RENEWABLE ENERGY ADVISORY COUNCIL
Notes from meeting on May 19, 2010

Attending from the Council:
Robert Grott, Northwest Environmental Business Council
Thor Hinckley, Portland General Electric
Suzanne Leta-Liou, Renewable NW Project
Robin Straughan, Oregon Department of Energy
Ed Kennel, Clean Energy Services

Attending from Energy Trust:
Tara Crookshank
Hannah Hacker
Jed Jorgensen
Debbie Menashe
Elaine Prause
Lizzie Rubado
John Volkman
Peter West
Erin Johnston
Thad Roth
Betsy Kauffman
Ben Huntington
David McClelland
Joe Krauss
Fred Gordon
Pete Catching

Others attending:
Michael Early, ICNU
Megan Decker, RNP
Bill Eddie, OneEnergy
Vijay Satyal, Oregon Department of Energy

1. Welcome and introductions
Betsy Kauffman called the meeting to order at 9:30 a.m. Everyone introduced themselves. The minutes from April were approved and the May agenda accepted with no changes.

2. Strategic plans for Renewable Energy programs
Betsy gave an overview of the Renewable Sector strategic plan. The sector will continue to support a range of technologies, ensuring a diverse portfolio (in terms of project size and resource mix). The plans for each program also address additional opportunities during the development of a project for which Energy Trust can offer financial assistance, expanding market opportunities (by identifying places we haven't been present and looking at new opportunities), and optimizing limited funds (as carryover funds are expected to be depleted in the next year or so, leaving approximately $14 million in annual funds available).

Biopower program
Thad Roth presented on the Biopower program's draft strategic plan and discussed immediate project opportunities, and the longer-term perspective on the biopower industry and Energy Trust's role in its development.

He said the technical potential is substantial in the industry, particularly forest woody biomass, at approximately 500 megawatts as determined from a study in 2005. Note: The study from CH2M Hill really only looked at the potential for anaerobic digestion at dairies and did not look at methane production potential at municipalities.

Inherent in biopower is the low-density energy available to capture — this is challenging for projects to be energy-only projects, and a strategy moving forward is to look at other avenues for revenue beyond energy sales. As of today, development capacity is thin but it is starting to change. Thad highlighted wastewater treatment facilities investing in co-digestion.

Thad discussed the short-term strategy and where projects would come from:

- Wastewater treatment plants — Drivers being sustainability issues facing cities, using energy efficiency and renewable energy to achieve energy independence (an example being City of Gresham's past activity and possible future project using "brown grease" for co-digestion), and additional revenue streams (offset maintenance costs and receiving a "tipping" fee).
- Food processing — Drivers being sustainability expectations set by corporate chains such as Wal-Mart, and the marketability of the co-products from anaerobic digestion.
- Agriculture — Drivers being more stringent regulations of challenging waste streams such as manure and grass straw in combination with liberal incentives at the state and federal level to support energy recovery and best practices waste management.
- Municipal solid waste — Drivers being tipping fees and selling the byproducts, such as compost material, and regulatory desire to divert the organic fraction from landfills.
- Forest products — A more challenging environment, but potentially the biggest resource as projects tend to be larger:
    - Michael Early asked about the politics surrounding this resource potential. Thad responded it can be political due to the conflicts around timber harvest levels. Economically, new projects face challenges including high cost of entry into the market, and securing long-term supply contracts, which are hard to get since more than 50 percent of Oregon timberland is federally owned. Thad said there are partnerships beginning to develop between private timberland owners and developers to address long-term access to feedstocks.

Thor Hinckley asked about the incineration of woody biomass and cited Germany's activity in this area. Thad responded there are concerns about emissions and carbon neutrality of direct combustion of woody biomass. Thad reported on the program's longer-term strategy including working with the feedstock supply chain, considering energy conversion technology (thermal conversion), increasing development capacity, and finding other products to market for co-product development (such as carbon offsets, and fiber from anaerobic digestion).

The program's five-year goal is to achieve 7.5 average megawatts at an incentive cost of $500,000 to $1.5 million per aMW (the low end being cogeneration projects and the high end being anaerobic digestion). Robert discussed the limitations of Energy Trust in the biopower industry — supporting projects that use biomass to meet thermal loads (i.e. replace fossil fuels with biomass). Thad responded that Energy Trust can be involved with these projects on the efficiency side, including fuels-for-schools (replacing old boilers) and wood pellets.

Geothermal program
Betsy presented on the Geothermal program's draft strategic plan. She summarized the current state of the industry, and mentioned the next few years as a time of learning about small lower temperature projects and tools for proving resources, and that the geothermal industry is showing increasing interest in Oregon. Betsy commented the U.S. Department of Energy is investing more grant money in learning about resource potential and extraction methods.

The areas of focus are small projects between 300 kilowatts and one MW, supporting larger projects with co-funding for studies, and potentially project funding for one project 5-10 MW in size over the next five years. The program is currently providing cost-share funding to Klamath Falls for a feasibility study.

The five-year goal is to support development of one to seven aMW of geothermal. To achieve seven aMW, the program would need to fund a project between 5-10 MW. Estimated incentive costs would be $1.5 million per aMW for small projects and $400,000 per aMW for larger projects.

Betsy commented on the challenges and risks in the geothermal industry, including a lack of organizational capacity to develop a project, high yearly expenses (operations and maintenance, water cooling) relative to the upfront costs (she noted the Business Energy Tax Credit funds upfront costs but a large amount of the expenses are ongoing), resource potential outside Energy Trust's service territory, and potential for the business model for small projects proving to be unviable.

Robert commented that the game-changer might be enhanced geothermal (dry rock), which expands the geographical scope. Betsy mentioned the US DOE is putting millions of dollars toward dry rock technology and that among the challenges facing this technology in Oregon is finding a water resource. She also said it is unlikely that an engineered geothermal project would be under 20 MW and eligible for Energy Trust funding.

Solar program
Lizzie Rubado presented on the Solar program's draft strategic plan. She commented the solar industry is going through a growth spurt right now, particularly in the residential sector. A big player currently is the third-party ownership model (the largest activity being in the commercial and public sector). However, the third-party model is facing uncertainty with the Business Energy Tax Credit and may be absorbed by the Solar Feed-in Tariff currently under development.

The program's five-year goal to generate 2-4 aMW (17-35 MW) while supporting the growth of a long-term, stable market for solar in Oregon.

Lizzie covered the program's strategy to acquire the 2-4 aMW: growing demand by addressing barriers of value perception, ensuring quality and longevity, supporting solar policy to spread Energy Trust's limited funding, adjusting delivery to a declining budget (support the growth in demand with more creative approaches), promoting participation in energy-efficiency programs and helping utilities gain experience with larger-scale solar.

Risks to the program include the unknowns surrounding the Business Energy Tax Credit and feed-in tariff (final rules could result in Energy Trust underperforming goal-wise as projects don't move forward or are siphoned away from Energy Trust's ability to be involved). Lizzie commented the most likely risk is that demand will exceed what the 2010-2014 budgets can support. She asked the council for its input on how to mitigate this risk. What can we change in the program to continue delivering support to the industry within our means? She went through different approaches under consideration.

Suzanne Leta-Liou commented that in the beginning of May, the Oregon Department of Energy had a stakeholder meeting in relation to the Business Energy Tax Credit. It was discussed at the meeting that projects with costs under $100,000 would continue to be served under a program budget of $10 million. She also said there is money left, though a small amount, to keep some larger projects moving in the next year and a half. She commented we will continue to see growth, albeit limited, in the commercial sector. She said we should exercise caution on presupposing the feed-in tariff will greatly overtake solar projects in the commercial landscape.

Peter West commented there is an expectation by the Oregon Public Utility Commission that Energy Trust is a back stop to the feed-in tariff. But there is uncertainty in what that means.

Hydropower program
Jed Jorgensen presented on the Hydropower program's draft strategic plan. He outlined the current state of the industry and mentioned that the combination of federal and state regulations, and the cost associated with navigating those regulations, compels Energy Trust to look for projects that already have existing "in-conduit" water rights. This leads to a focus on irrigation districts with potential for projects greater than one MW in capacity. The program's five-year goal is to develop 5-10 aMW of new hydropower while continuing to reduce institutional barriers to small hydro development. The hydro generation would come at an incentive cost of $500,000 to $1.5 million per aMW (the range includes the variability in piping costs). He said some projects that pipe a large segment of an irrigation district may get water savings (water that would have evaporated or been lost due to seepage and end-spill), and this can bring added financial benefit to the project.

Wind program
Erin Johnston presented on the Wind program's draft strategic plan. She presented the current state of the program as reflected by scale:

- Small scale projects (up to 100 kW) — The standard incentive is working well, most interest comes from the commercial side due to the Business Energy Tax Credit and the federal Investment Tax Credit; the program continues to host workshops for landowners who potentially have enough wind.
- Mid scale projects (100 kW – 5 MW) — Only one active developer bringing projects forward.
- Community scale projects (5 MW or greater) — Projects are in the pipeline right now and have completed resource assessments (some have completed feasibility studies). Projects also take advantage of the program's anemometer equipment incentive program.

Erin presented on the program's five-year goal of bringing online 4.7 to 7.5 aMW of new wind power, and she broke out the goal by size: Small scale projects bringing online 0.15 to 0.5 aMW at a cost of $7 million to $19 million per aMW; Mid scale projects bringing online 0.5 to 1 aMW at a cost of $4 million to $6 million per aMW; and Community scale projects bringing online 4 to 6 aMW at a cost of $0.4 million to $0.8 million per aMW. She noted the price per aMW is high for small scale projects, but price per project is low. She commented community wind projects take a longer time to develop.

Areas of focus for the program to achieve the generation goals are bringing two community wind projects already in the pipeline to fruition and continue to grow this group, targeting specific agriculture sectors for larger projects (including grass seed farmers; of which, the program currently has four applications ranging from 20 kW to 225 kW), and growing demand for small wind systems by new outreach strategies, installer training and easing permitting regulations. A risk on the community wind side is Energy Trust providing initial support for projects that end up with no above market cost or that are not completed. She commented this initial support is needed, especially the anemometer equipment incentive program, as it provides stable support for a risky time in the development of a project. Plus, Energy Trust is motivated to keep projects moving forward, and one can't know what will pencil out at the end for the project (whether they will take an incentive or not). Community wind projects sometimes take into account the Business Energy Tax Credit and Investment Tax Credit, or Renewable Energy Certificate prices, and the risk is inherent whether the incentive will be applied for or not.

3. Oregon Institute of Technology geothermal project dedication
Betsy showed pictures of the newly operating Klamath Falls OIT campus geothermal project, where 75-80 people (including the mayor and three state representatives) attended the

dedication. The project is the first operating geothermal combined heat and power plant in Oregon. It utilizes the UTC geothermal unit.

4. Implications of changes to Business Energy Tax Credit program

Elaine Prause presented to start a conversation around impacts to Energy Trust in the near future due to changes to the Business Energy Tax Credit program. The conversation will continue at the Board Strategic Retreat in June.

In February 2010, the Legislature made additional changes to the Business Energy Tax Credit program, including creation of a tiered system to take effect May 27, 2010. The system evaluates and prioritizes renewable energy tax credit applications. Temporary rules are expected to be released by the Oregon Department of Energy by the end of this week.

Impacts on Energy Trust

This change from a non-competitive to a competitive process will have implications for Energy Trust's program strategies and ability to meet generation targets.

The Business Energy Tax Credit plays a significant part in small to medium scale renewable energy development in the state. Energy Trust assumes each project receiving an incentive will also receive (or has the potential to receive) a state tax credit. Our programs, budgets and acquisition targets have been formed to date with this assumption.

Elaine showed a table of the AMC of a sample of past projects, which was approximately $8.5 million. If the AMC were recalculated without the Business Energy Tax Credit, that total increases to almost $29 million, more than three times the original estimate.

Review of recent changes

For the short term, there will be a three tier system based on credit amount: Tier 1 (less than $250,000), Tier 2 ($250,000 – $3 million), and Tier 3 ($3 million and greater). Demand is already greater than supply for Tier 2 and Tier 3; as of early May, there has been $100 million in precertification applications. Unknowns include review and prioritization criteria for Tier 2 and Tier 3; how funding beyond December 31, 2010, will be allocated, how the second biennium $150 million will be allocated, and if the June 1, 2010, date is an application deadline or start date for accepting applications. It is unknown what will happen in the long term but we expect the outcome of the 2011 session will make this clearer.

Elaine showed the state of existing pre-certifications, broken out by percentage of tax credits allocated to each tier, as well as number of projects and the resource mix of those projects. For the current biennium (which ends July 1, 2011), $300 million is available and $220 million is committed.

Elaine showed a timeline estimating when the money is able to be allocated. The balance of the $300 million is split, $60 million through Dec. 2010 with the remainder yet to be determined. The $60 million is allocated with $10 million to Tier 1, $20 million to Tier 2 and $30 million to Tier 3.

Energy Trust is working with projects that have received pre-certifications and but there are also many in the pipeline that do not (meaning some projects have Energy Trust budget committed to them, and some are in the early development stage). For 2010, many of the larger projects Energy Trust expects to come through have pre-certifications, with exceptions in solar and one biopower project. It seems the Tier 1 pool of $10 million is large enough for forecasted demand of Energy Trust projects. More significant impact for projects estimated to go through in 2011 or 2012, with the ultimate risk of Energy Trust not meeting generation goals and covering the

Business Energy Tax Credit gap. This means the sector will likely prepare two different budgets this fall.

Possible near-term overlapping paths for Energy Trust could be:

i) Conducting business as usual with the realization that some projects will receive a Business Energy Tax Credit and some won't (this would allow Energy Trust to continue to support market development strategies).
ii) Aligning Energy Trust assistance efforts and incentives with the ODOE review criteria, consciously making a decision to only fund projects that will receive a Business Energy Tax Credit (this would impact the strategy for market development and could leave budget unspent).
iii) Waiting until the rules play out and saying no to some projects that are too expensive (this would probably result in carryover funds for the short term but longer term benefits).

Staff is unable to determine which path maximizes incentives and generation. Michael Early feels the second path would do that and asks how it would look politically if Energy Trust chose projects different than the Oregon Department of Energy's review criteria, and is there concern that the review criteria won't look for the greatest generating projects. Peter West commented these three paths aren't exclusive, but the ending strategy will be a mix of them.

Jed commented that even if the Business Energy Tax Credit is unavailable, the ITC is now on the table.

Suzanne Leta-Liou expressed concern with the third strategy and that by hanging back, projects will be stalled indefinitely and market growth in general will be negatively affected. She commented that the strategy should be a combination of the first two.

Peter reminded the council on Energy Trust's previous strategy a few years ago to keep budget for the Wind program when the federal tax credit expired and even though the program greatly struggled in the short term, once the credit came back, Energy Trust was positioned to act immediately.

Thor Hinckley expressed that the third option would pay the greatest dividends over time.

Robert Grott expressed that there are more projects no longer penciling in the Business Energy Tax Credit. He and Suzanne don't see companies leaving the state right now, but that they are starting to look at other places. Suzanne expressed concern over commercial solar on large spaces being impacted too much, and that once companies start to leave, it will be even more difficult to get them back. The council expressed one need they see from Energy Trust is to keep the industry alive, and Oregon's national and international image. Robert feels it's better to keep things warm than going dark. Michael Early reminded the council that the next legislative session will be even more difficult with budget deficits. Suzanne reminded the council that while it's not Energy Trust's place to influence the legislature, we do need to show them stability. Michael also brought up that Energy Trust still needs to help Portland General Electric and Pacific Power meet Renewable Portfolio Standards.

5. Update to lender outreach and new product review

Elaine presented this update. She delivered a recap of the Blue Tree Lender survey. Recommendations were to

i) Institute a lender outreach plan (including a lender forum to start this summer and giving advice on new product ideas).

ii) Explore new products and services to shift funds from project completion to more direct cost coverage (loan guarantees, loan rate buy downs, performance bonds) and construction financing (lowers cost to provide working capital).

Elaine talked about a proposed pilot-scale initiative yet to be approved where two projects would be selected between summer 2010 and late 2011 and offered a construction loan up to 100 percent of AMC. The pilot would be managed in-house but we would need to contract for a finance specialist and actual servicing of the loans. The budget would be limited to $1.2 million.

Robert expressed the construction loan is a problem (as the risky part of the project that has no profit), and one of the niches that need to be filled. He said maybe the in-house management could be contracted out to a finance firm.

Staff will come back to the council later with more specifics.

6. Public comment

Suzanne announced she is leaving Renewable NW Project on May 27, 2010, to take a position as development manager with RES Americas. Peter noted that the Policy Committee formally fills the RAC seats and welcomes nominations.

7. Meeting adjournment

Betsy thanked all RAC members for their participation and adjourned the meeting at 11:52 a.m. The next meeting is July 21, 2010.