RENEWABLE ENERGY ADVISORY COUNCIL
Notes from meeting on February 15, 2012

Attending from the council:
Jason Busch, Oregon Wave Energy Trust
Robert Grott, Northwest Environmental Business Council
Juliet Johnson, Oregon Public Utility Commission
Suzanne Leta-Liou, RES Americas
Glenn Montgomery, OSEIA
Frank Vignola, University of Oregon
Vijay Satyal, Oregon Department of Energy
Dick Wanderscheid, Bonneville Environmental Foundation
Tashiana Wangler, Pacific Power
Betsy Kauffman
Debbie Menashe
Sue Meyer Sample
Thad Roth
Peter West

Others attending:
Joe Eberhardt, Portland General Electric
Adam Henkey, Oregon Tech
Robert Hall
John Reynolds, Energy Trust Board, University of Oregon

Attending from Energy Trust:
Kacia Brockman
Chris Dearth
Sue Fletcher
Jed Jorgensen

1. Welcome and introductions
Betsy Kauffman called the meeting to order at 9:30 a.m. The previous month's meeting minutes were approved.

Betsy introduced Chris Dearth who was recently hired to head up Small Wind. Chris described his background in Governor Kitzhaber's administration and his experience with the City of Portland.

Robert: What is planned for Small Wind?
Chris: We are reworking incentives and anticipating getting more projects on the ground. It is an industry in flux. We are uncertain of what will happen but want to make it work for Oregon.

John: Does it include community wind?
Chris: Yes it does.

Betsy also announced that Elaine Prause has transitioned to Planning and Evaluation as head of Planning. Ben Henson has also left the council due to other commitments.

Betsy announced that Energy Trust is hosting an Open House, Tuesday, March 6 from 4 to 6 p.m. and council members are invited. Light refreshments and guided tours will be provided.

2. Oregon Institute of Technology 1.5 MW geothermal project
Betsy presented the details of the project. [See attached briefing.]

Summary

This is the second geothermal electric project at OIT. Its first project is producing more energy than anticipated. It is a 1.5 MW project and the overall cost is $12.6 million. This second project was submitted prior to the program's new competitive process with an application date of September 2011. Staff anticipated that it would go to the board in December 2011 but analysis took longer than planned. Funds for this project shifted forward to this budget cycle and this is the last project that will be considered in Pacific Power territory outside of the competitive process.

OIT has considerable experience with geothermal technology. Most of the electricity will be used on campus; 287 MWh each year will be in excess. Geothermal cannot net-meter under Oregon law so all power has to be used on site; the excess will be sold as non-firm power to Pacific Power or output curtailed slightly. Selling non-firm power won't result in much revenue.

Johnson Controls is working with OIT on this project. OIT's budget goals are to cover the interest on their bonds and break even by year 20. This project is using binary technology. Betsy described the new process for arrangement of the two units, which will operate in series rather than in parallel. This arrangement is being piloted by Johnson Controls.

There are two areas of risk: interconnection timing and reinjection of geothermal fluids. They are in process with their interconnection application. BacGen is helping but the application process could delay the start of the project. Fortunately, they purchased equipment from Pacific Power for their first project, which will help the interconnection process go smoothly. The independent analysis Energy Trust had done raised concerns about interconnection timing but not costs. Staff believes that OIT can also curtail production, if necessary.

Another risk area is that the first test of the injection well showed that it could only take 1,500 gallons per minute as opposed to the 2,000 that is needed. They have removed the well liner and will retest this month. Staff will know the outcome of this test before the board meeting. If needed, they can use other wells on campus but that will add some piping costs. OIT has a long history working with wells. They have done this since the 1960s to heat their campus. This gives staff confidence in this project.

OIT received $7.5 million in grants. With approximately $6.04 million in revenue, $1.5 million is their approximate above-market cost. Staff is proposing to cover 95 percent of their above-market cost. OIT will get the first year of renewable energy certificates and then Energy Trust will own them after that for 20 years. Based on this funding scenario, the project would break even in year 19.

This is a significant incentive but it gets the program almost one-third of the way to its generation goal for the year. Staff felt that giving OIT a lower incentive would squeeze the project and impact its success. This project falls in the low end of what we have paid per unit of generation previously.

Questions

Joe: Is the competitive process just for Pacific Power?
Betsy: Yes it is. We expect more demand in Pacific Power territory than supply of resources.

Glenn: What is the temperature of the water?
Betsy: They were hoping for 300 degrees but they got 196; water is able to reach these temperatures under pressure.

John: Is it anticipated to run 24/7? If so, why is it only producing 1.5 MW?
Betsy: It will be running 24/7 but parasitic load results in a net output that is significantly less than the nameplate capacity would lead you to think.

Vijay: Can you describe the bonds? Are these new or existing?
Betsy: They have existing bonds that they are paying back.

Robert: What is the source of water for cooling? Can they dispose of it?
Betsy: It is the regular water that they use on campus. The water never touches the working fluid and is a closed system. It is an adequate water supply that OIT has rights to.

Joe: The water can be dumped like any other water on campus.

Glenn: With the rest of your budget can you reach your generation goals for the year?
Betsy: We believe and hope so.

Joe: It looks like a pretty good deal and appears relatively cheap.
Betsy: This project wouldn't move forward without the grants.

Vijay: What other grants are included?
Betsy: There are $3 million in bonds that do not need to be repaid, a $3.5 million appropriation from the U.S. Departemnt of Energy and $3 million in bonds that they will pay back. Johnson Controls also brought a $1 million grant to help reduce the cost. Internal support from OIT and the Oregon University System is also considered in the overall equity.

Frank: I understand that this will be a teaching tool. Are those costs included?
Betsy: Yes it will be used instructionally on campus, but those costs are not included.

Vijay: What is included in the capitalized cost?
Betsy: It is the upfront costs, such as the power house, design, engineering and civil work.

Tashiana: When do you expect it to be operational?
Betsy: By end of year, but there are risks to the timeline on the interconnection side.

Glenn: What function does the well liner serve if it can be removed?
Joe: It depends on the type of liner; some work to keep the structural integrality of the well. We would need to know the type of liner to understand if it is okay to remove. It is a risk that they should pay attention to based on pumping pressure.

Juliet: Is there any analysis on the source water and its impact on the viability of the project. Specifically, could production go down over time?
Betsy: They are not using all that is available now. They have done analysis. Also, they planned where to drill this well so that it doesn't compete with other wells. OIT controls the aquifer and there are no competing demands
Joe: These numbers look very good compared to averages in the geothermal field.

Tashiana: Can you review the annual budget for Pacific Power and what proportion this covers?
Betsy: There is $5.7 million in incentives for all of Pacific Power territory for all renewable energy projects. About $3 million is for the solar electric program.

Suzanne: Does the solar budget only cover small projects?
Betsy: Yes. We have a cap on the size of solar. It is a small solar program.

Peter: The approved board budget does not include large scale solar electric in Pacific Power territory. This would compete with having a portfolio of projects. PGE is a different story. Over the last two years this group and the board have agreed that the size of solar electric projects in Pacific Power territory would be constrained.

Jason: How does this project fit with the state's overall effort to promote renewable energy?
Betsy: OIT is the home to the geo heat center, which is a national center. It is a destination for the geothermal industry. The city uses geothermal in its hospital, the sidewalks and the water facility, for example. Oregon is blessed with geothermal resources and there are developers looking here to tap this resource. They typically look at larger scale projects than Energy Trust can fund.
Vijay: The Oregon Department of Energy is interested in understanding geothermal options. There are three projects going through the state tax program. There is a geothermal working group convened over three years ago. The next meeting of that group will include presentations from the owners of larger existing projects. ARRA is supporting some drilling projects underway with DOGAMI and we will learn from those efforts. There is a lot of state interest in these projects.

Jason: Is there just one aquifer or many aquifers in this area?
Betsy: I think that it is multiple aquifers. I know that this well is not affecting others.
Joe: Typically the rougher the geography the smaller the aquifers.

Robert: I like that this technology supports low-temperature geothermal, which means that it could offer learning for industrial sites and other purposes.

Frank: Is this is a research project studying a new technology?
Betsy: No. This is tested technology but the application is slightly innovative. The technology has been deployed for awhile.

John: The RECs are very favorable.

Vijay: The Oregon Department of Energy would like to support this project.

Betsy asked if there were any objections to moving the project forward to the board. There were none.

3. Update on competitive process
Thad presented an update on the competitive process. [See attached briefing.]

Summary

For background, Energy Trust determined that in Pacific Power territory staff needed a process because there was more demand on incentive dollars than available supply. In previous years there were surpluses. Those have been used up. The process is addressing custom projects, which include biomass, hydroelectric, geothermal and wind larger than 100 kW.

Staff announced this first round of funding on January 17. The announcement addressed eligibility: must be one of the discussed technologies, ready to begin construction this year and meet Energy Trust requirements (above-market cost, size, solid business plan). Energy Trust's funding limit is $2 million. Project applications will address Energy Trust metrics including annual generation goals, cost per unit of energy, long-term performance and technology specific goals. Screens used in scoring will utilize these metrics. In terms of logistics, applicants will

notify Energy Trust that they are interested and staff will hold pre-screening interviews if needed. The sector will make it clear that the application process will take effort from both parties. Staff will then receive applications and begin the review process. Eligible projects will go into the project review and ranking process. This will include a write-up by staff on the project, including its risks and opportunities. Rankings will be the result of a review across cost, risk and contribution to Energy Trust's total generation goals. At the end of the process, eligible projects will be ranked in order. Staff will work through the list and consider incentive requests and available caps in their decision-making. Staff has had three requests to date.

The announcement was broadly disseminated through USDA and other partnerships. Applications are due February 29, 2012. On March 30, funding decisions will be complete. The council will hear the presentation on April 18 and it will go to the board on May 23.

Questions

John: Are we anticipating community wind proposals?
Betsy: I don't think so. We have had conversations with project owners but don't expect any in this period. They are challenging projects.

Vijay: Do you expect phased projects, someone applying who did a previous project and now is coming in for phase 2 funding? Do you address that in your scoring mechanism?
Thad: We are not aware that will happen. We did not include that as a bonus score.

Robert: Have any projects contacted you that you didn't know about already?
Thad: Not yet. Staff was aware of all the projects currently engaged in this process.

Dick: Do the applicants tell us what they want in terms of an incentive?
Thad: Yes. This process is different from what we've done in the past. They are asked explicitly in the application. It has to be supported by the above-market cost calculation that we do.

Peter: The Oregon Department of Energy used a similar screening in their process.
Vijay: Yes, this is similar to the tiered experience and I think that this will be a good experience.
Thad: It is challenging comparing different technologies.
Vijay: I will be on a federal Department of Energy panel and it will be comparing technologies. This will offer good perspective.

Vijay: If your applicants can't get projects done this year what is your plan B?
Thad: We put milestones in any contract that we execute. We will get money back if they cannot meet the milestones.

Dick: If you end up with more than you can approve, what will you do?
Thad: We anticipate a second round of funding with next year's budget and interested applicants would have to re-apply.

4. Update on fish passage issues impacting small hydro projects
Jed presented this topic. [See slides in meeting packet.]

Summary

An issue has come up in the area of fish passages in the conduit hydroelectric space. This issue is directly impacting a project with the City of Astoria. It was a 30 kW proposed project and the city cannot move forward as a result of these issues. The program will be getting out of the

contract with Astoria as a result. The problem arises out of an Oregon Statute (ORS 543.765) requiring fish screens, by-pass devices and fish passages. If a project receives a Federal Energy Regulatory Commission exemption, then they can move through an expedited process. Those expedited projects must meet ORS 543.765. The statute says that fish passage must be addressed “as required”. This gives the impression that there is the possibility of discretion. However, the statute is being applied very firmly.

The impact of this statute can be seen through this Astoria project. Water enters the City of Astoria sand filter and then flows to the city. It builds pressure going downhill and the city breaks that pressure with pressure reduction valves. The proposed project would have used a turbine in parallel with those valves to reduce the pressure. The issue is that their source water is a natural stream that has a number of places where fish passage is impeded. The department views the problems upstream as requiring resolution before this project could move forward. The solutions would cost millions of dollars and the hydro project will only bring in a small amount of revenue. The hydro project cannot fix the problems so we are at an impasse.

Questions
Glenn: Do they have to fix the fish passage issues regardless of the project?
Jed: If they went forward they would have to fix. There are various triggering events. Hydro triggers these statutes.

Jed: There are other places where this could have an impact. In Wallowa County we have been looking at hydro opportunities. Many farms utilizing the same irrigation canal have the potential to do hydro. If the original diversion on the canal doesn’t meet regulations the projects cannot move forward. The canals are not owned by the farms and the ditch companies may not be interested in fixing the diversions, so those projects could get stuck.

Jed: We got lucky with many projects in the past. Previous agreements addressing fish passage were in place, which enabled our projects to move forward.

Jed: This is a challenge for Energy Trust. There is not a clear pathway forward at this point. The Governor’s office has convened a working group due to some legislation that addressed this issue in the last legislative session. There are divergent interests in the room and it will be difficult to come to a solution. We are trying to play a mediator role. We hope that we can find some common ground. One solution floated is the ability to move a project forward and establish a fund to do environmental improvements or potentially the fish passage improvements in the future. Both groups are resistant to this plan currently.

Suzanne: I am shocked that it would be so restrictive at this size and this level of impact. This is a very narrow scope and I am surprised that it requires a working group.
Jed: The hope is that the two groups find a balanced approach. The environmental community sees this as a slippery slope issue and one of the few levers they have to improve fish passage.

Jason: Do these projects have fish kill implications?
Jed: No, it is in the treated drinking water supply. These projects would not change how water is currently used.

Jason: So this statute will hold renewable energy projects hostage for fish passages.

Suzanne: Which environmental groups are involved?
Jed: Waterwatch and the Native Fish Society are participating in the working group. We are also keeping the Oregon League of Conservation Voters in the loop.

Vijay – What is the magnitude and what is in this for Energy Trust?
Jed: Magnitude is really hard to guess. Any irrigation conduit could be affected. It could be 30 MW, probably more. I don't know what amount will be impacted. The upside for Energy Trust is to move these projects forward. It is a policy challenge that could be addressed.

Vijay: If this persists, would you like the state Department of Fish and Wildlife to come speak to the council?
Jed: We are in conversation and they don't have room to move within given policy. They were sympathetic with the situation and with the city since they were far down the road when this issue emerged.

Juliet: The performance measure is the 3 aMW but the OPUC is looking at redoing the performance measures and looking at market transformation on the renewable energy side. So I appreciate this conversation because it fits the broader role of Energy Trust in opening the market.

Vijay: This is valuable but market transformation is about size and capability. How would these changes be perceived by other projects that had to meet the current requirements?
Jed: Past equity issues are hard to address. Steve Johnson with Central Oregon Irrigation District is at the table and his irrigation district is one of those that was impacted in the past.

Chris: Don't these dams have to come up for relicensing at some point and will they have to address these issues then?
Jed: If there is existing hydro it would come up for licensing. The Astoria project did not have existing hydro.

Dick: When you install hydro, FERC becomes involved.

Frank: When you try to get an exception people become concerned that the door has been opened to more exceptions.

Suzanne: Is this the right role for the Energy Trust staff? It goes into policy development. I see the benefit but I am concerned that this level of engagement may be beyond Energy Trust's scope and another organization should pick this up.

Robert: I appreciate Energy Trust being at the table to describe the economics of the situation.

Jed: We were at the table because we were asked by the legislature to be there to talk about the generation impact.

Suzanne: Are there other organizations that should fill this role? It seems like too small an issue for Renewable Northwest Project.

Glenn: Could Oregon Solutions do this?
Jed: Good suggestion.

Jason: This is familiar territory for me. These policy issues are too critical to not be involved. You have been invited in. I wouldn't stop pushing and you can be a neutral arbitrator. I very much support your role here.

Suzanne: I am not advocating for pulling out of the process but I would like Energy Trust to consider time engaged and other organizations to include.

5. Public comment

There was no public comment.

6. Meeting adjournment

Betsy thanked all council members for their participation and adjourned the meeting at 11:35 a.m. The next full council meeting is April 18, 2012.

Robert announced the Future Energy Conference will be held April 25 through 28.