RENEWABLE ENERGY ADVISORY COUNCIL
Notes from meeting on November 17, 2010

Attending from the Council:
Eric Chung, Pacific Power
Megan Decker, Renewable Northwest Project
Troy Gagliano, enXco
Thor Hinckley, Portland General Electric
Jeff King, NW Power and Conservation Council
Glenn Montgomery, OSEIA
Moshrek Sobhy, Oregon Public Utility Commission
Frank Vignola, University of Oregon

Attending from Energy Trust:
Doug Boleyn
Kacia Brockman
Amber Cole
Fred Gordon
Margie Harris
Jed Jorgensen
Betsy Kauffman
Darrin Kite
David McClelland
Elaine Prause
Thad Roth
Lizzie Rubado
Sue Meyer Sample
John Volkman
Peter West

Others attending:
Diane Broad, Ecofys
Theresa Gibney, Corvallis Energy Challenge
Diane Henkels, coastal interest
Andrew Koyaanisqatsi, Solar Energy Solutions
Don MacOdrum, solar advocate
Jean Murray, Solar Oregon
John Reynolds, University of Oregon and Energy Trust board of directors
Imogen Taylor, member of the public
Dick Wanderscherd, BEF

1. Welcome and introductions

Betsy Kauffman called the meeting to order at 9:30 a.m. Everyone introduced themselves. The minutes from October were approved and the November agenda was accepted.

Betsy noted this is the last RAC meeting for the year and thanked RAC members for their service. Betsy reviewed staffing changes. Lizzie Rubado has been hired to replace Erin Johnston. Betsy officially welcomed Lizzie to the RAC in her new position. Kacia noted that Lizzie's former position is open to applications through Friday.

Betsy announced a new member of the RAC coming on board in January: Jason Busch, executive director of the Oregon Wave Energy Trust. Betsy explained that Jason has told Energy Trust that his organization wants wave energy wants to be a part of the portfolio of renewable power options, and he wishes to better understand what kinds of successes and challenges other renewable energy technologies are facing.

2. Year-end program reports

Kacia Brockman, Betsy and Thad Roth provided year-end updates on the Solar, Other Renewables and Biomass programs. All gave oral summaries of written documents that are attached. As there were no questions about their summaries, the written documents are sufficient for the record.

3. Results of BPA telemetry study for distributed resources

Diane Broad with Ecofys presented the results of a study to reduce the costs of telemetry equipment required for projects interconnecting as qualified facilities above 3 megawatts in capacity.

Project purpose

Any generation source needs to be monitored by the power system operator. An increasing number of small generators are connecting to the grid. There was a large variation in how these generators were expected to communicate with utilities. There is now a more uniform way due to statewide interconnection rules (AR521). This study got traction in the region and funding from BPA because we think it will lower some of the costs and barriers to interconnection. The project started in 2008, and wrapped up in June 2010.

Project scope

Study staff interviewed control center operators and defined system requirements for both hardware and software. Demonstration sites were picked—three photovoltaic, one hydro and one wind. The wind site has not yet actually been tested.

Diane explained where telemetry information comes from, how it is transferred and where it is stored. The basic data being transferred includes: an on-off signal, how many kilowatts are being put out, how many kVars are being put out and a heartbeat signal. Typically there are more data points, including status of transmission infrastructure in the way.

The project designed the hardware and software design for the demonstration sites and tested different methods for transmitting the data: Ethernet radio, wireless radio, fiber-optic, digital telemetry, etc.

The project identified the need for transmitting forecasting and scheduling data for these kinds of projects. The demonstration systems can also do this. For example, PaTu Wind would like to use this system for automatic power scheduling. Power scheduling is currently done manually, and this system would allow for automation.

All data transmitted was tagged and grouped according to WECC standards. The BPA control center was impressed with quality of the data and they had no problem integrating it. Feedback was that this data was much easier to integrate than data coming in through current SCADA systems.

All utilities were concerned about potential data latency. The demonstrations concluded that the latency of the telemetry designs were less than 300ms, which is well within WECC reliability criteria of less than four seconds.

Customer benefits

The tested systems are less expensive and provide opportunity to do competitive bidding for the hardware (than if they had to use the standard package currently required). In the long term as interconnection agreements expire, utilities can require telemetry, so it is important to have cost-effective solutions. Two hundred MW of projects with BPA don't have telemetry now.

Questions

Eric Chung: Who is best of breed, in terms of utilities, for using this kind of telemetry system?
Diane: PGE has a top notch system. Texas has some good systems. Texas made a real effort early on to have standardized rules and procedures on interconnection. PGE is definitely a leader.

John Reynolds: The equipment you demonstrated will change over time…hardware will get smaller. What is the ultimate smallest distributed generation project we would care about in the future?
Diane: Smaller than 1 MW isn't even monitored. The real push-pull I saw when everyone was in the room (utility, generators, PUC) was cost and time to implement. I'm not sure the small generator community wants to back off on the 3 MW cut-off right now. If we saw costs really come down and time get shorter, we could monitor smaller projects.

Jeff King: This is a monitoring system, not a control system. Correct?
Diane: PGE can control with its systems. But the study did not focus on controls. It could be used in this way too.
Jeff: Does that substantially increase the cost?
Diane: No. Utilities like to have redundant systems in place. So when we had conversations about using this for control, the response was "sure, we can use this for control, but we'd still want to have transfer-trip systems in place, too." Confidence in the system would need to be earned.

Glenn Montgomery: Are there current telemetry requirements for projects of this size?
Diane: Yes, for projects above 3 MW.
Glenn: How might this be integrated with BPA's rate case and would it create an argument for a solar tariff?
Diane: There are extensive historical databases available, but I'm not aware that this integration is happening.

Betsy: What I'm hearing is that the $200,000 system is not necessary. You could use a $40,000 interconnection system.
Diane: Correct.
Betsy: How will this information be distributed so projects can take advantage of this knowledge?
Diane: I don't know of an organized way, but word of mouth is working now and people are asking their utility. If the utility says no and requests the standard interconnection package, they can go back to the AR521 rule language that says a utility has to be "open to other approaches."

Frank Vignola: These systems require that the internet be working.
Diane: Correct.
Frank: So if somebody tries to impact the internet that would affect this system.
Diane: You are asking about uptime. PGE has had this type of system in place now for 10 years. As part of the contract for this type of service, you are guaranteed availability. So it is different from the connection to your house.

Frank: Will costs come down?
Diane: Hardware costs will come down. There are human costs for programming, but as modules become standardized, some of these costs will come down.

4. Biopower project

Thad presented on a City of Medford Wastewater Treatment Plant cogeneration project that has applied to Energy Trust and which staff considers promising.

Thad said this is a simple and great project, but it has gotten caught in the uncertainty around the Business Energy Tax Credit. In this presentation, staff hopes to show how that Business Energy Tax Credit uncertainty may impact this project and costs to Energy Trust.

Overview of the City of Medford Wastewater Treatment Plant
Capacity: 20 million gallons daily, (City of Portland is 70 million gallons daily by comparison)
The plant was constructed in 1969, and serves the majority of the population in Rogue Valley.

Medford has co-gen experience. The current generator came on-line in 1989. The engine on the generator is 35 years old now (bought used in 1989). There are impurities in the methane produced by the system, which has to do with what goes into the system (the wastewater). Hydrogen sulfide and siloxanes are issues. Siloxanes are additives to personal care products and are also used as industrial cleaning agents; the chemical is detrimental to engine systems. No gas cleaning here means more engine wear. The system sits idle with a limited run time because it exceeds permitted emission limits.

The City of Medford came to Energy Trust and asked for help with a feasibility study. The results led the city to conclude they should replace the existing engine with a larger capacity engine. Then they came back three months ago and began discussions around applying for incentives from Energy Trust to replace the engine with 750 kW engine and install gas conditioning equipment to remove moisture and siloxanes.

Financial picture
Capital costs are approximately $3 million. Annual operating expenses are $135,000 per year. Annual revenues are about $315,000. They applied for the first round of the Tier 2 Business Energy Tax Credit applications but were unsuccessful so they are reapplying. The new application for the Business Energy Tax Credit requests an $804,000 pass-through payment, this is less than the total they qualify for under the rules.

Above market cost:

- With a Business Energy Tax Credit, the above market cost is about $450,000 with a conservative rate of return of 5 percent. This is not a risky project. The program has budgeted to cover this cost.
- Without a Business Energy Tax Credit, the above market costs rise to about $1.25 million. Energy Trust cannot cover this cost.

RECs: If the project gets a Business Energy Tax Credit, Energy Trust would take 70 percent of RECs—3,535 annually.

Frank: Does this count the existing generation?
Thad: This is counting the whole generation because we consider the engine a new installation (end of life of previous engine). It also qualifies as a new installation under Oregon RPS guidelines.

Next steps
The program is waiting for the Business Energy Tax Credit decision. That will drive final negotiations with the City of Medford. Staff would like to go to the board for approval in December.

From an emissions standpoint, this project would dramatically reduce emissions, meaning the city will not have to curtail operations in the future. New engines are much more efficient and have lower emissions.

Megan: How does the Business Energy Tax Credit pass-through work for a private developer?

Thad: City of Medford doesn't have a committed partner and they need to find one within two years. You would expect there would be appetite because the state has curtailed Business Energy Tax Credits.

5. Follow-up from discussion regarding long-term funding issues

Elaine brought back some recommendations for feedback based on the last RAC discussion on long-term funding issues. She noted there are different meeting attendees this month so she started with a recap.

Long-term funding issue
Due to funding constraints, the Renewable Energy Sector won't be able to meet its generation goals and four strategic plan objectives by 2012 if the programs continue operating business-as-usual. Therefore, the sector needs to redefine its priorities.

Elaine reviewed the proposed operating scenarios presented at the last meeting and then went over the points made in the written document (attached).

The staff recommendation is to pick scenario #2 as top priority. Margie Gardner recommended changing wording, which was included:

"Focus on early stage market and project development assistance across all technologies."

- We think it plays to our strengths and fills a market need while continuing to see projects constructed
- Scale of funding: can't fill the Business Energy Tax Credit gap with a $14 million budget; can deliver significant impact by bringing better projects to market
- Supports a range of resources, not picking winners
- Clarifies main focus but still ties to other principles

Discussion
Frank: I know that as the number of systems starts to increase you are going to run out of incentive money. You can help by reducing transaction costs related to installation, such as costs for permitting and other steps a project needs to take. You have done a lot with simplifying your paperwork, too, which brings costs down from a project perspective and makes the process more streamlined.

Andrew Koyaanisqatsi: We spend no less than eight hours on every residential installation for solar electric. Now city permitting costs are going up. I support your comments, Frank.

Megan: Finding new tools to support above market costs stands out to me. You had some ideas in your paper: working with others, revolving loan fund for construction financing, etc. Have you been working on these ideas further? Can you talk about that?

Elaine: The idea is to stretch the dollars further. If we have a pool of $3 million to $4 million for all custom renewable energy we can see which projects are ready to go and get the money out the door. The financial approach is about helping putting our incentive out sooner in the development process, and then seeing some of that come back and we could reinvest in other projects. We still need to understand if this is attractive for projects. We are working on a pilot now for two projects and we'll have a better sense in a year.

Megan: If this approach causes you to be more creative, that is a good outcome.

Thor Hinckley: Who are you working with in the team approach?

Elaine: Potentially utilities, foundations, etc.

Thor: Seems like you would need to have policies around this to set expectations. For example, the Clean Wind funding has various requirements.

Betsy: I think that would be a case-by-case approach, depending on the potential partners, but you are right, there may be policy issues.

Eric: This seems like a nice robust approach for the long term because it helps you maintain levers. How are you thinking about forward-looking governance? If you have five parts of the framework, who will help guide it?

Elaine: The RAC would help do this.

Eric: Would you look at the percentages of the buckets on a yearly basis?

Betsy: This would get reflected in our budgets and strategic plans that are approved on a yearly basis. I suspect there would be check-ins with the RAC more frequently. Also there would be discussion with the Oregon Public Utility Commission.

Megan: What level of oversight does the OPUC have?

Elaine: We haven't gone to the OPUC yet, but that would definitely be something we need to do. Different assumptions were in play when we established our current programs—the Business Energy Tax Credit for example. We'll have to discuss a process for goal adjustment.

Peter West: The goal will need to get changed and the commission is aware of that. What that goal will be will be based on part on what comes out of this legislative session.

Troy Gagliano: With the standard incentives you are talking about $1 per watt with a cap. Would they vary by technology?

Elaine: Maintaining the solar and wind standard incentive programs is part of the plan, but we don't know exactly what the incentive rate would be right now, or exactly what portion of the budget would go that route.

Troy: Right now you have a cap in PGE and Pacific Power. This would be an extension of that, yes?

Elaine: Yes.

Betsy solicited thoughts from those not at the last RAC.

Glenn: I was in agreement with the comments of others when I looked through the notes.

Jeff King: I agree with others.

Frank: I think you are taking a good direction.

Troy: It's a tough situation. I understand where you guys are.

Next steps

- Check in with OPUC
- Reset achievable goals for 2010
- Create transition plan for each technology:
    - What services to ramp up?
    - What market studies to undertake?
    - Is internal reorganization needed?
- Define ways to optimize custom pool:
    - Map out teaming opportunities
    - Define split between standard and custom
    - Set project review criteria

Glen: About potential staff reorganization. Does the budget affect staffing levels?

Elaine: It takes people to implement option #2. So, most likely no, but we will need to revisit how we're organized to do the work.

6. Public comment

Andrew Koyaanisqatsi, the owner of Solar Energy Solutions, made comments about Solarize Portland, the new Solar Code and the solar feed-in tariff:

> The code will adversely affect the majority of installations. I don't think the solar code was a good thing for the solar industry. It will limit the size of systems. The rafter span chart was thrown in at the last minute. This is catastrophic to the solar industry. The intent is laudable, but the end result is negative.
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> Now the permitting costs will go from $99 to about $350 to $400.
>
> The high point of the year for my company was the feed-in tariff. It was a great debate. We need to be thinking about how we will keep the industry alive and thriving when the energy tax credits sunset. I would like to see a huge feed-in tariff pooling all available funds. I think there will be a gap in 2014. We'll have to keep our eye on that.
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> The real reason I am here is Solarize Portland. Three companies did really well. We didn't get any of those jobs and neither did 40 other companies. It hurt these other 40 companies substantially. I need to know what Energy Trust plans to do with Solarize. I need to know if I should advertise. I need to know if I should do marketing at the Solar Expo, Better Living Show, etc. I can't compete against the implied favoritism of the Solarize program.
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> On top of that is what I would call "solar abominations" and I can't be silent on these things. Only a certain percentage of Solarize are being inspected. [Andrew passed around photos of installations. He commented on the photos—solar in shade, solar in armpit of a chimney, other examples of solar in the shade, etc.]
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> If these things are passing Energy Trust, then we need to tell the community that these installations are acceptable. I am telling people I can't do these types of installations. All of our systems get inspected by Energy Trust, and I am stumbling on these systems and only a portion of these are getting inspected. I think the program is changing the standards in a way that Energy Trust does not want. I think Energy Trust should do an audit on all the Solarize installations in the program.

Kacia thanked Andrew for coming. Andrew says Energy Trust operates with professionalism and appreciates the open ear.

Kacia responded to some of the issues Andrew raised.

> The code will reduce the roof area. There was a significant compromise by the firefighters—they had been asking for less available roof area. Energy Trust feels that this was a success. David McClelland noted Andrews work on this.
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> Kacia agrees that the rafter standard is not what we would have like to have seen. The idea of a prescriptive path is a good one. The span was not what we had expected to see. It was more limited than the City of Portland code. There will be more discussion here.
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> Permitting costs in Portland have been subsidized and the city has decided that they need to stop the bleeding so they have raised them. Kacia said she can't speak to whether they are appropriate based on the work involved. The structural permitting is where the real costs are.
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> Solarize represented just over 50 percent of Energy Trust installations in 2010. That's huge and Andrew is right. It is a minority of companies that are doing that business. But we are also seeing that the overall market is also increasing (outside of Solarize) so there is more business for everyone. I understand that it is hard thing for the contractors, but it has also resulted in increased demand and awareness for solar overall. I don't know what to expect. We've continued to support Solarize because of its transformational success. We'll be happy to continue to work with the industry.

Andrew: As Solarize has waned, I have detected a pulse which is encouraging. But I really need to know what the plans are for 2011 so I can know if I should invest in marketing or not. So much of my plan depends on what you do.

Kacia commented that Solarize is a community effort. Energy Trust didn't recruit Solarize communities, they came to us. We don't have a marketing plan to go out and spur these.

Andrew commented that the employee approach (Columbia Sportswear) makes sense, but an entire city-wide approach doesn't.

Betsy asked and Kacia noted that there are a few more Portland neighborhood efforts.

Kacia noted that we have had to inspect more closely on some of these sites and we have turned down incentives on a few. There are some sites that passed narrowly. When a chimney is present, it would take a clear south-facing roof.

David: As we move to a feed-in tariff model, where you pay for production, you'll see more of these kinds of systems installed. It's not pretty, but customers want them. When we find a system that doesn't meet our specifications, we pull the incentives. It does happen. Our meter readings are on average, over 100% of what we expect.

Frank: The chimney present will overestimate the production of the system.

David: We are aware of that.

Andrew: Where do you take a sun chart on that chimney design?

David: We looked into that system and spent a long time discussing that.

Andrew recommending increased inspection of systems in Solarize.

7. Meeting adjournment

Betsy thanked all council members for their participation and adjourned the meeting at 12:05 p.m. The next meeting is January 12, 2011.