



February 25, 2014

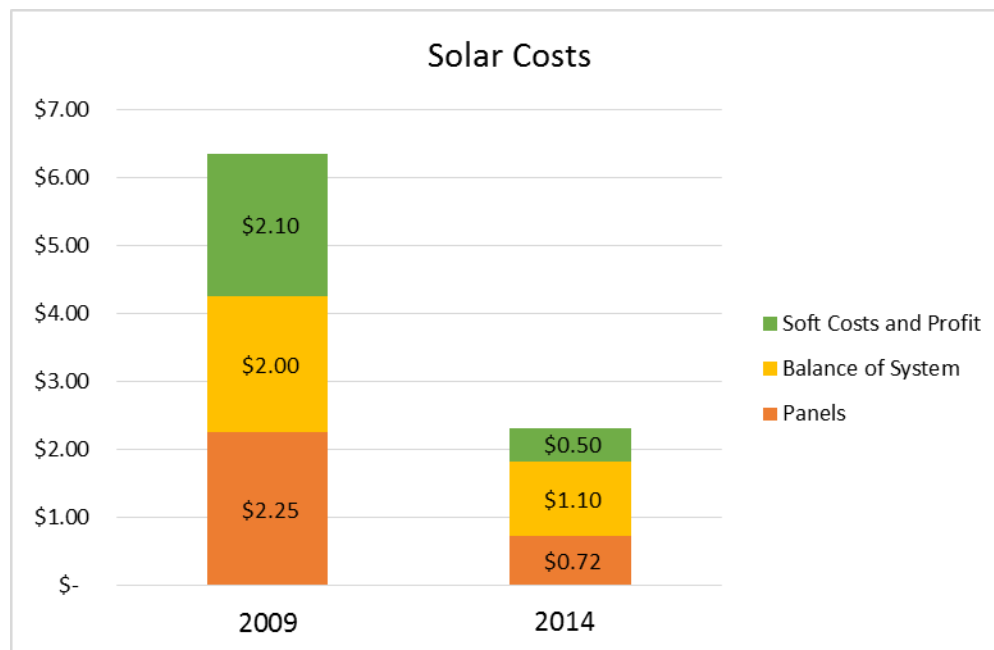
Oregon House Energy and Environment Committee

Dear Chair Bailey and Members of the Committee:

Oregon has an energy future where solar will be a modest but important contributor to our overall energy supply. Also, because of its more abundant sunshine, Oregon is likely to export solar energy throughout the BPA service territory.

### **What does solar cost today?**

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 \$1.15 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 \$2.40 per watt dc capacity, or less. These costs all represent a huge reduction compared to the costs four years ago, or even 18 months ago.



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

### Success of Oregon's 500 kW program

#### Description:

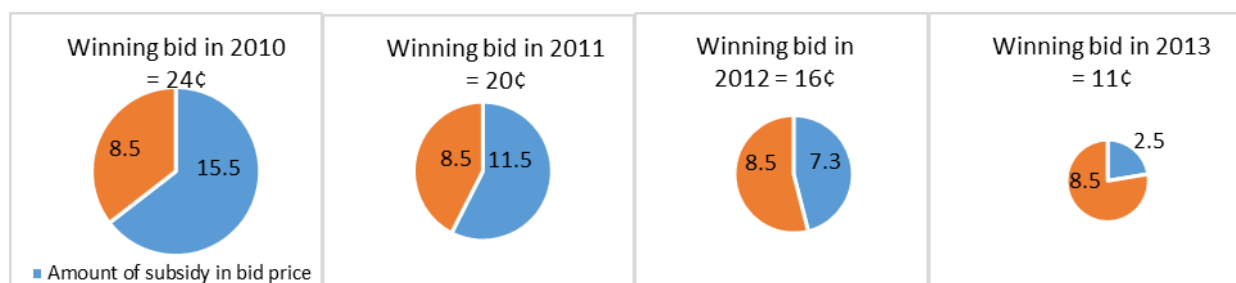
Oregon legislation established the state's pilot Feed-in-Tariff program in 2009. As that program now draws to a close, it is worth looking at one of the successes of the project, as determined by its efficacy in driving down costs. Because of our familiarity with it, we are going to focus on the larger system size (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		

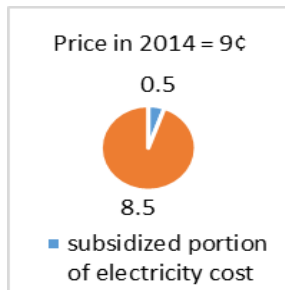
Outcome: We at Obsidian Renewables believe the Feed-in-Tariff program has effectively and successfully created a very small but competitive marketplace that has been instrumental in driving down the cost of the larger solar projects in the pilot program. The winning bid has significantly dropped in each 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.

For a 500 kW project, considered the smallest utility-scale project, Oregon's experience has been a decline in subsidy costs as follows:

The pie represents the total cost of electricity. The orange part of the pie represents a solar energy value equal to the retail rate of electricity. The blue portion of the pie represents the subsidized portion of the total cost of electricity.



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 2-3 percent. For a 10 MW project in 2014 in the sunny part of the state, the required subsidy has shrunk to less than a penny.



Many reasons have contributed to driving down solar costs. Oregon's experience with solar has made an enormous contribution to solar cost reductions. For example, Obsidian's budget for legal fees for new projects has dropped more than 90 percent compared to the first project. For further example, projects come together faster and much more smoothly now. The total costs and fees charged by developers have 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 programs, 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 can continue and even thrive, provided the industry continues to drive down costs.

Over the next five years, Oregon could install far more solar megawatts at far less cost. We need to work together to determine the best, most cost-effective way to make that happen.

These comments are submitted by:

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