

Renewable Energy Advisory Council Meeting Notes

Wednesday, August 1, 2018

Attending from the council

Bruce Barney, Portland General Electric
Kendra Hubbard, Oregon Solar Energy
Industries Association
Alexia Kelly, Electric Capital Management
Suzanne Leta, SunPower
Patty Satkiewicz, Pacific Power
James Valdez, Spark Northwest

JP Batmale, Oregon Public Utility
Commission
Adam Schultz, Oregon Department of
Energy
Anna Kim, Oregon Public Utility
Commission
Dick Wanderscheid, Bonneville
Environmental Foundation

Attending from Energy Trust

Mike Bailey
Shelly Carlton
Sarah Castor
Amber Cole
Michael Colgrove
Chris Crockett
Hannah Cruz
Phil Degens
Andy Eiden
Emily Findley
Matt Getchell
Fred Gordon

Jackie Goss
Jeni Hall
Betsy Kauffman
Dave McClelland
Spencer Moersfelder
Dave Moldal
Lizzie Rubado
Zach Sippel
Cameron Starr
Mariah Willis
Lily Xu

Others attending

Josh Keeling, Portland General Electric
Alan Meyer, Energy Trust Board of Directors

Executive Summary:

1. Welcome, introductions, announcements:
 - o Staff introduced several new Renewable Energy Advisory Council members
 - o Update on RAC field trip scheduled for Tuesday, September 4
2. PGE distributed resources update:
 - o Josh Keeling of PGE presented current utility developments and planning for distributed resources. Josh helps manage new product development in PGE's Customer Energy Solutions group. He has worked in various roles at PGE including smart grid strategies, electric vehicles, internet of things and storage.

1. Welcome, introductions, announcements

Jed Jorgensen called the meeting to order at 10:33 a.m. The agenda, notes and presentation materials area available on Energy Trust's website at: <https://www.energytrust.org/about/public-meetings/renewable-energy-advisory-council-meetings/>.

Jed discussed logistics for a field trip for Renewable Energy Advisory Council members on September 4 in Hood River. He also provided an update on the Secretary of State performance audit of the OPUC's oversight of Energy Trust, which concluded with a report made public at the end of June and now posted on Energy Trust's website.

JP Batmale: It's a compliment to Energy Trust, how they've been working transparently for 15 years. The Secretary of State was very fair and Energy trust complied with their requests in a timely fashion.

2. Portland General Electric distributed resources update

Josh Keeling of PGE presented current utility developments and planning for distributed resources. Josh helps manage new product development in PGE's Customer Energy Solutions group.

Josh Keeling described the unique position of PGE. Energy Trust does the bedrock of work on energy efficiency while PGE's focus is distributed flexibility and capacity resources and transportation. Flexibility will be a bigger focus in near term.

He went on to describe a deep de-carbonization study (available on PGE's website), which is an energy economy-wide study to look at possible scenarios to meet 80 percent reduction by 2050. Gigawatts of energy will be needed to meet demand. The study looked at a few scenarios including high electrification, decarbonized electric fuel and high distributed energy resources. This was not a planning study, but a scenario analysis looking at bulk power systems.

James Valdez: Is it economy-wide, looking at transportation and building heating use as well?
Josh Keeling: It does not include landfill emissions or agricultural. It does rely somewhat on the feed stock.

Josh Keeling said the study was done by Evolved Energy Research, who also did a study in Washington State. What motivated it was the capacity constraints and how we meet those under current conditions, and city and county resolutions on how to achieve targets that look economy-wide. PGE wants to integrate this analytically into its IRP process, not just on the policy side.

Josh Keeling moved on to discuss balancing solutions, stating there is a need for flexibility in the system, and flexible loads and energy storage play a large role. It was noted that hydropower systems have potential to function as a battery. None of the resources are able to be dispatched short of the electric fuel scenario.

Josh Keeling continued, explaining the scenario is modeled so you don't take any abilities away from the customer. They don't have to forego electric vehicle charging or hot water, and they are just shifting available capacity, giving room to move energy a lot more often. What's doing the most is electric water heating and electric vehicle charging, with commercial HVAC in a distant third. You see a lot less with thermostats because their thermal storage is less.

Josh Keeling described PGE's distributed energy resource portfolio and a list of cross-cutting initiatives that were approved or near-approved.

Suzanne Leta: What do you define as flexible load? Would solar plus storage be considered a flexible load?

Josh Keeling: I think it is, because it's net load. The power council's definition would qualify it that way because it's behind the meter and affecting customers' net load. From a utility perspective, load is at the meter. If you took battery storage on other side of the meter, probably not. A smart inverter would also qualify in that way. From a business model, that's how it would be expressed.

Lizzie Rubado: Can you clarify the opposite position, which is the perspective that solar and storage is not considered to be a flexible load?

Josh Keeling: Some see it as a generation resource. Is a battery system more like a bulk power system or more like a load? What's a meaningful way to describe and operate the system? Looking at the technology or the business model?

Josh Keeling continued that with energy storage, the line between operations and planning is blurry. This is also where things differ from traditional demand-side management and renewable energy because the flexible assets have to be operated. Rather than providing value passively, you have to create and maintain customer relationships, similar to strategic energy management programs.

Josh Keeling described the farther-out initiatives such as Virtual Power Plant, stating that conversations about these topics are getting more traction compared with past years.

Suzanne Leta: Is this distributed energy resource potential study a complement to what was already done with the deep decarbonization study?

Josh Keeling: The deep decarbonization study focused on the 2050 horizon and meeting carbon reduction requirements. On the other side, this is looking at every distributed energy resource to see what is feasible and how they interact with each other in various scenarios. In the past, we studied these resources independently of each other, but now we're looking at possible interconnections. For example, default time-of-use rates might affect how people dispatch batteries.

Suzanne: When will that happen?

Josh: It will come out in public workshop at end of this month with preliminary results, looking at both existing and potential assets.

Josh Keeling moved on to the renewables portfolio slide.

Cameron Starr: How does the thermostat direct installation program work?

Josh Keeling: The direct installation program will kick off in September in collaboration with Energy Trust. Energy Trust is exploring other options for efficiency purposes. The initial pilot focused on customers with heat pumps and electric furnace systems, which is also an underserved market. We front load the incentive combining energy efficiency and demand response savings, at no cost to the customer.

Kendra Hubbard: What is the residential pricing program?

Josh Keeling: We did a pilot on residential pricing testing 12 different treatments using control trials.

Josh Keeling said the evaluation was done by Cadmus and is available. California has done time-of-use studies, but most are summer focused whereas we have all seasons. This is the first example of having that much data on dual season flexibility. Winter is very hard, and there are major differences in how people respond. We also had an all-time summer peak and a snowstorm. We learned how models break down when it snows in Portland. We came away

with a lot of scientific data, and you can tease out the impact of demand response on customer satisfaction in very specific ways.

Suzanne Leta: Is your plan to propose voluntary rate design options?

Josh Keeling: No, it will be opt-out programs. We will propose a testbed program of 20,000 customers enrolled in an opt-out peak-time rebate program. We know it's cost-effective and does not hurt satisfaction. We're more interested in the interactions that need to still be hashed out. Do you do it with rate design, programs or a combination? This will happen in April 2019 targeted at certain substations.

Josh Keeling continued with near-term efforts regarding a new construction program involving solar-ready, storage-ready, grid-interactive end uses for new homes, with new buildings to come later.

Anna Kim: What is the time frame for response?

Josh Keeling: For aggregate flexible load resources? We have resources in our stack that can respond to signal, and our demand response management system and can integrate into the energy imbalance market technically. Now it's more likely to offset thermal resources. You can play with portfolio in more or less risky ways. That's how we use demand response now. Our resources vary in responsiveness to 10 minutes to 4-18 hours. Customers get differential rates. Most customers get 4 hours.

Anna Kim: How much lead time?

Josh Keeling: Four hours. For water heaters, one to four seconds. For thermostats, four hours. A couple are day-ahead. Pricing is day-ahead. We're exploring the possibility of going four hours. We have a multifamily water heater program where we retrofit whole facilities and work with entire properties. They have switches. We do demand resource that's always on with individualized customer baseline forecast that customizes curtailment to ensure they never run out. You get less load, but you get it all the time. There are no restrictions with how you dispatch it if you maintain a level of service. It increases property value and alerts on maintenance issues. Most programs have familiar technology and then get customers on board, but with this we don't know as much. The technology is very complicated and we set up local area networks. Customer satisfaction is high, and there is a lot of potential for energy imbalance market use cases. There are not Wi-Fi reliability issues because multifamily is so condensed. We're catching new construction opportunities.

Josh Keeling continued with energy storage initiatives.

Kendra Hubbard: For batteries, is there a reason that you collect data or do demand response? How are they chosen?

Josh Keeling: There are many areas of learning. There's a difference between the purpose of the pilot and the value of the resource. The pilot is about demonstrating how we use and operationalize resources, the customer response to the business model, how trade allies respond, interaction with Energy Trust and finding out what demographics are using the programs. Value-wise, it's about capacity and value stacking. We want to make sure we're building a foundation for 10 years from now when we need all-the-time flexibility.

Alan Meyer: Our charter is energy conservation, not efficiency. Your focus is capacity. When the legislation was written, that wasn't a concern. We have parallel paths, but would it be useful to converge so we can look at capacity more? Some capacity resources use more energy but there is a benefit to the system. Is there benefit in looking at that?

Josh Keeling: You can look at capacity now. It's a component of evaluations from the cost standpoint. There's a difference between capacity and flexibility. It makes sense for a utility to deploy operational assets. I don't think we always have to be the same type of organization to work well together, like how you work with Northwest Energy Efficiency Alliance.

Josh Keeling introduced the idea that distributed flexibility is the new generation, with virtual power plant and pervasive distribution value.

Fred Gordon: Regarding the word pervasive, do you see distributed value as something that will occur by exception, or will it significantly vary on most points of delivery?

Josh Keeling: The best distributed value is what we're doing on Fire Station One solar and storage project by minimizing backflow on the network. It's not what we think about as deferral, but it's a serious restriction on system. Don't think about deploying in reaction to an issue; make sure you're ready for the unknown and you're switching it on. For example, with the solar inverter, we should have anticipated the need for better controls, as opposed to retrofitting a smart inverter. There was a lot of pushback from finance folks to do it another way, but that's unwise.

James Valdez: How are you looking to address equity issues in deployment, making sure the opportunity to participate isn't locked in to homeowners and people with access?

Josh Keeling: Flexible load programs don't have high capital outlay. You don't have to do anything to access those, which is a big reason for doing direct installation programs. If we wanted to provide the most thermostats, direct shipping is a better way. We didn't pursue that first because we wanted to adjust to the reality of benefit to more affluent home owners. We don't want programs solely populated by these people. Direct installation is appealing because the target we were missing are people with electric heat who tend to be low income. We can address capital outlay for them. You can put smart thermostats in rental properties. It's easy to do. That's a reason we're focusing there. There are better opportunities in how we structure incentives for energy storage and flexible loads to address high capital costs. Everyone doing demand response programs does monthly payments as an ongoing incentive. Could you structure that to frontload incentives with some type of agreement? Implicitly that's what we're doing with direct installation, but there are other opportunities. It's not on the bill; you can split incentives between property owners and tenants. You have that liberty, and that's good for dealing with split incentive issues more directly.

3. Public comment

There was no public comment.

4. Adjourn

The meeting adjourned at 11:58 a.m. so that members could take part in a joint Renewable Energy Advisory Council and Conservation Advisory Council session on Energy Trust's strategic plan. The next scheduled meeting of the Renewable Energy Advisory Council will be Friday, September 14, 2018.

Renewable Energy Advisory Council and Conservation Advisory Council Joint Session: 2020-2024 Strategic Plan Development

Prior to the meeting, members of the Conservation Advisory Council and Renewable Energy Advisory Council met with staff working on development of the 2020-2024 Strategic Plan. The joint meeting included an interactive discussion on Energy Trust's unique strengths and value to the marketplace.

Facilitator Holly Valkama opened the session and John Volkman introduced the process for developing Energy Trust's 2020-2024 Strategic Plan. Compared with past plans, which have focused largely on quantitative energy goals, the strategic plan in development will consider qualitative goals as well. The planning process will incorporate a staged approach to develop various components of the plan.

Renewable Energy Advisory Council and Conservation Advisory Council members contributed to the first stage of the strategic planning process by participating in an exercise to revise a draft "strengths and capabilities map" about Energy Trust. John reviewed a preliminary map of strengths with the group, which included scale, credibility, design and execution, and innovation. The members gathered in small groups to discuss the map and report feedback and recommended changes.

Some groups proposed additional strengths such as money management, nonprofit status, transparency, customer satisfaction and Energy Trust's key position in an ecosystem of other clean energy-focused organizations. Other groups wanted to qualify strengths or discuss how they might evolve over the course of the strategic plan. For example, a few groups called out innovation and credibility as characteristics that should be considered in context and may take on new meaning over time.

A revised map incorporating the members input will be provided to the councils before the October Conservation Advisory Council and Renewable Energy Advisory Council meetings.