Renewable Energy Advisory Council Meeting Notes

September 7, 2016

Attending from the council:
Bruce Barney, Portland General Electric
JP Batmale, Oregon Public Utility Commission
Suzanne Leta-Liou, SunPower
Michael O'Brien, Renewable Northwest
Frank Vignola, Solar Monitoring, University of Oregon
Dick Wanderscheid, Bonneville Environmental Foundation
Peter Weisberg, The Climate Trust

Attending from Energy Trust:
Mike Colgrove
Matt Getchell
Fred Gordon
Jeni Hall
Mia Hart
Jed Jorgensen
Betsy Kauffman
Dave McClelland
Dave Moldal
Joshua Reed
Lizzie Rubado
Kenji Spielman
Peter West

Others attending:
Erik Anderson, Pacific Power
Margaret Hodes, Solar City
Caroline Moore, Pacific Power
John Reynolds, Energy Trust board
Adam Schultz, Oregon Department of Energy
Matt Shane, Oregonians for Renewable Energy Progress
Robin Rabiroff

1. Welcome and introductions

Betsy Kauffman convened the meeting at 9:30 a.m. The agenda, notes and presentation materials are available on Energy Trust's website at: www.energytrust.org/About/public-meetings/REACouncil.aspx.

2. Welcome new executive director

Mike Colgrove, executive director, introduced himself and provided an overview of his background and experience. Mike joined Energy Trust after 15 years with the New York State Energy Research and Development Authority where he was both the director of the New York City office and director of multifamily programs. He has extensive experience in designing, developing and implementing energy efficiency programs that help to accelerate broad market adoption of clean energy solutions.

Suzanne Leta-Liou: What convinced you to take the job as executive director? What is your vision for Energy Trust?
Mike: Energy Trust has a reputation of good work, and the alignment with NEEA, regulatory entities, utilities and stakeholders was very attractive. There are opportunities to continue building on this success, and I would like to see Oregon and the Pacific Northwest become the nation's poster child for energy efficiency and renewable energy.

Dick Wanderscheid: New York is ahead of the curve in demand response and resiliency. How do you see your experience at NYSERDA supporting Oregon as we move toward this vision?
Mike: Capacity and demand are issues in New York, and the state has an established approach to demand response, storage and distributed energy. As those topics become more important in

Oregon with climate change and housing pattern shifts, I can apply my experience in system peaks and capacity issues from New York here in Oregon.

Michael O'Brien: What are the biggest challenges you see in the energy industry?
Mike: The biggest challenges I see relate to demand response, including electric vehicles, natural market transformation such as in the lighting market, and the future role of solar. There are big opportunities with these challenges. I'm interested in how we can reach out to more markets across the state in deeper ways, and do so in a way that's cost-effective.

Lizzie Rubado: Having been through Hurricane Sandy, how did you see priorities change?
Mike: Hurricane Sandy was a turning point in New York as people repositioned around increasing resiliency. NYSERDA's mission is focused on energy, so we worked to overlay resiliency with that mission as energy became a higher priority for the state. NYSERDA broadened program design by finding a new role within the more comprehensive approach to climate change and resiliency.

3. Presentation from Solar City

Margaret Hodes, Solar City, provided an overview of on the company's research on non-wire alternatives for improving grid operational efficiency. Solar City is working on several projects in other states to develop a more dynamic, flexible grid. Its goal is to transition the current grid to be built on distributed energy resources like solar, battery storage and intelligent devices to make the grid clean, resilient and affordable. Solar City proposes modernizing grid planning by moving toward integrated distribution planning.

> Distributed energy resources can decrease the amount of idle power on the grid, and can be aggregated into a distributed energy resource portfolio to inform grid services, like flexible ramping, dynamic capacity, voltage and reactive power, and contingency support.
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> Additionally, solar can unlock additional value in conservation voltage reduction (CVR) programs. CVR lowers the overall voltage by requiring less energy at the source, and can lower overall voltage even further with solar.

Bruce Barney: The results shown in the voltage graphic for the CVR study on distributed solar look dramatic.
Margaret: The diagram is meant to be illustrative and does not represent true results.
Bruce: Did you study the impacts of cloud cover? Does the voltage level revert to the utility CVR curve?
Margaret: There are two approaches. There's a dynamic CVR program in place where the amount of voltage reduction can be adjusted. Also, we assume there's a margin of error and it would be in the band of compliance.

Suzanne: Can you clarify what the savings and benefits are for this study?
Margaret: Savings are one to three per kilowatt hour of PV installed at customer sites. The benefits are shared by all consumers within a particular service territory.

Michael: If there's a power purchase agreement and if you are changing the power factor, how do customers see the benefit of the grid services?
Margaret: We would compensate the customer on the front or back end. On the front end, the customer signs up and we evaluate how the customer is impacted. Or we provide compensation for participating on the back end.

Fred Gordon: What is the connection for customers providing demand management resources? Can the generation be dispatched?
Margaret: Demand management resources can be integrated into our control platform. We look at the resources the utility has already invested in and evaluate how to expand those resources.

JP Batmale: What investment is made by the utility for integrated distribution planning, automating hosting capacity and developing operation data?
Margaret: Automating hosting capacity analysis requires utility investment. Operational data can be more accessible with a portal or even organized in a CSV file.

Suzanne: Another resource related to this topic is a webinar from Smart Electric Power Association on the value of distributed energy resources for utilities.

4. 2017 draft budget action plans
Staff presented the 2017 draft budget action plans for the renewable energy sector, including Solar and Other Renewables programs.

Betsy provided a high level overview of budget themes for the sector, including flexibility to manage uncertainty in policies and changing programs while proactively addressing resulting impacts on the budget. Irrigation modernization and biopower provide a solid foundation that we will continue to build on. Some new initiatives include beginning to look at solar and storage, deploying renewables for locational value to the grid and increasing the value of trade allies.

Jed Jorgensen summarized 2017 activities for the Other Renewables program. The strategy is to continue with existing offerings and strategies, focusing efforts on projects that offset on-site load or leverage additional benefits, such as anaerobic digestion at wastewater treatment plants and irrigation modernization at irrigation districts. New initiatives include evaluating the performance of past projects that reached commercial operation and continuing customer relationships to ensure ratepayers receive the highest value from installed projects. We're also pursing net-zero opportunities at rural wastewater treatment plants.

Bruce: Will you evaluate the performance of biopower projects primarily or hydropower as well?
Jed: There's room for improvement for both project types, but to a lesser extent for hydropower.

JP: Have you put together a cohort like on industrial side? How do you control for staff time?
Jed: Last year, we held an operations and maintenance workshop for anaerobic digestion at wastewater treatment plants. That included existing project operators and potential project proponents. We've looked at similar ideas for hydropower. As far as staff time, we're really just starting this effort and we're exploring the potential for our involvement. We are releasing a request for qualifications in the next week to identify consultants who can do some of this evaluation work and report back to us on the kinds of opportunities that are available.

JP: What are the repowering opportunities to help increase the pipeline of hydropower projects? Would you develop eligibility requirements for splitting costs, like with the Opal Springs project?
Jed: Repowering opportunities are low. There are just not a lot of projects like that. Regarding how we look at costs, we will separate out costs and benefits to the extent practical, like with irrigation modernization projects.

Michael O'Brien: Are you planning for anticipated changes?
Jed: We anticipate above market costs will rise and overall costs will decrease, but we can't foresee or control that landscape.

Frank Vignola: What percentage of hydropower opportunities have you reached?
Jed: To date, 14 irrigation districts have enrolled for irrigation modernization and another 10 are expected to enroll in 2017. There are more than 200 irrigation districts in Oregon, but we started by reaching out to the largest districts. There's still huge potential for hydropower.

Suzanne: Are you considering doing an analysis of the market potential for solar and biopower for net-zero wastewater treatment plants?
Jed: Not yet. It is a small universe of potential projects, so it is straightforward to walk through the opportunities. We've been focused for a long time on larger facilities. Looking at solar allows us to look at the smallest facilities in a new way, such as the Wallowa Wastewater Treatment Plant, which is net-zero with a 60-kilowatt solar system.

Dave McClelland summarized 2017 activities in the Solar program. There is significant policy and market uncertainty over the next two years. New initiatives in 2017 include a solar and storage pilot with PGE and exploring how to expand participation to low- and mid-income customers. Along with the Clean Energy States Alliance, other state incentive programs and state agencies, the program applied for a grant through the U.S. Department of Energy to support this effort to expand participation. The outcome of this grant is expected in Q4 2016.

> Due to uncertainties in the solar market, we are assuming business as usual for budgeting purposes, but planning for flexibility and change. Considerations for 2017 include possible net metering policy changes and expiration of the Residential Energy Tax Credit at the end of 2017, which we think will drive activity. The budget does not presume a direct role in the community solar program, but we are ready to provide expertise and play a role as appropriate.

Robin Rabiroff: Can you expand on the impact of the Residential Energy Tax Credit expiring and how the program will respond?
Dave: We are seeing growth in the residential solar market through 2017 regardless, and we would need to discuss the longer-term implications of the tax credit expiration when the outcome of the legislative session is clear next year.
Betsy: If the tax credit is not extended, we would discuss with Renewable Energy Advisory Council. For budgeting purposes, we are just trying to build in flexibility if that should happen.

Suzanne: I realize that it's not Energy Trust's role to lobby, but there is a role to provide information about potential policy changes and their impact on the budget. Have you put together different scenario analyses for policy changes to plan for program impacts?
Dave: Yes, we're working with the Oregon Public Utility Commission to look at above market costs and possible scenarios over the next three years.
JP: Energy Trust provided key data analyses for the OPUC to develop the draft solar report. We have been relying on Energy Trust to respond to stakeholders. We expect legislators to be asking for data during legislative session, and Energy Trust is prepared to provide expertise.
Jed: This is similar to when the Business Energy Tax Credits were set to expire. The Residential Energy Tax Credit is a much bigger portion of system costs than our incentive.

5. Public comment
There was no additional public comment.

6. Meeting adjournment
The meeting adjourned at 11:30. The next Renewable Energy Advisory Council meeting is scheduled on October 21, 2016 from 9:30 a.m. to 11:30 a.m.