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January 15, 2014

VIA ELECTRONIC FILING & U.S. MAIL

Oregon Public Utility Commission
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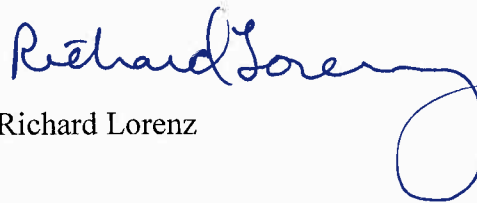
Re: Public Utility Commission Legislative Report to Comply with
HB 2893 Solar Incentives
Docket No. UM-1673

Filing Center:

Enclosed please find Obsidian Renewables LLC's Comments in the above-referenced docket. An electronic copy of this filing will also be provided to all parties on the service list.

Thank you for your assistance with this filing. Should you have any questions, please feel free to contact me.

Very truly yours,



Richard Lorenz

RGL:tjb
Enclosures

cc: UM-1673 Service List

4827-9286-6068, v. 1

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1673

In the Matter of

PUBLIC UTILITY COMMISSION OF
OREGON,

Report to the Legislature on Effectiveness
of Incentive Programs for Solar
Photovoltaic Energy

OBSIDIAN RENEWABLES, LLC's
COMMENTS

General Questions

1. What are the primary goals in promoting solar?

Oregon has an energy future where solar will be a modest but important contributor to the overall energy supply. Also, because of its more abundant sunshine, Oregon is likely to export solar energy throughout the BPA service territory. Today, the primary goal in promoting solar is to learn how to help solar best assume its proper place in Oregon's energy picture.

2. What is the proper role of the utility in developing solar?

To gain experience and to help drive down costs.

4. How should solar incentive programs be evaluated?

a. What evaluation criteria should be used (e.g. cost per kWh, cost per installed kW, cost per unit of carbon displaced, other)?

An incentive based on kilowatt hours of actual production is simple and best encourages efficiencies.

Questions related to Resource Value (HB 2893 (4)(1)(a))

5. In UM 1559, the Commission chose not to require utilities to report certain elements of Resource Value, such as avoided CO2, fuel price volatility, integration, and transmission and distribution costs. Should we calculate them now? If so, how should we do so with the data available?

Good question. Solar electricity cannot help but deliver the valuable benefits of avoided CO2 and rock-solid zero volatility fuel price. Solar also naturally and unavoidably offers a substantial hedge against inflation because such a large percentage of its life cycle costs are incurred at the front end. By not using the value of these embedded benefits in a comparison with present and future costs of electricity from burning natural gas, solar is being directly disadvantaged. For an even comparison, the PUC 25 model should include, in the gas alternative, the costs of a 25 year hedge against gas price increases over the forecast and the costs of a 25 year hedge against inflation in operating costs. The costs and benefits to the transmission and distribution system are far more complex and merit further study.

8. How are the benefits of incentive programs distributed among non-participating retail customers?

This question should more broadly take into account the benefits of the incentive programs on all customers, those who have solar panels and those who don't. In fact, the solar pilot program has benefited all Oregonians, not just those in PGE and Pacific service territories.

9. Can those benefits be quantified? If so, how? What studies would need to be done and what data would be needed?

Here is a chart on how one specific program has assisted in lowering the costs of solar for everyone.

Success of Oregon's pilot Feed-in-Tariff program

Description:

Oregon passed HB 3039 in 2009 and HB 3690 in 2010 to set up the state's pilot Feed-in-Tariff program. As that program now draws to a close, it is worth looking at one of the successes of the project, as determined by its efficacy in driving down costs. Because of our familiarity with it, we are going to focus on the larger system size (100-500 kW) auction process in Pacific Power territory. Below are the lowest bids in each of the four bid dates. Obsidian Renewables' bids are highlighted in yellow.

July 2010 - Large		April 2011 - Large		April 2012 - Large		April 2013 - Large	
Nameplate Capacity kW	Bid Price	Nameplate Capacity kW	Bid Price	Nameplate Capacity kW	Bid Price	Nameplate Capacity kW	Bid Price
500.00	\$0.2397	300.00	\$0.2000	500.00	\$0.1575	500.00	\$0.1095
500.00	\$0.2690	495.88	\$0.2340	500.00	\$0.1695	500.00	\$0.1345
495.00	\$0.2830	488.40	\$0.2349	500.00	\$0.1748		

Outcome: We at Obsidian Renewables believe the Feed-in-Tariff program has effectively and successfully created a very small but competitive marketplace that has been instrumental in driving down the cost of the larger solar projects in the pilot program. The winning bid has significantly dropped each of the 4 allocation rounds in which the program has been in effect. From the first auction to the most recent, the winning bid has dropped by 54%. We have been proud to participate in that competitive marketplace, even in the years in which we were not successful in obtaining an allocation. The reasons the bids have come down so much include experience, dropping prices of equipment, and the creation of a competitive market for solar.

11. Do incentive programs create cross subsidies?

All incentive programs cause a change in economic behavior, which is their purpose. The intended outcome is usually burdened in some manner by other, perhaps unintended consequences. The solar pilot program has caused an increase in solar in the state. That has the consequences of increased solar. Step back and look at the incentive programs as a whole and see if they need to be modified or adjusted to accomplish their overall goals, don't look at one incentive in isolation. Maybe the low income assistance program is not sufficient. Maybe a more aggressive conservation program for low income housing would best balance the system costs and benefits.

Avoid developing new rules and cost structures to adjust an impact is not much more than a rounding error. Continue to study the question, but more experience is needed.

Utility solar, solar in front of the meter, does not raise the cross-subsidy question. The costs of the power are baked into the rates as the utility and the PUC may decide.

Questions about Forecast Costs associated with solar photovoltaic systems in Oregon (HB 2893 (4)(1)(c))

14. What are sources of forecasts of solar panel prices? How big is the range of estimates?

In our experience, the current wholesale price (i.e. large quantity purchases) of top tier multicrystalline solar photovoltaic panels is about 72 – 75 cents per watt of dc capacity. Prices had fallen to 63 cents or less, but they have come up in the last couple of months. General contractor (“EPC”) pricing for single-axis ground mount on a well-suited site is about another \$1.25 or less. Land use approvals, studies, legal, financing costs, land, interconnection costs and developer charges and fees bring the total costs on a 10 MW project to about \$2.50 per watt dc capacity, or less. These costs all represent a huge reduction compared to the costs before the pilot program was enacted. Larger scale solar can be built in the sunny part of the state with no state or ratepayer subsidies for less than \$90 per megawatt hour, delivered at the fence line, with an annual escalator of 3 percent.

Of course, the pilot program by itself did not drive down all the costs. But do not brush aside the enormous contribution the pilot program has made to solar cost reductions. For example, Obsidian spent \$1 million on legal and accounting fees on our first larger project. There were two lawsuits (one over the BETC and one over land use

approval) and three legislative session including extensive lobbying. Initial issues are now resolved and our budget for legal fees has dropped more than 90 percent. For further example, projects come together faster and much more smoothly now. The total costs and fees charged by developers has dropped about 75 percent. Finally, contingency budgets to guard against the unknown have been slashed by half or more. All these savings are due to competition and on-the-ground experience. Oregon now has a well-trained and more experienced labor force, particularly among members of the IBEW. These savings are properly credited to Oregon's solar pilot program, not to falling panel prices. To further Oregon's policy objective of driving down the costs of solar, Oregon should continue to nurture an environment where solar on a large enough scale to support a competitive business environment.

Obsidian's comments here are about larger utility projects because that is most of our experience and expertise. We believe the benefits we have identified apply to smaller projects as well, but we have less experience with those portions of the pilot program.

New Question: How should the PUC calculate the cost of the pilot program?

The cost of the pilot program should be calculated based on the cost of solar going forward, not the cost of solar looking back. The costs to fly a 787 Dreamliner are the costs incurred by an airliner operating them, not the extraordinary costs of the pioneering flight.

Yes, the initial costs of the solar pilot program were high on a per kilowatt hour basis. But try to calculate the benefit to utilities and others from the experience we now have with solar and the lower costs going forward. Because of that experience, the costs

of solar going forward if the pilot program was to be continued or expanded will be far, far less. Obsidian is confident that over the next five years Oregon could install more than 150 MW of solar under a renewed pilot program for less aggregate cost to ratepayers than the cost of the 50 MW under the pilot. To me, that is the real story.

These comments are submitted by:

/s/ David W. Brown

David W. Brown

Obsidian Renewables, LLC

CERTIFICATE OF SERVICE

I hereby certify that I caused to be served the foregoing **OBSIDIAN RENEWABLES, LLC'S COMMENTS** via electronic mail and, where paper service is not waived, via postage-paid first class mail upon the following parties of record:

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Dated in Portland, Oregon, this 15th day of January, 2014.

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