

## Renewable Energy Advisory Council Meeting Notes

Wednesday, June 20, 2018

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### Attending from the council

Erik Anderson, Pacific Power  
Bruce Barney, PGE  
Meghan Craig, OSEIA  
Alexia Kelly, Electric Capital Management  
Dugan Mariel, SunPower (for Suzanne Leta)

Patty Satkowicz, Pacific Power  
James Valdez, Spark Northwest  
Frank Vignola, University of Oregon  
Seth Wiggins, Oregon Public Utility Commission (for JP Batmale)

### Attending from Energy Trust

Mike Colgrove  
Hannah Cruz  
Andy Eiden  
Emily Findley  
Matt Getchell  
Jeni Hall  
Betsy Kauffman  
Dave McClelland  
Debbie Menashe

Dave Moldal  
Joshua Reed  
Lizzie Rubado  
Zach Sippel  
Rachel Wilson  
Robert Wylie  
Lily Xu

### Others attending

Dan Bihn, Bihn Communications  
Kelcey Brown, Pacific Power  
Thomas Farringer, EC Company  
Ernesto Fonseca, Energy Trust board member  
Teyent Gossa, PGE

### Executive Summary:

- Solar update:
  - Dave McClelland presented a status update on installation and incentive processing from the applications received in 2017 during the state Residential Energy Tax Credit closeout and Energy Trust incentive update in 2018.
- Update on Energy Trust's strategic planning process:
  - Hannah Cruz and Debbie Menashe presented an update on the timeline, process and plans for engaging RAC in the development of Energy Trust's 2020-2024 Strategic Plan.
- What we can learn from Japan about resilient power systems:
  - Dan Bihn presented on what the Pacific Northwest can learn from Japan's earthquake and recovery to make our electrical infrastructure more resilient.
- Energy Imbalance Market (EIM) overview:
  - Kelcey Brown from Pacific Power and Teyent Gossa from Portland General Electric presented information on their participation in the Western EIM and the implications for energy markets in the near future.

## 1. Welcome, introductions, announcements

Dave Moldal called the meeting to order at 9:32 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/>

## 2. Solar update

Dave McClelland presented a status update on installations and incentive processing from the applications received in 2017 during the state Residential Energy Tax Credit (RETC) closeout and Energy Trust incentive uptake in 2018.

Dave reviewed the status of the RETC close-out applications, stating 80 to 90 percent of projects made the deadline. There are 144 projects that missed the deadline, which Energy Trust is following up with.

Bruce Barney: Can you confirm the 144 projects are active on your side, but not active with RETC anymore?

Dave McClelland: That's right. Some we paid in previous years, so there are projects we paid last year but did not close out their RETC. We aren't sure what happened with those. Others we paid earlier this year. If we receive the RETC withdrawal notification we let them move forward at the current incentive rate, which is higher. We also still have about 450 projects that made the RETC cut that we still need to verify, and we will continue to close those out.

Dave continued by describing recovery of residential solar activity. He presented a chart of solar volume by month, showing volume is up to 80 percent of 2017, which has implications for Energy Trust's 2018 budget.

Dave McClelland: Does anyone from the solar industry want to comment?

Thomas Farringer: I can't speak for residential, unfortunately.

Dave continued with the 2018 outlook, expected volume and non-residential volume.

Thomas Farringer: Do you track 1.5 percent solar status on any of these?

Dave McClelland: Good question. We do, but I can't tell you offhand.

Jeni Hall: We don't have the data split that way. We do work with 1.5 percent projects, and they often go for the grant. It's safe to say there are a few in there.

Thomas Farringer: I know on the residential side you track if it's a third-party owned project. Is there a reason for not collecting 1.5 percent data?

Dave McClelland: The Oregon Department of Energy has a report to track 1.5 percent projects, which we could compare to our data. It hasn't been a priority, but we can definitely do that.

Dave continued with the pathway for Energy Trust and utility grants. PGE's Renewable Development Fund (RDF) and Pacific Power's Blue Sky grants are now eligible for Solar Development Assistance (SDA) incentives to support more robust design work upfront, leading to better grant applications. The projects are also eligible for installation incentives at 75 percent of the currently-available standard rates.

Erik Anderson: Is there any different treatment for incentive reservation?

Dave McClelland: The reason for providing 75 percent of the standard incentive is that it's reserving next year's incentive. We're letting them come in the door for next year's incentive pool now. That is a long time to hold those funds, but the tradeoff is that it's a lower incentive. If

a large number of projects come back and cancel, we may have to re-evaluate the offer, but the hope is that they are higher quality projects and most will move forward.

Dugan Mariel: Who can apply for solar development assistance?

Dave McClelland: Nonprofit entities as well as for-profit entities. For-profits need to get a special allowance from the OPUC. Is that correct?

Erik Anderson: Yes, we have to get OPUC approval, but this hasn't happened yet.

Frank Vignola: What percentage of projects that apply for grants are selected?

Erik Anderson: It varies every year by the application pool, the price of Renewable Energy Certificates (RECs) and what money is left over. It's quite a bit of money, but there are many projects that don't get accepted. Do you have any real numbers on RDF?

Bruce Barney: No.

Frank Vignola: What's the percentage?

Erik Anderson: It's about 70 percent.

Bruce Barney: It's more than 50 percent at PGE.

Dave McClelland: We bring very intensive design review to these projects as well as on-site verification. We are happy to partner with the utilities.

Betsy Kauffman: It's also worth noting that these projects don't qualify for federal investment tax credits.

Dave McClelland: One metric of success is that last year, they only received 12 applications, and this year received more than 20.

Dave continued with progress on 2018 priorities, including a recent upgrade to a new version of PowerClerk software for the program's online incentive application processing.

Bruce Barney: This is of interest. We are very close to signing on with PowerClerk.

Dave McClelland: That's the dream, to have net metering and incentive application processes fully integrated.

Dave McClelland concluded the presentation with 2018 priorities, including a new area of focus on low and moderate income strategies and higher-value solar installations that incorporate controls and storage.

Dave Moldal made an announcement about transitions in the council, stating that board member John Reynolds has retired from RAC and the board of directors. He introduced Ernesto Fonseca, a new Energy Trust board member, to the group and gave a brief overview of his background. Ernesto spoke further about his background as an architect practicing green building design, explaining that a desire to be out in the community changed his focus to applying energy efficiency to affordable housing. He described an example of the challenges of cooling costs in Arizona, stating families may pay \$300-400 month in energy bills. A study showed that families were using strategies like unplugging all their appliances when they went to work and only using a swamp cooler at night to combat energy costs, compromising thermal comfort to save money. Ernesto emphasized there are a number of factors to make houses affordable beyond efficiency, and he aims to help achieve this through technology.

### **3. Update on Energy Trust's strategic planning process**

Energy Trust has begun work on its next five-year strategic plan. The strategic planning process will involve input from the Renewable Energy Advisory Council and Conservation Advisory Council over the next year. Hannah Cruz and Debbie Menashe presented a brief update on progress to the current 2015-2019 Strategic Plan, provided highlights on the strategic planning discussions that took place at the board of director's annual strategic

planning workshop in May and provided a high-level draft of the upcoming strategic planning development process. All materials related to the current plan and development of the upcoming plan are available online at [www.energytrust.org/strategicplan](http://www.energytrust.org/strategicplan).

Frank Vignola: Energy Trust has a recognizable name around the state, even in Eugene.  
Debbie: That was a lot of the message from the OPUC at the May workshop.

Debbie explained the role of RAC and CAC in helping board members and staff develop the 2020-2024 Strategic Plan and the schedule for engagement starting in August.

#### **4. What we can learn from resilient power systems**

Before the presentation began, Dave introduced Alexia Kelley, a new RAC member from Electric Capital Management who had recently joined the meeting.

Dan Bihn presented on what the Pacific Northwest can learn from Japan's earthquake and recovery to make electrical infrastructure more resilient. The presentation covered background on Japan's energy usage prior to the disaster, the effects of the earthquake and tsunami and recovery efforts in the aftermath, which lead to many innovations and new practices. He also discussed how lessons learned can be applied to Oregon's resiliency planning, especially grid modernization and the ability to access California renewables.

Ernesto Fonseca: I want to hear your thoughts on how you compare this disaster to Puerto Rico. Compared with fairly quick recovery in Japan, six months later there are still blackouts and shortages there. Mexican and American companies have been over there assisting, but they are still not able to get everything back online.

Dan Binh: After the earthquake, tsunami and meltdowns of 2011, Japan faced a year-long electric power shortage. Their only choice was to ration power, initially through rolling-blackouts and then by months of disruptive, enforced conservation. Since then, Japan has enthusiastically moved to more tightly integrate supply and demand in near-real-time, creating a grid that is more resilient, more renewable and more efficient. In Puerto Rico, it was a problem when the load doesn't know there is a supply issue. There are electric loads running that don't need to be on, and that contributes to overloading the grid.

Bruce Barney: I was recently at a conference where they discussed electric school buses, and the two things that everyone asked for were the ability to drive up and plug in USB cords to the vehicle and the ability to drive up to power a traffic signal during a grid outage.

Dan Binh: I hadn't thought of that as a use for EVs.

Betsy Kauffman: In Japan, since it was a peak problem rather than overall use problem, was anything done to educate citizens about the difference between peak and overall usage? The idea would be to avoid having people turning off their air conditioning at night when it didn't have an impact on the problem.

Dan Binh: They didn't. The story was not told to the people at all. The communications people didn't understand that the problem was about peak, rather than total usage or capacity.

Lizzie Rubado: If they had an economic signal, everything would have been easier. Back when people paid for long distance, everyone knew about evening and weekend pricing. It was expected that only critical business would be done during the day.

Dan Binh: Japan deregulated the retail relationship to allow utilities to providing pricing signals to customers. Before, they weren't communicating the value of behavior changes to the consumer.

Andy Eiden: In the northwest, what are the differences and challenges to getting smart infrastructure in place?

Dan Binh: Motivation is the challenge. When you see 20,000 people die, you're open to a lot of new ideas, but what is the wakeup call for us and who's going to pay for it? We need to start using cheap California renewables. There is an opportunity to get what we need from buying California power, but there are institutional barriers. We could wait for a big disaster, but California's throwing away solar and it could be an opportunity for us. We need flexibility to use renewables in order to be resilient in those scenarios.

## **5. Energy Imbalance Market overview**

Kelcey Brown from Pacific Power and Teyent Gossa from Portland General Electric presented information on their participation in the Western EIM and the implications for energy markets in the near future.

Kelcey and Teyent provided background on their utilities' experiences with EIM. Kelcey played a video showing an imbalance market overview for Pacific Power and stated that the main goals of this strategy are cost-effectiveness and providing the best rates for customers. EIM uses regional diversity as a way to address intermittency and align balancing areas, which previously operated independently. Pacific Power has seen \$135 million in benefits through the expansion of the Energy Imbalance Market. PGE has seen \$2.3 million in benefits. However, PGE has a much smaller territory and a limited amount of transmission compared to Pacific Power. EIM provides fuel savings for the utility, since it takes pressure off systems to ramp up or down in the case of events such as "micro-bursts" of wind energy.

Frank Vignola: Is most of what you're backing off gas? If you have a fast, big ramp, is that mostly gas or can you address it with coal?

Kelcey Brown: We have a 45 MW ramp rate, and we can move our coal plants 125 MW every five minutes. Gas plants have 25 MW ramp rate per minute. Hydro has 40 MW per minute ramp rate.

Teyent Gossa: You have to look at capability as well.

Dan Binh: You talk about down-ramping. The other side is up-ramping your load.

Kelcey Brown: Do you mean demand response?

Dan Binh: Yes.

Kelcey Brown: The greatest benefit we receive is in the spring. We earn very little in the summer due to our capacity need and additional generation over the peak. In spring, solar and hydro are very high. This system is the most valuable because we have a massive amount of coal plants and they're the best at ramping down. We can schedule our resources to follow that ramp more effectively than a wind resource. Coal plants have very low minimums for operating.

Kelcey continued discussing the responsiveness of coal and increased flexibility provided by the ability to operate coal plants at minimum, down to 5 percent of peak output. In comparison, gas plants lack flexibility because they don't have a large moveable range (they can only be ramped down to 50 percent of peak). Utilities have to nominate gas from the pipeline a day ahead, which still needs to be used even if demand is lower than expected.

Fred Gordon: Are there efficiency penalties for operating that low? Like fuel efficiency?

Kelcey Brown: You are at a less efficient heat rate. You are also only operating at 10 MW versus 200 MW at peak, so the inefficiency is relatively small comparatively.

Teyent Gossa: In the old days, we focused on efficiency, but now that efficiency value is much cheaper compared to the benefit you're getting from EIM.

Dan Binh: Are there emission implications on that ramping?

Kelcey Brown: We've had dramatic emissions reductions. We have capacity requirements, and everything is governed by regulations. Operators have had to work through some issues, but they can tune their boilers to stay in standards and achieve our ramping requests. Now, we move the unit output up and down much more. Another benefit has been the reduction of coal slag accumulations. Slag is particulate matter in the boiler that's not expendable and accumulates on tubes, causing leaks. The coal boilers are hung from girders and don't attach to the floor to allow for thermal expansion. The rigid steel poles accumulate slag as coal is fed into the boiler. Because we are moving the output of the unit up and down, it's expanding and contracting more and we no longer have slag buildup. We have not seen increased maintenance issues, but we're still looking at it. Overall, the plant operators are excited by the challenge.

Lizzie Rubado: It seems like you sustained enormous savings. You're utilizing more renewables and generating less emissions, and it's making money. So, does that mean more is better? Is there more capacity to increase savings and decrease carbon by bringing on more renewables?

Teyent Gossa: Even before we joined EIM in the spring, we shut down the majority of plants. For PGE, we can't say something similar because sometimes we have a large capacity of hydropower we don't fill up, so we import through Pacific Power. We started pushing our water operation to the evenings, which helps us manage fish passage requirements. We are trading between renewable and renewable.

Lizzie Rubado: PGE and PAC are sending a market signal that renewables are preferred and profitable, yet continue to lower QF prices. This seems incompatible. The low QF rates seem to send a "don't build" renewables signal.

Betsy Kauffman: You are saving money.

Kelcey Brown: It's not a don't-build signal, but it is interrelated. For example, using coal costs at \$14 per MWh. As you build more renewables, the utility should only pay the fuel costs you're avoiding. Our customers shouldn't have to pay more than \$14 per MWh. Otherwise, why build it? Why should they pay more than what they can get today?

Betsy Kauffman: It's saving you \$135 million.

Kelcey Brown: That savings is built into our avoided cost rates.

Fred Gordon: You are deferring capacity.

Kelcey Brown: In terms of power prices, it's always dependent on the marginal unit. If this is the cheapest unit, prices would be \$14 per MWh. Every resource that produced energy would be paid that for the additional energy it provided. That's why power prices have come down so much. New renewables are offsetting cheaper thermal resources. We were able to decommission the expensive gas plant. Now, as you have cheaper and cheaper resources you're avoiding, the next megawatt to produce is cheap, so the avoided cost is lower. Your cost is determined by the next marginal unit. You have to beat out some of our cheaper units for customers not to be impacted or pay more than they would normally.

Kelcey Brown: When you get up to peak, you're in the gas plant.

Andy Eiden: I think that the PJM market offers the highest market clearing price to the remainder of the resources in the auction. So for example, a coal plant bids in at the highest prices and then wind is cheaper but still gets the higher price. Is that a difference between these two markets? How does that fit?

Kelcey Brown: EIM is a day ahead market, whereas PJM has two markets. They have a market set up on a day-ahead basis, and they have resource adequacy requirements. Within that footprint, for PJM, they look for peak next year and make sure they have capacity. They developed a capacity market, but every market is different. The California ISO put it at the load-

serving entity level for four utilities. Each of those has to go out and procure for their allotted capacity on a year-ahead basis. The marginal cost is the clearing price. EIM doesn't do day-ahead. It's hour-ahead, and that's why it can be more challenging for utilities that don't have flexibility on their units. When they set up on a day-ahead basis, they are scheduling it to fill in as the load comes up. They can only move gas units down to minimums and can't take them off.

Teyent Gossa: For PGE, as we were seeing a renewables push, we built storage so we didn't have that constraint to manage. There are multiple parts to coordinate.

Frank Vignola: How important is forecasting for wind and solar?

Kelcey Brown: It's extremely important for us, and also for California. For them, it's important because it's over half of supply in certain times.

The presentation continued with a discussion of battery storage.

Seth Wiggins: Is EIM constrained by transmission?

Kelcey Brown: It uses available transmission. Pacific Power has the most connections, and we are interconnected with everyone on Pacific Power west. We can import up to 2800 MW total between Pacific Power west and east. This ability isn't necessarily solely tied to transmission. In the summer, Pacific Power west operates on schedules, not flow. Pacific Power west could schedule 600 MW, but when power is cheap, they can flow it backwards into Pacific Power east. Instead of sending 600MW, they can keep that and take the other 600. We can use the transmission capacity, but also the schedules. If California didn't forecast well, but if we hit transmission capacity, Pacific Power gets to send 0.

Seth Wiggins: Have capacities been hit so far?

Kelcey Brown: We hit them every day. We do hit transmission constraints quite a bit, and we'd love to take more of California's power. There are also diminishing returns. It's becoming more challenging, so demand response is going to become more important. For example, the Cool Keeper program can provide 250 MW by cycling off customers' air-conditioning units for 15 minutes each hour over four hours. We are also using that for frequency response. If there's a frequency event, we will cycle our air-conditioning load.

## **6. Public comment**

There was no public comment.

## **7. Adjourn**

The meeting adjourned at 12:11 p.m. The next scheduled meeting of the Renewable Energy Advisory Council will be Wednesday, August 1, 2018.