

Solar Power Is Beginning To Go Mainstream

Jonathan Fahey, AP Energy Writer

NEW YORK (AP) — Solar energy may finally get its day in the sun.

The high costs that for years made it impractical as a mainstream source of energy are plummeting. Real estate companies are racing to install solar panels on office buildings. Utilities are erecting large solar panel "farms" near big cities and in desolate deserts. And creative financing plans are making solar more realistic than ever for homes.

Solar power installations doubled in the United States last year and are expected to double again this year. More solar energy is being planned than any other power source, including nuclear, coal, natural gas and wind.

"We are at the beginning of a turning point," says Andrew Beebe, who runs global sales for Suntech Power, a manufacturer of solar panels.

Solar's share of the power business remains tiny. But its promise is great. The sun splashes more clean energy on the planet in one hour than humans use in a year, and daytime is when power is needed most. And solar panels can be installed near where people use power, reducing or eliminating the costs of moving power through a grid.

Solar power has been held back by costs. It's still about three times more expensive than electricity produced by natural gas, according to estimates by the Energy Information Administration.

But the financial barriers are falling fast. Solar panel prices have plunged by two-thirds since 2008, making it easier for installers to market solar's financial benefits, and not simply its environmental ones. Homeowners who want to go solar can do so for free and pay the same or less for their power.

Last month two of the nation's biggest utilities, Exelon and NextEra Energy, each acquired a large California solar power farm in the early stages of development. Another utility, NRG Energy, has announced a plan with Bank of America and the real estate firm Prologis to spend \$1.4 billion to install solar systems on 750 commercial rooftops.

Nationwide, solar power installations grew by 102 percent from 2009 to 2010, by far the fastest rate in the past five years.

"Every manufacturer globally is looking around for the next major growth market, and the U.S. is the first one everyone points to," says Shayle Kann, managing director for solar research at GTM Research.

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Making solar affordable still requires large tax breaks and other subsidies from federal and state governments. The main federal subsidy pays for 30 percent of the cost of a residential system. When state and other subsidies are added, as much as 75 percent of the cost can be covered.

But prices of solar panels, the squares of crystalline silicon or thin layers of metal films that turn the sun's rays into electricity, are falling so fast that its advocates now credibly claim that solar will be able to compete with fossil fuels even when the federal solar subsidy shrinks by two-thirds in 2016.

"Over the past 10 years the industry has made the case that we needed to increase scale so we could reduce prices," says Arno Harris, CEO of solar developer Recurrent Energy, a subsidiary of Sharp Corp. "We're seeing it happen."

The falling prices have made it easier for solar installers to raise the money needed to grow. And they've made solar power systems so affordable they can appeal to homeowners who want to save on their electric bill, not just reduce their environmental impact.

Tim Johnson, a high school math teacher in Philadelphia, had wanted to put solar panels on his roof for years. Like many people concerned about the environment, the thought of powering his home without burning fossil fuels had a strong appeal. But with two kids in college, he couldn't justify spending \$15,000, after subsidies, to do it.

But since March, he has generated 50 percent to 75 percent of his electricity with a set of solar panels on his roof, saving 20 percent on his electricity bills. His upfront cost for the system: \$0.

Instead of buying and installing the panels himself, he signed up with SunRun, one of a handful of companies that build, own and maintain solar systems on homes. These companies earn money by charging customers for the power the panels produce.

Johnson pays SunRun \$52 a month, and he pays his traditional utility for whatever extra power he needs from the grid. In all, he pays \$60 to \$100 a month for power; he used to pay \$90 to \$120.

SunRun can charge Johnson a competitive rate because federal and state subsidies pay for a portion of the installation. Also, the arrangement allows SunRun to take advantage of one of solar's big advantages. Because it is generated near where it is needed, it doesn't have to pass through hundreds of miles of wires, transformers and other equipment. The power price SunRun has to beat in order to entice customers like Johnson is an expensive retail rate, bloated with transmission and distribution charges that home solar doesn't incur.

It would be cheaper over the long run for a homeowner to buy and install a solar system because he would not have to pay a company like SunRun for financing, service and maintenance. But these plans have growing appeal because they don't

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require homeowners to lay out thousands of dollars up front.

In California, which leads the nation in solar power installations, 51 percent of the residential solar systems installed through the first three quarters of this year were sold with these plans, up from 12 percent in 2009.

SunRun and competitors such as SolarCity and Sungevity are expanding into more states, including Arizona, Colorado, Delaware, Maryland, Massachusetts, New Jersey and Pennsylvania. Last month, Google announced it would create a fund that local installers in every state can tap so they too can offer no-money-down plans.

Some installers are teaming up with big hardware chains Home Depot and Lowe's in an effort to expose solar to customers who might not otherwise consider it.

"Awareness is still one of our biggest problems," says Lynn Jurich, co-founder and president of SunRun, which has a partnership with Home Depot.

Solar panel prices have been declining for years because of lower costs for polycrystalline silicon, the main raw material for most solar panels, and larger-scale manufacturing, especially in Asia. In the last six months, demand has dropped sharply in Germany, the world's biggest solar market, in response to shrinking subsidies. This has created a global glut of solar panels and accelerated the decline in prices.

Solar panels, which are priced based on the amount of power they can produce during full sunshine, sold for \$1.34 per watt in mid-September, according to data from Bloomberg New Energy Finance. That's down from \$1.90 at the beginning of 2010. In 2008, they sold for \$4 a watt.

The glut has been gut-wrenching for companies that make solar panels. Many of them remain profitable and are growing. But three U.S. panel makers have filed for bankruptcy in two months, including Solyndra, a solar panel maker that received a \$528 million federal loan.

Falling profit margins are scaring investors. The stock price of First Solar Inc. has fallen from \$170 in April to \$53.77. Suntech Power Holdings Co. Ltd. has fallen from \$11 to \$2.07 over the same period.

The Solyndra bankruptcy has sparked a political uproar. Republicans have accused the Obama administration of pushing for Solyndra's loan for political reasons and have used the bankruptcy to question Obama's plan to help boost the economy by subsidizing clean energy projects.

The market will not get any easier for small solar panel makers. General Electric Co., Samsung and other big companies are entering the market. This should increase supply and bring down costs even further. GE announced this month that it would build the largest panel factory in the U.S., near Denver.

But what has been treacherous for solar panel makers has been a boon for

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companies that market and install solar systems, for companies that make electronics and other parts for solar systems, and for solar customers.

To be sure, solar is growing from a very small base. All of the panels now installed across the nation produce enough electricity to power 600,000 homes, or about as much electricity as one large coal-fired power plant.

There are 30,000 megawatts' worth of solar projects awaiting approval in the U.S., according to the American Public Power Association. Not all of them will be built, either because of regulatory or financial hurdles. But even if only half that is ultimately built, it would be five times what is already installed.

"We're going in the direction the planet and the industry needs to go," says Harris.

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