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Energy Prospects West

Large-Scale Solar Prices Plummet in the West

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The U.S. Department of Energy's 2020 SunShot Initiative cost target for utility-scale solar power of \$60 per MWh seemed ambitious when the effort kicked off three years ago.

After all, at the time, the average levelized cost of utility-scale solar power in the U.S. was around \$200 per MWh, according to the DOE's National Renewable Energy Laboratory.

What a difference a mere three years makes.

Current prices for electricity from utility-scale photovoltaic (PV) power plants in the western U.S. already have sunk to approximately \$45 to \$70 per MWh, as reflected in several recently approved power purchase agreements (PPAs) between utilities and developers from California to Texas.

These include:

- SunEdison's 25-year agreement with Austin Energy – approved by Austin's City Council on March 20 – to deliver power from two West Texas PV plants totaling 150 MW at a fixed rate in the range of \$45 to \$55 per MWh
- Silverado Power's renegotiated 25-year PPA with Southern California Public Power Authority (SCPPA) for electricity generated by two planned 20-MW facilities in Lancaster, Calif., at a fixed price of about \$71 per MWh -- which the Pasadena City Council approved March 17 (the cities of Azusa and Riverside, however, must still approve the deal)
- First Solar's 20-year PPA at \$57.90 per MWh with El Paso Electric for the output from its 50-MW Macho Springs project currently under construction in New Mexico – which was approved in 2013 and is scheduled for completion on May 1, 2014

- First Solar's 20-year PPA with SCPPA at a fixed price of \$68.50 per MWh for electricity generated at its 40-MW Kingbird Solar project near Rosamond, Calif.
- Recurrent Energy's 2013-approved 20-year PPA with SCPPA for the output from its 20-MW Clearwater and 15-MW Columbia Two solar facilities at a fixed price of \$69.98 per MWh

Such prices -- supported by the 30-percent federal investment tax credit (ITC) and in some cases additional state or local tax breaks -- now represent the going rate for large-scale PV projects, according to Jim Hughes, chief executive of Arizona-based thin-film module maker and project developer First Solar.

"We have moved from prevailing prices in the \$90 to \$100 a megawatt-hour range to \$70 to \$80 a megawatt-hour to \$60 to \$70 a megawatt-hour," Hughes said during a March 19 meeting with investment analysts. Utility requests for proposals "are now printing prices with a 5 on the front," he added.

Hughes says that these lowered solar prices, combined with the recent rise in natural gas prices, are creating heightened interest among utilities to procure more solar than previously planned. One such utility named by Hughes was NV Energy in Nevada, which issued a request for information from solar developers in March to see how much solar they could build in the Silver State in the immediate future.

"When you start getting to those prices at the same time you have had a run up in natural gas prices over the course of this winter from \$3 to near \$5 [per MMBtu], all of a sudden people wake up and go, 'Well, wait a minute,'" said the First Solar CEO, adding, "And that is startling to a lot of people who just still have in their mind this \$90, \$100 per megawatt-hour pricing or even higher, and they assumed that \$3 natural gas was going to last forever."

First Solar is so confident that it can meet utility appetite for inexpensive solar power in Texas that the company is building an initial 22-MW phase of its Barilla Solar Project without a power purchase agreement and has plans to eventually build it out to 100 MW. With the first phase already in the advanced stages of construction and scheduled to come online this summer, First Solar intends to sell

wholesale power into the ERCOT market while exploring both short-term and long-term supply agreements.

"We're going to go try and change the paradigm. We're going to go try and change the process by which the assets are created, the power is marketed, and we will see what the results are," said Hughes, who called the project "commercial R&D."

According to Hughes, lowered solar prices are driving "a lot of activity outside California, Nevada, and Arizona," and into places like the Southeast, the Midwest and Texas. "If we can gain traction in Texas, I think it's pretty safe to conclude it's a pretty competitive resource today," he added.

Austin Energy recently set the bar for low-priced utility-scale solar in the U.S.

The municipal utility recently signed a 25-year agreement with SunEdison for power from two West Texas PV plants totaling 150 MW at a price between \$45 and \$55 per MWh, Austin Energy disclosed. According to the American-Statesman, the PPA price actually is just below \$50 per MWh.

Austin Energy's current 30-year levelized cost estimate for new combined cycle natural gas generation is about \$70 per MWh, just over \$100 per MWh for coal and \$36.75 to \$44 per MWh for wind.

Austin's City Council approved the deal with SunEdison on March 20. The 100 MW and 50 MW plants, which will rely on crystalline PV technology, are expected on line in 2016.

The utility initially wanted power only from a 50-MW project. "We ended up with 150 MW because of the attractive nature of it," said Austin Energy General Manager Larry Weiss during a public meeting preceding the City Council's vote.

At around \$50 per MWh, that's a sentiment likely to be shared among utilities throughout the country.