Board Strategic Planning Workshop on Renewables

July 31, 2013

Board members present: Rick Applegate, Ken Canon *(by phone)*, Anne Donnelly, Dan Enloe, Roger Hamilton, Jeff King, Debbie Kitchin, Alan Meyer, John Reynolds, Anne Root *(by phone)*, Dave Slavensky

Board members absent: Julie Brandis, Mark Kendall, Lisa Schwartz (ODOE special advisor), John Savage (OPUC *ex officio*)

Staff attending: Margie Harris, Ana Morel, Hannah Hacker, Debbie Menashe, Amber Cole, Steve Lacey, Peter West, Sue Meyer Sample, Fred Gordon, Thad Roth, Betsy Kaufman, Elaine Prause, John Volkman, Rob del Mar, Peter Gibson, Chris Dearth, Dave McClelland, Dave Moldal, Lizzie Rubado

Others attending: Nick Viele, *Facilitator* (c3 Strategy), Juliet Johnson (OPUC), Lauren Shapton (PGE), Michael O'Brien (Renewable Northwest Project), John Charles (Cascade Policy Institute), Meghan Nutting (SolarCity Corp.), Paul Israel (Sunlight Solar Energy, Inc.), Shannon Souza (Sol Coast Consulting & Design)

Call to order and welcome

President John Reynolds called the workshop to order at 8:00 a.m.

Stage-setting

John Volkman welcomed everyone and thanked the staff for the paper.

John V: We are one of the richest places on earth for renewable energy. Energy Trust has a key role in developing them. We provide financial incentives, studies and expertise to support development. We have had to adapt to economic conditions and policy changes. Our programs are continuously adapting to make renewable energy projects work. There was a big policy change in 2009 when the state Business Energy Tax Credits were scaled back. Because our funds, are fixed we had to modify our strategy a couple of years ago. We will look at how those strategies are working and consider new renewable energy opportunities for the long term.

Rick: I see that this is John Reynolds' day to focus on renewable energy. Glad we could make more time for renewables. The Strategic Planning committee pushes itself to look at opportunities and what we can do differently. We do a great job at looking at what we have done and are doing in the area of renewable energy. For today's discussion, we want to push folks to probe beyond and identify things we should discuss during the strategic planning process.

Nick Viele reviewed the agenda.

Margie: Thank you all for being here, and for the work of the Strategic Planning committee: Thad, John V, Debbie M, Elaine and Fred. The purpose for today is to:

1. Update all board members on our role in the renewable energy field. Focus on our strategies, and understand what we are doing in the renewable energy marketplace.
2. Identify how our strategies have evolved with the change of the Business Energy Tax Credit and policy since 2010, and how we need to further evolve.

3. This is an opportunity for the board to engage among themselves and help identify themes for us to consider in our future strategic program.

We have a highly successful program. We've completed 5,200 diverse projects, the majority of which solar, including projects in all the five renewable energy technologies we support.

Margie: Our role is to foster development of renewable energy. We have had to adapt. We have exercised judgment and have technical skills. Peter's past leadership in renewable energy and Thad's transition to sector lead have set us up well. We have a clear command of the sector and subject matter. Let me introduce to you Thad Roth, renewable energy sector lead. Three personal things about him are his name comes from the bible, he enjoys playing tennis and he's about to be a grandfather for the third time.

Briefing: Renewable Energy Programs

Thad: Thank you Margie. And thank you to all the staff for the support in developing this paper and the Strategic Planning committee for providing guidance. Here with me are Betsy Kaufman, renewable energy senior program manager, and Dave McClelland, new solar program manager replacing Kacia Brockman.

The renewable energy paper is intended to provide context for new board members and identify issues. Thad will draw out some key issues from Energy Trust's perspective that have driven program design and affect program delivery to developers in the state of Oregon.

We are looking for a review and acknowledgement of the current strategy of the renewable energy program to continue to fund a portfolio of technologies, which includes a solar program and a custom program of biopower, geothermal, hydropower and wind. Included in the discussion today will be detail regarding the competitive processes that have been used to deal with declining funds, expanding development assistance, strategies to reduce soft costs of solar installations and potential changes to state solar funding.

Today's presentation will cover the market environment, program design, program performance and the 2013-2014 strategy.

The wholesale market involves selling power to a utility; these are called qualifying facilities. Thad showed avoided cost rates from Pacific Power as an example.

As a key takeaway, in 2009, the rate that a qualifying facility (QF) could be assured of was $66 or $67 a megawatt hour. In 2013, a QF would receive $32.50 per MWh in the first year. Developers look at this and wonder how they will develop at that rate, and if they do move ahead, someone needs to make up part of the difference. That is a role that Energy Trust plays and it puts a burden on our available funding, especially as it declines.

In the retail market, renewable energy offsets purchases at the retail value of power; the nonresidential offset is $0.065/kWh and residential is $0.10/kWh. This would lead a developer toward residential.

Most of our developers rely heavily on the wholesale market.

In addition to this uncertainty with pricing, federal incentives are uncertain.
The Production Tax Credit (PTC) supports custom technologies and there have been last minute extensions and short term extensions by Congress, which creates an unpredictable environment for developers, especially when projects take 18 months to develop. It was noted that utility-scale wind is a little different. The PTC is currently set to expire in 2013.

The Investment Tax Credit (ITC) is primarily available for solar. It is available through 2016 and will decline significantly after 2016, from 60 percent of project cost to 10 percent of project cost. We'll see if that gets extended or not.

There are state tax credits. Residential Energy Tax Credits remain in place for solar, and they support direct ownership and lease models. Business Energy Tax Credits changes dramatically reduced tax credits for commercial renewable energy. A couple of bright spots are biomass producer collection tax credit, and there is an energy incentive program for combined heat and power and a few biomass projects have applied. We will see what happens.

The good news about the average cost of solar installations is that it has declined. People are talking about grid parity now in some states.

The key about Energy Trust funding and revenue versus expenditures here is that we were spending less than we were accumulating in revenue before 2009. Since then, we have been spending more than our revenue and using those unspent funds. We expect by 2014 we will be at about $14 million a year (down from $18 million to $20 million being available), which is less than in years past.

2010-2014 Renewable Energy Strategic Plan themes are:

- Support a portfolio of technologies
- Design programs for reduced funding
- Expand development assistance
- Expand market opportunities

For example, the hydropower permitting guidebook educates developers on the hydro side.

Enabling legislation provides for five technologies in our portfolio. The board has supported these technologies by establishing technology-based program budgets.

In 2010, staff brought forward some options for transition. The Renewable Energy Advisory Council (RAC) recommended continuing support of the portfolio, and adding expanded development assistance to manage reduced budgets.

What emerged and evolved over time, and where we are with our current program design, is the concept of establishing two program tracks: solar and custom. Our thinking with respect to our funding challenges and our desire to support a portfolio of technologies drove us here. Our Solar program is similar to a prescriptive strategy on the energy-efficiency side. There are predictable incentives for solar and strategies to reduce the cost of solar, and staff has the ability to adjust incentives throughout the year to manage to the budget. On the custom side, the projects have a longer development cycle across all technologies with similar development challenges. So we have chosen to create a custom path to support them. We will come to you this afternoon to ask for your support to adapt our budget approach to this structure.

Roger: Why do we not use competitive processes on the solar side?
Thad: We have done one of those and we can talk more about it. We did do a request for proposals, RFP, for solar with PGE. The state offers alternatives for solar developers: the two funding opportunities are Energy Trust incentives combined with the state residential tax credit and the state's Volumetric Incentive Rate (VIR) that sets a 15 year rate for projects. Participants in the VIR program can't receive state tax credits or Energy Trust incentives. Larger systems in the VIR program are selected based on a bidding system.

There were no performance measures set for 2012, the OPUC set them aside. In 2012 we worked with OPUC staff to establish new measures and they are in the write-up. We will discuss them today. We feel the new measures better acknowledge the range of resources we bring to the market and aligns with our strategies.

Thad showed a slide on existing development with a chart of total installations, 2008-2012 (aMW). You can see that we have been able to deliver about 3 aMW a year, on average.

You can see the solar generation increase in recent years. Under biomass you can see the "lumpiness" of the generation. The portfolio concept allows us to take advantage of projects when they are ready to develop. So that's the advantage of our approach.

Best year for generation was 2012 with 5.05 aMW. Solar was very active. In biomass, that number would have been even higher but some projects were delayed, one of which is already online as of early 2013.

Regarding the Custom program performance in 2012, there were two competitive processes for Pacific Power. Five projects were reviewed and two funded.

Benefits for the competitive process were:

- Transparency
- Projects further along development process
- Unfunded projects can pursue development assistance
- Market signal to developers of project funding

Regarding the Solar program performance in 2012, the program reduced incentives to respond to declining installation costs.

With regard to program performance in 2013, we are offering funding for expanded development assistance. We are currently negotiating with four projects, and others are developing proposals. We expect to have four to six projects under development by the end of 2013. We also conducted a solar RFP in PGE service territory. The RFP resulted in four proposals. Of the four proposals two projects didn't meet our eligibility criteria, one project withdrew and one project was funded.

Moving ahead to 2013-14 program themes, the custom program will extend its competitive process for funding for both utilities. At the beginning of 2013, we had four custom applications that exceeded our budget. Two won't go forward, and we can fund the other two. We will also evaluate the outcomes of this first phase of development assistance funding. We will be able to see if we made the right choice in offering this funding and if it was structured correctly. That will inform how we move forward in 2014. On the solar side, we continue to fine tune management of standard solar incentives to maintain a predictable program. We are also developing process improvements to reduce soft costs (permitting, interconnection, etc. for standard solar installations. There are things we can do internally to improve our processes and there are things we can participate in on a state and regional level to reduce soft costs as well.

We are looking for feedback on our current strategy. Should we continue to support this portfolio of technologies? Should we utilize a competitive process to fund custom projects?

We did not include the strategy around reducing soft costs but that is in development now.

The next slide was on the strategic issues in the Solar program. As part of HB 2893, the OPUC will study the effectiveness of programs that provide incentives for the use of solar photovoltaic energy

systems. On or before July 1, 2014, the OPUC will report on the results of the study and may include recommendations for legislation.

There was a discussion regarding the labeling of the individual Renewables programs. There was concern expressed by board members that a distinction between “solar” and “custom” is misleading. Staff and the board agreed to return to this labeling matter later in the board meeting later in the day when the issue will come up in the context of a proposed amendment to the “Other Renewables” board policy.

Debbie: My concern is that over time the program might evolve to just one technology or resource. How do you evaluate the proposals to make sure you have a balance across the portfolio? Is it year by year? Do you provide points if you have not supported a wind project lately?
Betsy: The main criterion for evaluating projects is the cost, although there is a list of criteria. We look at that and whether we have a qualified development team, etc. And we have bonus points regarding how a project helps us fill out our portfolio. We have so far seen a huge variety. The last one was four applications and four different technologies. One thing to keep in mind, because the market dynamics are so challenging, there are going to be certain technologies that will have an easier time in the short term. But we do try, through the bonus points system, to maintain a portfolio across the board.

Debbie: I think that is a good approach, and also to be following the market and not reserve the funds if there is not a project coming forward in a certain technology. But I like the idea of having some way to support projects that do not seem to be coming along.
Thad: The way we do that is assigning individual staff to pursue those technologies, to meet with the market players and provide support for those technologies.

Betsy: One thing we are always doing is pipeline development in all technologies using project development assistance and connecting people. That is how we spend our time throughout the year. Which project advances in the pipeline and crosses the finish line may be more about what particular funding sources are available at any one time, but just making sure the pipeline is full is one way we are supporting the portfolio.

John R: So it is really tough. I’m thinking of small wind. A few years ago when big wind was going strong, we thought there would be a big market for community wind when older turbines became available. It just looks like it will not happen and you can only go so far in encouraging a technology. I think we have got it about right in how we are supporting a pipeline and no more.

Jeff: It sounds like in the custom track process, there is an emphasis on the stage of development, the more points it gets depending on how far along it is in the development process. How does that compare with the development assistance work?
Betsy: We are talking about two parallel activities in the department. We are trying to provide some project development assistance funds for projects that are in the very early concept stage. For example, we have considered a proposal regarding methane burn-off in a city. A related project we are evaluating is in the permitting phase. We are watching these two sets of activities at the same time. We do not see them as in conflict. Hopefully one feeds into the other.

Jeff: So it is like there are four programs: prescriptive solar, custom solar, custom advanced projects and development assistance.
Betsy: You could say that. But the custom solar is the last thing we are expected to do with our dollars
Thad: We can fund those custom solar projects as the last thing we are able do with our available dollars. Based on our budget, returning to what our annual revenues are, we know we cannot sustain a robust program or large projects. We could take a million dollars and get one project, or we could take that same million and support eight projects to move toward getting funding from other sources.

Dan: One of the interesting discussions that came up during Chief Financial Officer interviews for Energy Trust is around the cost-effectiveness of getting different energies, and as I look at the renewable energy program progress, we are offering a very standard approach. There is nothing special about the metering that we evaluate. I have been watching the technology in smart meters, smart grids and technology logic, so is there a value opportunity in the custom program for increasing incentives on time-sliced value. Have we considered incentivizing ones that are more valuable so they pay back more quickly, not necessarily with regard to technology?
Thad: When we score projects in a competitive process, 50 percent of the score is price. So if a project can get revenue during peak periods that should improve their price score and improve their success in a competitive process.

Dan: For example, if I got a battery charging solar system, and pump solar back to PGE during a high rate return time, could I make money?
Dave M: Maybe in California, but Oregon does not have the price drivers.

Dan: So that is an opportunity, to design systems to pump value back in so they pay back more quickly.
Dave M: With the cost of electricity and the cost of batteries and battery maintenance and longevity, it is a losing proposition. So right now, it is not something customers are taking advantage of. But in 10 years we may see that.
Betsy: Also with our net-metering structure, it is not possible.
Thad: To get in the weeds, there are self-generators out there that are able to meet their own needs with the generation. They are a QF and are selling excess power to the utility during peak times, so they have come up with a way to make money. Those are limited circumstances, and there are tariffs that address that for eligible projects. Think large forest products industries, such as Roseberg Forest Products.

Roger: What stood out to me in the briefing paper is that you are selecting scenario 2 and emphasizing more dollars for early project support. And it seemed to me that you are putting more dollars at risk. But you seemed to allude to a limit or a balance. So are we putting more money at risk by focusing on early stage development?
Thad: It is a little more risky to invest at that stage, but the way we manage that risk is to create milestones. We divide the funds into deliverables occurring throughout the development process so we only pay when the milestone is achieved. If we discover that a project no longer has legs, we stop funding it. We also manage it by limiting the amount of funds available for development assistance and we only make it available through a competitive process.
Betsy: We found the Renewable Energy Advisory Council and the board brought values around geographic diversity, portfolio of technologies, and so we developed this approach to address this so we would not only fund the lowest cost projects but preserve the portfolio.
Roger: And one of Energy Trust's greatest contributions may be to take on a little more risk and support projects that may not be able to develop otherwise.

Alan: I am concerned that we do not stray too far from the prescribed path laid out for us, and we are charged with covering the above-market cost of renewable energy technologies. I can see when we have a surplus of funds, which we might experiment with new technologies. In a time of limited funds, if we are going to take incentive dollars and divert them to activities that are not explicitly called out in our purpose, I am not sure I support that.
Thad: I understand your issue and we have countervailing dynamics at play here. We are in a market where it is very difficult to develop geothermal, wind and hydro projects. We think we need to provide a signal to the market that we can help with projects. That is why we have carved out 5 percent of our total budget to do this. On the other hand, as our funding returns to $14 million a year provided by the

ratepayers, we are looking for a balance. We think we can add value by bringing forward more projects, even some that we cannot fund. One thing we looked at was being a conduit to other funders, as a connector to investors, and that our role might be around due diligence. We believe that to have the robust market we envision, we cannot fund all those projects ourselves. So we need to find other ways to support projects. We think carving out 5 percent of our funds to create development capacity in the market will do this. There are not many developers in the market that really understand how to develop projects. We had a developer come to us that misunderstood a couple of key issues that we were able to educate them about just as part of our review process. That is another benefit of this approach. We have two third-party developers for biogas, and we would love to see five.
Betsy: And this puts us in a better position to fund projects that have above-market costs, as SB 1149 directs us. We can do that if we do have high quality projects.

Margie: How much latitude do we have to tag on new technologies that were not identified in SB 1149? It is a legal question.
Thad: I defer to legal counsel. I think it is a conversation the legislature may have to have.

Dan: You could interpret that the waves came from the wind.
Roger: Or the sun. The founding fathers had the same problem.
Rick: I think we are due for a presidential comment.

John: Waves off the Oregon coast are the strongest in the country. I do think it is important to remember that Alan brought up strict constructionism of SB 1149, but in SB 838, the question came up as to whether market transformation in renewables was part of our charter and the state Attorney General concluded that it could be.

Debbie: There is a strict constructionist argument, but it is not clear. I think this is an issue for looking ahead in our Strategic Planning process for 2015-2019. But it is not clear and it will require more discussions from this group.

Roger: Cannot you just look at intent? If wave had been a reality then, it would have been our intent to include it.

Debbie: That would be part of the discussion.

Rick: Do we intend to look at this issue in our strategic plan development early next year? If we have something like an answer now, that is ok, but it is not our intent to consider it until next year.

Betsy: Wave falls off our plate right now. There have been other constraints to our involvement because of wind challenges. Currently they are not in the water generating electricity, and so far there is nobody talking about selling power to one of our two utilities. So it has been off our plate to date. But we want to stay abreast of what is going on, so I will be doing a “state of the state” for Energy Trust and it will likely dovetail with the Strategic Plan efforts. I should work with you to time my report so it can provide input for your process. I will keep in touch with the Strategic Planning committee.

Ken: In regard to this issue, have we looked to see who else might be doing renewable energy support in the region? Like NEEA does in efficiency?
Betsy: With regard to wave, there is the Oregon Wave Energy Trust. They are playing the biggest role, along with PNGC. The executive director of OWET is on our Renewable Energy Advisory Council, and our staff also attends the Oregon Wave conference. So we are definitely connected, and I can look at those other potential partners in my study, making sure the scope of our study supports what our role could potentially be.

Ken: Snohomish County Public Utility District (PUD) is very active in various forms of wave tidal energy. We don't want to try and do something unique and then find out that others are doing work we could learn from.
Betsy: Point taken.

Dave Slavensky: As I was reading the briefing, when you talk about expanded development assistance you are helping get a project off the ground. Do we do any educational assistance or software work to help make the development process any easier? How do you help upfront rather than once they have developed a project move it forward?
Thad: These are complicated projects. We know the development steps and the path have been documented in a variety of ways. At this point I am not sure there are ways to shortcut those steps. On the solar side, we think there are ways to shorten the process, so that is where we are starting. Hopefully that will be some instruction to custom projects related to hydro, biopower, geothermal and wind. It would be great if we could find ways to streamline that process. The state, with rules around interconnection and Power Purchase Agreements (PPA's), is a leader in the rules to create more certainty, so some has been done. They are complicated projects to develop so that does make it more challenging.

Betsy: There are some things we have done where we have seen common barriers across a set of projects. For example, in hydro, you have to deal with the Federal Energy Regulatory Commission (FERC), and we created a set of guidebooks to get that barrier as low as we could get it. So it is much less of an issue than it used to be. Also we published a community wind guidebook about six years ago. So when we see generic issues, we are happy and willing to step in and do that.
John R: Betsy just said what I would say.

Roger: Same thing. I participated in a resource innovations group on outreach for renewable energy on farms. And Energy Trust participated in seminars and workshops to educate folks on basic technology issues. So we have done that.

Solar Panel Discussion

Dave McClelland introduced the solar contractor panel. Two companies provide third-party options, and each company does both residential and commercial installations while remaining exceptional trade allies for the program.

Paul Israel, founder and president of Sunlight Solar Energy, which is one of Energy Trust's first trade allies and remains one of the most active. Sunlight Solar is based out of Bend and also does work in Connecticut and Massachusetts. Paul is the president of the Oregon Solar Energy Industries Association (OSEIA).

Shannon Souza is principal and founder of SolCoast, which is based in Coos Bay and is a long-time trade ally for solar electric and solar water heating projects. SolCoast also completes Home Performance with ENERGY STAR projects. Shannon is a licensed and professional engineer, and SolCoast is distinguished in design and quality.

Meghan Nutting is the Solar City director of policy and electricity markets. Solar City is the largest solar installer in the state and nationally. Meghan is based in Colorado and has expertise in how regulatory policy impacts the solar market. She knows the Oregon solar market and shows up when solar policy is being discussed at the OPUC, the Oregon Department of Energy and other places. We almost lost her to Arizona where they are debating net metering.

Question: How does your business work and how do you close a sale?

Meghan: Solar City does one in four residential installations in the country right now. The best way to get new customers is direct referrals from existing customers. We work to keep our customers happy. One of the soft costs in the industry is customer acquisition. Several years ago, it cost a few thousand dollars to get a customer to sign up for solar, and those costs are coming down now. Solar City is a fully integrated installer. We do financing and the installations ourselves. We raise funds of multiple hundreds of millions to finance upfront customer costs. But we also sell to customers outright. We have 3,200 employees because we have support staff for installers. We have about 50 staff in Oregon. We also do commercial and residential.

Shannon: I am on the other end of the spectrum. SolCoast is regional and focusing on the south coast, and delivering conservation and renewable energy hand-in-hand. We were concerned about the health and environmental effects of oil-heated or radiant heating homes where owners were looking at solar. Now we do a lot of Home Performance contracting at this time, and that is how we close a solar sale. We try to help customers figure out what they need. They may approach us to request a solar system, and we try to help them figure out what works best to fit their goals. We use Energy Trust heavily and the vetting of the services that we offer specifically on the solar side to help us close the sale. The solar incentives are subtracted from the system costs.

Paul: Sunlight Solar Energy is an Oregon grown company. It started with one employee, and we are now 26 in Oregon and 46 nationwide. Oregon gave us a platform to move into the national market. Solar is an economic sale. Many folks want it for environmental reasons, but the sale is based on economics. We are moving to a third-party finance world. In Oregon 10 percent of our commercial installs are with Energy Trust funding. On residential 75 percent are third-party financed and 5 percent are direct sale. Energy Trust is a large percentage of our work. Feed-in tariff projects are a small percentage, but it allows for a larger system.

Question: Where is your part of the solar market headed?

Shannon: Great question. Our demographic is 45 percent of customers are over the age of 45, and 35 percent are over the age of 65. All our residential solar clients have been over the age of 45. We have an increasingly growing retirement community, and we are starting to see refugees from climate change. We are also seeing aging in place, too. Most homes in the region were built in 1960, so there is a big retrofit market. We have installed about 0.5 MW of solar. Of that, 400 kW has been through grant funding and Energy Trust has been an essential seed component for matching funds. You are the first place we go to, so customers will see Energy Trust has reserved funds for the project. And I know you are considering dropping incentive funds, but I would encourage you to consider that carefully in the rural areas. You are an essential seed for us. We are small. We do not compete or have third-party financing. Our market is customers with cash in hand, or with a Veterans Affair loan that allows for an increase for solar. For residential it is about a nine year return in investment. Depending on how our application moves through review, we are looking at an eight year return on investment for commercial.

Paul: We are concerned about the commercial market. We are down in the Bend office on employees. Not sure why that is. So we are concerned. The economic offering seems to undersell. I am concerned the Sun Run third-party financing will not see the value in Oregon and pull out. And we see utilities pushing back on net metering and the feed-in tariff. We were lucky to see diminished capacity come out, and it does not compare to other states where there is much more capacity. Thank you very much for the increased rebate on the commercial side, it seems to have helped. We have seen how important the incentives affect the market, and the Energy Trust staff has done a great job with managing.

Meghan: The Oregon market is a little more difficult and more unstable. We use Energy Trust incentives and the feed-in tariff to serve customers. For those without a tax appetite, we try to put them into the feed-in tariff, and with reductions there it will be more difficult to serve the numbers of customers we would want. And the Residential Energy Tax Credit is scheduled to expire. So it is difficult to make the investment here as a company, not knowing what will happen with the market. When we invest in a market, it takes a big investment. We hire people, train them, rent a warehouse when we come into a new market. And it's hard to increase that.

Question: Describe how you work with Energy Trust a little more and how the relationship is working for you.

Paul: Energy Trust has been fantastic lately. There were rough patches early on, but everything has evolved very well. [Paul referenced the handout] What drives the Oregon market is really the Residential Energy Tax Credit. On average the Oregon residential customer finds the 3,000 watt system most economic. It is very hard to make this work from a business. I would like Energy Trust to consider providing a higher incentive on a little larger system to overcome the cap on the Residential Energy Tax Credit. You can see the simple payback falls off with larger systems. My suggestion is to move the incentive up for larger systems. In Portland, the roofs are smaller, but in the rest of Oregon we are not constrained by roof space. I think the sales folks will find it is easier to move larger systems when they are in the home. I think that would go further on the economics for Energy Trust, as well. Also, for folks that already have systems, they are constrained, and if we can move that cap up customers can expand their systems.

Shannon: We actively use Energy Trust to help close our sales. The relationship is working very well, particularly on the technical side. The market is volatile. There have been some nice breakthroughs. We just had an inspection on our first AC-coupled battery-backup system. We are seeing more and more and more prolonged outages. We are at the end of the Pacific Power line. We have seen outages of more than six hours. We are seeing folks interested in batteries, with the objective of allowing the system to operate during an outage. These are conversations we are having on the technical side with Energy Trust, because you have not seen them before, and you are incentivizing them. Also, the rapid transformation in technology makes it challenging to keep up. Energy Trust has supported our knowledge in the industry. I would encourage you to keep that going, particularly in small communities. For some of the roundtables, if you could add videoconferencing that would save us fossil fuel in travel and allow for more participation. We can attract rural grant funds, but we need your help to bring them in.

Meghan: Energy Trust has been a fantastic partner. We work in a lot of states, and in most states, programs are run by utilities. And we are starting to run across programs, particularly as utilities see solar as a treat to their bottom line. Energy Trust is a great model that avoids it because it is independent. We are actually looking at trying to propose replicating the Energy Trust model in other states. I commend you. One thing Energy Trust can do is offer predictability. Energy Trust provides that, and I would like you to keep that up. It would be nice to have incentives that support larger systems.

Questions from the board:

Roger: You mentioned outages in the Coos Bay areas. What time of year is that and also how do you see outages driving markets?
Shannon: Outages are happening at all times of the year. People who live in river valleys expect it, but it is happening more in downtown Coos Bay and affecting commerce. So we are getting approached more and more. As Meghan mentioned, the utilities are not compelled to support what is going on. In our area, we have offered to do "lunch and learn" for the Pacific Power linemen, because

they have told people misinformation about what solar will do to appliances, etc. If we could get access to data about the system it would help us understand where on the grid solar with battery backup would be most effective.
Paul: It is endemic to the utility industry that they are not investing in the system right now. In Connecticut we are seeing more loss of power. Utilities are really scared of battery technology. People are going off grid and utilities are fighting back now. Micro climate events and power outages will increase in the U.S. in the next decade for sure.
Meghan: Yes, we see outages driving interest in solar. We have to educate around that. The Holy Grail is around battery storage. The founder of Tesla is involved in our company. We are partnering with them to use their battery storage technology to back up our systems. We are running some pilot projects in California around battery storage. Our CEO recently said he hoped to have battery storage in the next two years. And maybe that makes outages less of a concern and it could change the conversation around how power is provided to people. But currently we do need to work with utilities.

Dan: Are you seeing a switch to where it is now the 1 percent of customers that are working with you to go off the grid or are the only people off the grid those that are in rural areas and too far away from the lines?
Shannon: We do not do many off grid systems.
Dan: Even on the south coast?
Shannon: There, it is the 1 percent or the 30-year-old goat farmer. I really see the market in grid tied with battery backup. What they really want is for their system to work when the sun is out.
Paul: Back in 2000, there was no grid tie, but now people want battery backup and grid tie. The technology is evolving on our side so we do not spend all the time going back and tweaking the systems.

Dave Slavensky: To Meghan, if your company is going to invest in one of the states, which one and why?
Meghan: We look at a few things before going into any market. First we look at energy prices. We try to offer customers 10 percent below what they get from utilities. Also, insulation, sun resource, state policies and incentives—for example, do they have net metering policies, allow third-party ownership or incentives to lower the cost of going solar for our customers?

Ken Canon: I have been looking at a solar installation myself in an area 14 miles east of Myrtle Creek, Oregon. One installer we talked to was interesting as they talked about whole life: return on investment, etc. What struck me was very little discussion on the technology and how I was going to hook into the system. I am interested in knowing how the sale is made. Second question is when do you forecast that solar will not need an incentive?
Meghan: When will solar not need incentives? It will vary by policy and state by state; it is definitely state specific. In Southern California we are installing without incentives, in Arizona we are at 10 cents per watt which is minimal and will run out shortly. In Oregon, the market needs to grow in scale on some sort of predicable ramp, so Oregon is not there yet. In terms of financing a system, the ITC is 30 percent and will go down to 10 percent in 2017; this will make some other incentive necessary in order to reach a similar financial viability.
Paul: Incentives will be needed until there is grid parity with natural gas. To make the sale, it is about customer education; most OSEIA companies will give a complete dialogue on how solar panels are made.
Shannon: I know Paul has been involved in this as well, for us there are diagrams that show what the system and components will look like. We also host a solar and green home tour to make it hands on.

Margie: With policy differences by state, does that change how you make the pitch to close a sale?
Meghan: When we close a sale, we talk about energy savings, which is pretty standard across states.

Paul: In our Connecticut and Massachusetts offices, the rates are so competitive, 10 percent would be great, especially for third party.
Shannon: Within our market, we typically define a financial sweet spot for the client. In residential it is a 3.4-kW system size right now. We also look at what they say they want and give them that financial outlook. Plus, for those that qualify for Rural Energy for America Program (REAP) grants, those systems could go up to $20,000.

Roger: When you are doing outreach, Shannon you mentioned climate refugees; do climate goals motivate your customers? Or policies about greenhouse gas reductions?
Shannon: We have some representatives who are knowledgeable in this. With energy performance scoring, people are concerned about greenhouse gas emissions.
Meghan: In our proposals, we show people how many trees are saved or carbon dioxide avoided. It is very appealing. Some people see it as improving their home's resale value and others as something good to do.
Paul: For some it is the environment and others it is primarily financial. And we want to mass market, we want all Oregonians. It is an economic driver—keep the money in Oregon.

Dan: Policy question, when you net meter, is it at the meter or at the customer and utility? For example, if someone has more than one meter.
Shannon: The systems are net metered at the meter.
Paul: Oregon had a virtual net metering bill that failed this past session.
Meghan: That is useful for a lot of farms. Some states allowed aggregated net metering.

Dan: What was the argument against the virtual net metering?
Paul: Utilities will kill anything with solar right now except if they will own the power plant.
Shannon: We are looking at multifamily, low-income housing units. We needed to install 100 inverters though, even if the entire building was owned by the weatherization and low-income housing group. Pacific Power would not let us.

Dave S: What is your view of how financing affects the ability to finish a sale and where do you see the cost of solar going?
Meghan: We find financing to be incredibly important. There is a great study by NREL that people who lease their systems are younger, less educated or have less money. We offer our customers both options and about 90 percent choose financing. Plus we are able to reach a segment of the population that otherwise would not be able to afford financing. As for the costs of solar, there are soft and hard costs. For hard costs like equipment I see it plateauing and maybe going up; we will not see the dramatic decline. As far as the soft cost, you can decrease permitting times. For example, we have been given a three-hour window for an inspection, and we have to pay our crew to sit around and wait for the inspector.
Shannon: Financing is not something we offer so we kick those over to other companies. It is about 40 percent of our inquiries. My electricians are members of the International Brotherhood of Electrical Workers (IBEW) and I spend a lot on electricians, and also spend money on key journeyman to keep them with us, so I see those costs going down; it is the knowledge and on-the-job experience.
Paul: OSEIA allows electricians now, not just solar installers. We have a lot of journeyman electricians. SolarWorld and Energy Trust helped a lot with bolstering this job market when the economy went down. For larger systems, the best way to decrease costs is to install larger systems.

Anne Donnelly: Thank you for the profile on Coos County. Can you speak more to what percentage of people who contact you do not go forward mainly because they had such an inaccurate perception of the costs? Also, how can Energy Trust assist with the need for education?
Shannon: Half of the people who come to us do not know what they are asking for and of those, three-quarters will walk away because of their misperceptions. I do refer a lot of people to Energy

Trust's website which gives a good snapshot of what the costs would be. There are good interactive pieces that OSEIA has that could be leveraged. Also, we do a lot of community outreach through educating our children, like through science fairs, using solar tools from Bonneville Environmental Foundation and donating our time. Energy Trust helping in those education and outreach areas would be helpful as well.
Paul: Of 10 that call us, one will lead to a sale and it costs about $500 per customer so anything you can do on education would be wonderful.

John: Meghan, I am surprised you think the dramatic decrease in panel costs will slow and maybe reverse. What is your reasoning?
Meghan: It is through reading trade publications. There has been a lot of competition in the industry through tariff wars, with SunTech in trouble, etc. and a lot of shake-out in the past years and panels can only go so low, until they are free. As companies go out of business, there is less over-capacity. There is an ability to make many more panels. Whoever is left in the game will be able to charge more for their panels.
Paul: SolarWorld experienced this. Panel prices seem to be stabilizing around 80 to 90 per watt. And the efficiency of panels is increasing as well.

Break from 11:05 to 11:10 a.m.

Wrap-up

Nick introduced the remaining items:

1. Do the notes capture what we feel needs more conversation
2. Is there anything not on the list that should be
3. Brief review of strategic planning timeline

John V: I kept a running tally of questions that might be worth more explanation on our part or discussion by the board:

1. Setting incentives based on time of use or other unique values associated with different technologies (Dan)
2. Collection of questions around our charter: wave technology , to what extent does SB 1149 allow us to get involved in early stage assistance (Alan)
3. Outages in rural areas and the role battery backup can play, should we get involved
4. Virtual metering rather than net metering at the meter and what can we do about that given the fact that the legislature has not really gotten into it

John V: Also, prescriptive versus custom program terminology. This does not sound like a strategic issue, more a program issue, which you may talk about this afternoon. What did I miss?

John R: From Paul, increasing photovoltaic system size, unused roof space out there.

Nick: Any other points of clarification needed?

Dan: From a technology standpoint on the panels, the panels and power from the sun, efficiency of the panels is bringing us to diminishing returns. Energy Trust wants to support emerging metering and other technologies, but this requires balancing the risk concerns of the utilities versus taking advantage of the opportunities.
Roger: I want to reinforce the storage issue, not just for solar but in general. This is also associated with reliability issues, which is important with distributed generation. This may be difficult to assess or quantify but is something that warrants additional discussion.

Dave: Shannon mentioned videoconferencing from rural areas, it would be good to look into this. Government projects do not get tax incentives so some of those projects may not move forward but they may be prime projects.

Rick gave an overview of the strategic planning schedule. There will be a lot of staff and committee work early on, plus consultations with stakeholders, interaction with the board, the usual retreat in June, further consultations and development of a draft of the report in fall 2014. There is a strong linkage between the development of the new strategic plan scheduled for board adoption in October 2014, and development and refinement of the 2015-2016 budget scheduled for board adoption in December 2014. There are still some process issues to figure out.

Dave: Does alignment with utility integrated resource plans (IRP) affect any of this?
Margie: We do that now during the budget process.

Margie: Please note that on page 16 of the renewables paper there is reference to the legislation requiring the OPUC to review the merits of solar incentives in the state, including ours. The paper is not due until the second half of 2014, so that timing does not align well with this timing. I want to point out that we will be working closely with the OPUC on the completion and submission of this report. It may or may not require changes from what the board sees at the June 2014 retreat and what you will see in October 2014.

Nick: Any closing thoughts?

John R: I would like to hear from staff on Paul's suggestion that we incent larger photovoltaic (PV) systems.

Dave M: Energy Trust currently offers 75 cents a watt up to a maximum of $5,000 for both PGE and Pacific Power customers. Our residential incentives are not biased to system size—we go to about 7 kW. Where the bias comes from is the Residential Energy Tax Credit, a $6,000 tax credit which gets maxed out before you get to a 3-kW system. I know the Oregon Department of Energy is looking at this and it is something Energy Trust will be involved in, in terms of providing analysis for them. If we were to offer a higher incentive for larger systems that potentially becomes risky, especially for Pacific Power territory where we are right on target to meet our budget. We do not need to sweeten the pot to meet that budget. In PGE territory, we could use a little more activity and we have 60 percent of the renewable budget, versus 40 percent in Pacific Power. How we drive demand in PGE territory is something we are looking at. Also, we are already seeing our average system size go up; the average is 5.5 kW, so contractors are taking advantage of economies of scale. A year ago it was 4 kW and two years ago it was 3 kW.

Peter: We will come back to you on what the budget impact of this would be. The other question is what is the best way to support the industry? Is it many smaller systems or fewer larger systems? And this impacts the trade allies. With larger systems in a net-metered situation and you are a gas customer, you are just donating the energy back. So you have to look at the circumstances this would make sense for. We want to avoid a give-back situation. We will come back to you on this.

Alan: We could do it because our charter is to cover above-market cost. On the other hand, we will incentivize systems that will invariably go to wealthier homeowners and people may come back and say we are not being equitable.
Peter: The feed-in tariff helps those customers that want a larger system. Energy Trust is fitting a particular niche.

Nick: Any final thoughts before we close the meeting?

Roger: It is great to hear directly from the industry.

John R: I appreciate the work of the staff and their accommodations for our last minute requests.

Debbie K: I appreciate the ground work done for our upcoming strategic planning discussions. Retreats give us the opportunity to step back and look at the issues more broadly.

Rick: Great panelists involved and we should look at ways we can do this more often. There were some surprising and candid conversations. Excellent staff work as usual and good board participation. For renewables, we might find it difficult to deviate from the path set in the past, but that does not mean the process was not needed.

Margie: For the first time, we have split apart the renewable energy focus from the energy efficiency focus for the board strategic planning retreat. What is your feedback? And you can e-mail me, too.
Ken: I apologize for not being there today. I like the way this has been split up. This gives us more time to focus our energies and attention on energy efficiency and then renewables. Trying to do it in one time period like previously, we tend to run out of energy.
Rick: I think renewables got their due and President Reynolds got his day.

Nick thanked staff and the board for their attendance and participation.

Adjourn

The meeting adjourned at 11:30 a.m.

/s/ Alan Meyer
Alan Meyer, Secretary