RENEWABLE RESOURCE ADVISORY COUNCIL
Notes from meeting on April 16, 2008

Attending from the Council:
Kyle Davis, Pacific Power
Carel DeWinkel, Oregon Department of Energy
Angus Duncan, Bonneville Environmental Foundation
Troy Gagliano, EnXco
Robert Grott, Northwest Environmental Business Council
Lori Koho, Oregon Public Utility Commission
Frank Vignola, University of Oregon

Attending from the Trust:
Peter West
Kacia Brockman
Pete Catching
Betsy Kauffman
John Volkman
Jed Jorgensen
Alan Cowan
Erin Johnston
Ben Huntington
Sue Meyer-Sample

Attending from the Board:
John Reynolds, University of Oregon

Others attending:
Adam Ward, Mr. Sun Solar
Jesse Jenkins, Renewable Northwest Project
Dick Harmon, Industrial Areas Foundation
Collin Whitehead, EnXco
Bruce Griswold, PacifiCorp
Dan Dettmer, Advanced Energy Systems
Susan Hermenet, NW Energy Efficiency Alliance
Aaron Cohen, NW Energy Efficiency Alliance
Jeff Harris, NW Energy Efficiency Alliance
Chris Crowley, Columbia Energy Partners

1. Welcome and Introductions

Peter West convened the meeting at 9:32am. Everyone in attendance introduced themselves. The agenda for the meeting was adopted without change.

2. Large-scale PV Installations

Staff have been approached by several developers proposing large PV projects (>1 MW). The 2008 budget did not include funds for additional, large projects. There are program and budget impacts to doing so, but potential benefits. Staff is seeking feedback on the pros and cons of supporting such projects.

Kacia presented on opportunity to fund large PV projects in the solar program. Staff members are seeking feedback on the pros and cons of supporting these projects.

In Pacific Power territory Energy Trust has historically been constrained in the amount of funds that can be spent. Several developers have proposed large PV projects which would deliver power directly to utilities under Qualified Facility (QF) type agreements.

When the 2008 budget was set up, no funds were allocated for large PV in Pacific Power service territory. Energy Trust made a decision to focus on core offerings: on-site, net metered solar installations. The Open Solicitation Program, which has funded some large solar projects in the

past, was closed for these projects, which are instead, directed to come through the standard solar program incentive path. A cap for the standard incentive path was set at $100,000 in Pacific Power territory. Energy Trust also launched an incentive for governments and non-profits to pursue solar applications through third-party agreements which can take advantage of the tax benefits currently available in Oregon.

As a complication, the Federal Investment Tax credit (ITC) is expected to expire at the end of 2008. That expiration has been very motivating to the solar market. Energy Trust has had to lower the government and non-profit incentive in order to manage budgetary goals. Lowering the incentive has reduced demand.

Initially, Energy Trust felt good about the decision to focus on 100kW and smaller systems after reading reports of several 2MW projects that looked like they were going to go forward without Energy Trust funding. It now appears that some of the early reports were incorrect. For very large PV projects, there quite possibly are above-market costs and these projects may need funding from Energy Trust.

Internally, there are other programs where money has freed up. The Community Wind program has been strongly impacted by the turbine shortage in the market and several projects have fallen off. The Open Solicitation Program is also likely to fall short of spending goals for 2008. It would be possible for Energy Trust to move this money into the large scale PV opportunities..

Whenever Energy Trust looks at moving money between programs goals have to be examined to understand if the organization will be spending more or less per kWh of generation. If Energy Trust moves money into the Solar Program it would likely mean spending more per kWh. This means the Renewable Resources Program would need to lower generation goals.

For this meeting, staff would like to discuss the pros and cons of moving $2.65 million into large PV projects into Pacific Power service territory.

PROS:

1. This could be way to get cheaper solar, though the power would not be as cheap as community wind.

2. There are several long-term benefits - namely distributed generation as an outcome and learning to work with the utilities on larger solar projects. Getting involved now could accelerate that experience. Energy Trust had a similar experience from working with the utilities in the wind market.

3. The expiration of the ITC is a strong motivation for projects to be built within the calendar year.

CONS:

1. This is just one more thing to spend money on.

2. This is not part of Solar Program as it is designed. These projects would support the RPS, but would not necessarily lead to increased market development.

3. There are tradeoffs in the marketplace. We could put the money into the standard solar program instead. Given the interest in the third-party agreements with governments and non-profits if could be desirable to increase the incentive for that program.

4. Replication of these larger projects could be difficult since they will also require larger funding requests in the future.

5. Solar already gets a big chunk of the Renewable Resources budget. Should Energy Trust bank the money for other projects in future years through other resources?

6. Energy Trust does not know if there are better economies of scale with large PV installations set up with QF agreements rather than as net metered installations.

7. There is a risk that Energy Trust may be too late. If the organization opens up to a fair market solicitation it will add delays and projects may not be completed by the end of the year.

8. These types of projects could become viable in 2009 or 2010 when ITC is expected to get extended.

If Energy Trust were to move forward, there would be some sort of short-term solicitation for bids. At the present time staff is leaning toward leaving things as they are and banking the money for the future.

Peter noted that in order to move forward with funding large PV projects, Energy Trust would have to drop some balls in the regular Solar Program due to staffing needs. There are also timing issues -- any project requiring more than $500,000 in funding would need to go to the Energy Trust Board for approval. This would need to happen at either the May 14 or June 13 board meetings.

Peter opened the floor to RAC members to ask clarifying questions.

Robert Grott wondered if Energy Trust envisioned large projects materializing when the Solar Program was limited to 100kW. Kacia responded that due to limited budget, the program strategy was to pursue funding more smaller projects rather than just a few large ones.

Peter noted that these funds could be allocated to the Biomass Program. There are lots of projects on the bubble in that program, but the general economy is also on bubble. The funds could also go back to 100kW and less solar. He also noted that Energy Trust has been banking money as projects fall off since the budget next year, based on revenue, will drop 38%.

John Reynolds asked where these solar projects would be built. Peter responded that they would be in Southern and Eastern Oregon near communities where interconnection to the utility grid is easy. There was some brief discussion about whether or not they would generate much visibility being located in rural areas.

Kyle Davis noted that the funds from the Community Wind Program would have been spent on remotely located projects anyway. He also commented that if you cannot get wind turbines then solar is more cost effective by default.

Dan Dettmer confirmed that his solar installation company has a number of government customers that would apply for 100 kW systems if the nonprofit/government incentive were reopened in the solar program, but that would need to happen soon to install in 2008.

Carel DeWinkle wondered if Energy Trust has looked at refurbished machines in the wind program. Alan said he has looked at refurbished machines for several different developments,

but they tend to be much smaller machines and hence smaller projects that need less money. In addition, those would be 2009 projects.

Troy Gagliano asked how the Utility Scale Program worked. Were there open solicitations for each project? Peter responded that all the Utility Scale projects were competitive in nature. The Community Wind and Biomass RFPs were also competitive.

Frank Vignola asked if this would be for new projects only or if projects that have already been announced would be a part of it. Peter responded that Energy Trust staff would recommend opening the solicitation to some projects that have already been announced. Energy Trust initially thought that projects at this scale did not need help, but it is turning out otherwise. Data from California show that installations are costing more than announced.

Dan noted an example project in Arlington he had seen in Oregon Business Magazine. He wondered if funds would be available for that. Peter responded affirmatively. That project and others have approached Energy Trust.

Peter asked RAC members to give their opinions on the idea.

Kyle Davis said that one of the main criticisms of Pacific Power is that they rely so heavily on utility scale wind projects. Large scale PV could diversify their mix of renewable power. He would like to see large scale PV projects built in Pacific Power service territory. He noted that the state Business Energy Tax Credit is a great incentive and that the service territory has great solar potential. He said that California is now increasing their solar incentives because press releases on large PV project costs have been wrong. He believes this is great opportunity since it is not a utility owned project coming in, but the solar market itself coming to the Energy Trust. These projects represent a new service model, since previous installations have used QF agreements and this would be a Power Purchase Agreement, so everyone will have to learn. He is not convinced that the ITC will be extended in its current form. He feels that business plans can't be based on hope, and that Pacific Power's goal is to get systems in the ground right now. He says they have been approached by different developers. One has a good business model and track record with the wind industry. He feels this is an opportunity to build that developer's expertise with PV. If Energy Trust delays there could be negative outcomes - if lower cost opportunities don't materialize Oregon could lose installations to other states. PV may also face a materials shortage. He is supportive of spending the funds. He is not too concerned about the size of the incentive or about lowering the kWh goal since Energy Trust would be helping to develop the solar market and developer expertise. Energy Trust funding might even make projects more cost effective for the utility than Community Wind. He thinks that large scale PV projects will be very cost effective in general.

Peter noted that Energy Trust has seen average costs per watt decrease, but the efficiency of developers to absorb tax credits is getting worse.

John thinks there are really good arguments on both sides. He feels the Energy Trust Board is likely to not want to carry funds over to 2009.

Lori reported on behalf of Lisa Schwartz that her preference would be for the money to go to biomass projects. Additionally, Lisa feels that local governments won't be happy with changing incentives. She doesn't buy the argument that utilities will learn anything from building these projects. She reported on behalf of OPUC Commissioner John Savage that he agrees with Lisa's comments. Lori herself only sees value in the projects if there were to be some unique benefits. Lori stated she would feel more sympathetic toward Pacific Power if the utility were to clean up

its interconnection process. She doesn't believe it is really possible to make comparisons between solar and wind developments since the RPS pushes everything along.

Kyle Davis responded that the utilities still want the cheapest MW, regardless of the RPS. If the utilities want a diverse mix of resources, projects will need incentives. Within the ≤20MW project size limit for Energy Trust, large scale PV is the second most cost effective, with the first being community wind. But community wind projects can't get turbines, so we should support large scale PV.

Frank commented that no one knows what will happen with the BETC or federal credits in 2009. He feels there is an opportunity now, so Energy Trust should fund a couple of projects for the experience and to see how things go. He agrees that the region needs to develop a balanced energy mix. He thinks it is a long slow process, but large scale PV needs to be a part of it.

Peter noted that PV has gotten the lion's share of funding over the life of the Energy Trust. He asked what the group thinks about that kind of funding diversity and wondered how large scale PV diversifies the Energy Trust in terms of PV.

Frank said that he believes you really need 10MW to be cost effective but these projects could be stepping stones toward that goal.

Angus said he has no strong feelings about what Energy Trust should do. He commented that Energy Trust would be well advised to shift more focus to solar and less to community wind. He feels community wind is not going to get more cost effective but solar will. Energy Trust should take advantage of that. Whether that is done with 1+MW systems or with smaller systems, he doesn't think Energy Trust should do that at the expense of other projects. He can't see the logic in cranking up a new program when Energy Trust has an existing solar program. He feels the argument that tax credits won't get better in next year is unlikely to be correct. On balance, he supports the staff's inclination to not change the program today. He says Energy Trust should aim for 2009 with a 1+ MW program.

Jesse agrees that the tax environment in 2009 is likely to get better. He feels the PTC is unlikely to move this year. The BETC may change. Supporting these projects would help to diversify what the Energy Trust is doing. He feels we do need experience with projects of this size and thinks Energy Trust can play a transformational role in the market. He believes this is a unique opportunity and a prime time for action. He noted that Energy Trust is not pulling funds from other programs, they are funds that aren't going anywhere. Energy Trust could find another home for the funds but this is a good opportunity.

Peter reminded the group that the Renewable Resources department will face a 38% budget cut next year, so there is an unknown opportunity cost involved in spending the funds this year.

Carel agreed that it would be good to spend the money this year. He believes it would be good to gain experience with these projects. He says that in terms of the utility experience solar is quite scalable; you don't need large scale projects to learn from. He thinks that the non-profit sector – schools and governments – need the incentive money. He also feels this would be a good opportunity for the public to learn about solar. He would like to know about staff implications if Energy Trust were to move forward.

Chris said that he sees himself as the poster boy for this discussion. He tried for 5 years to get turbines for a project in Arlington. Now he's back talking to Pacific Power about an interconnection for a 2MW solar installation in Arlington on a QF price structure. If that type of

project can work, he thinks things will really start happening in Oregon. He believes Energy Trust will see similar projects replicated in other places. He says they can't make things pencil out right now due to the income tax hit from the pass-through BETC. He says wind works on QF pricing but solar doesn't yet.

Peter commented that staff is now more deeply torn about moving forward, but more informed as well. Energy Trust will need to digest this information but will propose something soon – by the end of the week. For more thoughts, people should communicate with Kacia.

2. Green House Gas Reporting and Renewables

Virinder Singh summarized his review of the multiple proposals and approaches for lowering green house gas emissions and their implications for renewable resources. Virinder produced a report on this topic that will be available on the Energy Trust website.

Virinder began his presentation by outlining the basic types of design mechanisms that are available to regulators interested in managing greenhouse gas emissions. A cap and trade system is most likely to be implemented at the federal level in the United States and the power sector is the most likely beginning point of GHG regulations.

Under a cap and trade system there are options for who will be targeted by regulation. Current regimes have followed one of two paths: generator-based caps, or load-based caps. Both are supposed to regulate GHGs but each have different implications for renewable energy. Under either targeting system emission allowances are allocated to emitters, either through grandfathering, by auction, or by a combination of these approaches. Each approach has opponents and proponents.

GHG regulations also interact with RPS regulations and various regimes have dealt with this issue in different ways. The implication is that RECs are not automatically counted as GHG allowances.

Based on regulatory experiences, RECs are not likely to be fungible in a GHG regulatory market. However, if RECs pass all environmental benefits to the holder, then the holder has opportunity to obtain allowances in the future. There is a debate about whether REC holders can then sell the allowance with or without the rest of the REC. This issue is only important to Energy Trust if it is open to future sales of RECs.

There are also two types of emission reductions to be aware of under a cap and trade system: *direct* emission reductions and *indirect* emission reductions. Energy Trust has invested primarily in projects with indirect benefits. These types of reductions are more challenging to deal with than direct reductions because:

a. the reduction occurs elsewhere on the grid,
b. identifying the point of the reduction can be difficult,
c. avoiding double counting can be difficult as a result.

There are things that Energy Trust can do to strengthen GHG reduction claims and benefits to ratepayers now and under a GHG regulatory regime. These include contract provisions and enforcement, and using standardized GHG accounting protocols where applicable.

Virinder believes there are six important long-term considerations for the trust:

1. Energy Trust should maintain comprehensive contractual language of ownership of current and future GHG benefits (including allowances)

2. Energy Trust should be prepared for concerted enforcement of ownership provisions among host, financier, and power purchaser
3. Energy Trust should consider getting familiar with GHG accounting protocols, initially for project evaluation, and then for project accounting
4. Energy Trust should understand the benefits between Direct emissions v. Indirect emissions for certain project types.
5. Energy Trust should monitor accounting standards for small projects, and potentially get involved
6. Energy Trust should assess its strategy regarding RECs and future GHG allowances

Angus, Kyle and Jesse pointed out that the Governor's task force has been addressing these issues and as the regulatory and legislative efforts move forward the implications for Energy trust will become clearer.

3. NW Energy Efficiency Alliance Strategic Plan

Susan gave a brief presentation of the background and history of NEEA. NEEA has been around for 10 years and is focused on making the Northwest more energy efficient for the benefit of electric ratepayers. NEEA is composed of utilities, Bonneville Environmental Foundation, Energy Trust of Oregon, state entities, and advocacy groups. They are focused on market transformation. They work in the commercial, industrial, and residential sectors with the goal of trying to drive behavioral changes that will result in energy efficiency gains for the long term.

NEEA was started in 1997. The group has a $20 million annual budget and 30 staff. They serve ID, MT, WA, and OR. Energy Trust of Oregon is NEEA's second largest funder.

NEEA is currently engaged in a strategic planning process. They want to finalize the plan by Oct. 2008. After that they will be going into the next business planning cycle. That will start in early 2009. They are encouraging people to participate in their planning process. Anyone can participate online at www.nwalliance.org. There are online surveys there to provide feedback. In addition, they will host a discussion forum in May to create a regional dialog. Workshops will be held around the region. There will be a workshop in Portland on May 22 at the World Trade Center. Anyone can register and/or get additional info at their website.

Jeff presented NEEA's internal strategic Issues:

1. Should NEEA's approach to energy efficiency be more comprehensive and fuel blind?
    a. Should they include natural gas? Renewable Energy? Distributed generation?
2. Should NEEA support general educational/training efforts targeted at increasing energy efficiency programs and/or the service provider workforce?
3. Other thoughts? What do you want NEEA to do going forward?

Kyle said he is interested in seeing how improvements in communication between smart appliances and the grid can create efficiencies. He said that in California they have experienced brownouts when too many RE systems are installed in residential neighborhoods because the grid isn't sized appropriately. He says they are looking at smart ways to adjust for that rather than to just build to the maximum possible capacity. He is interested in technology that allows consumers to make choices with price signals and smart appliances that can react to grid conditions. He would like to see similar technology for renewables. Maybe NEEA could be the common link that brings Demand Side Management (DSM), distributed generation, and efficiency together? He feels we need more real world experience integrating all these things together.

Jesse feels that given NEEA's expertise it makes sense to look at distributed renewables. He thinks energy efficiency professionals may have a lot of expertise to add. He asked if NEEA sees their role as being facilitators or in funding market transformation? He thinks there is a need in the policy realm to make things easier and standardized.

Peter commented that having energy efficiency and renewable energy standards in the building codes would make a big difference.

Carel noted that thermal storage combined with DSM is a place for more research. He also noted NEEA's work on other codes with ODOE on the BETC.

Robert noted that at the strategic level, NEEA's world has shifted. LEED will leave NEEA behind if NEEA doesn't take an integrated systems approach. NEEA should find a way to deal with natural gas in integrated buildings.

Angus said that his first reaction is concern that NEEA would be diluting their focus and accumulated expertise on Energy Efficiency if they change course. That said, he thinks there are a few places where we don't have tools yet on integrated design for the residential sector. He would discourage NEEA from going into areas that are already being served. Instead, he would like to see NEEA bring new capabilities into new or underserved areas. He thinks that this is in the residential / small commercial areas and in creating training for efficiency installations.

Jesse commented that solar hot water is underserved and that it falls under the cracks without a single gas/electric utility.

John said he would like to see more emphasis on direct use solar. He feels this provides "survivability" in buildings during power outages or when other systems fail.

Carel noted that ODOE has been working at the county level to look at how to meet load needs. He thinks efficiency is an important component of that work and NEEA might also look at outreach to local governments.

Lori noted that it would be nice if the NEEA board could do more to improve communication between all the different entities that are being served, but without spending all their time communicating.

4. Meeting adjournment.
Peter adjourned the meeting at 11:57am.