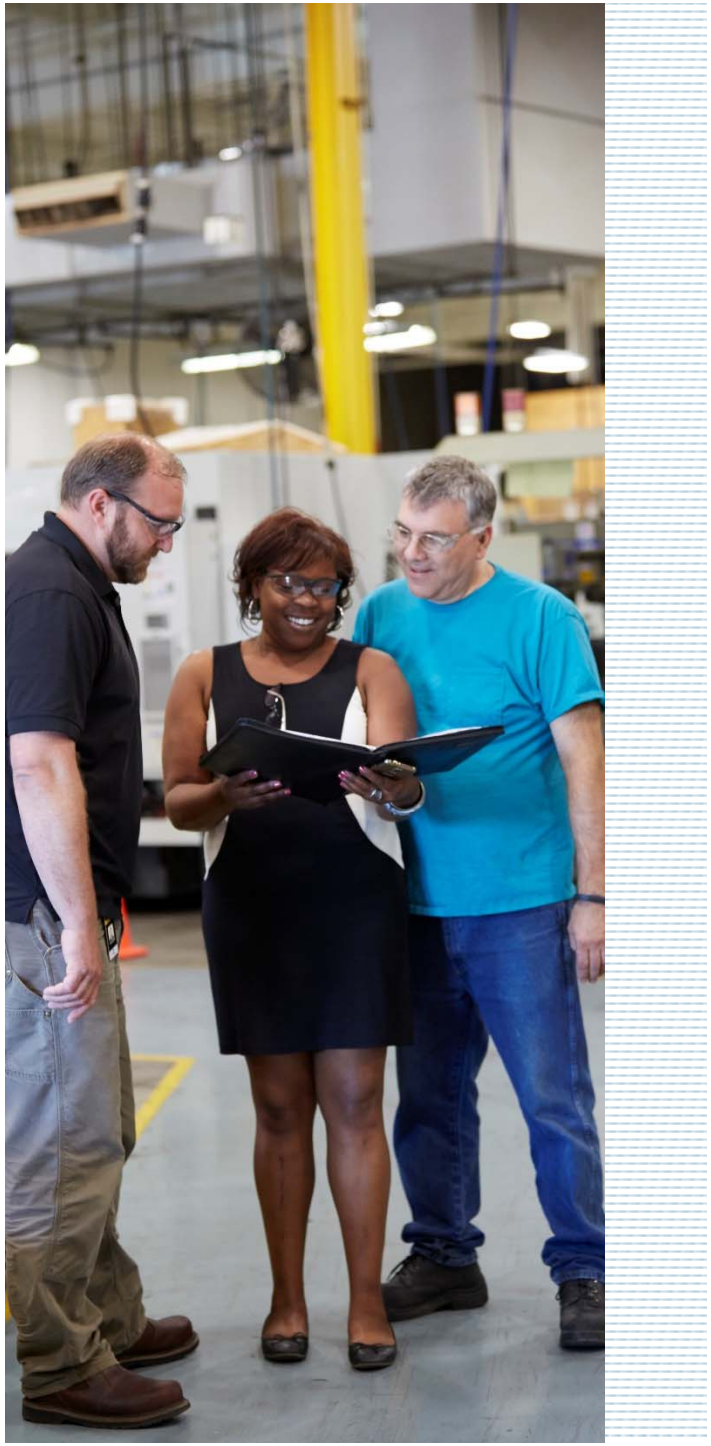
Lighting Tool Project Process





Market Research

Research Goals

- Understand stakeholders needs and wants regarding the lighting tool
- Understand how contractors and distributors are currently using the lighting tool
- Understand other (PNW and non-PNW) program administrators' lighting tools, as well as their program strategies and any future plans for the development of new lighting tools

Research Methods

- Research contractors:
  - Research into Action
  - Evergreen Consulting Group, LLC

- Interviews conducted with:
  - 14 Energy Trust staff (including PMCs and PDCs)
  - 10 staff from other PNW program administrators
  - 10 staff from other non-PNW program administrators
  - 30 contractors and distributors

- Interviews were completed in January, February and April 2018

First Phase: Internal Staff, PNW Administrators and Contractors Market Research

Findings: **Benefits** of Current Tool

- **Familiarity.** Excel is a well-known and almost universally used platform.

- **Consistency and reliability.** Same program tool for the last 10 years.
  - Per contractors and distributors, the tool is “well-liked and considered the standard relative to others in the region”
  - Has produced reliable savings values

- **Comprehensiveness.** The current tool captures a lot of data in one place.

Findings: **Challenges** with Current Tool

- Contractors and Distributors
  - **Program requirements.** Not easy to identify what is custom versus prescriptive, and cost-effectiveness for the customer is different than the program.
  - **Flexibility.** Misalignment for inputs needed on cost and pricing
  - **Usability.** Unable to quickly estimate incentives

- Energy Trust staff and other program administrators
  - **Data accessibility and quality.** Performing QA/QC on the tool, getting data out of the tool to use for reporting and analysis
  - **Adaptability.** Excel workbook too large/unwieldly
  - **Usability.** Difficult for contractors and end-users to read and use, e.g., large number of tabs, corruption of formulas, etc., difficulty with onsite data collection

Findings: “Wish List” for New/Improved Tool

Energy Trust

- Improve access to data stored in lighting tools
- Make it easier to update the tool
- Improve / implement error checking

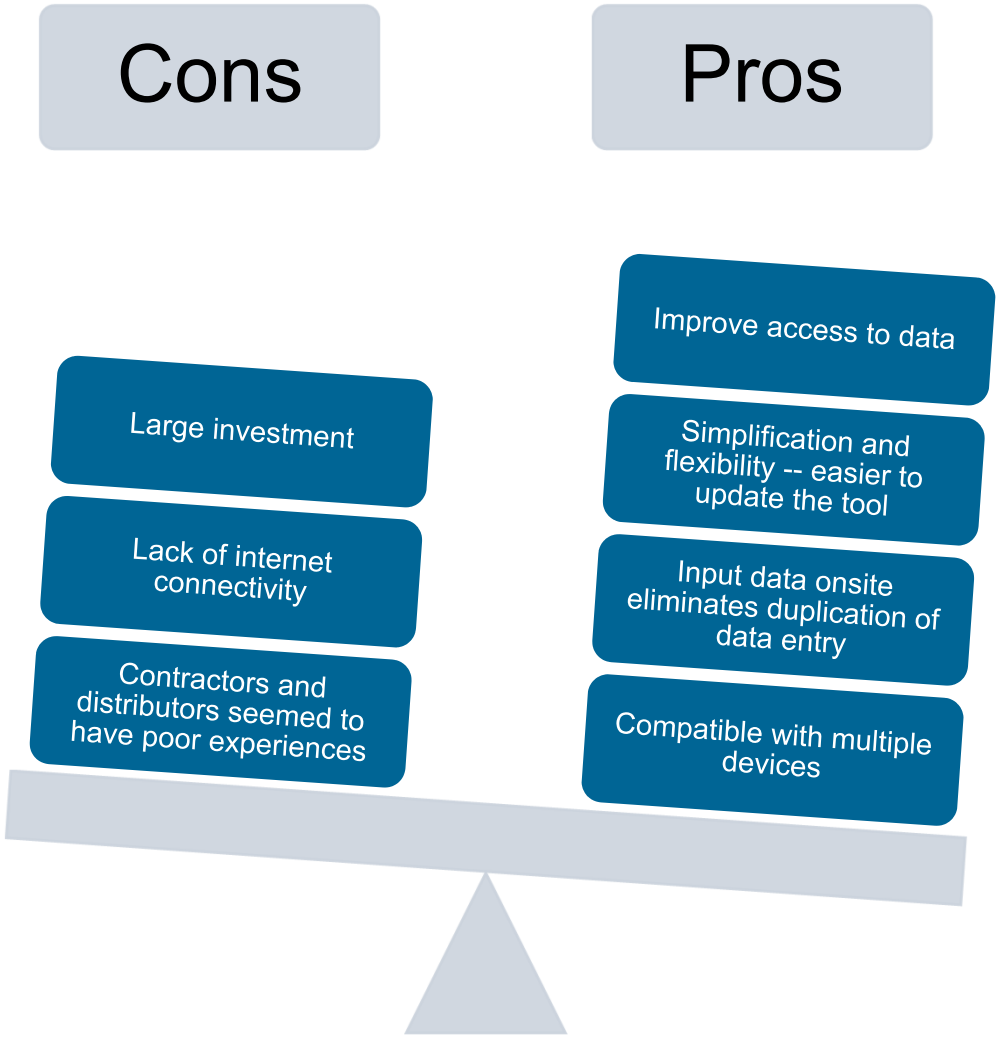
Other program administrators

- Input data onsite to eliminate duplication of data entry
- Capability for contractors and customers to track the status of projects
- Compatible with multiple devices, e.g., laptop, tablet, phone
- Make it easier to update the tool

Contractors and Distributors

- Maintenance costs should be included
- Simplified incentive calculation (cents/kWh)
- Option to enter project, rather than measure, installation costs (which better aligns with how they bid)
- Simplification and flexibility desired

Findings: Online Platform

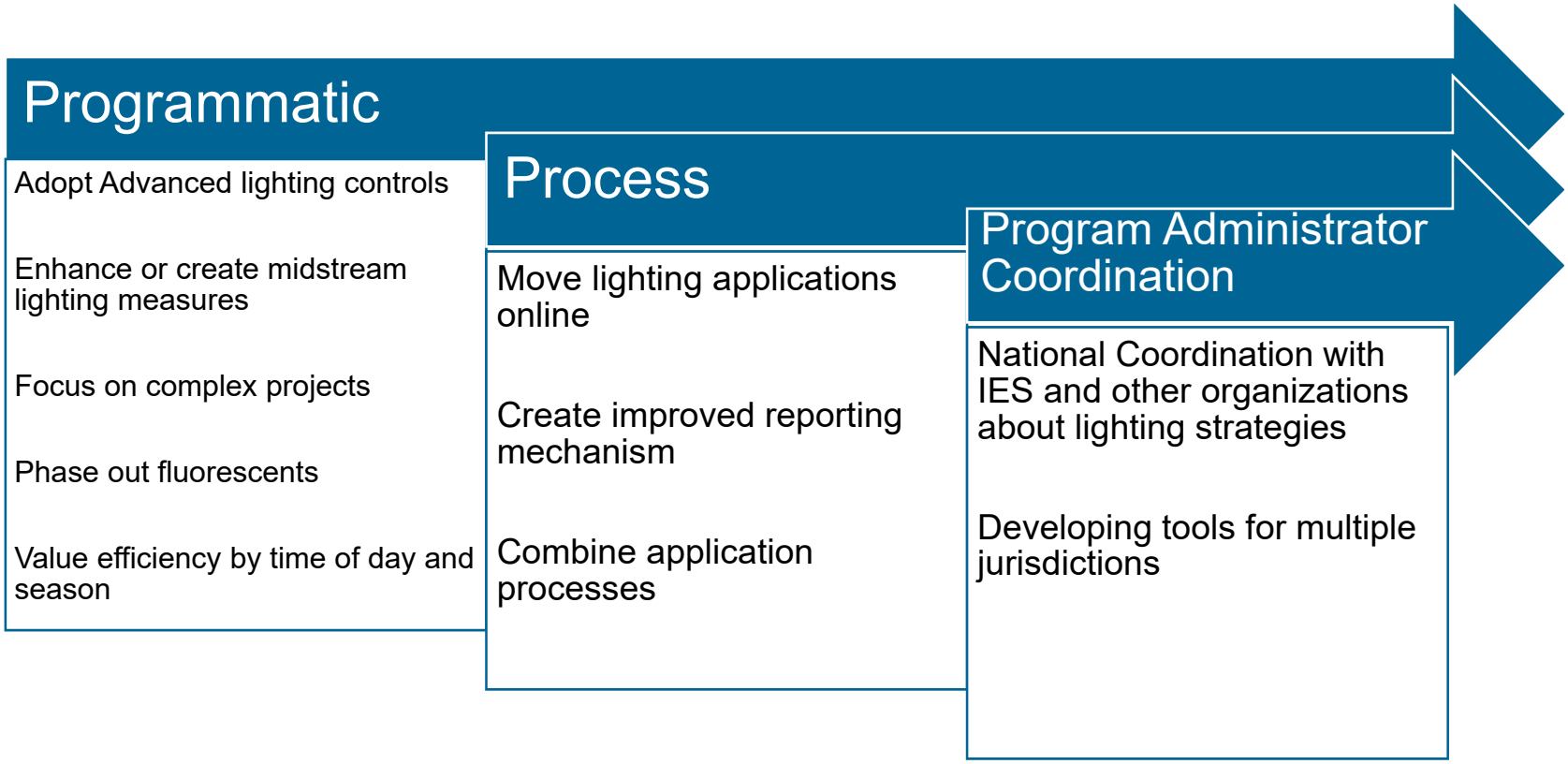


Second Phase: Non-PNW Administrators Market Research

Findings: Current State of Lighting Program Offerings

- Almost all of the non-PNW program administrators use an **Excel tool** for some portion of the lighting program
  - Capture savings and incentives, storing data and project data
- All have **downstream** programs
  - Prescriptive and Custom
- Most have or will have some type of **midstream** program

Findings: Programmatic and Process Changes



Preliminary Recommendations

Preliminary Recommendations

Recommendation 1. Hold on developing a “new” lighting tool

Recommendation 2. Prioritize more strategic updates based on the Program’s roadmap for the Lighting Program evolution

Recommendation 3. Restructure, redefine, and refine the current lighting tool process

Discussion

Thank You

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EnergyTrust of Oregon

Attribution for Energy Trust Energy Efficiency Programs

June 20, 2018

Energy Trust of Oregon

Why Are We Here

- Review an analysis and accounting practice for how Energy Trust sets goals and reports savings
- Consider options and recommendations for change, and implications

The old horse has taken us far, but the trail has changed

Today's Journey

- Definitions
- Why we do "net savings" now? How?
- Is changing our basis for reporting from net savings a Big Thing?
- Old problems
- More recent problems
- Options and recommendations
- Plan for stakeholder engagement
- Q&A

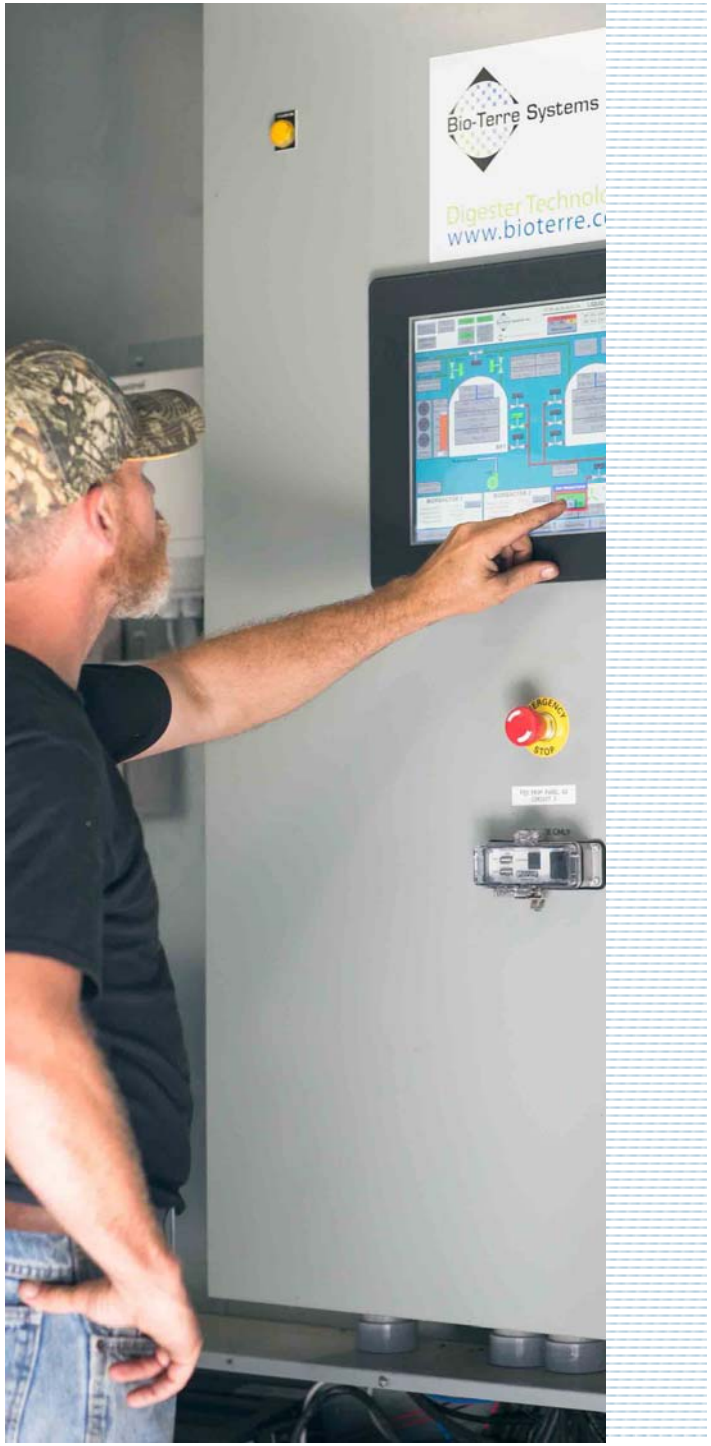
Definitions

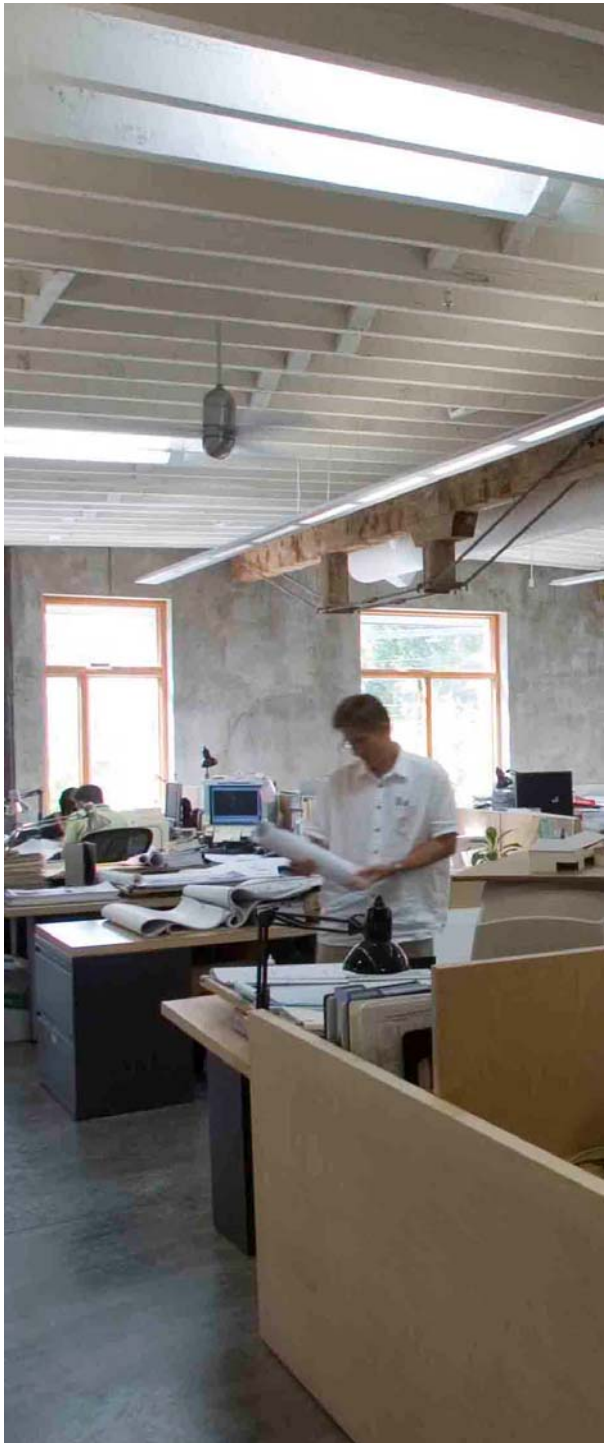
- Gross Savings: Efficiency happened. Energy Trust helped.
- Free Riders: We were there, may have helped, but customer would have saved the energy regardless of Energy Trust marketing, technical assistance and incentives
- Spillover: Influenced by Energy Trust, but did not directly engage in program for that measure
- Attribution: Our influence based on evidence
- Market Transformation: Separate accounting approach; program activities shifted a portion of the entire market
- Net saving = gross savings - free riders + spillover

Why and How

Why Do We Now Report Net Savings?

- Load forecasts already forecast and deduct “market-driven” efficiency
  - Many variations and details
  - Changing over time
- Our job is to use ratepayer funds wisely, to maximize our savings beyond forecast market-driven efficiency
- Reporting results based on our influence, as best we can





Major Research Methods for Net Savings

- Fast Feedback: 2-3 questions
- “Market Baseline” method
  - Distributor or retailer data for products - what is on shelf, what is selling
  - We save by changing sales mix
- Market Transformation framework
  - Forecast dynamic “without program” baseline, measure market shift from there

Is Changing the Basis for Reporting Savings a Big Thing?

What Does High Free Ridership Mean?

Possibly any of the following:

- Unnecessary initiative
- Mature initiative…
  - And time to phase out
  - But it's cost-effective to get the last 20% even with high free riders
  - But we should stay with it to lock in market transformation
- Respondent does not believe or cannot remember that Energy Trust influenced projects
- Depends on other market context—the one number does not tell all

What Do Other Program Deliverers (Utilities) Use?

- More use net than gross nationally, but some have no research; no single standard calculation
- Some shifting to gross
- In NW, mostly gross: Power Council and publics + Washington State
- We use gross in Washington
- Most NW utilities book market transformation through separate analysis performed by NEEA

How Much of Energy Trust Savings is Evaluated for Market Effects Using Each Mechanism?

2015 Percent of Reported Savings	Net Savings Method	Market Transformation	Efficient Equipment in Baseline	No Market Effects Assumed- Moderate- or Low-Income or Renters
Electric savings	**41%**	32%	27%	0.2%
Gas Savings	**50%**	31%	19%	0.04%

Impact of Gross vs Net

For Energy Trust as a whole,

2012-2016 combined:

- Gross is about 13% more gas and electric savings
- 246 vs 278 aMW saved
- 29 million vs 33 million therms saved

Old Problems

Long-Standing Problems with Net Savings Estimation

- Load forecasts include market-driven conservation in principle but often lack detailed structure
  - So the match of free riders with utility forecast reductions is more in principle than numerical
- Approximation is great in principle
  - But when it impacts program performance from goals, inevitable imprecision leads to difficult discussions; difficult to resolve how much to chase precision

More Long-Standing Problems with Net Savings Estimation

- Survey response issues
  - Response bias: many types, could point in any direction
  - Respondent understanding incremental measures
  - Respondent understanding the breadth of Energy Trust help
  - Invisible choices: vendor or contractor proposed only one thing
  - Cumulative influence: both past influence on a given year and influence of activities that year on future years

More Recent Problems

More Recent Issues with Net Savings

- More midstream Energy Trust programs
  - Invisible to participants
- Long-term relationships leading to survey fatigue
- “Teach them to fish” programs
  - Residential behavior, Strategic Energy Management
- Fast moving markets
  - Data becomes obsolete
- Multiparty initiatives
  - e.g., city ratings, county PACE
  - Who does customer think helped?

Options and Recommendations

Options for Change

All these options are for markets where we now use net savings

- Stay the same
- Accept circumstantial evidence but stick with net
- Use gross in markets where research is problematic or unreliable
- Use gross
- Gross + spillover

Recommend Gross + Spillover

- Where we now apply free rider and spillover estimates (primarily through faster feedback surveys) assume current modest spillover levels, but no free riders
  - This provides the most complete estimate of savings related to Energy Trust programs to utility load forecasters
- Energy Trust will continue development of a clear and accountable process for deciding when to reduce incentives and services or exit for specific products

Implications

- Consistency with Washington and public utilities
- Total Resource Cost test unchanged
- Higher savings estimates for some programs
- Higher Utility Test B/C ratios for some programs
- Not much $ savings on market research
  - Still need it to make exit decisions
- Time and brain space saved
  - Less internal explaining, language tweaking and arguing about results and methods
- Less time on complex calculations with limited meaning
- Can refocus the dialogue on how to get more savings
- Removes uncertainty associated with customer-reported free ridership

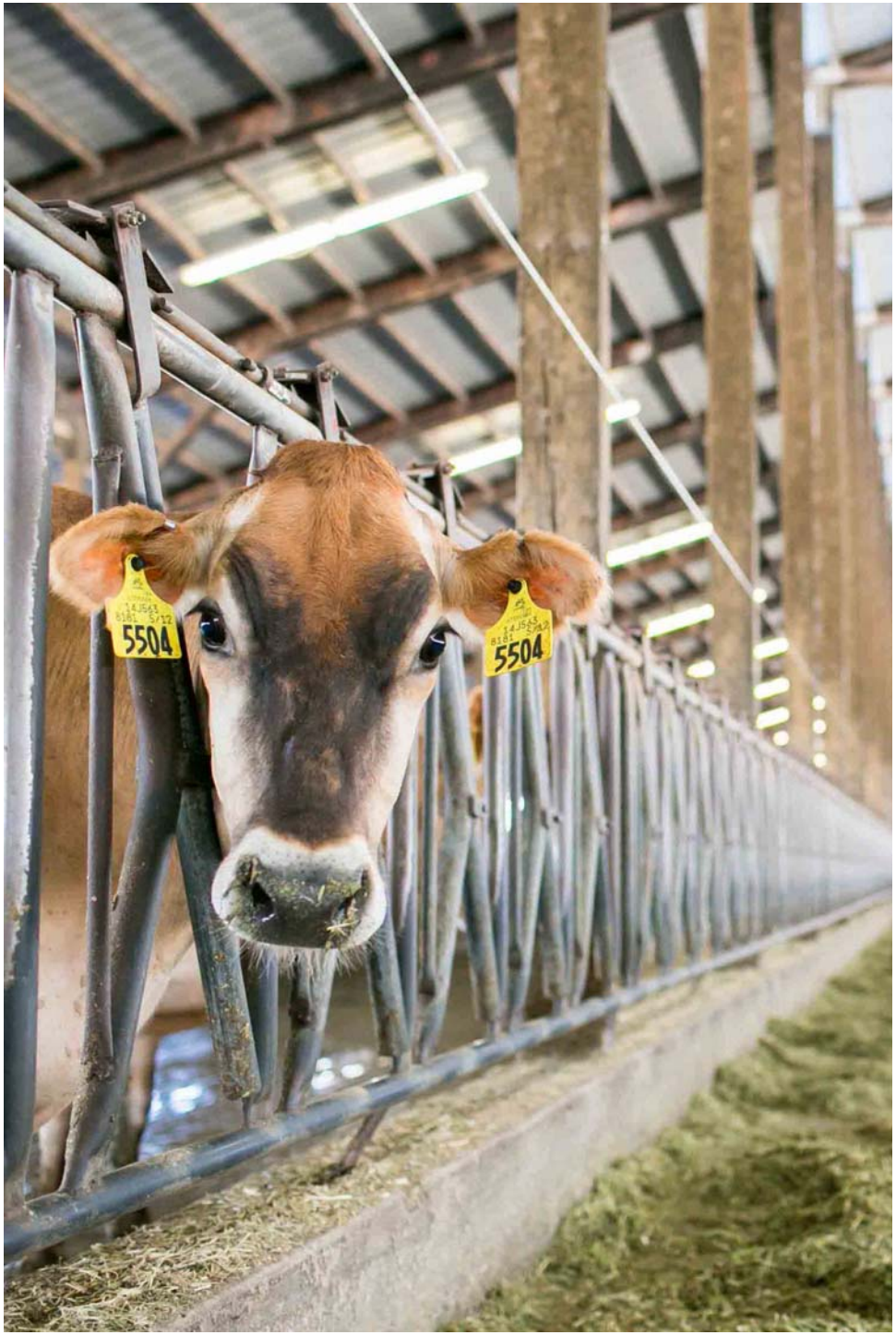
What’s Next

Stakeholder Engagement Order

- OPUC staff
- Utilities and CAC
- Board Policy and/or Evaluation committees
- Board
- Commission decision

Estimated timeline:

- Discuss through 2018
- Rejigger systems in 2019
- Changes in reporting in 2020



Questions and Comments

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EnergyTrust of Oregon

SHOULD ENERGY TRUST COUNT NET OR GROSS SAVINGS TOWARD GOALS?

June 2018

ABSTRACT

Energy Trust efficiency goals are currently stated in net savings. This paper explains why we now use net savings, describes why estimation of net savings is increasingly difficult, explores possible solutions and makes a recommendation. Potential solutions include enhanced methods for estimating net savings, but also possible changes to Energy Trust's goal-setting and reporting process to employ gross savings instead of net savings. Energy Trust staff recommends the latter. This should make goal setting and reporting simpler and clearer but complicates the determination of whether Energy Trust programs were a critical determinant of added energy savings. A change to goal setting and reporting based on gross savings requires that Energy Trust clearly define a rigorous and transparent process to decide when program incentives and services are no longer needed. In making the recommendation to shift to reporting gross savings, Energy Trust believes that it is feasible to create such a process.

EXECUTIVE SUMMARY

Energy Trust plans, evaluates and reports energy savings using "net" savings. Net savings occur when Energy Trust services and incentives influence customer decision-making and actions. This can include customers who respond to Energy Trust's market influence by making investments or taking management actions that save energy, even though they did not receive Energy Trust incentives. Net savings exclude savings from customers that receive Energy Trust services and incentives, but would proceed with energy-saving improvements without this help.

Why does Energy Trust report net savings? There are economic forces that motivate customers to save energy. There are also programs and services in the market from other entities that help customers save energy. Energy Trust's job is to get *more* efficiency done than would otherwise occur without Energy Trust. To distinguish our impact from the savings that would have occurred without us, we try to be clear about which savings Energy Trust influenced. Net savings have also historically been a better match with utility load forecasts to create an idea of future utility energy requirements, and provide a basis for assessing program effectiveness in changing efficiency levels.

Gross savings is the amount of energy saved by a customer through projects that use Energy Trust incentives or services. To report on savings, Energy Trust starts with an estimate of gross savings from energy-saving measures installed by program participants, and then adjusts that number to consider Energy Trust's influence on customer actions to arrive at net savings. This paper asks whether the extra effort to research and then make this adjustment produces enough additional clarity about the impacts of Energy Trust's efforts to justify the cost, time, and complexity.

Estimates of net savings have never been exact, but we believe they have been meaningful and useful for setting future savings goals, tracking achievements, serving as inputs for utility integrated resource plans (IRPs) and improving programs**. However, it has become more difficult to adjust from gross savings to net savings for many Energy Trust programs and estimates of net savings have become less reliable**. The reasons include the following.

(1) To an increasing degree, energy users and customers consider Energy Trust to be part of the "normal" market for equipment and services, so they are less conscious of our unique contributions. Consequently, their estimates of our influence are less reliable and meaningful. (2) Several measurement issues detailed in this paper make net savings estimation less viable. (3) Energy Trust's increasing reliance on working with the supply chains for products and services in ways that are cost-efficient, but less visible to customers, makes it less feasible for customers to identify what influenced their decisions.

For these reasons, it is increasingly difficult to say that the gross-to-net adjustment, in aggregate, improves our understanding of Energy Trust's effectiveness on cost-effectiveness.

A recent study commissioned by Energy Trust (PWP study) surveyed best practices for estimating net savings among other program deliverers.[1] While the study suggested possible enhancements to Energy Trust's methods for assessing program influence, it also stated that:

> *….there is no silver bullet; there are no breakthrough techniques in net-to-gross analysis that would allow Energy Trust to calculate net savings with greater confidence and at reasonable cost than the self-report approach it is currently using. Instead, the NTG [net-to-gross] landscape remains a patchwork of methods and policies where most jurisdictions use the same self-report technique that they and their consultants recognize as flawed (page i)*.

The suggested improvements from the PWP study have limitations, complications and costs. This memo complements the PWP study by exploring whether it is appropriate to change how Energy Trust ***uses*** estimates of savings, and presents several potential alternatives to the current approach.

Several possible strategies are offered for (1) simplifying the process of estimation, or (2) switching goal setting and reporting to gross savings. Among these options, Energy Trust proposes that we set goals and report based on gross savings plus spillover for resource acquisition programs in areas where we now report net savings. Where Energy Trust is currently reporting market transformation savings, we propose to continue this practice as it provides the most complete picture of program savings.

We further recommend that Energy Trust continue to collect information on market influence for all programs and use it in a structured and transparent process to assess the prudence of continuing incentives and services for specific measures and programs. These recommendations and a path for transition to this approach will be explored with the Oregon PUC, utilities and stakeholders.

[1] Current Methods in Free Ridership and Spillover Policy Estimation- Draft Final, PWP, Inc. and Evergreen Economics, February 2017.

CONTENTS

1. DEFINITIONS

The following definitions are adapted from a study of options to improve estimates of net savings commissioned by Energy Trust and discussed elsewhere in this paper. [2]

Free Rider: Energy efficiency program participants who would have taken the recommended actions on their own, even if the program did not exist.

Gross Savings: Gross savings represent all savings from program participants, regardless of whether they are free riders. Energy Trust reports all savings in net terms, not gross terms, unless otherwise stated in the publication.

Market Effects: A change in the market structure or in behavior of participants in a market that leads to increased adoption of energy efficiency measures, services or behavior and is attributed to program market intervention.

Net Savings: Savings adjusted for free riders, spillover and impact evaluation results. Energy Trust reports all savings in net terms, not gross terms, unless otherwise stated in the publication. Energy Trust also uses net savings for program and portfolio-level cost-effectiveness analysis.

Net-to-Gross: Net-to-gross ratios are equal to the net program load impact divided by the gross program load impact. Energy Trust applies these ratios to gross program savings to determine the program's net impact.

Spillover (Participant): Additional measures that were implemented by the program participant, but for which the participant did not receive an incentive. The participant undertook the project without Energy Trust support, but prior program participation influenced the decision.

[2] PWP, Ibid

Spillover (Non-Participant): Additional energy savings achieved when a non-participant implements energy efficiency measures or behavior due to the program's influence (for example, through exposure to the program).

For the purposes of this paper, we add four definitions:

Attribution: Concluding that savings are a consequence of program intervention. This is the same as saying they are net savings, or savings result from program-induced market effects.

Baseline: The description of efficiency levels for equipment or management practices, as they would occur without help from Energy Trust efficiency programs.

Market-Driven Savings: These are energy efficiency savings that occur outside of those attributed to programs. They can be the result of consumer response to price, market changes, more efficient codes and standards not influenced by programs, or any other cause.

Frozen Efficiency Load Forecast: A utility forecast of electric or gas energy use that assumes no change after the start year in energy use patterns and efficiency building codes and equipment standards. In resource planning, this type of forecast is used alongside a forecast of gross savings because the pieces "fit"- savings in the gross savings forecast are not already embedded in the load forecast.

2. CURRENT SITUATION

Energy Trust uses net savings to set goals and report results

Using net savings, Energy Trust is counting savings where we have evidence that we have a critical influence on the investment or actions that caused energy savings. Conversely, we do not count savings toward our goals where evidence does not point to influence, even if we provided services and financial incentives. Influence can include influencing selected equipment or practices at a single site, or transforming entire equipment markets. In addition to reducing reported savings for free riders, net savings can incorporate spillover, as defined above. While measurement of net savings is never exact, we attempt to come up with a reasonable middle estimate based on the evidence in hand.

Currently, Energy Trust uses two methods to estimate net savings for resource acquisition programs, depending on the situation.

- For many efficiency measures, free riders are estimated based on Fast Feedback, a telephone survey of a sample of participants. Energy Trust polls them within one or two months after project completion. A project's free ridership score is composed of two elements: a stated intent/project change score and an influence score. Energy Trust calculates these scores based on respondents' answers to two or three questions in Fast Feedback.[3]
- For other programs, particularly where efficient products are sold through retail channels (e.g., light bulbs, washing machines), we do not always have contacts for individual customers, and they may not be aware of our incentives. Energy Trust

[3] Energy Trust asks residential participants only two questions; not about budget availability in the absence of program incentives. For a detailed review of these methods, see https://www.energytrust.org/wp-content/uploads/2016/12/Energy_Trust_Free_Ridership_Methods.pdf.

collects data on the proportion of product sales at various efficiencies and uses this to establish baseline (without program) efficiency. This sales study may be for a prior period or a different locale where programs are not available, although the latter approach is often infeasible or unaffordable. By comparing efficiencies between the products Energy Trust promotes and this baseline, Energy Trust reduces savings for free riders as part of the per-unit savings estimate. While this method addresses free riders to some extent, it does not address forward trends in efficiency without the program, nor does it distinguish the program's spillover.

Regarding spillover, Energy Trust has conducted limited research, which led to positive indications that spillover occurs, but the amount is highly uncertain. Since Energy Trust has not found precise or reliable approaches to spillover evaluation, it has limited its investment in spillover evaluation. Thus, Energy Trust claims very modest spillover. Energy Trust estimates spillover of all types at 1 percent for most programs and 7 percent[4] for the Existing Buildings program.

To provide an example of how free riders and spillover are used to calculate net savings:

> *A program that saved 100 kWh of gross savings, but have 20% free riders and have 10% spillover, the savings would be calculated as 100 X (1-20%) +(100x10%) = 88 kWh.*

Programs that are designed to transform markets use a different process to reflect market effects. Energy Trust forecasts a "dynamic baseline". This baseline anticipates how much of the sales of the product in question would be efficient each year for several years into the future in the absence of program intervention. Then data is collected on the market share of efficient goods with the program in place. That is then compared year-by-year to this baseline forecast to estimate savings. This approach is suitable only for products and services with a clear product definition and a clearly delineated and well-studied and relatively uniform market. For example, we have found it difficult to establish a baseline for efficiency of home window sales, because the rate of change is modest (some current windows are 100 years old), erratic (some windows are replaced sooner than others), and data on efficiency of product sold outside of programs is difficult to collect.

Why employ net savings?

Energy Trust was created at a time when, as a result of more than 20 years of prior programs, there was already a significant volume of energy efficiency occurring - from market actions, codes, standards. Energy Trust's job is to "get *more* efficiency done", not to count what was already going on.

Furthermore, from its inception, Energy Trust's role in utility planning was to provide savings that would reduce loads from those forecasted by utilities.[5] Utility load forecasts already include some aggregate, rough adjustments for market-based efficiency and established codes and standards. Therefore, Energy Trust plans for and reports on savings beyond those incorporated into load forecasts. Net savings is a better estimate of savings that are not already deducted from load forecasts.

[4] Energy Trust derived the 7% as 1% of program savings x the load from nonparticipants/the load from participants.

[5] This is true of all utilities except Pacific Power, which utilizes gross savings from Energy Trust.

What does high free ridership tell us? What does low free ridership tell us?
High free ridership may indicate that there is not much more to gain from continuing a program offering. This can happen when the market share for efficient products or services is as high as it will ever get, or close, and market conditions are such that it will stay high, or we have reached most eligible sites. To provide an example, Energy Trust ended its incentives for refrigerator recycling due to a combination of high free ridership and decreasing savings per refrigerator, as we had already removed most of the oldest and least efficient refrigerators from the market. The decision to end reflected the success of the program. This is an example of how free ridership often works in tandem with other factors and information to influence program decisions.

In other circumstances, free riders do not indicate that curtailing services is appropriate. Depending on the cost and value of savings, half or more of program participants may be free riders and a program can still be cost-effective and strategically important in reaching the remainder. Sometimes it takes years of program support to establish a stable pattern of efficient product purchases. One example that fits this description was Energy Trust's incentives for efficient gas furnaces. We continued the offer when the market share of efficient furnaces exceeded 50%. When the efficient market share persistently exceeded 80%, and the incremental cost for efficiency decreased, we replaced the general market incentive with a target incentive for lagging markets (limited income, rentals and certain housing types). Additionally, some new products that are purchased by early adopters, such as smart thermostats, may experience free riders until the program reaches a broader segment of the market.

Low free ridership can be an indication of program influence and success. However, if program sales volume is low, low free ridership may be an indication of limited program influence on the target market.

3. LONG-STANDING DIFFICULTIES WITH NET SAVINGS

This section describes problems with analysis of net savings and their use in utility resource forecasting that have existed for many years, in some cases prior to Energy Trust's existence. We have created reasonable, albeit imprecise, estimates of net savings[6] by carefully managing these issues. These issues discussed in this section include load forecasting integration and uncertainty about customer responses. This section creates a backdrop for discussion in the following section of new or evolving issues regarding estimation of net savings.

Integrate Resource Plan integration issues
In the past, utility load forecasts have included a reduction in forecast energy use due to anticipated market-driven efficiency improvements. Similarly, net savings estimates for Energy Trust programs are decreased for the share of program savings that would have occurred without the programs due to these same market forces. This makes the two a logical match because the reduction in energy use already in the load forecast is analogous to the reduction in savings in the gross-to-net adjustment.

While net savings and load forecasts that deduct market-driven savings are a good fit in theory, the treatment of market-driven efficiency in load forecasts is often neither detailed nor precise. Load forecasts often lack the detail on end use of energy needed to reflect savings related to

[6] Energy Trust believes that our estimates of market effects have been good enough to show direction and magnitude of effect at the program level, and to estimate net savings combined across all programs.

specific phenomena. For example, in recent years, changes in efficiency have come significantly from new energy efficiency equipment standards and building codes.

So, while it is rationally consistent to match load forecasts that are reduced for market-driven savings with Energy Trust reporting of net savings, that rational correspondence is supported by only a very loose numerical correspondence. The importance of this issue has also diminished, as utilities are with increasing frequency marrying a "frozen efficiency" forecast, which does not build in market-driven efficiency, with Energy Trust programs. While forecast integration methods are complex and often "not exactly" one of the methods described in this paragraph, three utilities seem to be closer to the frozen efficiency method in recent IRPs.

Issues regarding customer responses[7]

Energy Trust applies established common practices for accounting for savings that would not have happened without program intervention.[8] However, these practices are not precise. The PWP report suggests several options for improving practices. Many are significant investments as the methods require more data and analysis or triangulation from multiple sources. Some of these proposed improvements may provide more information, but may not provide a clearer consensus about net savings. If Energy Trust continues to estimate net savings, Energy Trust plans, at a minimum, to apply some of the simpler of the proposed improvements. However, in PWP's words, these are not a silver bullet. Many of the problems listed below also apply to the more advanced methods.

Survey methods rely on perceptions. In situations where Energy Trust applies the Fast Feedback method to estimate market effect, we rely on the participants' statement of their own perception. There are many complications:

(1) Motivations for efficiency are complex and there are many reasons for acting.
(2) It is often difficult for respondents to say whether support from a program was critical.
(3) Personal biases and worldviews influence responses.
(4) Respondents may have difficulty recalling how and why they made investment decisions.
5) Asking people questions about what they would have done in a hypothetical past in which there is no program support is inherently speculative. We may hear what people would like to believe they would have done rather than what they actually would have done.
6) For some efficiency investment decisions, there are many stages and many people involved (e.g., a new building design, or incorporating efficiency in a major industrial process upgrade). The respondent may have a limited view of what would have happened in the absence of a program. For example, a new building architect may think that all of the efficiency features were part of the design, while the engineer on the same project may know that the developer would cut out some features because funds are insufficient without program incentives. For this type of transaction, the best evaluation efforts:

- use multiple interviews to identify the roles of each individual,
- create a decision model,
- ascertain the myriad ways in which Energy Trust influenced the decision through different points of the network, then
- summarize this information to come up with a numerical conclusion about the influence on a range of measures.

[7] A comprehensive review of these factors, based on social science theory, is provided in "Free-Ridership Measurement Is Out of Sync with Program Logic…or, We've Got the Structure Built, but What's Its Foundation?", *Jane S. Peters and Marjorie McRae, in Proceedings of the ACEEE 2008 summer study.*
[8] PWP, ibid

This approach requires that judgment be applied in multiple places. Energy Trust has experimented with this type of approach but does not used it regularly. It is very expensive and not always conclusive.
7) How the respondent thinks about the program is also important. We ask whether the entirety of services provided by the program changed the decision to install the efficiency measure. However, the respondent may find it difficult to recall the entirety of Energy Trust assistance. It may be easier for the respondent to think only about the incentive.

Incremental measures. Some efficiency measures are a more efficient version of equipment that consumers would purchase regardless of efficiency concerns. For example, a customer needs a replacement heating system in a building or home because the old system is failing. In these situations, customer do not always know there was a choice of equipment (e.g., condensing furnace compared to non-condensing), and may not be able to distinguish incremental decisions about equipment features. Energy Trust may influence contractors to offer efficient systems, but may not make the choice clear to customers. In our surveys, we do our best to make the distinctions between choosing standard and efficient equipment clear. Still, we are never sure how many customers can distinguish their overall decision to buy the new heating system from the incremental decision to buy an efficient system.

Cumulative influences. Program assistance for a single transaction sometimes occurs over multiple years (e.g., new building or major industrial project). A survey respondent may be thinking only about recent assistance or incentives.

Program year
Energy Trust uses net savings in reporting to report on our goals for a single program year. In this reporting system, we consider any impact of past assistance to be both a sunk cost (already spent) and the influence of that past year as already achieved. Energy Trust must decide whether to invest *more* money in the program in the given year.

Energy Trust often not only helps customers to complete specific projects, but also provides the experience and analytic tools to do more projects in ensuing years. Year-by-year accounting misses this influence on future years.

4. NEW AND EVOLVING ISSUES FOR NET SAVINGS

As the above points demonstrate, Energy Trust goal setting and reporting based on net savings has never been precise or easy. However, it has worked well enough to provide reliable estimates of total portfolio savings and inform regarding whether specific programs and measures should continue. Net savings integrates readily into utility IRP planning, so it has in the past been more useful than answering a less relevant question (gross savings) more precisely.

However, with the passage of time, four factors have made net savings more difficult and less certain to estimate: (1) extended relationships with customers, (2) fast-moving markets, (3) multi-party initiatives, and (4) midstream and upstream programs. Each of these is described in more detail below.

Extended relationships with customers

We have worked with some customers on multiple efficiency and renewable energy projects for 10 or more years, and have consequently asked the customer similar market effects questions many times.[9] Three problems occur:

- The customer has been working with us so long that it is difficult to discern how our partnership has shaped their thinking. Underlying that is an ambiguity. From the customer's perspective, is the free rider question about our cumulative influence or our influence through support for a single project?
- The second problem is the quality of response. Respondents may be less inclined to focus on the question if the respondent has answered it many times for different transactions over the years.
- The third is whether the customer is answering based on what he or she thinks will provide the greatest advantage in their ongoing relationship with us.

These issues are more difficult for Strategic Energy Management (SEM) initiatives for commercial and industrial customers, which are an increasing source of Energy Trust savings. The core of this program approach is enhancing customers' autonomous energy management capability. If Energy Trust fully succeeds, the customer is likely to see him or herself as the primary influence for savings under SEM and perhaps for later capital investments in efficiency.

Fast-moving markets

Important efficiency markets are changing so fast that it is difficult to establish a baseline efficiency level suitable for net savings analysis.[10] A prominent example is the retail market for LED lamps for homes. The best data to track market share of LEDs in retail stores is available four months after a year is complete, so on average is 10 months old when received. Energy Trust must plan for a program in the prior calendar year, so must make decisions based on data that is often more than a year old. In the last two years, market preferences for efficient lamps have changed significantly within a single year. Energy Trust is accelerating and perhaps extending the trend to acceptance of LED lamps, but by how much? It is difficult to say with the available market share data. Energy Trust has augmented this data with more frequent shelf surveys, but they do not cover as broad a market and provide only an indicator of sales.

LED lamps are sufficiently cost-effective that our program efforts make sense for now. Even a high free ridership rate would result in a cost-effective measure. However, for some bulb types and retail channels this will be a serious question for 2019 program planning, and it is difficult for Energy Trust to quantify our net impacts. Because the answer has a big impact on reaching our organization-wide savings goal, the unavoidable range of uncertainty creates debate. We are exploring whether we can gain some insight into our effect on the LED market by comparing to other states without programs. However, these comparisons present other ambiguities.

To provide another example, there are similar questions on a smaller scale in the market for smart thermostats. There are multiple customer benefits from smart thermostats. These result in some sales without Energy Trust support. As a new class of product, it is difficult to predict future sales that would have occurred without Energy Trust marketing and incentives. Energy Trust programs will enhance this market, but estimating free ridership may be difficult because of the diversity of customer motivations.

[9] Energy Trust may survey non-residential customers as often as every six months for businesses and residential customers as often as annually.

[10] This issue is about commodity product markets where we establish baseline efficiencies by observing sales patterns in markets, mostly for retail goods.

Multi-party initiatives
Increasingly, efficiency programs are collaborative partnerships where public and private regional, local and national partners take different roles. One example is the advent of Architecture 2030 as a trade-based group working to expand the market for very low energy new buildings, progressing to net zero buildings. Energy Trust and NEEA, with Energy Trust funding, have provided considerable indirect and direct support for their efforts. However, an architect responding to a market effects survey might be most likely to credit training help to Architecture 2030, even if Architecture 2030 is funded by Energy Trust or Northwest Energy Efficiency Alliance. The leaders at Architecture 2030 are likely to see themselves as the primary influence. With a variety of market actors working together to influence a customer's decision-making, how can the customer actually discern Energy Trust's influence in an interview response?

A second example is the efforts of the City of Portland to require ratings on buildings and homes. Energy Trust has spent years developing a functional scoring system for homes. NEEA and Energy Trust have worked with the City of Portland to advise the city on developing these initiatives for years, and will continue to both provide technical support and use the initiative for lead generation. If the rating system results in efficiency actions in buildings that have not received direct incentives, was that a result of the City of Portland's efforts, or Energy Trust's, or perhaps both?

There are other examples where Energy Trust promotes or advertises others' efficiency efforts. Just because we advertise, are we critical to the savings? There is no clear-cut answer.

Collaboration is essential to effective and cost-effective savings strategy, but it is problematic to draw any straight line between Energy Trust's support and the outcomes.

Midstream and upstream programs
Energy Trust is evolving its Products program to sell as many products as practical through midstream incentives to distributors or large retailers as a way to keep program costs affordable and broaden market impact. Midstream initiatives for business and government customers are also used for commodity measures such as replacement tubes for lighting fixtures. Incentives to midstream actors are sometimes more influential and cost-efficient than direct customer rebates.

Sometimes prices of goods to customers reflect the incentive but Energy Trust's midstream incentives are not always clear to customers. In many of these programs, we do not have the name of the ultimate purchaser and user, so we cannot survey them as to the influences on their purchase.

For these initiatives, we often use the market baseline approach to estimate market effects, but data is not always available to do this.

5. HOW BROADLY ARE THESE PROBLEMS INFLUENCING REPORTING FOR ENERGY TRUST PROGRAMS?

An increasing proportion of Energy Trust savings are subject to one or several of these issues. For example, multi-year engagements are pervasive in program tracks for medium and large businesses and institutions. Lighting is the source of more than one-half of Energy Trust's electric savings. A significant share of these savings comes from home and business lamps and

tube sales, markets that are changing quickly. In addition, multi-party initiatives are likely to increase in importance as they gain maturity and impact.

Table 1 below provides a summary of the portion of savings where market effects are measured. The table shows that in 2015, Faster Feedback applied to half or less of savings reported by Energy Trust. About a third of the savings were evaluated using a market transformation framework. For 19% of gas savings and 27% of electric savings, Energy Trust accounted for market effects by estimating a baseline based on the share of sales from efficient equipment in the historic sales pattern. A very small part of savings had no market effects assumed because they were for moderate- or low-income or renters or schools.[11]

Of the savings adjusted through fast feedback, a significant share is subject to the new problems described above. Two examples are provided:

- Thirty-eight percent of the electric and 47% of the gas savings in 2015 came from portions of the Existing Buildings and Production Efficiency programs that were subject to the faster feedback method of assessing market effects. The majority of the savings in those programs came from large customers whom often are involved in multiple transactions with Energy Trust, and are subject to repeated interviews.
- Seventeen percent of all 2015 electric savings came from the Efficient Products program. Most of those savings came from lighting measures, where, as discussed above, the market is moving fast and it is difficult to collect current baseline efficiency data.

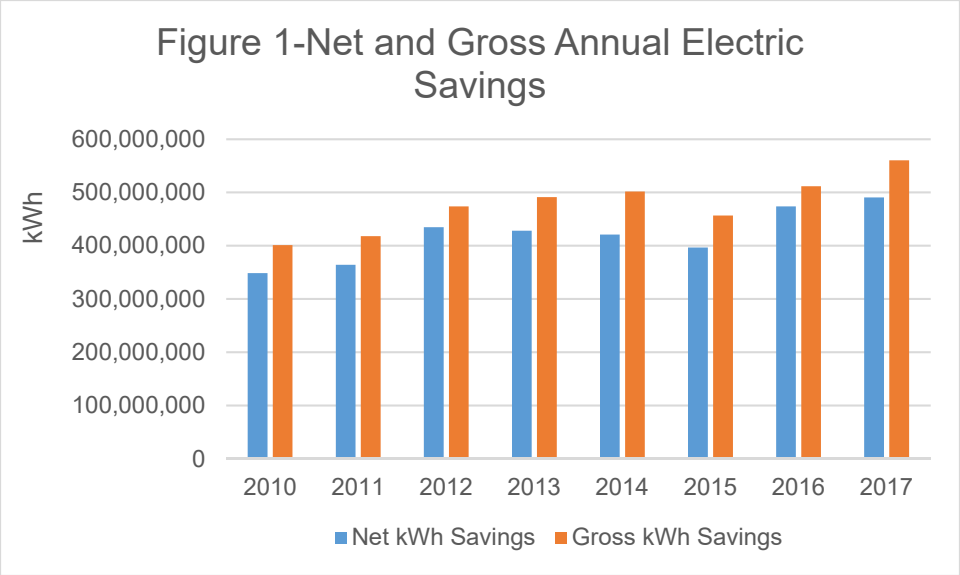
While these are not the only examples of where the new issues cited above are complicating the estimation of Energy Trust's influence, they are sufficient to show that this has become more difficult for a large proportion of Energy Trust's annual savings.

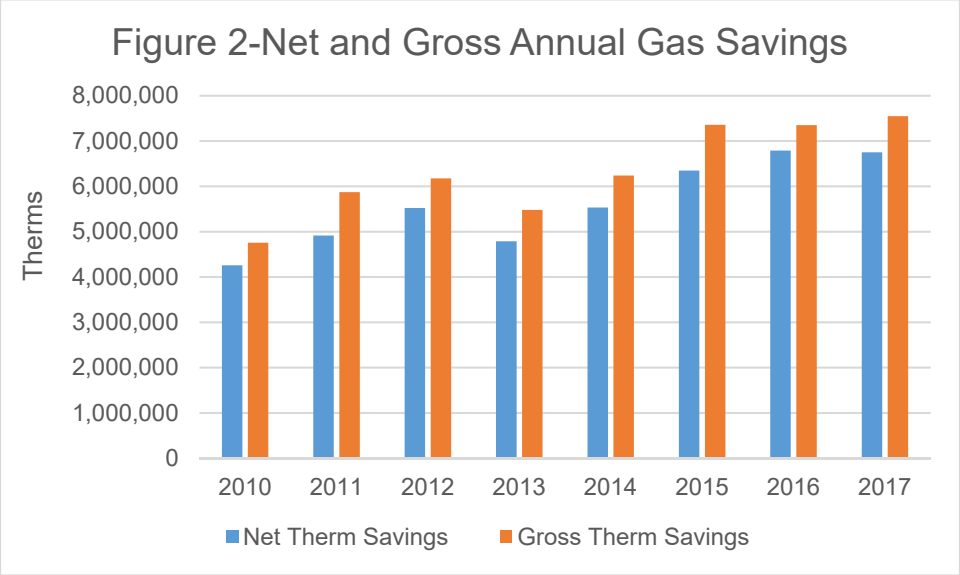
TABLE 1. SAVINGS IN 2015 ADDRESSED BY VARIOUS MARKET EFFECTS APPROACHES

	Efficient Equipment in Baseline	Faster Feedback	Market Transformation	No Market Effects Assumed
Electric savings	27%	41%	32%	0.2%
Gas Savings	19%	50%	31%	0.04%

Figure 1 and Figure 2 show the difference over time between net and gross savings. While there are larger and smaller differences for individual programs, overall, the net savings are between 7 and 17 percent lower. To be clear, the difference is savings that occurred, but would have likely occurred in the absence of Energy Trust's program assistance.

[11] A much larger share of Energy Trust savings is from these groups, but it is not always feasible to distinguish these customers when adjusting savings.





6. WHAT DO OTHER JURISDICTIONS DO?

A 2014 survey of all U.S. states by the American Council for an Energy Efficient Economy found that:

- In roughly a quarter of states, program providers reported gross savings.
- In the majority of states, program providers reported net savings using simplistic methods, often using assumed or deemed estimates of free riders.

- A small number of states reported used more sophisticated techniques, with some incorporating spillover or market transformation.[12]

Jurisdictions that use gross savings often use a frozen efficiency forecast for their baseline. Gross savings estimates are layered onto this forecast to provide an accounting of loads remaining after all efficiency is considered, without double counting.

Most Northwest utilities use gross savings for goals and reporting, because public power goals and Washington investor-owned utility goals are tied to the Northwest Power Plan, which employs gross savings. Pacific Power also employs gross savings.

Northwest utilities do not commonly claim spillover, in part because of the difficulty of developing affordable and reliable estimates. California's commission in 2015 allowed utilities to apply a 5% portfolio wide adjustment to savings that includes spillover as well as market transformation.[13]

7. HOW HAS ENERGY TRUST MANAGED THESE ISSUES?

Energy Trust has addressed the difficulties with evaluating net savings with these strategies:

- Energy Trust selects a strategy, between faster feedback, market studies and market transformation framework approaches, based on the relevance and prospects of success in the specific market.
- Energy Trust does not calculate free riders in markets where there was clearly no efficient product in the market or negligible sales prior to promotion by Energy Trust and/or NEEA. For example, in the Northwest, air and duct sealing measures for homes had a very low market share before programs promoted them.
- Energy Trust assumes that free riders do not occur in markets where programs have enabled multiple advances in codes and standards - such as new homes and new buildings. In these cases, we assume that without programs, the market would have advanced much more slowly, and the current generation of measures would not be in common use. This gets tricky when new homes and new buildings incorporate measures that are achieving common market acceptance, such as LED lighting.
- Additionally, Energy Trust assumes that free riders and spillover are negligible in moderate- and low-income existing homes, because of limited access to capital.
- Energy Trust has assumed that there are no free riders for mega-projects, because the process of developing those projects has included justification that the project would likely not go forward without Energy Trust's help.

8. OPTIONS FOR CHANGE

There are two overall options: continue to set goals and report in net savings, or switch to gross savings. For each, this paper provides several specific strategies. For net savings, the strategies propose ways to manage the issues discussed in this paper. For gross savings, the strategies offer choices for what savings to include. No matter what decision is made, Energy Trust will continue research to understand program influence on customer actions, and will

[12] Martin Kushler, Seth Nowak and Patti Witte, Examining the Net Savings Issue: A National Survey of State Policies and Practices in the Evaluation of Ratepayer-Funded Energy Efficiency Programs, ACEEE, report number U1401, January, 2014

[13] Decision Approving 2013-2014 Energy Efficiency Programs and Budgets (D. 12-11-015), California Public Utilities Commission,, November 8, 2012.

make decisions that maximize the benefits of efficiency programs. Table 2 summarizes the options and strategies that are further discussed in the text below.

TABLE 2. OPTIONS FOR MODIFYING USE OF MARKET EFFECTS IN ENERGY TRUST GOALS AND REPORTING

	STRATEGY	ADVANTAGES	DISADVANTAGES
Option 1: Report Net Savings			
Strategy A	Status quo	No adjustments	All the problems cited in this paper continue
Strategy B	Simplify by accepting circumstantial evidence of attribution	We can reach a conclusion when interviews can't tell us	Requires more application of judgment
Strategy C	Simplify by using deemed net-to-gross adjustment	Reduces effort and process	Less credible; market effects may drift from deemed value over time
Option 2: Report gross savings			
Strategy D	Report gross savings for resource acquisition programs and market transformation savings for MT programs	Simplifies analysis for resource acquisition programs; accounts for market transformation	When free riders and spillover are out of balance, may overstate or understate program effects
Strategy E	Like D, but also include spillover for resource acquisition programs	Reports on all savings associated with Energy Trust programs and initiatives	Where free riders are large, may overstate savings

Option 1: Continue to plan and report based on net savings

Strategy A: Status quo. Strategy A in Table 2 is to continue on our current course, with modest process improvements, leaving all the issues cited in this paper unaddressed.

Strategy B: Accept circumstantial evidence of attribution in situations where direct customer statements are infeasible. This strategy keeps the same requirements for goal setting, reporting and cost-effectiveness analysis, but reduces requirements of evidence of attribution.

In situations where collecting direct customer statements to estimate Energy Trust influence is problematic, savings may still be counted if the following conditions apply:

- A clear set of market barriers is shown to impede efficiency
- The program clearly addresses those barriers
- Customers buy efficient products or adapt efficient practices at increasing rates

This approach might be useful to address markets where direct attribution based on survey responses will not work, e.g., where we work upstream, in fast-moving markets and in multi-

party markets. Energy Trust would still ask customers about Energy Trust influence to assess net savings in markets and situations where this was practical.

Strategy C: Deem spillover, or deem both spillover and free riders. To “deem” means to use an assumed numerical factor. Strategy C proposes that we use historical evidence of net-to-gross to declare, or “deem”, a net-to-gross factor without further research.

One example of how another jurisdiction addresses this (previously mentioned above) comes from California. That state’s regulators have deemed a 5% spillover estimate for all programs. There were many studies, but limited quantitative evidence to support the numbers. Energy Trust could follow suit, or provide deemed numbers for both spillover *and* free ridership for all programs. This allows for some accounting of market effects to adjust total savings in a simplified way. There are several variants on this approach.

One variant would be, instead of picking a number like 5%, to use a weighted average of recent gross-to-net adjustments from programs. If we did this, we could use separate gas and electric numbers, as the measures and evaluated market effects are significantly different. Since we would not continue net-to-gross research at a level of effort suitable for adjusting claimed savings, these estimates would remain indefinitely.

The main advantage of this approach is that it avoids efforts to squeeze more precision out of ongoing attribution research. The main negative is that the estimates may become stale and not relevant over time. It also reduces the incentive for programs to manage to maximize market impact by maximizing spillover and minimizing free riders, because there would be no measurement to show these benefits.

OPTION 2: PLAN AND REPORT BASED ON GROSS SAVINGS

Strategy D. Report gross savings for market transformation programs. Continue to count market transformation savings where applicable. This would considerably simplify Energy Trust reporting, but may reduce confidence in the quantification of the efficiency resource for some stakeholders. While this is a concern, the approach appears to be working successfully in most of the Northwest. The underlying premise is that for many resource acquisition programs the considerable effort to estimate net savings does not significantly improve the aggregate portfolio-wide estimate of savings. Gross savings overestimate net savings sometimes (because of free riders) and underestimate other times (because of spillover). Furthermore, the total savings in the market may be the most useful thing to know for load forecasting and integrated resource planning purposes.

The approach to integrated resource planning could follow precedents set in Washington, by the Northwest Power and Conservation Council and by Pacific Power. We would apply all efficiency to a load forecast where efficiency levels are frozen at those for existing practices, building codes and equipment efficiency standards.

Why include use of the market transformation approach where appropriate? This savings estimation approach is applied extensively by NEEA, and the estimates of savings are well-accepted in the region. To estimate all market transformation without considering market effects seems like a contradictory concept, as the programs and measurement are built around market change.

Gross savings estimates require estimates of baseline efficiency to compare to efficiency measures. Currently, Energy Trust updates baseline efficiency annually where changes occur. The Power Council updates baseline every five years. We think that annual updates are still appropriate when there are significant market changes to keep Energy Trust in synch with markets and with IRP forecasts. These are intended to reflect current market conditions. Energy Trust works with several utilities each year on IRPs.

On the negative side, the key purpose of savings reported by Energy Trust is to show the value we provide for Oregonians. With gross savings, that connection will become slightly less direct. We will be reporting on savings we touched, plus any market transformation savings, assuming that is a close approximation to the estimate of savings we caused. If we keep baselines current, and still apply a rigorous analysis to assess whether program investments are prudent, this difference may not be large.

Another negative is that this approach does not report on spillover, so it is not a complete accounting of savings engaged by or influenced by the programs.

Under this, like all other options, Energy Trust proposes that we would continue to assess the influence of programs on customer actions, to help Energy Trust decide when to change or discontinue incentives and other assistance. Doing this without using the data to quantify market effect has the advantage that it may be able to rely more directly on less precise data to make decisions. This will allow the use of more diverse and immediate information. It has a joined-at-the-hip disadvantage: it is more difficult to set a standard for judgment transparently and consistently based on qualitative data. It may be more difficult to show that we balanced the pressure to continue programs to meet goals with the need to spend ratepayer money wisely.

Strategy E: Report gross savings plus spillover and market transformation. This differs from Strategy D in that we would count spillover for markets where we do not analyze market transformation. This provides all savings directly or indirectly related to a program.

Like Strategy D, this would best complement a frozen efficiency load forecast to avoid double-counting. The main advantage is simplicity and clarity - this is everything we touched. This provides IRP with the most complete view of efficiency engaged by or influenced by programs. One added disadvantage is that this estimate, by including spillover but not deducting free riders, may be viewed as unbalanced.

Another negative; neither options D nor E provide load forecasters with a complete view of efficiency; there is market-driven efficiency and efficiency from codes and standards that are not influenced by Energy Trust and NEEA programs that are excluded from this accounting. Energy Trust sometimes has information on market-driven efficiency and codes and standards because it is important to estimating the efficiency resource. Energy Trust shares this information with utilities when there is an opportunity. For example, the transition currently underway of most business and residential lighting to LEDs will profoundly influence utility lighting loads in the next several years. While Energy Trust programs are helping to accelerate this transition, a significant share will occur outside of programs. Through NEEA, Energy Trust is working to track overall market share of LED products and is experimenting with ways to incorporate that information in deployment scenarios provided for utility resource planning.

9. RECOMMENDATION

Energy Trust staff recommends that, beginning in 2019 planning for 2020 we establish goals and report against gross savings. This reflects our belief that the amount of useful information that Energy Trust can collect about net savings is diminishing, and options to improve the information are likely to have marginal benefits. We believe that the success of most of the Northwest in working with gross savings indicates that the issues surrounding this change are surmountable. Moreover, we believe that by assessing program influence qualitatively in the process of making program decisions, we will use the information we have on markets in a way more appropriate to its nature.

The recommendation to delay the shift until 2020 provides time to think through changes to tracking systems, goals and IRP integration. A 2020 start also coincides with Energy Trust's strategic planning cycle, which will provide for clear five-year goals.

We further recommend Strategy E, where gross savings are reported including spillover and market transformation. This provides the most complete report of savings that Energy Trust engaged in or influenced. If this is done, we recommend continuing with the relatively modest estimates of spillover that Energy Trust uses, and not investing large resources in the difficult enterprise of improving spillover estimates. The differences from Strategy D are moderate, and either strategy would be a positive change.

If the OPUC decides to stick with net savings, we strongly recommend Strategy B as a way to work with the available data on attribution.

10. IF WE REPORT GROSS SAVINGS, HOW WILL INFORMATION BE USED DIFFERENTLY?

The three primary uses of Energy Trust net savings are (1) to set goals and track progress against our goals, (2) to provide forecast and reported savings that can be factored into utility integrated resource plans, and (3) as a signal to programs to indicate which initiatives have greater or lesser market influence.

Goal-setting and reporting would be similar to now, but simpler. The transition would be significant; changes would be required to tracking systems, goals, and planning numbers. It would be important for each utility that funds Energy Trust programs to consider how they can best incorporate Energy Trust savings estimates with load forecasts. Some utilities may need to adjustment load forecasts or savings estimates.

11. PLANNING FOR PROGRAM TRANSITIONS IN THE ABSENCE OF NET SAVINGS ESTIMATES

If Energy Trust is to set goals and report in terms of gross savings, it is important that we continue to examine whether specific product efficiency incentives are useful and when they should stop. Today, program managers regularly reassess the need for incentives, guided by: the level and relative value of the savings, the utility cost test, market response, utility and trade ally feedback, shifting baselines, evaluations, comparison to other service territories and multi-year trends in free riders.

While the trend in cost-effectiveness is the most obvious and critical driver in any examination of whether and how much to support a measure, we also look for reinforcing and aligning

information from these other sources to identify when and how to change incentive levels, delivery mechanisms and/or exit strategies. In practice, the trend in free riders estimates has rarely been the key driver in the set of considerations. It is almost always one of the other factors that drives a change or an end to a measure, and does so before the free-rider trend is at a certain and sizable level. Switching to gross savings decouples free rider data from the savings estimate, but does not change any of the other important considerations noted above.

In a net savings calculation, if free rider estimates increase, the contribution of a measure toward goals decreases. If Energy Trust reports results as reported as gross savings, this mathematical feedback disappears. However, the issues that program managers face in deciding when to revise or discontinue a measure offering and its stream of savings remains essentially the same. The decision is more explicitly based on the other factors. These factors have historically carried more weight in influencing the decision. Energy Trust will bring this information forward in a systematic way to signal changes needed to begin exiting markets. The most significant change will be to bring this question forward sooner than we have in the past.

As part of this proposal, Energy Trust will develop a set of general market milestones or trigger points that first signal the need to consider exiting or re-directing a measure. Development of these criteria would be achieved as a separate, follow-on exercise after a measure is reviewed in the development process. Program staff will establish the metrics. They will include various market fundamentals that drive individual measures, including but not limited to: measure cost, changes in savings or baseline, market share, geographic differences, participation rates and other market signals unique to the measure. The scale of the criteria would match the significance of the measure to a program and its relative uptake in a market.

When we have more complete market experience with a measure or we have other information that a measure is shifting (e.g., evaluations, standards, manufacturing practices, etc.) the state of the market relative to these expected trigger points and milestones would be examined and reported as part of the budget review processes. This could be done once every three years but potentially more frequently for significant measures in dynamic circumstances, in line with the current measure review efforts for such measure as the current residential LED market.

In developing and applying these considerations a decision to amend, target or narrow a particular measure, as opposed to making a decision to exit the measure, is likely to be a frequent outcome.

Such a market check-in process would include the following elements:

- Define when a market exit plan is needed, and the review process for the measure
    - Decision process: once the indicators show a potential opportunity to exit, lay out how Energy Trust will decide and who will be consulted
- What will be tracked, in addition to cost-effectiveness and baseline conditions, to define continued support for a measure
    - Criteria for exit, with market indicators and conditions
- What are the possible triggers or other considerations for continued support
    - Other factors that may be important in the decision, e.g., vendor relationships, customer engagement to market other products, market stability
- Documentation and notification plan

Having these elements in place in advance of a decision point will narrow the scope of later discussions and make the decision-making more transparent and credible.

12. NEXT STEPS

This proposal should be discussed with the evaluation and policy committees of the board, with utilities, with the OPUC staff and commissioners, with the Board as a whole, with the Conservation Advisory Council and with other stakeholders.