

Renewable Energy Advisory Council

Wednesday, October 14, 2009 9:30 a.m. – 11:45 a.m.

<http://energytrust.org/meetings/index.html>

Energy Trust Conference Rooms

851 SW Sixth Ave., Suite 1200

Portland, Oregon 97204

AGENDA

9:30	Welcome and Introductions <ul style="list-style-type: none"><i>Review agenda</i><i>Approval of August minutes</i>	Action
9:35	Program updates & themes underlying 2010 action plans and program budgets <ul style="list-style-type: none"><i>Presentation from program managers</i>	Informational
10:50	Break	
11:05	2010 budget proposal for renewable energy programs <ul style="list-style-type: none"><i>Presentation by Elaine Prause on draft budget figures</i>	Informational
11:30	Public Comment	Informational
11:45	Meeting Adjournment	

Draft RE 2010 Budget and Action Plan

October 14, 2009





Energy Trust 2009 Renewable Energy Activity

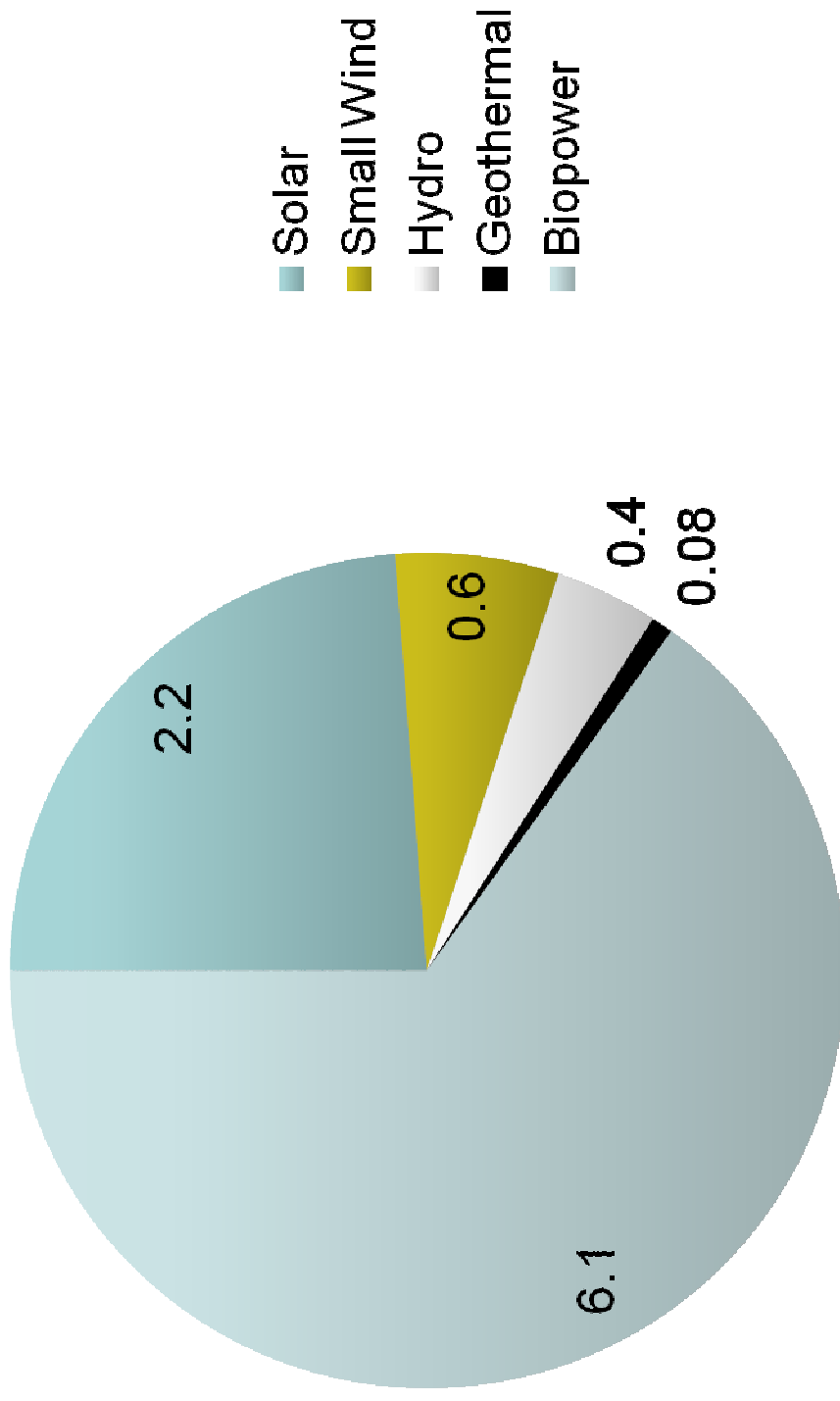
- Forecast to install ~4.0 aMW in 2009
 - Warm Springs put on hold, 14 aMW lower
 - Cumulative 2003-2009 101 aMW
- Completed transition to focus on 20MW or less
 - New techniques, not new technologies
 - Expansion of project development assistance
 - Increase in \$/aMW, reduction in delivery innovation
- External impacts
 - Difficult economic conditions across the board
 - Legislative session
 - ARRA – stimulus package



2003-2009 RE 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%

2003-2009 RE Generation by Technology



* Utility Scale not included ~ 91aMW



2010-2011 RE Budget Themes

- 1. Maintain support for a variety of technologies**
 - Diversity acts as a hedge against particular market swings from external forces such as the economy and policies
 - Focus on technologies and developers who are ready, while keeping the door open to others as they are able to move projects forward.
 - Within technology types, target customer groups that we can reach most efficiently
- 2. Provide assistance early in the development process**
 - Our early year focus on “money on the table” was effective for projects with development experience
 - Now we see projects with less sophistication and needing development support; developers are more pragmatic and less driven by passion.
 - Look for patterns within barriers to development (just like with net metering years ago) and offer creative solutions
 - Build a network of project development technical assistance (Interconnection, financing, permitting, resource assessment)



2010-2011 RE Budget Themes

3. **Expand Market Opportunities**
 - Move further upstream – identify good resources early
 - Target rural community development

4. **Address Funding Constraints**
 - Assist projects with securing additional sources of funding by providing grant writing assistance and information
 - Leverage efforts of other organizations by partnering on educational events, aggregation of projects, and other innovative program delivery methods

5. **Team with Utilities**
 - Explore ideas for reducing barriers for qualifying facility development
 - Help utilities meet portfolio requirements, potential carbon caps, customer focus and IRP goals
 - Support renewable energy RFPs



External Influences Affect Strategy

- Uncertain state tax credits, 2012 expiration, potential percentage reductions
 - Renewable Energy Credit (REC) markets
 - California and Washington
 - National RPS
 - Avoided cost rates for QFs
 - Reduced in early years; will affect financing and BETC eligible project cost
 - Our contribution increases
 - Solar Feed-in Tariff pilot to start 2010
 - Magnitude and timing of federal support varies by technology, politics, etc
- **These and other unknowns underscored the need for a flexible, adaptive strategy**



2009 RE Program Accomplishments and 2010-2011 Actions

- Biopower
- Solar
- Open Solicitation



2010 Draft RE Activity Summary

	PGE	PAC
2010 Activity Budget	\$21.1M	\$10.8M
Previously Dedicated	<u>\$ 7.5 M</u>	<u>\$ 5.8M</u>
	\$28.6M	\$16.6M
New Revenues 2010	\$7.9M	\$4.8M
Carryover 2009	<u>\$21.1M</u>	<u>\$12.0M</u>
	\$29.0M	\$16.8M
Remainder	\$0.4M	\$0.2M
Expenditures as a share of total budgets		
- Incentives		86%
- Delivery & Management		4%
- Other costs		10%



2010 Draft RE Activity Budget and Generation

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



2010 Draft RE Activity Budget Pacific & PGE

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%



2010 and Beyond Challenges

- Large uncertainties in the markets
 - Economy
 - State/federal support
 - Policy
- Facing the 2011 cliff in funds
 - Innovating how we use the incentives
 - Shift messaging from “check at the end” to support assistance throughout

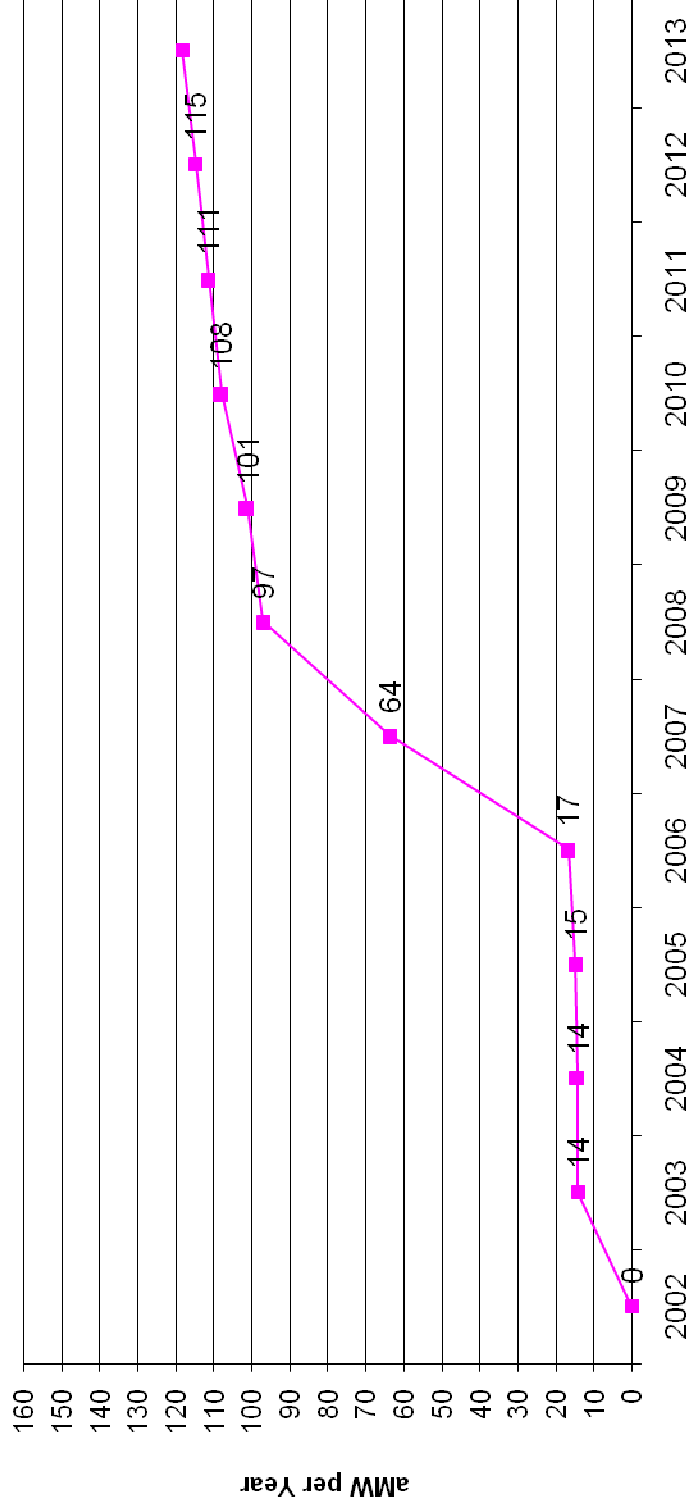


Long Term Generation Forecast

ETO Renewables Cumulative aMW's

Actuals 2002 - 2008

Forecast 2009 - 2013



Program update: Biopower

Oct 14, 2009

Program Goal

Acquisition of significant amounts of renewable energy from wood-fired and other biomass generation; and development of markets for less mature energy resources such as dairy manure and forest biomass.

Program Strategy

1. Utilize market partners and direct outreach to actively identify project opportunities early in their development;
2. Participate in co-funding feasibility studies that advance individual projects and provide broader market intelligence;
3. Provide ongoing technical support during the development process (i.e. interconnection, project financing and technology analysis).
4. Invest (provide incentives) in projects that meet program criteria and goals and support projects through commercial operation.

2009 Accomplishments

Projects Online

1. Stahlbush Island Farms – This 1.6 MW cogeneration project, fueled by anaerobic digestion of agricultural residues, began commercial operation in June of 2009. The project will receive a total incentive of \$827,000 over a two year period and Energy Trust will receive 6,000 green tags annually for the 20 year life of the contract.

Projects Approved for Funding/Applications Received

1. Douglas County Landfill Gas to Energy project – In May 2009 the Board authorized funding of \$1.235 million for this 1 MW landfill gas generation project. The project expects to generate 8,500 mwh annually and ETO will receive 85% of the green tags generated. The third party developer, Ameresco, Inc is expected to complete final negotiations with Douglas County by the end of the year with operation targeted for early 2011. The incentive will be paid out over a period of four years based on performance of the project.
2. Revolution Energy Solutions – RES submitted a Final Application to ETO to develop four, dairy only, digester generation projects in PGE and Pacific Power service territory. The projects will be owned and operated by RES with an aggregate generation of 800 kw. Based on the results of the financial and technical review of the project this project may be presented to the Board in late 2009 or early 2010.

Feasibility Studies

1. A series of feasibility studies analyzing anaerobic digestion at six dairies (in coordination with a northwest dairy marketing cooperative) will be completed in 2009. A summary of the findings of the six studies will compare manure only projects to co-digestion opportunities, documenting the project financials and the technology choices for each option.
2. Three feasibility studies will be completed in 2009 evaluating co-digestion of brown grease and food waste at wastewater treatment plants. Co-digestion can increase generation potential at treatment plants with excess digester capacity. The studies should improve understanding of the available feedstock, the cost of installing and operating receiving facilities and the options to secure adequate feedstock.

Key Activities

1. Waste Water Initiative – In coordination with the Association of Clean Water Agencies, EPA and Bonneville Power Administration, ETO will co-fund an Energy Management Training program for wastewater treatment plants in Oregon. The goal of the training program is to provide treatment plant operators with tools to actively manage implementation of energy efficiency and renewable resources at their facilities. Recruitment for the first year long class is completed and training is expected to begin in early 2010.
2. Agriculture Initiative – Energy Trust is conducting a survey with Metro Solid Waste division to characterize industrial food waste in the Metro region. This study will document the type, volume and present disposal solutions a range of food processors utilize. The goal of the study is to determine more beneficial uses of these waste streams and develop a model that can be applied to other regions in the state. The survey will be completed by the end of 2009.
3. Forest/Mill Biomass Initiative – In 2009 ETO engaged in direct outreach to top tier forest products businesses that are prime candidates for forest/mill biomass generation projects. The goal of the outreach was to develop solutions to barriers to development identified in earlier studies. Challenges in this sector continue to be price volatility and availability of feedstock, lower avoided cost rates for QFs and uncertainty around the availability of the BETC. New opportunities include federal Biomass Crop Assistance program, potential increases to the Production Tax Credit and growing market demand in California.

Budget themes 2010-2011

1. The funding assistance agreement between Warm Springs Biomass and Energy Trust expired in March 2009. ETO and Warm Springs discussed creating a revised plan to extend the existing agreement. As of August 2009 a decision was made to allow the existing agreement to expire and offer the opportunity for WSB to reapply for funding in the future.
2. Provide funding and technical support for the Energy Management training program offered by ACWA, in cooperation with EPA Region 10, Bonneville Power Administration and participating WWTP.

3. Identify and participate with waste water treatment plants that are evaluating increasing incremental generation opportunities utilizing co-digestion and excess digester capacity.
4. Develop and implement a second phase for the Industrial Food Waste Study completed in 2009 that will evaluate the potential for energy production from these organic waste streams. Phase 2 would analyze energy content of waste streams, technology solutions for conversion of waste, collection and distribution infrastructure options and financial potential.
5. Continue to target project opportunities in the forest products and pulp and paper industries identified as top tier candidates and continue to develop the pipeline of future projects that can be ready when markets improve.
6. Expand the role of ETO in the utility interconnection process. The interconnection process is highly technical, expensive and time consuming part of the project development process. Direct resources to aid project developers in navigating this process.

Program Update: Solar

October 14, 2009

Program goal

Develop a long term market for solar energy systems in Oregon; expand participation; identify and remove market barriers, addressing both supply and demand.

Program strategy

1. Provide incentives to increase participation.
2. Distribute program funds and services equitably across market sectors and eligible communities in Oregon.
3. Promote quality standards and ensure there is a strong qualified installer base for consumers.
4. Increase awareness among consumers.
5. Encourage cost reductions in the delivery chain.

2009 accomplishments

- PV: By the end of 2009 we expect to fund approximately 430 installations for 5 MW of new capacity, representing 160% of 2008 installations and 140% of 2008 capacity. We expect to spend the entire 2009 Pacific Power budget and 60% of the 2009 PGE budget.
- SWH: By the end of 2009 we expect to fund approximately 180 installations, representing 90% of 2008 volume.
- CSG will conduct approximately 130 residential solar energy reviews.

2009 market factors

- The cap on the residential federal investment tax credit was eliminated 1/1/09, improving the payback of PV systems for homeowners.
- The 3rd party ownership model for PV installations stalled due to lack of willing investors, but the sophistication of the 3rd party providers improved.
- PV module costs declined, causing installed costs to decline approximately \$1/watt.
- The economy is in recession.
- Federal stimulus funds became available.

2009 initiatives

- Facilitated Solarize Portland neighborhood bulk-purchase approach for residential PV, which exceeded expectations, generating more installation commitments than in all of 2008 and tipping the market toward lower installation costs.
- Promoted GreenStreet Lending by Umpqua bank to finance residential and commercial solar and energy efficiency projects. Loan activity has been increasing steadily, funding \$1.8M in loans. Recently, half of the loans are for solar projects.

- Presented 80 educational solar workshops to residential and commercial consumers, mostly in Portland, through the Solar Now! campaign collaboration between Energy Trust, City of Portland, Oregon Department of Energy and Solar Oregon.
- As part of Energy Trust's organizational redesign, moved residential and commercial solar managers into the customer divisions to work more closely with energy efficiency staff and PMCs.

2009 market building activities

- Provided cooperative marketing incentives for 21 solar trade allies, improving the quality and creativity of contractor advertisements.
- Approved more than 50 new solar trade allies, and changed criteria for being listed to the Energy Trust website to shorten the list for consumers.
- Facilitated pull-testing of S-5! Clamps on residential metal roof systems to provide City of Portland with the data necessary to consider a prescriptive path for structural permits for this non-penetrating solar roof attachment system.
- Participated in OPUC rulemaking process to develop an effective feed in tariff to launch in 2010.
- Sponsored the NW Solar Expo, which was visited by over 2,000 consumers and in which 325 contractors received PV and SWH installation and design training.

2010 market factors

- Feed in tariff for PV installations will become available as alternate incentive to Energy Trust and BETC/RETC.
- 3rd party owned PV for homeowners (residential PPA) will be offered by one or more vendors aggressively seeking market share.
- Uncertainty around the value and longevity of state tax credits may be resolved in February.
- PV costs are expected to remain low after PV glut is exhausted due to increased manufacturer competition.

2010 themes

- Expand the market
 - 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.
- Address 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.

Program Update – Open Solicitation Program RAC meeting, October 14, 2009

The Open Solicitation Program was designed to receive applications for projects using technologies not covered by other programs, to fund innovative projects, and to provide insight on whether and how to launch new, technology-specific programs. The programmatic focus of the Open Solicitation Program in 2009 has been on developing a pipeline of projects, increasing capacity among customers and project developers, and building on past efforts.

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.

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.

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.

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.

Themes for 2010

Remain open to the range of technologies

- 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.

Address barriers to projects

- 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.

Continue 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.

Engage 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.

Develop 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.