

**RENEWABLE RESOURCE ADVISORY COUNCIL**

Notes from meeting on August 17, 2005

**Attending from the Council:**

Doug Boleyn, Cascade Solar Consulting  
Frank Vignola, UO SRML  
Jeff King, NPCC  
Jim Maloney, EWEB  
John Reynolds, UO and Energy Trust board  
Justin Klure, ODOE  
Lisa Schwartz, OPUC  
Thor Hinckley, PGE  
Troy Gagliano, RNP  
Virinder Singh, PacifiCorp

**Attending from the Trust:**

Adam Serchuk  
Kacia Brockman  
Karl Whinnery  
Maureen Quaid  
Michael Laney

**Others attending:**

Andrew Koyaanisqatsi, Solar Energy  
Solutions  
Aquila Velonis, Environmental Bldg Supply  
Christopher Dymond, ODOE  
Chris Patton, intern at ODOE  
Dave Robison, Stellar Processes  
Ed Sheets, consultant  
Glenn Garland, Clear Result  
John Patterson, Mr. Sun Solar  
Jon Miller, OSEIA  
Justin McBurnett, Advanced Energy Systems  
Tim Miller, consultant

**1. Introductions**

Adam Serchuk convened the meeting at 9:30 a.m.

**2. General Updates and Review of Last Meeting's Notes**

Adam summarized activity in the new Biopower program - 24 proposals were received from the RFP issued in May. Of those, 16 respondents were invited to participate in Round 2 of the application process.

Kacia announced that a press release was issued in July to celebrate 1 MW of solar electricity generated with the help of Energy Trust incentives.

Lisa Schwartz had corrections to the notes from the June 9 RAC meeting. Lisa should be in the category of participant on the council. (Lisa also requested that the website list be corrected.) On page 3, paragraph 2, sentence 2, the sentence should read "how the utilities use their large scale funds in utility rate cases." In the next paragraph, strike "cost-effective" and "other more expensive resources." On page 6 in the section on the QF docket, sentence 1 should read, "Lisa provided an executive summary of the commission order." In the same section, sentence 3 should read, "the OPUC will address additional issues concerning facilities of all sizes in phase 2 of the investigation." In the next sentence, strike "if under 10 MW" and substitute "market prices are provided for the resource sufficiency period. QFs can get a fixed price for the first 15 years of the contract." Maureen will make corrections and re-post the notes on the website.

**3. Open Solicitation Project Status Update**

#### Stoller Vineyards

Adam presented a summary of a project to install a 46-kW solar PV system at a newly constructed winery building near Dundee. Energy Trust proposes to provide up to \$64,400 through the Open Solicitation program. Based on unanimous support by the RAC, this proposal will be presented to the Energy Trust board on September 7, 2005.

Frank questioned the discount rate used to calculate the incentive, which was set at 7.5%. In past analyses, he has used a lower rate. Adam replied that 7.5% was a reasonable discount rate, given the type of business and the current investment climate.

Jon asked about the federal tax credits and whether the project will be on hold until next year to take advantage of the new tax credits. Christopher said that the project sponsors will be likely to get an additional \$52,000 if they wait until next year. Adam made the point that the federal credit will net out the state incentive, so the additional funding would be less, but he agreed that all solar projects would have a significant incentive to wait until 2006.

Adam noted that the write-up distributed at the meeting was a revised version of the electronic document distributed in advance.

#### **4. Proposed Changes to the Energy Trust Combined Heat and Power Policy**

Steve Lacey presented the proposed Energy Trust policy on combined heat and power (CHP). The proposal was presented to the policy committee, which asked that it be presented to the RAC and CAC for input. The current policy has been somewhat confusing to market players, so a review was undertaken to see if there might be opportunities for improve Energy Trust's activities in this area.

Industrial gas customers would be notable beneficiaries of a large-scale CHP program, but they do not do not pay into the public purpose fund. Partly for this reason, Energy Trust has not supported large-scale CHP in the past.

Energy Trust hosted a workshop in November 2004 to gather input on possible changes to the policy. Staff also asked the Oregon Department of Justice to give a legal opinion. DOJ stated that CHP could be considered electric conservation, and that the Energy Trust could fund CHP, but for on-site use only. If the project exports any power for sale, that portion is excluded from what is considered conservation, and we could fund only the portion that was used on-site. The DOJ said we could use our electric funds to fund industrial projects that resulted in gas savings.

The recommended policy change would limit eligibility to projects with Pacific Power or PGE loads, and the incentive would be administered through existing programs. Steve stressed that the intent of the policy was to encourage gas-fired CHP without undercutting the renewable energy programs, in particular those that encouraged biomass-fueled CHP. The CHP incentive would be calculated by comparing the efficiency of the CHP project to a standard base-case generation scenario, adjusted to reflect free ridership, and lowered by 20% compared to other types of industrial projects. Participants may choose between standard efficiency incentives or CHP incentives, but cannot receive both types of incentives.

Lisa asked if CHP customers wanted to update lighting at their facilities, would they be told they couldn't do it, and Steve clarified that the choice is for components of the CHP project only, and does not affect other measure incentives for projects at the same facility. Energy Trust supports all cost-effective measures in those facilities.

Jon asked if we are limiting incentives to above-market costs. He asserted that CHP is cost-effective today, so all efficiency funding is, practically speaking, not above market. Frank asked if we will incent projects that are fossil fueled. Steve said that we will look at the total efficiency of all equipment, essentially converting gas and electric use to BTUs and summing use across fuel types. Frank asked if the thermal part of a CHP project makes it eligible for the incentive, and Steve agreed - it is the thermal component where we gain efficiency.

Frank asked if we have quantified transmission impacts. Steve said the policy will incorporate the value of avoided T&D losses, and that those impacts are somewhere between 7-10%.

Jeff asked if the incentives are geared to new projects, and would we also fund upgrades to existing projects. Steve said utility system is always going to be the baseline, which gives developers one number to use. Lisa said when we apply the incentive, it takes into consideration lower costs for an upgrade compared to a new project. Steve said we need to think about those kinds of upgrades. Jeff said supporting upgrades at existing facilities may mean large incentive dollars paid out for large savings. Steve said that we are capping the total CHP incentive pool at \$3.5 million per year, so very large projects don't use too much Energy Trust funding.

The board will take up the issue at the September and November meetings. In October through January 2006, we will develop rules and procedures, and will probably implement the policy in early 2006.

Lisa asked if the RAC had received the DOJ opinion, which would answer a lot of questions related to the policy. (Steve handed out copies of this document later in the meeting.) Christopher asked for a clarification between existing and new projects. We are setting a value on BTUs, which will help compare electric and gas energy using the ODOE heat rate.

Jon expressed some concern that the rules about renewable incentives make it hard to invest in cost effective projects, like large wind, where efficiency has the ability to make those investments. The savings will be calculated on the incremental savings, not the total project output.

Lisa noted that the PUC is pleased that Energy Trust is working with Northwest Power and Conservation Council on CHP.

Steve asked for comments by next Wednesday to put together notes and recommendations for the next board meeting.

## **5. Above-Market Cost Methodology**

Ed Sheets presented a review of our interim methodology for calculating above market costs, which are the basis for incentives offered for renewable energy projects. The original interim methodology was developed in 2002, and the board expressed a desire to review the methodology after we had gained some program experience.

The steps are: determine the levelized present value of the renewable resource, determine the levelized present value of a non-differentiated resource, and then set an incentive based on the difference between the first and second values. The incentive has in most cases been paid in an up-front fixed payment, and could be made to the utility or the developer. If paid to the developer, the power is sold to the utility at market costs or used to offset electricity use on-site; if paid to the utility, the payment offsets the higher cost of installing a renewable resource.

The goal was to make sure that the utility and ratepayers were not paying more than the above-market costs.

Frank asked about whether the assumptions used to calculate levelized cost and above-market costs have been made available to the RAC. Ed said the analysis is really a net present value analysis, and that the assumptions have been presented to the board. Frank asked about discount rates and other assumptions. Ed said some discussions went into that detail, and some did not. Adam noted that Ed's analysis summarizes individual projects with numbers attached. Ed said that each project had a detailed analysis supporting the incentive amount. He added that, moving forward, we may want a more standardized write-up for how it gets done and how it is presented to the board. Frank said he was not sure that the RAC has received those assumptions in every case and asked that those numbers be provided.

Since inception of the methodology, three RFPs have been developed for utility-scale projects. The Energy Trust has provided incentives for only one of those projects, since the others were deemed to have no above-market costs. For smaller-scale projects, the Energy Trust paid \$2 million for 3.4 aMW, plus standard incentives paid for small solar installations. Adam clarified that the analysis looks at the retail rate when projects offset electricity used on site and the utility rate for projects developed with a utility power purchase agreement.

Ed said we may want to consider making changes to consider integration to make sure that lowest-cost resources are developed, or to consider timing effects in the power generation profile. He presented a market cost proposal for utility scale that would use the marginal non-renewable resources from an RFP. For small scale projects, we would use the same approach or an applicable OPUC schedule. For net metered projects, we would use the same approach for determining above-market cost, but the staff can consider the retail rate and subsequent savings that the project participant would get

In calculating net present value, the recommendation is to continue the current analysis methodology, use comparable resources like contract term, integration, and transmission, and finalize data close to signing a contract.

Dave Robison asked about the Pro Cost tool based on the Aurora market forecast developed by the Northwest Power and Conservation Council. Ed said that in many cases the staff looked at Aurora and Pro Cost for comparison and sensitivity analysis, but actually used forward price curves to calculate incentives.

Jim asked whether the methodology considers long-term contracts in setting incentives. Ed said that we use the best data available on utility planned power purchases with a specific load shape and set of costs, and compared that to the renewable project. Jim said long-term prices and forward price curves are not comparable. Ed said we've looked at what the alternatives are using the best information available, and we have used the same data used by the utility to make their decisions.

Virinder said Pacific Power is using a forward price curve in its current RFP. PacifiCorp compares bids with the forward price curve to assess cost-effectiveness.

Jeff asked about risk, and said that alternatives need to be normalized for inherent risks. Spot market versus long-term contracts makes a big difference in cost estimates.

Lisa said the OPUC currently has two dockets that may provide some guidance, one on integrated resource planning, and one for competitive bidding. Staff will recommend to the

Commission that the objectives for both processes include the selection of the best combination of resources considering costs and risks. For determining the above-market costs of new renewable resources, Lisa said flexibility to allow for using forward price curves or the marginal non-renewable resource selected in a competitive bidding process is a good approach.

Christopher said that for large projects a lot of detail is good, but for small projects, like residential solar, less detail would be better. The rule is trying to make resources comparable, and OPUC staff is meeting with Ed and both utilities on those details, particularly when considering transmission and distribution.

Jeff questioned using the marginal non-renewable resource as a basis. Currently, he contended, wind really is the marginal resource, so why are we comparing potential projects to non-renewable resources when wind may be setting the price for a marginal resource? Secondly, are we comparing costs for non-renewable resources to those above wind or below wind?

Lisa asked if the rule should use the term 'non-differentiated resource.' Ed said that renewable resources should be part of that mix. The rule may need to be rewritten to accommodate renewable resources. The end goal is to determine the maximum amount the Energy Trust should pay, and the optimum amount the Energy Trust should pay.

Virinder said the purpose of Energy Trust is to get renewables done. For a utility RFP, they must use the same methodology the utility uses to calculate above-market costs, so our methodology needs to have some flexibility to accommodate different utility approaches.

Christopher asked how we determine market infrastructure costs, delivery infrastructure, training, legal and other costs not readily available in an RFP. Adam said we look at all legal, administrative and other relevant costs in analyzing above-market costs for a given project. Christopher recommended that we have a broad basis for determining those costs.

Ed said discussions are ongoing with the OPUC. Lisa said that staff is not ready to say that we have the details right, and urged us to not take it to the board. The OPUC and Energy Trust should shop the proposal with the utilities and make the OPUC staff more comfortable with the proposal.

## **6. OPUC update**

Lisa provided an update on OPUC activities concerning the Energy Trust:

Green Tags - A hearing has been scheduled September 20 at 9:30 a.m. in Salem. People can come to the hearing and provide oral comments, or provide written comments by September 21.

Energy Trust Benchmarks - The Commission approved the new benchmarks on August 9. They will be reviewed each year when the Energy Trust puts forth its draft budget and action plan.

Standard offer Qualifying Facilities (QFs) - The commission put out an order on QFs, but said there would be a Phase 2. They also have started an investigation into the utilities' compliance filings for the initial order. Some parties are concerned that wind projects with one year of data may not predict output in years with low wind, so there is more work to do. OPUC staff recommended putting into effect the entire filing, including QF rates and a standard document that utilities would provide for any project of 10 MW or less. The avoided cost rates and standard contracts are in effect today. If anything changes after the investigation, the seller will

have the option of choosing only the new tariff (including rates), only the new contract, both the new tariff and the new contract, or neither one.

Jon asked how long the process will last. Lisa said that unless everybody agrees on Phase One issues, there will be testimony, hearings, briefs, fact finding and discovery. The hearing conference today is to discuss a schedule and people can check under UM 1129 on the OPUC website.

Jon asked about procedures for addressing concerns about net metering. OSEIA has some issues with the draft language concerning PGE's desire for a time-of-use meter in net-metering, and measuring power produced during peak and non-peak periods. For solar energy, production is mostly during peak hours. Lisa said that issue is outside the current docket. The investigation into the PURPA compliance filings involves avoided cost rates and QF contract terms, not net metering provisions. The metering issue related to net-metering solar electric systems could be addressed when the Commission opens a rulemaking in early 2006 to increase the eligible facility size for net metering, pursuant to legislation passed during the last session.

## **7. Update on State and Federal Legislation**

Justin summarized recently enacted energy legislation at the state level that will have an impact on Energy Trust activities:

- SB31 increases the solar energy tax credit up to \$6000 over 4 years, up from \$1500.
- SB 84 amends the net metering law, adds biomass facilities and allows the OPUC to raise the size of net metering projects for IOU customers.
- SB 35 changes ODOE's energy loan program and makes it easier to qualify for loans.
- SB 1072 encourages greater use of renewable facilities on state owned land.
- SB 5503 issues \$125 million in loans for ODOE to administer.
- HB 3350 allows rural city to receive funding for rural renewable energy development zones and exempts them from local property taxes.
- HB 33 looks at efficiency standards for certain appliances, similar to California's standards, only for appliances where there are no federal standards.
- HB 3479 looks at decommissioning of the Trojan nuclear plant

At the federal level:

- There is no federal RPS or waiver liability or drilling in ANWAR.
- Title 8 provides renewable and clean energy incentives, extends the PTC by two years, through Dec 31, 2007.
- Section 45 provides the ability to pass on credits for cooperatives and gives credits for biodiesel, ethanol and fueling stations, and extends tax credits for those energy sources.
- There is a 30% tax credit for qualified renewables, including solar. Tax credits for new homes go to the contractor, which will stimulate that market.
- There is a new renewable fuel standard and production goals.

Adam noted provisions supporting use of forest waste and fuel reduction in federal forests, which may have an impact on our Biopower program. Christopher said SB 1131 changed incentives for solar from \$1500 to \$6000, taken over 4 years. Projects can use a pass through partner. On the federal side, there is a new PV and thermal incentive. The PV incentive is about \$2000, 30% after all other incentives and tax credits have been accounted for. It will push prices up but will also provide industry support. There will be a huge demand for equipment, and ODOE's focus will be on both contractors and business development side of the solar industry.

## 8. Solar Thermal Market Research Study

Glenn Garland presented a summary of recent research on the solar thermal market. The study looked at the current market, what's been done in other programs around the country, what has been successful, and compared those findings to the Energy Trust program.

The study contractors interviewed solar manufacturers, contractors, state regulators and staff. There are 13 contractors who have installed about 90 systems so far. The Energy Trust incentive and tax credits offset 40-50% of system installation costs. Most contractors reported they were maxed out in the work they were doing. If the market increased, the contractors might have a problem keeping up with demand.

The solar water heating industry has a lack of manufacturers' involvement in cooperative advertising. System costs are slightly higher than costs for other programs. For most consumers, the average payback is 15-17 years. Target customers have high disposable income, want to do the right thing, and are aware of the technology. There are not many financing options available. Many projects are financed by rolling a loan into a conventional mortgage, and other alternatives are not being done by contractors. Lack of financing options limits participation by people who do not have a large disposable income.

The solar thermal industry is not a mature industry. Current incentives may keep the industry from developing an infrastructure that is sustainable. The industry may be relying too heavily on tax credits. Most contractors were reluctant to increase their staff without reassurance that the Energy Trust program would provide stable support. Contractors also reported that there is too much administrative paperwork. Contractors may also need support with marketing and financing systems.

Recommendations include working cooperatively with other Energy Trust programs, initiating targeted recruitment of new contractors and plumbers, establishing an advisory group, developing contractor and plumber training, establishing an advertising cooperative for solar water heating (SWH) manufacturers, distributors and contractors, offering pilot projects in residential new construction production builders, and including SHW in Home Energy Savings program messaging. Recommended budget changes include reduced emphasis on the commercial sector, and greater focus on the residential sector. The study recommends developing narrow targeted key markets.

The new federal tax credits will likely have a positive impact on the market. Kacia said we expect the program goals will not be met because of the expectation that people will delay installations until 2006. Virinder asked about budget submittals for the solar thermal program. Kacia said that the 2006 budget was based on the study's recommendations, but doesn't change much from this year.

Andrew disagreed that demand outstrips supply. There may be pockets, but most contractors could double or triple capacity. Also, contractors do promote their own industry - Andrew spends \$8000-10000 per year to advertise, and considering size of the industry, that represents a lot of resources for advertising. He reported that contractors are currently installing systems for \$5000-7000 and profit margins have been decreasing, and the industry needs a higher margin to create a sustainable long term industry.

Glenn responded that the industry could use some help on messaging, and coordinating for maximum effect is a role other parties can play in assisting the industry. There are many

opportunities to leverage and get more bang for the buck. In terms of demand and supply, most contractors said they are very selective in picking projects, and they weed out installations where they think they may not get the full incentive, but it is still a seller's market.

John Reynolds asked if the study looked at installed but non functioning systems in the state, and would like to know the market potential there. Glenn said the study did not look at that. Jon said the industry would like to see more leveraging of this technology with the other programs. None of the other programs promote solar, including passive solar. Tim Miller asked whether the new tax credits apply to a home being solar ready, but raised the issue that it may allow builders or contractors to double dip when homes are built solar ready.

Andrew disagreed with the study findings on licensing requirements. He said the industry may be slow to adopt new requirements, but they are coming along, and there is an impediment in the ratio of license holders to apprentices. Jon said if there was money to be made installing thermal systems, plumbers would be doing it, since plumbers don't need a special license to do installations. The bigger problem is that with current prices, the projects are not profitable. There is a problem when the pressure is to push the price down, which hurts contractors who operate with really small margins. He suggested working with the contractors on their marketing, and helping them become better businesses.

Glenn said most price pressure is brought by consumers. With scale and size, there would be some benefits in the manufacturing process that would bring the price down, but currently the small number of systems don't make that possible. Andrew said the prices cannot go down because the commodities used in their manufacturing are increasing in cost.

Christopher summarized the thoughts of ODOE's renewable team regarding the study, and presented some strawman principles the Energy Trust may want to consider:

- Focus on the end goal rather than near term sales, where thermal is part of an active solar industry.
- Provide guaranteed insurance that programs will be around and it will be worthwhile to get into as a business.
- Use market forces to mature the market.
- Focus on continuous development of local skills, including inspectors and designers as well as installers.
- Support local equipment manufacturers. Leverage federal tax credits and other grant dollars.
- Use local, existing infrastructure to provide education and awareness, and reinforce high quality equipment and installations while penalizing poor quality.

## **9. Other Announcements**

John Reynolds announced that Rick Kroon from Intel resigned from the Energy Trust board, and in the search for someone to replace him, Alan Meyer was proposed, and he expressed interest in being on the RAC. Frank said he would be a good member because of his interests.

## **10. Adjourn**

Adam adjourned the meeting at 12:10 p.m., and invited interested parties to continue a discussion of the effects of the new federal energy bill on the solar industry.