RENEWABLE RESOURCE ADVISORY COUNCIL
Notes from meeting on October 14, 2009

Attending from the Council:
Robin Straughan, Oregon Department of Energy
(sub for Carel DeWinkel)
Ed Kennell, Clean Energy Systems
Teresa Gibney, OPUC
Troy Gagliano, enXco
Suzanne Leta-Liou, Renewable NW Project
Kyle Davis, PacifiCorp (by phone)
Bill Eddie, Bonneville Environmental Foundation
Frank Vignola, University of Oregon

Attending from the Board:
John Reynolds

Others attending:
Joe Esmonde, IBEW

Attending from the Trust:
Doug Boleyn
Kacia Brockman
Fred Gordon
Erin Johnston
Jed Jorgensen
Betsy Kauffman
Elaine Prause
Thad Roth
Lizzie Rubado
Peter West

1. Welcome and Introductions

Betsy called the meeting to order at 9:35am. Everyone introduced themselves. The agenda was adopted without changes. The August minutes were adopted without change.

2. Program updates and themes underlying 2010 action plans and program budgets

Elaine introduced the 2010 budget and gave an overview of 2009 activities. By the end of the year we forecast to have installed about ~4.0 MWa. That is down from previous forecasts because the Warm Springs Biomass project is on hold. Cumulatively, since 2003, we have installed 101 MWa. This year we finished our transition to focus only on projects 20 MW and less in size.

As we move forward we aren't looking at new technologies, but new techniques. We've worked to fill in the knowledge gaps for projects of smaller sizes. Overall the smaller projects have increased our costs. Proportionally, the above market costs of small projects are higher. The increased costs and size limits will mean a reduction in our generation goals going forward. Our strength is in delivery innovation. This sets us apart from other funding sources.

2009 saw many difficulties due to the economic climate. The legislative session brought some uncertainty as did the stimulus package and ARRA funding.

Elaine presented the following table showing 2003-2009 Renewable Energy Budget Allocations:

Programs	Program Basis		Technology Basis	
	$ Million	$ Total	$ Million	$ Total
Biopower	$14.41	19%	$14.41	19%
Open Solicitation	$15.01	20%	$6.00	8%
Solar Electric	$26.24	35%	$35.24	46%
Utility Scale	$16.10	21%	-	-
Wind	$4.28	6%	$20.38	27%
Total Renewable Energy	$76.04	100%	$76.03	100%

Troy asked for an explanation of the technology basis portion of the table. Betsy clarified that the table shows that some technologies have crossed programs. Open Solicitation has supported some large solar projects.

Theresa asked why Hydro and Geothermal have been outcompeted by solar in Open Solicitation.

Betsy replied that all big solar used to go into OSP, anything that didn't fit into the standard solar program. It isn't so much that those technologies have been outcompeted, but there aren't as many other resource opportunities in PGE territories.

Frank asked if any hydro projects had come in below market.

Betsy responded that that did not occur in 2009 but it could have happened early on in Energy Trust's history.

Elaine continued: Going forward we expect the economy to recover and reinvigorate investment in renewables. There are five strategic themes for next year:

1. Maintain support for a variety of technologies. We aren't going to put all of our eggs in one basket. This is a hedge against market swings.

Betsy added that we will work with individual projects and developers as they are ready. We will be nimble to shift funding when projects are ready to come in.

Elaine noted that solar is steady but other technologies are not in terms of forecasting when an individual project will come in.

2. Provide assistance early in the development process. Early on our focus was just in "putting dollars on the table." Now we are seeing more projects from proponents who do not have energy experience. We have to provide additional resources to help these projects move forward. This means technical assistance.

3. Expanding market opportunities. We need to move upstream to identify good resources early. We will also target rural communities where they are trying to develop resources.

4. Addressing funding constraints. Our funding is going to stabilize at a level below past budgets. We have to be more efficient with our funds. We have to help projects secure other funds.

5. Team with utilities. We want to explore ideas to reduce barriers to QF projects and think about how we can help utilities meet IRP goals

There are external influences that bring uncertainty in future years. Uncertain state tax credits, REC markets, a national RPS, and new lower avoided cost rates for QF's make things uncertain. Policy changes like the solar feed in tariff will also affect things in ways we are unsure about. The magnitude and timing of federal support is another unknown. We have to be flexible and adaptable in our strategy.

3. 2010 budget proposal for renewable energy programs

BIOMASS PROGRAM

Thad began by explaining the Biomass program's strategies:

1. We have to utilize market partners and direct outreach to identify projects early on. There are a lot of projects that are out there, but few good ones. One example of our outreach is with the Association of Clean Water Agencies (ACWA). They have helped identify projects and have focused on the engineering and development community to bring those folks into our process. This helps bring in new projects and informs us of expansions to existing projects.
2. Our ability to fund feasibility studies is a powerful tool to build partnerships with developers and to determine if a project has legs or not. Co-funding studies helps us to understand the project and the developer's ability to execute on the project. It also gives us the ability to advise the developer on things like interconnection.
3. Provide ongoing technical support during the development process. Technical assistance for interconnection is an especially big deal for projects.
4. Investments in projects themselves. We fund the projects that are strong opportunities.
5. We have to have a pipeline. These are complex projects and they take more than a year to develop. We have to keep multiple projects moving forward so that when one is ready we can move.

In terms of accomplishments for 2009, the Stahlbush Island Farms digester project has come on line. It is a 1.6MW project that has received a lot of national attention because it is the largest non-manure digester in the nation. They achieved commercial operation in June of this year.

Suzanne asked for clarification about how the project is unique. Thad clarified that in North America most large projects are based around manures or other animal wastes. The Stahlbush project utilizes food processing wastes.

The Douglas County Landfill project was approved by the board in June of 2009. This is a 1MW landfill gas project.

We are also reviewing a proposal from a third party developer interested in 8 dairy digester sites in Oregon. If the review and any negotiations continue on schedule, we may be coming to the board in December. This would be a dairy only project – each site is around 200kW with an initial development phase including four sites.

There are a couple of feasibility studies that we participated in. The first is a six-dairy study we participated in with a northwest dairy marketing cooperative. They are looking at the potential for anaerobic digestion at six dairies, mostly in the Willamette Valley. They are exploring manure-only, and co-digestion. The study will provide some good information to the market to give a sense of the cost points and the technical potential based on the size of these dairies.

We are also in the process of evaluating three studies at waste water treatment plants (WWTP) that are looking at co-digesting brown grease from the restaurant industry. That grease has value if co-digested. The challenge is getting control of the grease. It doesn't have much economic value, it is usually a cost to get rid of, but they are looking at strategies to assure a steady supply. It could allow a 30-50% increase in the generation that is possible at these treatment plants.

Key activities for next year:

1. Coordination with market sector partners. We are co-funding an energy management training workshop for 10 WWTPs. The goal is to integrate the energy efficiency and renewable energy projects available at these plants, and to elevate management of energy use at the facilities to the same level you would think of for environmental management. This is an add-on to a project we completed in 2008 with ACWA.
2. On the agriculture side, we are working with Metro on an industrial food waste study. We are looking at where the wastes end up in the waste stream and to see if there is a better use for the waste stream, primarily through anaerobic digestion.
3. With wood wastes the market is very weak. Our strategy is to keep talking with the companies in the market so that we can move when they are ready to go forward with a project.

As Elaine noted, we let the Warm Springs funding agreement expire. It is a strong project but they have not been able to move forward yet. We will continue to work with them, as necessary, in 2010.

We have identified four WWTPs that we think will apply for funding in 2010. We will also look at a second phase of the industrial food waste study. Phase two will identify the energy content of those waste streams.

John asked if Rough and Ready is operating right now.

Thad responded yes. This is a 1.2MW forest products mill in Cave Junction. It has taken them about a year to work out the kinks in the new process, but the last six months they have been hitting their monthly generation goals.

Suzanne asked what the biggest challenge is for biomass projects.

Thad responded that feedstocks are the biggest issue. This varies from market to market. Controlling the feedstock is key, but we are also talking about changing the ways that folks

manage a waste stream. It has implications far beyond the generation. These projects have multiple benefits and impacts, increasing the complexity of the project.

Bill asked where Energy Trust is at in terms of evaluating carbon offsets from methane destruction projects, such as dairy digesters.

Thad responded that we will look to third parties like The Climate Trust to help with that, but we will include things like offsets in our above market cost calculations.

SOLAR PROGRAM

Kacia explained that the long term strategy for the Solar program is to create market stability. We want to distribute funds widely and encourage installation quality. Increasing awareness among consumers and decreasing barriers in delivery chain are also goals.

In 2009 we expect 5MW of capacity from 430 installations. This is a 60% increase in the number of projects and a 40% increase in capacity from 2008.

We will spend the entire Pacific Power budget this year. We will under-spend in PGE, but we have a substantial amount of commitments that will roll into 2010.

Solar water heating is moving along at a comparable pace to 2008. The cost of systems has increased faster than energy costs. The federal tax credit change in 2009 helped PV more than water heating.

We have also continued with the solar energy review effort to help residential customers.

Market factors were a big deal in 2009. The federal residential ITC cap was eliminated in January. 1st quarter activity was dead, but as the awareness and magnitude of the ITC benefit sunk in, things took off. The 2nd and 3rd quarters were huge.

The third-party ownership model stalled out this year. Third-party providers have learned a lot during this time period though. They have started to come back with investors lined up and with a better understanding of the BETC. We are optimistic for the future.

We've seen big declines in cost, but it has taken a while for lower equipment costs to transfer to the consumer. Solarize Portland demonstrated that lower prices will move the market. We've seen costs go down by about $1 per watt overall.

The recession slowed things down for third-party ownership, but not for directly owned systems. We think this is due in part to our having built the pipeline of awareness towards solar.

We thought federal stimulus funds were going to have a big impact this year, but that has not turned out to be the case. The process has been much slower than we anticipated.

Suzanne asked why solar projects haven't come through stimulus.

Kacia said that most of the projects that have been announced so far have been efficiency projects.

Theresa added that many public entities are just now receiving ARRA funding that they thought they would receive in June.

2009 Initiatives:

There has been an uptick in the loans approved through Green Street. Half of the loans in September were for solar projects.

The program held 80 educational workshops for consumers, both businesses and residential.

As part of the organization redesign efforts, Lizzie and Doug have moved over to the Homes and Business sides of the organization.

The co-op marketing effort has really started to take off with solar trade allies.

New contractors want to get involved in solar all the time. Fifty new solar trade allies signed up this year. We reformatted our trade ally list to only show contractors that have installed a system, making the list more effective for consumers.

We worked with the City of Portland on a permitting issue around a clamp system used to attach solar panels to long-lived metal roofs without roof penetrations. Once resolved in Portland, we think this will have positive state-wide ramifications.

Rule making on the feed-in-tariff is just beginning and we are participating in that.

We also participated in the NW Solar Expo again.

2010 Market factors:

The feed-in-tariff will bring a new funding stream, but it increases the complexity around decision making for consumers. The results are hard for us to predict.

Third-party owned residential systems look like they are starting happen now in the 4th quarter of this year. This will be a factor next year.

The future of state tax credits is uncertain.

We think system costs will stay down. Even though excess supply may get exhausted, there is so much competition among manufacturers that costs will likely stay down.

2010 Market Themes:

- Expanding the market
    - We will promote the innovative, successful Solarize Portland bulk-buy model in additional PGE neighborhoods and in one underserved Pacific Power community.
    - Support rural communities with USDA grant writing assistance to attract federal investment.
    - Evaluate performance of commercially available combined PV/thermal systems to determine potential value in the market.
    - Support OPUC and utilities in developing an effective feed in tariff.
    - Support 3rd party ownership models that eliminate up-front cost barrier for homeowners and tax-exempt governments.
    - Seek a low-cost large-scale PV installation in PGE territory through competitive RFP.
- Addressing barriers
    - Encourage state and city/county efforts to streamline and clarify solar permitting requirements.
    - Continue to demand high quality installations. Transfer responsibility for installer training to the industry by offering equipment grants and sponsorships to qualified training entities.
    - Support the development/delivery of SWH installation and design training in Oregon.
    - Provide education to clarify the increasingly complex incentive and ownership options available to consumers.
- Manage declining PV incentive budget

    - Leverage declining PV costs to offer lower incentives, and thereby allow for continued market growth.
    - Create opportunities to bring federal stimulus funds and USDA and other grants to projects.
- Make it easier to participate
    - Offer early solar design assistance for New Buildings and the Path to Net Zero pilot.
    - Implement online incentive applications that make it easier for trade ally contractors.
    - Integrate solar initiatives into customer-focused energy savings offerings for all sectors.

Incentives will decrease:

We will announce on Friday an incentive decrease. We will spend our 2009 Pacific Power budget this year and are committing a significant portion of 2010 funds in the end of this year. We think the timing of this change will put us in a good position for 2010. We are seeing a lot of potential market growth. To support that growth, rather than get the same thing we got this year, we have to lower incentives.

We are also starting to bump up against the top of the above market cost. As equipment costs decline we can lower the incentive and get us back to a level of sustainable program activity.

The rate will go down 50 cents per watt for both utilities.

Frank asked if we will change our incentive again when the feed-in-tariff is implemented.

Kacia said she does not expect to since it will operate in parallel with our program.

Troy clarified that if you choose the feed-in tariff you cannot take the BETC or an Energy Trust incentive.

OPEN SOLICITATION PROGRAM

Betsy said that in 2010, we will see several changes: an increasing number of projects being developed by customers with little or no development experience, a decreasing amount of available funds combined with the potential for an increasing number of projects due to past pipeline-building, and the incorporation of wind under the Open Solicitation umbrella.

She read through the following list of 2009 Accomplishments:

Completed projects

- The first megawatt of the 3.5MW ProLogis solar project was installed in early 2009. Energy Trust's incentive totaled $1,067,000. The second phase of this project is scheduled for completion in mid 2010.
- The city of Albany's hydro project was completed in March. Energy Trust paid an incentive of $475,000 for this 500 kW project.
- East Portland Community Center solar project (85.5 kW) was completed in July. Our incentive totaled $155,500.
- Farmers Irrigation District's hydro project was completed last spring. Energy Trust provided a $225,000 incentive. The project was expected to add an additional 465,000 kWh annually to the production of an existing hydro project, but for the first year, it is exceeding that figure nearly four-fold.

- Oregon State University's elliptical trainers outfitted with electricity generation were installed in February. Energy Trust paid an incentive of $5,812.
- Four small wind projects have been completed, with 11 more expected to be installed before the end of the year.
- Oregon Institute of Technology's Klamath Falls campus installed a 280kW geothermal electric project. The incentive, $487,000, is expected to be paid by the end of the year.

Suzanne asked where the small wind projects are located.

Erin replied that one is in Hood River (2.4kW), two are in Salem (10kW, each), and one is in Newberg (10kW).

Studies

- Three micro-hydro feasibility studies were completed in rural Wallowa County. Three more are slated for completion by the end of the year.
- Hydro studies for four irrigation districts were completed.
- One tall meteorological tower in Morrow County and one short tower in Jefferson County were installed.
- Wind resource reports for five tall towers in Hood River, Sherman, Morrow, and Umatilla counties were completed.
- Fatal flaw study completed for a potential community wind project in Hood River County.

Theresa asked where developer capability comes into this kind of study.

Erin replied that it does not.

Betsy clarified that it is something we strongly consider and evaluate for all studies and projects, but the study itself is not how that is evaluated.

Market-building activities

- Guidebooks on hydro licensing and permitting are complete. We expect these guidebooks to help ease one of the most complicated aspects of hydro project development.
- Staff completed a hydro resource assessment for the PGE and Pacific Power service territories along with a smaller more detailed study on run-of-river resources that may be available outside of protected areas in Clackamas County. Jed's report on the Clackamas County study was published in *International Water Power and Dam Construction* magazine.
- We provided cost-share funding to help 40 customers apply for USDA REAP grant funding.
- We created two solar working groups to help governments more easily navigate the solar procurement process.
- As part of an outreach effort to Lincoln city and Coos Bay, we organized two community workshops for home owners and businesses on solar and energy efficiency opportunities.
- Staff launched a coop marketing program to assist wind trade allies in building their customer base.
- The number of wind trade allies nearly doubled and currently stands at 22.
- Staff piloted an outreach method for wind that combines wind data with public land records to find customers with good wind and enough space for a wind project. Attendance at the first wind workshop and reception to use this method was filled to capacity at 150 attendees.

- Using the above outreach method, three additional workshops will be held in Newberg and Silverton in November.
- Staff attended a wave energy conference sponsored by the Oregon Wave Energy Trust and will report to the RAC in November regarding Energy Trust's options for involvement in this industry.

Betsy described the following themes for 2010:

Remaining open to the range of technologies

- We will continue funding community wind, small wind, hydro, geothermal, and emerging commercial technologies. We will be incorporating wind into OSP, enabling us to shift funds among the technologies depending on the timing of project development.

Addressing barriers to projects

- We will work in tandem with other RE programs to address barriers to projects including difficulties in finding construction financing, interconnection, and wheeling issues. Use a variety of assistance methods in addition to providing incentive funding. These may include technical assistance, assistance in navigating interconnection issues and permitting, and other services to customers.
- Continue to be engaged in efforts to make zoning codes and permitting procedures friendly to wind projects.
- Work with stakeholders to address county permitting issues for hydro projects.

Continuing to build the pipeline of projects through studies, outreach, and information

- Provide funding for feasibility studies and anemometer loans.
- Put a priority on uncovering potential projects through innovative outreach methods such as wind workshops targeted at customers with good wind resources, providing wind information via an online tool, and a long-term outreach effort for irrigation district scale hydropower projects.

Engaging in market-building activities for wind

- Provide training and support to trade allies.
- Test opportunities to deploy re-conditioned turbines and evaluate new, small wind turbines to see if more types meet program requirements.
- Participate in the newly formed Oregon Small Wind Energy Industry Association (OSWEIA) to help the industry organize in Oregon.

Developing methods for addressing a reduction in availability of funds

- Develop and/or engage in some limited competitive solicitations for projects.
- Move funds between wind, hydro, geothermal, and emerging technologies to fund projects that are ready.

John asked whether we expect to see increased interest in hydro due to the success of the Farmer's Irrigation District project.

Jed explained that future increases in interest will likely be influenced by Energy Trust's outreach efforts. The Farmer's project only works in systems that have existing turbines that are already partly piped-up. There may be other districts with this type of opportunity. We will be looking at this in our irrigation hydro initiative.

Suzanne asked what Energy Trust's plan is with respect to engaging in the small wind industry organization.

Erin responded that Carel DeWinkel and she had discussed the idea of a regional wind association but handed it off to the industry. Energy Trust may provide some seed money but we don't expect to have much participation at this time unless it is requested by the industry. At present it doesn't appear that we will need to push on this much.

2010 Budget Proposal

Elaine presented the following budget proposal:

	PGE	PAC
2010 Activity Budget	$21.1M	$10.8M
Previously Dedicated	$ 7.5 M	$ 5.8M
	$28.6M	$16.6M
New Revenues 2010	$7.9M	$4.8M
Carryover 2009	$21.1M	$12.0M
	$29.0M	$16.8M
Remainder	$0.4M	$0.2M

Expenditures as a share of total budgets

- Incentives 86%
- Delivery & Management 4%
- Other costs 10%

Theresa asked about the decision to spend all the carryover in 2010 rather than splitting it over a period of years.

Elaine said that we have been gradually spending down the carryover over the years and we've reached a point where it makes sense to get the money out the door and into investments. We see a combination of demand for the funding with good existing opportunities and the need to no longer hold onto funds when they can be invested in projects.

John said that one of the most frequent criticisms of Energy Trust is that we have more money than we can spend. This addresses that.

Peter noted that the carryover has been a very significant issue in the legislature. This year, we have money and opportunities, especially in large PV, that we might not have next year. This gives us the chance to enter a space and point a way to larger scale solar projects. In addition, when we transitioned from utility scale to projects 20MW and less we carried some money forward for the next "larger" opportunity. HB3039 puts the utilities on the hook to do some large scale projects, but not necessarily right now. PGE and PacifiCorp have been very interested in having us entering this market. We could spread the money out, but we do need to start "living within our means" and the market needs to know what that will look like.

Elaine presented two graphs of the budget broken out by program:

Programs	Total costs		Range in aMW	
	$ Million	% Total	Conservative	Best Case
Biopower	$4.1	13%	1.31	3.04
Open Solicitation	$7.0	22%	3.37	4.50
Solar Electric*	$20.8	65%	0.62	1.45
Total Renewable Energy	$31.9	100%	5.30	8.99

* Includes large solar funding: $2.3M Pacific, $5.0M PGE RFP

Programs	Pacific Power		PGE	
	$ million	% Total	$ million	% Total
Biopower	$1.8	16%	$2.4	11%
Open Solicitation	$2.6	24%	$4.4	21%
Solar Electric	$6.4	60%	$14.4	68%
Total Renewable Energy	$10.8	100%	$21.1	100%

Suzanne asked to see the cost vs. generation graph for 2009 to compare what that looks like to 2010.

Elaine will prepare that document.

Fred asked whether the utility scale projects would be central stations or customer sited. Kacia responded that it could be either.

Troy asked about the $2.3 million indicated for PacifiCorp solar.

Elaine responded that the money is from the $3.2 million giveback from Goodnoe Hills. PacifiCorp has indicated that they will bring us an application for a 2MW project. We are reserving an amount based on the incentive per watt from the large scale PGE project that was approved in June. The remaining $900,000 was distributed to other programs that need the money.

4. Public Comment

There were no public comments.

5. Adjournment

Betsy adjourned the meeting at 11:45 am.