EnergyTrust of Oregon, Inc.

RENEWABLE RESOURCE ADVISORY COUNCIL
Notes from meeting on September 17, 2008

Attending from the Council:
Doug Boleyn, Cascade Solar Consulting
Carel DeWinkel, Oregon Department of Energy
Robert Grott, Northwest Environmental Business Council
Thor Hinckley, Portland General Electric
Jeff King, NW Power and Conservation Council
Lori Koho, Oregon Public Utility Commission
Suzanne Leta Liou, Renewable Northwest Project
Debra Malin, Bonneville Power Administration
BJ Moghadam, PacifiCorp
Frank Vignola, University of Oregon

Attending from the Trust:
Kacia Brockman
Pete Catching
Fred Gordon
Margie Harris
Ben Huntington
Erin Johnston
Jed Jorgensen
Betsy Kauffman
Debbie Menashe
Pati Presnail
Brian Thornton
John Volkman
Virginia Weeks
Peter West

Attending from the Board:
none

Others attending:
Collin Whitehead, EnXco
Mark Olson, Dynalectric
Len Ralston, Dynalectric

1. Welcome and Introductions

Peter West convened the meeting at 9:33am. Everyone in attendance introduced themselves. The agenda for the meeting was adopted without change.

2. Program Updates

The managers of the Biopower, Open Solicitation, Solar and Wind Programs summarized their 2008 accomplishments and identified budget themes for 2009

Biopower Program

Program manager Thad Roth explained that the overarching goal of the program is to get projects operating. In 2008 Biopower had two new projects go into operation and recently authorized another, the Stahlbush Island Farms anaerobic digester.

In looking back at last few years, a lot of hard work was put into creating procedures, market development and outreach activities. Now the program can built on this foundation and go find new projects. Thad proposes to be more active in recruiting specific projects. To do this he proposes

identifying projects by co-funding feasibility studies. He hopes that additional outreach to supportive industry groups will help Energy Trust get in on the ground floor of new projects. When that happens Energy Trust will be in a better position to understand a project's technology requirements, the project's appropriateness, and will get to know the project team. Having a good project team is especially important when projects are using early stage technology.

Once the program has identified and recruited projects it will actively participate in the project's development. There are lots of places for projects to go wrong: fuel supply sourcing issues, financial planning, interconnection; all are key areas that need hand holding to go from concept to completion.

Market opportunities haven't changed a whole lot in the past few years. The program is still interested in waste water treatment plants, the agricultural sector, and woody biomass.

There are 3,500 waste water treatment plants in the US generating methane from digestion technologies. The technology is mature. In Oregon there are 28 plants using digesters, nine of which are generating electricity (the others are producing thermal energy). There is an opportunity to build up that number of plants, but the better opportunity is to take advantage of plants that have excess digester capacity. These facilities can take in additional waste streams for digestion to produce more electricity.

The cities of Salem and Medford are both looking at introducing agricultural wastes to their digester. The City of Salem currently generates 600kW at their plant but they think the output can be increased by 50 percent. Energy Trust is in the loop on those projects because of our help co-funding feasibility studies.

There are other opportunities to look at smaller applications at the same plants through the use of micro turbines, fuel cells, and sterling engines. These are small generation opportunities but they can be useful in reducing the cost of operation at these plants.

Energy Trust is also still working on woody biomass projects using mill and forest residues. In 2005 Oregon generated 130MWa using residuals from mill waste. A lot more waste was used to generate thermal needs.

The program is currently doing a study to identify potential customers that can generate additional electricity at their facilities or that might be able to take advantage of unique waste streams in their area. The work will identify a list of potential customers and identify any barriers that need to be overcome for them to move forward. These are the biggest opportunities right now in this market.

With the housing market in bad shape the lumber industry is not in strong position, but it is faced with high energy prices and these prices will encourage project development.

The most exciting opportunity right now is in the field of agricultural digesters. Energy Trust developed a program for dairies in 2007. That program is still available but the market is expanding to include additional feed-stocks, such as animal mortality and butcher wastes, and rye grass that would normally be burned on the field in the Willamette Valley. Right now there is no facility to process animal carcasses in Oregon. They are all shipped out of state. That represents a big opportunity. The technology is there to support co-digestion of these feed-stocks, creating bio-refineries. The proposals that Energy Trust is now seeing are for larger applications, in the15-20MW range, as opposed to 1MW or less for most dairy digesters. Energy Trust will be flexible to changing market conditions such as these.

The first digester Energy Trust has helped with, outside of waste water treatment plants is the new Stahlbush project. The owner indicated that he wasn't getting enough value out of the waste stream

through the current practice of tilling some wastes and selling some wastes to others. He can realize more value through a digester because he can capture thermal energy for process steam, it generates electricity, and the byproduct is fertilizer. Funding this kind of project can help transform the market in Oregon.

Biomass Questions:
Len Ralston asked if there are any cost estimates of biomass projects on a kWh basis.

Thad responded that project costs are dependent on the cost of the fuel supply or waste stream. The cheapest waste streams are created and used on site. Some resources are external but can be acquired for free or very little, such as yard debris drop off locations. That keeps those prices low as well. Higher costs and more uncertainty are found when the resource has to be gathered from the forest. For the projects that already exist, the total cost per kWh was incredibly low. Now there is more competition for resources and so costs of fuel are going up. This is holding projects back.

Len replied that he saw something saying biomass projects cost16 cents per kWh.

Thad says he is seeing things for significantly less than that. Peter added that, in order of costs, waste water treatment plants are cheapest, followed by woody biomass, then agricultural wastes. In general, biomass can be cheap but it's very spotty and projects take a long time to come to completion. It may be the cheapest right now, but has the longest development time of any Energy Trust program.

Robert Grott asked about bio-refineries. Can they go different directions, such as creating liquid fuels or burning the gas for electricity? What kind of projects will Energy Trust see?

Thad replied that both kinds of bio-refinery projects will happen, but that Energy Trust will only support projects that generate electricity. In fact, Energy Trust has seen plans for plants that include fuels. There is also the potential option for projects to inject methane into pipelines. NW Natural is interested in setting standards to do that. Energy Trust supports these technologies conceptually but the needs of the individual developer will determine the direction our program goes.

Suzanne Leta asked how Energy Trust's co-funding of feasibility studies interacts with ODOE's CREF Fund.

Thad responded that Energy Trust will pay up to 50% of a feasibility study, with a cost cap, but we can also help people apply to the CREF Fund. At the end of the day, we want to make sure the developer makes an investment in the project to show they are committed.

Frank Vignola asked if any of the feasibility studies we have completed are available to the public.

Thad replied that they are available, but that they are not online and Energy Trust might have to hold back some information that would be considered proprietary to the project developer. For 2009 Thad hopes to separate out the costs that are consistent across various studies so that we can share that information with the development community.

Thor Hinckley asked what the Stahlbush project is expecting in terms of a payback period?

Thad replied that the payback time will be four years. This is off the shelf technology in Europe, but it is not here. Energy Trust is helping to develop local resources by developing this project in Oregon.

Peter added that there are certain budget themes that you will see reflected in the numbers of all of our programs. Tax credits and the economy will be the wild cards for everyone for next year. In the

Biomass Program there will be lots of emphasis on waste water treatment plants and digesters. We still hope to see the Warm Springs project come through. We will need to continue doing feasibility and interconnection studies for wood waste projects. We will also need to expand our work with municipalities, on new technologies like Stahlbush, and on small technologies for waste water treatment plants.

Open Solicitation Program

Program Manager Betsy Kauffman explained that the Open Solicitation Program (OSP) traditionally received applications for projects that didn't fit into any other program, or for technologies that have now been split off into their own programs, such as solar and wind. Until the beginning of 2008 OSP was also the place where large scale solar developments came in. Now those projects have moved to the Solar Program, leaving hydroelectricity, geothermal power and new technologies within the program's purview.

In 2008 OSP put a lot of effort into developing a pipeline of urban hydro projects as well as completing some of the large solar projects that carried over from past years. The following projects were completed or are scheduled for completion this year: East Portland Community Center Solar, Portland Habilitation Center Solar, Bugni Hydro, and Albany Hydro. The Pro-Logis Solar project and a small hydro installation in West Linn's water system were committed this year and construction is scheduled to begin in 2009 for both projects. The Swalley and Central Oregon Irrigation District hydro projects are scheduled for completion in 2009 and 2010 respectively.

In working to build the OSP hydro project pipeline the program noticed that most existing applications to the state's Renewable Energy Feasibility Fund were coming from PacifiCorp territory. To feed more projects from PGE service territory OSP staff called all the municipalities in the service territory with the offer to pay for a consultant to prepare applications to the Fund. Five cities applied, all looking for studies on hydropower within their water systems. If they get funding from state Energy Trust will have spent only $3,000 per city to leverage 75% of their studies' funding. Energy Trust may consider stepping in to offer co-funding of some of the feasibility studies.

In addition to the REF Fund work, hydro feasibility studies are in the works for the City of Gresham's Wastewater Treatment Plant, the Crystal Springs Water District, and the City of Pendleton. The program is also co-funding studies on irrigation system hydro projects for three ranches in Wallowa County and for Eastern Oregon Power and Light, an organization involved in restoring an old water wheel with modern electrical components.

Due to the high level of interest in hydroelectricity the program has engaged Summit Blue consultants to do a full assessment of the non-stream hydro resources available in PGE and PacifiCorp territories. The assessment will both describe and quantify these resources. In addition, the program has hired a GIS consultant to perform an assessment of the run-of-river resources outside of protected areas. To test the usefulness and capability of this approach a trial is being performed only in Clackamas County. Reports from both of these assessments should be available in January.

OSP also commissioned a study of the state of development of the wave power industry in Oregon which will be presented later in the meeting.

Another role of OSP is to provide outreach on behalf of the Renewables Department. To this end, the program provided funding to help seven solar participants apply for USDA 9006 grants. All were successful, leveraging about $15,000 in Energy Trust funding to bring home about $125,000 in federal money. In March, OSP organized a workshop for municipalities interested in solar. There is a follow up workshop set for October 29 to address both solar and efficiency.

For 2009, the OSP budget will focus on seeing what needs to be done to encourage communities to move from feasibility studies to project implementation. The program has seen a high rate of feasibility studies that do not convert into projects and would like to understand and address the barriers to project development. OSP will also be reviewing the results of the hydro resource assessment to see about creating a targeted, structured outreach approach. OSP expects to see six or seven hydro project applications, two geothermal project applications, and will continue working to build the project pipeline through co-funding feasibility studies. The program will also open the cost-share of REF Fund applications to PacifiCorp territory to see if more communities will apply.

Open Solicitation Questions:

Len Ralston asked if there is a publically available list of feasibility studies. Peter replied that all studies conducted with municipalities are public information but that Energy Trust would need to check on the confidentiality of other studies.

Debra Malin asked where cogeneration fits into the Open Solicitation Program. She elaborated that she has seen proposals for developers to update a host's cogen system to create additional generation while using the same amount of fuel. Peter replied that if the system is fossil fuel based the Renewables Department can't help, but if it is a renewable fuel then there might be something to talk about. If the host would be saving natural gas it might be something the Energy Efficiency department would be interested in.

Collin Whitehead asked if there was not going to be support for utility scale solar anymore. Betsy replied that any support that might exist would be handled through the Solar Program, not the Open Solicitation Program.

Jeff King asked if OSP has seen any interest in larger scale binary geothermal plants. He says that his organization has seen interest in plants around 13MW in size in Nevada and other places. Betsy replied that when plants in Oregon get up to that size they tend to want to sell their power to California, since most are located in Southern Oregon. She said that the phone has been ringing on this subject though, and she is going to a geothermal conference in Nevada in October to learn more. Peter added that if geothermal projects come in at the costs he has typically seen published Energy Trust will not be able to support them without cutting a program. Jeff responded that he has seen some plants coming in at costs closer to what he would expect to see for Community Wind, but that Betsy's point about selling to California is valid.

Carel DeWinkel mentioned that in addition to the Renewable Energy Feasibility Fund operated through OECDD, the Community Renewable Energy Feasibility Fund operated through ODOE is available for communities looking for funding for feasibility studies.

Solar Program

Program Manager Kacia Brockman described the growth of the Solar Program, the hiring of additional staff to support the commercial solar sector, and the research and outreach efforts which have promoted the program's expansion.

Residential program activity in 2008 has acted on recommendations from market research performed by Smart Power in 2007. A pilot of solar home reviews, in which auditors go on site at locations where homeowner have pre-qualified and assess the homes' solar potential, is underway. About 100 assessments have been completed and a number of them have converted into projects. Staff is currently evaluating the pilot to determine whether it should continue in 2009. A contractor has been hired to appraise homes with solar systems that have sold since 2005 to better understand the value that solar adds to a property. Interestingly, staff has found only nine homes that have sold, indicating that owners who pursue solar probably see it as a long-term commitment to their home. Despite the small sample

size staff is moving forward with the research to see if it is possible to draw any conclusions about the added value to the home.

Staff is contracting with a local bank to offer low-interest loans into the marketplace for renewable energy and efficiency projects. Smart Power's focus group research identified a need for low interest, unsecured financing for solar projects. With the current market conditions, lending momentum has shifted to home equity loans as opposed to unsecured loans..

Solar Now! has also moved forward. This effort is a branding campaign which combines the interests of Energy Trust, Solar Oregon, Oregon Department of Energy, and the City of Portland Office of Sustainable Development. At the 2008 NW Solar Expo all of these groups shared booth space under the heading of Solar Now! and were successful in helping people learn how to quickly move through various parts of the permitting, tax credits, and Energy Trust incentives. The free workshops put on by Solar Oregon continue to be very strongly attended. In general, there is a lot of interest. The shifting economy means that installations in 2008 haven't grown as fast as they were projected to, but Energy Trust is still building the project pipeline.

At the beginning of the year the Solar Program's goal was to leverage the new 50% BETC and the interest that it developed into new projects. At the same time the program needed to strike a balance with respect to funding. The Solar Program's 2008 budget was larger than in previous years, but the large number of early BETC reservations indicated that Energy Trust may have insufficient funds. In addition, there has been a great deal of uncertainty created by the potential expiration of federal tax credits. Because of the apparent potential for a large number of small scale projects, the program has opted not to invest in very large solar projects.

In June the Trsut shifted $2.5 million of unspent Community Wind program funds to the standard Solar program tos upport demand. The third-party ownership model is driving the increased demand in 2008, but projects were delayed as the PUC considered the appropriate treatment of third party system owners. Some projects are now being delayed due to potentially expiring tax credits, difficulty securing investors with in the current poor financial market and lack of investors with Oregon tax liability. These projects are being shifted to 2009. As a result, the Solar Program probably will not hit its 2008 high goals, despite all the activity. Overall, the program has installed 1 MW this year and there are about 6MW in pipeline that are committed for next year.

The solar water heating program is chugging along, mostly at the residential scale. Several solar water contractors shifted their business focus to take advantage of opportunities in the PV market.

In 2009 Solar plans for a lot of uncertainty. On the positive side, increased media attention has raised general awareness of solar opportunities. Rising energy prices may encourage investment in solar and equipment costs should start to decline. The learning curve for third party projects has been overcome, so those should move faster in the future. It's also likely that a third-party residential solar lease program will come to Oregon with an attractive offer to the residential market. On the negative side, the likely expiration of the federal tax credits will slow things down, as well as the poor economy.

When the budget was developed for 2009, staff planned for no extension of the federal tax credit in this year, but expects that it will happen in the spring of 2009. The 2009 solar budget will be similar to 2008 but then will decline steeply in 2010 as the renewable programs spend the monies that have carried forward from previous years.

The solar water heating program will promote more commercial hot water and solar pool heating. Staff will look at expanding the standard incentive for commercial solar electric projects beyond 100kW to reduce transaction costs for contracts and appeal to investors.

Solar Questions:
Len asked how high the new standard incentive will go. Kacia replied that staff is not sure yet, but that it might be 200-300kW.

Carel asked if the money moved from the Wind Program will carry forward in the Solar budget. Kacia responded that the program has committed projects against that money. If those projects are not completed by end of 2008, that money carries forward to pay for them when they are built.

Len asked if Solar will coordinate with ODOE when it is considering easing the cap on commercial solar arrays, to take into account sliding caps on ODOE's maximum eligible cost. Kacia replied that program staff will coordinate with ODOE and industry stakeholders when the time comes, but that the budget is only in its first round, so nothing is set in stone yet.

Suzanne asked if Kacia could give an estimate of the kW that will be installed by the end of year. She added that she has heard that financing troubles are causing some projects to stagnate. Brian replied that permitting has been a problem in some jurisdictions, but that due to the timing of the tax credit expiration all projects are highly motivated to come to completion this year. Peter added that it will be easier to give an estimate of the total installed kW next month because many projects are still in flux right now.

Collin asked if any money will be earmarked for large scale solar in 2009. Kacia replied that nothing is earmarked beyond 1 MW combined multi-site projects.

Carel mentioned that ODOE had a booth at State Fair and there was a lot of interest from the public about renewables and High Performance Homes. Kacia responded that in 2009 Energy Trust's New Homes program will shift from promoting the current ENERGY STAR specification toward rewarding measures that achieve deeper energy savings, potential all the way to net zero.

Wind Program
Project Manager Erin Johnston gave a report on behalf of the Small and Community Wind programs.

Small Wind was launched in late 2007 for projects up to 50kW in size. The market is still fairly undeveloped, so staff has spent a lot of time marketing to potential participants and trade allies. The outreach has generated an immense amount of participant interest but there are still not very many experienced installers. Growing the installer base is something staff will be working on in the next year.

Two small wind projects have already been installed this year, and two more have funds committed to them and will be installed in 2008. These projects consist of 3 10kW systems and one 1.8kW system. In addition two other projects were installed that carried over from previous years. One is a 5kW system in Independence, the other is 42kW system in the Willamette Valley that was developed in Oregon and is undergoing AWEA testing. Through these installations, staff has learned that the systems are more expensive than expected and that more installers are necessary to meet the market demand.

As a demonstration, staff is also supporting a project which will install four Skystream turbines on a roof in downtown Portland. The installation will be at 12th and Washington. It is worth noting that this is not normally a good application for wind systems. In this case, the developer did extensive modeling and testing in the wind tunnel at Oregon State to find the best roof locations. It will be interesting to see what the results are.

The Community Wind Program has continued its anemometer loan and expanded it to taller towers. These loans help prove projects feasibility. The biggest problem, beyond the shortage of turbines, has

been interconnection. Staff provided support by participating in the PUC interconnection rulemaking workshops and hearings.

In 2009 the Small Wind program will continue to focus on marketing to potential participants and installers. Through the solar program, we have learned that it takes about a year for a participant to go from being interested to getting a project installed. Staff currently receive one or more calls from potential participants each day. At this level of interest, that could mean a lot of new project applications in 2009. To help qualify customers staff purchased a wind map, but currently only Erin can use it. Staff is working to get a good-quality wind map online to relieve some of the pressure on Erin and the small installer base.

To help the existing installers ramp up their operations Erin will hold a technical training series on installation, maintenance, and project sitting, for example. She is also working with NW Sustainable Energy for Economic Development to put together a turn-key wind system that would qualify for financing though the BETC and USDA REAP (aka Section 9006) programs. REAP grants reduce the value of the BETC but also reduce up front costs for participants that may not have tax credit appetite.

To lower system costs staff is working with potential tower manufacturers to encourage in-state wind tower production. At present, no towers are made in Oregon and shipping expenses add to project costs. One in-state cell phone tower manufacturer is seriously considering building wind towers and another manufacturer is also thinking about going into local production.

Staff are also considering expanding the Small Wind Program above 50kW to take advantage of refurbished machines that are coming on the market. Energy Trust would like to do a few demonstration projects using these machines.

In the Community Wind Program, the worldwide turbine shortage will not be solved in 2009. Staff will continue with the anemometer loan program and continue assisting projects with interconnection issues.

Wind Questions:

Len asked if refurbished wind turbines carry the same or a reduced warranty from new machines. Erin responded that she believes the warranty is reduced but that once the systems are proven the warranty periods may get longer. Mark Olson added that no European manufacturers carry a five year warranty on their wind systems so his company is trying to encourage them to make the warranty period longer.

Carel asked if the wind map, once it is online, will have data state wide. Erin replied that it will.

Deb asked what the resolution on the map will be and wondered how much it will cost to make the data public. Erin responded that the Energy Trust's internal map uses 200m wind data. To make this data public would be very expensive, requiring an approximately $60,000 up front purchase and about an $8,000 yearly licensing fee. Energy Trust also purchased 400m wind data for much less, approximately $700. That purchased data is not confirmed as being public, and the available public 400m data is not verified. Erin is working to confirm that the 400m data is public, and, if it is not, find out how much it would cost to make the data public.

2. Roles and Risk Review

Peter gave an overview of the need to do this analysis – Energy Trust has limited its role in project financing, and is looking to see if there are opportunities to accelerate renewable markets through taking different roles.

Fred Gordon gave a summary of the roles that Summit Blue suggests Energy Trust might take on within its existing Renewable Energy programs. He noted that anything new would require either new money, supplant existing program activities or require more staff. At present, Energy Trust does not have any new money. The process, then, is to try to determine the most important things to do. In places where a market is stuck, what can Energy Trust do to help it move along faster?

The Summit Blue findings were presented in four columns. The first column represented things that Energy Trust currently does that could be done a little differently. The second column included new things that could be done within the organization's current mandate. The third column represented things that could be done that are somewhat outside of Energy Trust's current mandate. The last column included things that need to be done that may be the role of someone other than the Energy Trust (e.g., state and Federal government)

Fred explained that the report's findings were shared with peer organizations in Vermont, Massachusetts, and Pennsylvania respectively. Energy Trust used their feedback and experiences to narrow down the potential options.

- Community Wind – Energy Trust could take a more active role in helping communities pull together the technical, financial, and administrative resources to make projects go, without actually taking on the role of developer. . Energy Trust aggregating orders to buy turbines is not feasible within the current Energy Trust renewables budget, and may (unrealistically) require synchronizing projects that may be on different timelines. Prior experiments in aggregating turbine orders were not encouraging.

- Small Wind – Marketing and targeting are the most important things. Energy Trust needs to get information out to the market. This is essentially more of what the program is currently doing.

- Small PV – The small PV market would benefit from a better idea of Energy Trust's funding plans over the next several years. Ideally they would want a locked-in commitment but creating such a plan isn't without risks- the appropriate funding level depends on many external variables such as prices, tax credits, and market response. Energy Trust is trying to figure out how to give more clarity while being honest with commitments and using funds wisely.

- Larger PV – Energy Trust has limited its role in the large PV market to projects under 100 KW, multi-site project aggregating small sites, and possibly projects coming in through utility RFPs. The market wants predictability and the commitment of money. Developers are also nervous about turning over green tags since they don't know what they're worth. To address developer concerns about green tag value in all renewable markets, Energy Trust is looking at buy-back clauses in the event that RECs become more valuable. In general, the REC market is highly speculative. Energy Trust has to figure out its long-term role in the large solar market before this becomes relevant to large solar

- Biomass – The market wants to know the long-term price of fuels, but this is dependent on factors like the impact of the price of transport fuel on the Chinese recycled fibre market. The Energy Trust can't help much with this. Energy Trust can try to help pull together potential fuel supply assessments at the local and regional levels or coordinate fuel access for multiple local projects if such an opportunity arises. In general, the market is convoluted, so it may be helpful if the Energy Trust provides more informational services. Energy Trust should also help interested parties develop financial pro-formas in a way that avoids legal liability issues. A lot of the questions in the Biomass sector back up into a bigger sets of questions about how Energy Trust

should spend its money over the short and long terms with respect to meeting the new RPS requirements.

- Geothermal – Energy Trust should help to demonstrate low temperature technologies. Energy Trust won't be able to afford to help with exploration as test wells each cost a significant share of Energy Trusts budget.

- Small Hydro – These projects tend to spend a long time in the pre-construction phase while getting financed. If Energy Trust could help with preconstruction financing it might accelerate things by a year or two. Some hydro projects also need help putting their financial and development teams together. Energy Trust can provide development assistance or advice in this regard. The advisory committee says Energy Trust shouldn't take on development risk, but could help be a matchmaker between developers and financers.

Questions:

Suzanne noted that, with regard to Community Wind, it seems like the issue isn't that Energy Trust should buy turbines but that the organization should try to aggregate orders.

Fred responded that to aggregate turbine orders you have to have multiple projects on the same timeline. That has never happened in Oregon. This idea has been tried in other places and it created distrust with regard to the community's sense of ownership of the project

Peter added that Energy Trust got close to doing this once but the turbine supplier needed a single order. Someone had to put deposit money down. The cheapest way Energy Trust could think to do it was five percent down as an option, where Energy Trust would lose the money if the projects fell though. That deposit added up to millions of dollars, and in the end it was too much to risk. Yet, in the current market options are the only way to do this.

Carel asked if anyone has done this. Peter replied that Massachusetts did that for three projects but that the results were mixed. Fred said that Massachusetts recommends against this practice because the local developers don't welcome the help. These projects are difficult to move forward because you are trying to get community people who really have other jobs and capabilities to act like developers in a synchronized way.

Carel asked what "facilitating development" means.

Fred explained this is essentially adding more labor to the activities we are already doing. Peter added that it includes activities such as the Community Wind Guidebook, encouraging people, going out and prospecting projects yourself, and actually taking the lead for a while for communities.

Carel noted that he and Erin were at a NW Seed wind meeting where a lot of landowners showed up who had been approached by wind developers who want them to sign on the dotted line. Maybe Energy Trust could help guide landowners or provide legal assistance? He noted that there will be other workshops like this in the near future.

Erin replied that helping a landowner get involved in a utility scale project will not help Energy Trust meet its current goals because the savings will not come through Energy Trust's program. Carel replied that it could help the landowners to understand the different scales of development and might get some interested in community scale projects that way.

Fred noted that large developers are starting to mine smaller niches. Is Energy Trust's help really needed?

Peter replied that Erin's concern is that Energy Trust won't get credit. He questioned whether Energy Trust should care about the credit if the project ends up on the balance sheet of the RPS.

Frank Vignola noted that right now Energy Trust pays its incentive upfront. He asked if Energy Trust should be paying on production instead. Frank also questioned if it would be possible to split things up and let a developer choose either an up-front incentive or payment on production?

Fred replied that the market is stuck in the formation of capital. Paying less up front isn't a barrier, it addresses a barrier. Paying more up front is the way to make more things happen.

Carel said he believes feed-in tariffs could help.

Fred said that paying by production means paying a lot more money. He noted that sales to utility are a form of pay-for-performance, so developers have a strong incentive to maintain production from their projects. However, within the frame of what Energy Trust can do this would probably be worse financially in the long term.

Peter noted that it is not cheaper for the Energy Trust because the organization would have to put the money in the bank to escrow it. Developers seeking project financing can go to the bank with a net meter or QF agreement, but Energy Trust revenues have to be escrowed to be real for the banks. That means that the budget impact for the Energy Trust is significant. For a developer, the time value of money is at a premium over money you can borrow from the bank because there is risk. It's been cheaper for Energy Trust to take a risk on production.

Frank responded that Energy Trust needs to make developers care that their systems are operating well over time. He believes the organization should start to move towards a production incentive and needs to find ways to do that. He acknowledged that solar installers all want the incentive up front, but thinks Energy Trust should find a way to move towards paying on production.

Peter replied that doing so shifts risk for the organization. Energy Trust would be saying that it isn't trying to develop a market at that point. The organization would also have to recognize that it will be paying more over time as a result.

Carel said that he has worked for quite some time on production based payments. He does not believe that Energy Trust's role would end with regard to market development if the organization switched to production payments.

Peter agreed that the market development role may not go away initially, but that there must be recognition that Energy Trust would have to shift whatever it does. Production incentives have some good qualities, but there are some hidden issues that must also be recognized.

Carel said he is a little concerned that people think production payments would mean that the Energy Trust would no longer be necessary. He said this is not true.

Robert Grott said that from a developer perspective, these are just different ways to get things done.

Fred sad that Energy Trust is adding the "last dollar" to utility purchase payments and tax credits to make a project go, , so the organization's goal has been to get the most from the little amount we are paying.

Peter asked that the conversation move on to other topics, recognizing that a great deal of time could be spent discussing production based incentives.

Suzanne pointed out that the the consultants didn't give advice on things to stop doing. Fred said that Energy Trust asked Summit Blue to survey the market and provide advice on what more should be done. We need to address what is not done to make way for the new.

Robert noted that having Energy Trust staff on a project team would be a great leveraging activity, especially for smaller players in the renewables arena.

Fred responded that participants like it if Energy Trust can provides expertise at pulling projects together, but expertise is at a premium. It means that the Energy Trust has to work at keeping its existing staff and continue recruiting more expert FTE.

Carel looked over the sheet and asked if there are there things that might need to go to the legislature next year that aren't obvious.

Fred said that the Energy Efficiency Working Group is looking at letting a local improvement districts do property tax financing. This could be a way to provide capital for efficiency and on-site renewable projects whereby the loan is attached to the property and the local government can use the property tax collection process as security. This reduces qualification requirements and simplifies the loan process, which could make loans available and attractive to many more people, including those of limited means. The capital could come from local bonds or State bonds. M municipalities could use this financing to get more projects happening. He noted that either the Energy Trust needs hundreds of millions of dollars in new rebates, or loans like these to get things moving.

Peter added that there is also a proposal to allow SELP to do bonds for pre-construction financing.

Jeff King noted that in the Biomass section, one of the key roles for others is to get a more sustainable woody biomass supply. He would like to see others working towards improved state and federal policies for forest management.

Peter finished the conversation by noting that there is going to be an Innovation Workshop for the board on this subject on October 8th for both efficiency and renewables. If anyone has comments they should be sent to Peter or Fred. Energy Trust staff are trying to work towards a final set of recommendations for the board. There will also be one last memo and a final report from the consultants.

3. Wave Power Report

Betsy Kauffman gave an overview of a report on the Wave Industry prepared by Virinder Singh of Hat Trick Consulting.

Energy Trust's board President was concerned that Energy Trust might be missing an opportunity to participate in the development of the wave power industry in Oregon. Energy Trust commissioned Virinder to investigate the state of the wave industry and any potential roles for Energy Trust.

The first part of the report examined the status of current projects in Oregon. The report notes that activity has slowed considerably. Looking back, it appears that most of the initial activity in the market was really site banking.

Oceanlinx withdrew its project application. Lincoln County is no longer pursing its revised application. In Bandon, Finavera has a 2MW phase of a 100MW project that is still under development, but the company is facing financial challenges. Douglas County has a preliminary permit but is not moving forward quickly.

The only projects that appear to have any activity or momentum to them are those being developed by Ocean Power Technologies. OPT has applications in for a test buoy and a 2 MW project in Reedsport, and a 100 MW project in Coos Bay.

The report also analyzed the barriers to wave power projects. These were summarized as follows:

- Lack of federal incentives. Wave power has no PTC or ITC, making it hard for the projects to pencil out.
- Lack of experience in the technology and on the part of the developers.
- Stakeholder concerns, mainly from the fishing and environmental communities.
- Financial markets think these projects are risky.
- The Governor has requested that only demonstration projects be approved until the state's territorial sea plan is completed. He has asked FERC to not process OPT's larger application until an amendment is made to the state's coastal zone management plan.
- FERC has a fast track licensing program but other agencies do not. Projects can only move as fast as the slowest agency.

All of these barriers are in addition to the usual barriers of transmission, interconnection, financing etc. No project has even gotten to the point of discussing these issues yet.

The report also asked what is needed to help the industry move forward. In general, streamlining and clarification of the permitting processing would be of assistance. In addition, there needs to be outreach to stakeholders and environmental impact studies need to be completed to understand these projects impacts. Overall, there needs to be more data and more experience with equipment in the water. Energy Trust staff do not believe these are things we are well equipped to help with.

Take away points:
The wave industry is in its infancy. Right now, other technologies compare more favorably. Eventually additional data will come in and Energy Trust will reassess at that time. In the meantime, the Oregon Wave Energy Trust is in a good position to help the industry deal with the issues it faces and was set up specifically to do so.

Staff members do not see a role for Energy Trust at this time, but are staying active and up to date on activities. Energy Trust is participating in and sponsoring conferences for the industry but we don't have a role with specific projects yet.

Questions:
Carel asked if the Wave Energy Trust received a grant from the US DOE. Maybe $5 mil? Betsy said she is not sure about the source or the total of the grant, but believes they are set up to help the industry out at this time.

Fred said the Hat Trick Consulting report makes sense but wondered why these projects appear to be happening in other places, such as off the coast of Spain. Betsy replied that there may be regulatory reasons or financial reasons that help the projects makes more sense in those places right now. Carel DeWinkle said that European feed-in tariffs improve the projects' economics overseas.

Betsy reiterated that the Energy Trust does not need to worry about missing an opportunity with the wave industry in Oregon.

4. Public Comments.
Robert Grott notes that the Renewable Energy Working Group is working with the Oregon Insurance Commission to identify the inherent barriers to renewable energy projects through insurance and

bonding. The group is looking for examples of projects that were delayed, blocked, or became cost ineffective as a result of insurance issues. Sandra Walden will be in contact about this.

He also noted that the REWG has brought an idea to the Governor's office with regard to the BETC. The idea would allow a pass-through partner pool to solve some of the problems of finding a 1:1 match.

5. Meeting adjournment.
Peter adjourned the meeting at 11:57am. He noted that the next RAC meeting will be on October 22, 2008.