RENEWABLE ENERGY ADVISORY COUNCIL
Notes from meeting on July 21, 2010

Attending from the Council:
Megan Decker, Renewable Northwest Project
Troy Gagliano, enXco
Jeff King, NW Power and Conservation Council
BJ Moghadam, Pacific Power
Glenn Montgomery, OSEIA
Robin Straughan, Oregon Department of Energy
Frank Vignola, University of Oregon

Attending from Energy Trust:
Doug Boleyn
Kacia Brockman
Hannah Hacker
Jed Jorgensen
Betsy Kauffman
David McClelland
Elaine Prause
Lizzie Rubado
John Volkman
Peter West

Others attending:
Lynn Frank, Five Stars International
Theresa Gibney, member of the public
Erin Greeson, RNP
Andrea Simmons, Oregon Department of Energy
John Reynolds, Energy Trust Board Member

1. Welcome and introductions
Betsy Kauffman called the meeting to order at 9:30 a.m. Betsy informed the council Peter West is recovering from surgery and will be in and out of the office. The council welcomed Glenn Montgomery, executive director of OSEIA and BJ Moghadam of Pacific Power, who is attending on behalf of Kyle Davis. Everyone else introduced themselves. The minutes from May were approved and the July agenda accepted with no changes.

2. 45 Mile hydropower project

Jed Jorgensen presented his evaluation of the "45 Mile" hydroelectric project for the council's review. Earth by Design, the project's third-party developer, submitted its application in December 2009 to utilize water in the North Unit Irrigation District main canal for a 3.5 megawatt system. Jed provided background on past hydro projects in central Oregon that have received an Energy Trust incentive: Central Oregon Irrigation District (expected to finish construction this fall and to start operating next spring) and Swalley Irrigation District (started operation this spring).

Location
Site is in central Oregon, near Madras, receiving water from the Crooked River and the Deschutes River and is 1.8 miles north of Haystack Dam on North Unit Main Canal. Only 0.5 mile penstock, which is a positive thing from a project cost perspective but negative from the perspective that the project won't result in as much water savings as compared to piping a longer distance.

Earth by Design has secured lands from the North Unit Irrigation District and will pay the district a lease payment based on power production. The project has an 88 percent capacity factor during the irrigation season, 47 percent for the full year (it only runs during the irrigation season).

Project Status
Energy Trust provided approximately $20,000 for a feasibility study, and provided assistance with the Federal Energy Regulatory Commission permitting process and Oregon State Energy Loan Program review.

The project has been approved for $7.2 million SELP loan, will likely take the Investment Tax Credit as cash and is applying for a Tier 3 Business Energy Tax Credit. However, a precertification for the tax credit has not been obtained and the program is uncertain of the project's ability to secure a Business Energy Tax Credit. Jed noted that without a Business Energy Tax Credit it looks unrealistic for the project to be completed. Earth by Design has started its interconnection studies and is working on a power purchase agreement with Pacific Power. FERC permitting is underway and state permitting will commence following FERC. The program expects the system to be in construction from December 2010 to February 2012, and to begin operating in March 2012.

Project Details
Jed went through project development plans and showed pictures of the canal. The majority of the design work is completed, and the project has been evaluated by Energy Trust and Evergreen Engineering, a third-party engineer.

The system will have a constant 128 feet of head (vertical distance pressurized by installing the penstock). Water flow is approximately 350 cubic feet per second through a 10 foot diameter penstock. Based off eight years of data, the program expects average flows to be between 330 and 370 cubic feet per second. At the conservative estimate, the system will generate 13,200 MWh, The North Unit Irrigation District is expected to manage flows to produce as much power as possible since their payment depends on power production.

Jed explained that the flow can be seen as a risk factor as it can vary throughout the season and from season to season. The district has relatively junior water rights on the Deschutes River as compared to Central Irrigation and Swalley Irrigation (these two districts might be able to claim water rights first before North Unit during an extremely dry year).

However the district does have Haystack Reservoir and the Wikkiup Reservoir (which can store almost an entire season's water needs). The district is also able to purchase supplemental water from the Crooked River, and has installed concrete lining in the first 12 miles of the main canal. The concrete lining does conserves water from seepage, helping the district to be more efficient in its water use. The district has been operating for more than 60 years and has had very few flow reductions over its history. Since 1997, when the lining project was completed, the district has only reduced flows once, and only by 8% compared to an average season. Overall, Energy Trust feels no significant risk to the project due to water flow.

The project will only operate during the seven month irrigation season. There are no pending appropriations conflicts. Natural resource communities and irrigators have been working together for a while to put water back into the river.

Evaluation Results
This is a third-party project applying for a Business Energy Tax Credit, the status of which will be unknown until December 2010. The project is unable to take advantage of 5 year depreciation (hydro is not eligible), and has to take the 20-year deprecation instead. Earth by Design will own the project for the first 25 years and then it's given to North Unit. Energy Trust evaluated the project over the 25-year period that the developer will own it.

Project costs are expected to be around $15.3 million; $2 million is estimated due to interconnection costs. Jed said this cost is in line with what we've seen with Central and Swalley. The project is different since it's interconnected at distribution vs transmission. Renewable Energy Certificates are not evaluated initially, however they are considered to

ensure a project does not receive a gross benefit from Energy Trust's incentive. Based on the program's conversations with REC marketers, hydro RECs do not appear to be particularly valuable. The ITC grant will be worth approximately $4.3 million.

Above market costs is $6.1 million with a 19-year payback. Energy Trust proposes a $2 million incentive from the Open Solicitation program. This incentive amount is essentially all of Energy Trust's funds for Pacific Power in the Open Solicitation program. The program is comfortable allocating the funds at this point in the year and there are no more compelling projects on the table. The proposed incentive would be paid over five years based on the project meeting minimum performance standards. The incentive would cover 13 percent of total project costs (25 percent of above market costs), and results in paying $1.23 million per aMW (program goal was to keep costs between $1.19 and $3 million). Jed went through similar projects and costs, including Swalley ($2.91 million per aMW); Central Oregon ($0.65 million per aMW).

Energy Trust is asking for 25 percent of RECs based on policy, the program is paying more than market value for the RECs—$31 levelized, $22.50 nominally.

Jeff King asked if Jed's revenue calculations include a benefit for firm capacity value. Jed said the project has a firm QF delivery at standard avoided cost rates, which do not include an adder for capacity. Jed further explained that above market costs are calculated by net present value of all costs compared to net revenue. Betsy distributed the AMC analysis.

The Open Solicitation program's 2010 budget for Pacific Power is $2.5 million. Betsy reminded the council the Pacific Power ratepayer funds must be used in Pacific Power service territory and Portland General Electric funds must be spend in PGE service territory. The Pacific Power funds were originally budgeted for a community wind project and geothermal project that are not coming online. Jed said the program realizes there is a certain amount of risk to putting all the money toward one project, but at this point, there aren't any competitors. If something comes along in the next four to six months, the program will try to hold that project until 2011, but it's very unusual for a project to come to the program's attention without a year notice.

John Reynolds commented that the Central and Swalley projects were so impressive due to their water savings, while this project doesn't have the same benefit. Jed said the project developer is trying to decrease costs, yet is still covering 0.5 miles of pipe.

Jed also explained the project developer is committing to a longer payback, approximately seven more years.

John Reynolds said that in general, this is a bad year to have carry-over money in the budget.

Jeff asked about construction delays pushing the project too far out. Jed said the program sets up milestones and we can de-commit our money if the milestones aren't met. The program anticipates the project won't come online until 2012 and incentives won't be paid until the project is complete and producing. Funds will just be dedicated in 2010.

Vote of support for the project:
In favor: 7 Opposed: 0 Abstained: 0

Next step: Project goes to the Energy Trust Board of Directors.

3. Funding large solar projects

Kacia Brockman briefed the council on using unspent PGE funds for large solar projects. She said the Renewable Energy programs expect to have approximately $9 million of unspent PGE funds by year-end. Staff proposes to use the unspent funds to invest in large-scale solar electric projects by using custom incentives based on above market costs.

The Solar program currently operates by offering a standard incentive per watt. When the program lowered incentives in late 2009, 12 MW of capacity came in, more so than in the entire history of the program. To cover these incentives, funds were transferred from other RE projects into the 2010 Solar program budget: $5 million from the cancelled Warm Springs biopower project (PGE) and $2.3 million from funds returned for Goodnoe Hills (Pacific Power). At the time it was agreed that any unspent money from these additional amounts would be brought before the council for discussion on where to apply it.

Staff believes all Pacific Power funding in the 2010 RE budget will be committed, including the additional $2.3 million. The $9 million of unspent PGE funds is comprised of $4 million from the Solar program and $5 million from both the Biopower and Open Solicitation programs.

Staff believes the best way to commit the $9 million of PGE funds is on solar electric projects over 500 kW. Originally, staff had planned to solicit such projects through an RFP process, but now feels an RFP is unnecessary now that availability of the Business Energy Tax Credit has become the limiting factor for most projects. Kacia proposed to accept applications from projects over 500 kW that have already received Business Energy Tax Credit precertifications or that are awarded Tier 2 or Tier 3 Business Energy Tax Credit precertifications in 2010. Projects would need to deliver power to PGE. A custom Energy Trust incentive amount would be determined by an above market cost calculation. Staff would expect to cap the incentive at $1/watt. To date Energy Trust has provided custom incentives to only a handful of large-scale projects: ProLogis (3 MW), enXco (3.5 MW) and a couple others around 500 kW. Projects with incentives over $500,000 would need to go to the board of directors for approval.

Megan asked why have a per-watt cap if the project went through a custom evaluation. Kacia said the intent was to have a reasonableness factor and asked the council if they believe a cap is needed. Megan added the project is already going through an extensive evaluation and is sent to the board; it seems the cap might constrain or hamper projects.

Troy recommended against considering only projects with a Business Energy Tax Credit, since is so difficult to get a Business Energy Tax Credit under the new rules and caps. Kacia asked if the project could succeed without a Business Energy Tax Credit, and stated it would be unlikely that Energy Trust could provide enough incentive to make up for the 50 percent Business Energy Tax Credit. Troy responded that enXco is looking for other ways to cover that 50 percent and keep Energy Trust's investment at the same level. He recommended to not make the policy "no Business Energy Tax Credit, no incentive," but to look at the project's financials and reasonableness.

Kacia said we're unsure of whether having a committed Energy Trust incentive will favor or hamper a project's efforts to be awarded a state tax credit. Andrea Simmons from the Oregon Department of Energy said the selection criteria for Tier 3 projects looks at outside funding sources as only a small portion, and that the Energy Trust incentive won't make or break approval of a precert unless there are two very similar projects on the table competing for the last dollars. She said it would be a positive that the project has an Energy Trust incentive, which is seen as a viable funding source to carry a project through. Andrea gave an update on Tier 2 projects: first round, $20 million available in two application phases, after initial screening in first

phase, $18 million in projects was requested for the $10 million available. For Tier 3 projects, she said we won't know until end of August.

Next steps for this proposal: develop selection criteria in case there are more solar projects that receive Business Energy Tax Credit than we can support (should it be first come, first served or something else); announce to developers and contractors and request information from them on projects that have been submitted for pre-certification so we can know what's competing for funds and we can start AMC analyses. The goal is to get funds committed in the 2010 budget before year-end, and have the projects completed within a year.

Frank recommended the selection criteria could focus on projects that will complete sooner, in addition to price and cost. He also mentioned projects that can bring an educational value to the community or are unique projects.

Troy recommended looking at projects that have the interconnection paperwork lined up.

Lynn Frank (who has worked on the Oregon Department of Transportation solar highway project) recommended selecting projects that have components in place for timely completion. He said to consider other values beyond just lowest price, such as projects that are putting Oregonians to work and employing people who were historically disadvantaged (women, people of color, small businesses), and using Oregon-made product. He reiterated that time is of the essence.

John Volkman, legal counsel for Energy Trust, clarified that Energy Trust may give preference to projects using locally-sourced products when all other factors are equal.

Kacia will now develop selection guidelines, present to the industry and solicit projects. The program will report to the council in September.

4. Program updates

Elaine presented on mid-year Renewable Energy program updates and distributed copies of Energy Trust's newly created Dashboard, a resource for Energy Trust management that shows snapshots of the programs' results and activities.

Elaine talked about the two types of goals used to judge the performance of programs:

1. Generation installed in 2010
    a. OPUC minimum performance metric of three aMW based on a 3-year rolling average
    b. Our budgeted estimate for installed generation in 2010 exceeds this minimum metric
        i. Total 4.1-8.7 aMW, $34.4 million
2. Commitments generated in 2010
    a. For projects that complete in 2010 or in later years
        i. Total 4.5-0.7 aMW, $34.2 million

Status in respect to these two goals as of May 2010: met 31 percent of three aMW minimum; expect to exceed the minimum (originally expected to be at 41 percent of three aMW at this time but a large solar project shifted into 2011). Have spent 17 percent of budget, across both utilities.

Dashboard: Elaine showed the council a pipeline graph showing 2010, 2011 and 2012 completed, committed, proposed and expected generation. The graph showed generation with

budget range and conservative and stretch goals. Energy Trust is not on track to meet PGE goals due to a wind project not needing our incentives, and we are above goal for Pacific Power due to a hydro project coming online a year early. When the Renewable Energy program is looked at as a whole, we are on track.

Biopower program: Received board authorization for a 795 kW dairy digester project, an initial application for a 20 MW woody biomass project, and expects applications for two wastewater plants in quarter 4. Funded an energy management program for wastewater treatment plant operators (13 participating plants), which was delivered by ACWA and gives renewable energy and energy efficiency information. Launched an Oregon Biogas Industry Initiative to look at barriers in Oregon and find opportunities for collaboration.

Wind program: Committed a $230,000 incentive to a 250 kW system at the world's largest grass seed farm (the program is looking at doing more projects at grass seed farms). Committed funds to 14 small systems (less than 50 kW); four such projects installed. Helped four projects write successful USDA REAP grant applications. Held five small wind workshops and invited "preferred" landowners (using GIS to find landowners with an adequate wind resource). Response rate is about 20 percent. Provided funds for meteorological tower in Lake County.

Hydro: Evaluated the 45 Mile Irrigation Hydro project; the Swalley Irrigation District was completed (paid $916,000); evaluated applications and made incentive offers for two micro-hydro projects (Spaur Ranch, City of Portland). Committed feasibility study funds for one irrigation hydro project expansion, evaluated pressure reduction valve sites; and looked into the generation potential at aquifer storage and recovery sites. The program initiated a large-scale study of irrigation hydro systems in Oregon to build future pipeline of projects and co-authored a white paper on the barriers and challenges involved with the FERC permitting process. The paper will be presented at the 2010 Hydrovision Conference.

Solar: Paid 379 solar electric incentives (more than three times what we paid during the same time last year), commercial incentives are on par, but the residential program is booming. Completed 560 residential Solar Energy Reviews. Launched a Columbia Sportswear employee challenge after Columbia approached Energy Trust after receiving a commercial solar electric incentive. Completed the first Solarize effort in Southeast Portland with 120 installations—six new community bulk-purchase efforts have developed since (Southeast phase 2, Southwest Portland, North Portland, Salem, Beaverton and Pendleton) though not all are running under the "Solarize" banner and issuing RFPs. Granted a solar electric system to the IBEW training center in Coos Bay, helping in solar training for electricians. Seeing effect of BETC and anticipating RETC effect due to July 1 decrease in that sector. The program reported that the utility production-based incentives (feed-in tariff) sold out first capacity allocation. The program paid phase two of the ProLogis project ($2.33 million).

Geothermal: Paid first incentive ($487,000) to OIT geothermal project and having conversations on a second project. Committed $15,000 to the City of Klamath Falls for a feasibility study examining a proposal to generate electricity from an existing well, The study is expected to be done late in the fall. Klamath Falls would require the Business Energy Tax Credit pass-through option, though they do have a federal grant lined up that would cover about half of the project's costs.

5. Renewable Energy Sector Strategic Plan

Elaine then presented a follow-up to the May RAC meeting where technology specific plans from the 5 yr sector strategic plan were presented, focusing this time on overall sector themes that came out the process. When developing strategic plans, there is the overall Energy Trust strategic plan (two main goals are to accelerate energy efficiency investments and renewable energy adoption; 8 activities to achieve those goals), which feeds the Renewable Energy Sector Strategic Plan (goals to support a range of resources, go further upstream, expand market opportunities and optimize limited funds) that is further drilled down into Resource Strategies (biopower, geothermal, hydropower, solar and wind). Guiding statements are as follow:

- Renewable Energy Sector Vision: Oregonians invest in clean energy project development because they value the environmental and long-term economic benefits derived from small scale renewable power production and energy savings.

- Renewable Energy Sector Mission: To catalyze development of small scale renewable energy systems that utilize Oregon's diverse and abundant resources. [Small scale meaning size of the system.]

- Renewable Energy Sector Leadership Position: Energy Trust is a trusted and valued partner for Oregonians by providing assistance and funding that helps to build technology markets and install renewable energy projects.

The council expressed no concerns over these statements. Elaine went over the opportunities Energy Trust sees for each technology:

- Biopower—Waste stream management
- Wind—Mid-scale market
- Solar—Delivery
- Hydro—Irrigation districts
- Geothermal—Low-temp Technology

Overall themes to the strategic plan:

- Significant technical potential (lack of resource not a problem), the challenge is finding economically viable projects and providing project champions with tools and motivation to bring them to completion.
- Opportunity vs funding imbalance
    - Rural regions support a range of technology, resulting in more demand than funds available in Pacific Power territory and carryover of PGE funds. Strategies to balance the demand vs budget include offering larger incentives in PGE with more outreach and special offers, similar to the concept presented earlier for large solar.
    - Internal policy is to dedicate no more than 50 percent of funds to any one technology, do we need to revisit this? i.e. in PGE, most funds demanded are for solar electric
- Cross selling efficiency
    - Wastewater treatment plant energy management training
    - Solar staff integrated within Business and Homes sectors
- Adapt policies to evolving markets
    - REC compliance vs. voluntary market (RPS, RECs, WREGIS are all post-Energy Trust creation, plus green tag policy)
    - Solar Feed-In Tariff; qualifying facility avoided cost methodology, interconnection procedures (AR521)
    - Adapt policies as needed by staying engaged in understanding customer and ratepayer perspectives to guide programs

- Strength in development of early stage markets and project assistance is a unique role for Energy Trust. Other organizations provide feasibility study assistance and project completion grants/incentives but do not offer more specific development assistance.
    - Add “soft” goals to reporting in addition to generation goals
        - Leveraging other funds
        - Assisting with regulatory barriers
        - Impact we can make on availability of equipment
        - Identify resource potential leading to projects with no AMC, even though there’s no Energy Trust incentive, we should be able to document we influenced the project
    - Elaine asked the council if they know of other ways Energy Trust is impactful in the market. No comments.
- External influences impact basic program assumptions
    - Short-term
        - Remain a steady and stable market development force
        - Optimize leveraging while possible
    - Long-term, Energy Trust cannot sustain large increases to AMC
        - Without the Business Energy Tax Credit, projects will increase in costs by about three times
        - Revise goals down?
        - The sector will present two budgets in the fall
        - Can we continue to support all technology types?
        - What are the market segments we’re best suited to impact?

Elaine asked for the council’s general impressions.

Megan wanted to know more about why we would consider choosing technologies. Elaine said we have a limited budget at $14 million and we need to think about where to put our incentive dollars. Elaine said this is a heads up that we probably won’t be in a position to be involved in all technologies and we’ll be coming back to the council at a future date.

BJ asked about the possibility of having an energy-efficiency requirement to be able to receive a solar electric incentive. Kacia said the program has conducted an evaluation around this idea, but we support installing renewable energy systems and we’ve imbedded solar in the efficiency programs to re-engage renewable energy customers. The evaluation study looked at the energy consumption of energy efficiency-only participants and renewable energy-only participants. The results showed PV customers already tended to be more efficient than efficiency-only participants.

Frank asked if there has been any recent evaluation of Energy Trust marketing with solar. Lizzie responded renewable energy programs, with the exception of residential solar (which is a volume program), don’t due direct marketing. She said we haven’t done a direct evaluation of the impact with our collaboration with Solar Oregon, but we do have website stats and workshop attendee numbers.

Energy Trust worked with SmartPower in 2007, which evaluated our solar programs, outreach events and marketing to see why people at the time were going to workshops, but weren’t taking action. We have incorporated SmartPower’s recommendations into our outreach and marketing. We will also be doing an evaluation of the small wind workshops.

Frank said since Energy Trust has limited incentive money and the market will keep growing, would it be effective to put money into more marketing and less into incentives as a way to manage the budget.

6. Public comment

There were no public comments.

7. Meeting adjournment

Betsy thanked all RAC members for their participation and adjourned the meeting at 11:54 a.m. The next meeting is September 15, 2010.