Solar boom in New Jersey

With about 450 MW installed capacity New Jersey's PV installations account for 24 % of all those in the US, although New Jersey is one of the smallest states.

Photos (3): GeoGenix

For the first time ever, California has lost its lead in the commercial solar market – to New Jersey, a state just one-twentieth California's size.

Thanks to New Jersey's long-term commitment to solar energy and the creation of a tradable solar credit market, the state has 450 MW of installed capacity, much of which has been installed in the past year. But such rapid market growth and changing incentive structures have destabilized the market, causing worry about the future market among some solar developers. Even though New Jersey is one of the smallest states in the US, its PV installations now account for 24 % of all those in the US, up from 15 % earlier this year, according to the Solar Energy Industries Association (SEIA). California's market share of all US installations fell to 30 %, from 42 % in the first quarter. The commercial solar market alone jumped 170 % from the first to the second quarter this year. With about 450 MW installed capacity today, some expect the state's solar capacity to total 500 MW by the end of the year.

New Jersey's solar market boomed in large part because the Board of Public Utilities five years ago established a solar renewable energy certificate programme that created a marketplace for solar energy. Energy producers trade Solar Renewable Energy Credits (SREC) with utilities, which are required by law to meet certain targets of renewable energy production each year.

New Jersey is one of 16 states in the country that has a specific solar carve-out requirement within the state's renewable portfolio standard (RPS), which requires utilities to produce a certain percentage of solar energy or SRECs or pay fines. "The RPS, specific solar carve-out and alternative compliance payments shape the market by creating demand for solar credits," says Bill DuFour, Associate at the law firm Foley & Lardner in Wisconsin.

It became clear to the load-serving entities that if they did not have the appropriate amount of solar energy in their procurement portfolio each year, then they would have to pay a fine, explains Gaurav A. Naik, Managing Member at GeoGenix in New Jersey. This has resulted in New Jersey moving away from a rebate-based incentive scheme to a market-based scheme, which is much better for the state's finances, adds Naik.

In addition to New Jersey's progressive solar market, in 2009 the US Congress passed bill 1603, which turned a 30 % tax incentive for solar projects into a cash rebate. This had an immediate effect, tripling the number of projects installed in New Jersey over the past two years. "This is really what lit fire to the market and got it going," says Naik.

Creative financing – the Morris Model

In response to all the financial incentives available under Bill 1603, New Jersey companies got very creative with how to cash in on the rebates. One innovative financing scheme known as the Morris Model – named because the concept was originally developed in Morris County, New Jersey – has been successful getting PV built on local government buildings.

The Morris Model first began at the start of 2009, shortly after the financial recession began. Local government officials in Morris County wanted to put solar PV on some of their government buildings, but because they were government facilities, they were not eligible for the 30 % federal tax credit for solar systems available to taxpayers, not governments, says Marc Roper, Vice President of Sales and Marketing for Tioga Energy in New Jersey. Because financing was out of the question after the recent credit crash, the local government decided to try and figure out how to cash in on the rebate.

Essentially, the local government was looking for a way to take advantage of the rebate – even though governments don't qualify for them – in addition to obtaining a low-cost power purchase agreement that would recognize the future value of SRECs. One of the problems in the SREC market is that energy providers only participate in the SREC market in three-year cycles, explains Roper. "In order to make the economics of solar work in New Jersey, you really need long-term contracts for these SRECs," he adds. Because of the three-year cycle, financiers treated the future-value of SRECs as though they were worthless. But the solar systems are going to be producing power and generating SRECs that can be turned in for more than three years.

So the Morris County government chose to issue a taxable municipal bond through a government entity called "The County Improvement Authority", which issues bonds for public works projects, reports Roper. Basically, the authority issues a bond for a solar project, the project gets built by a third-party, tax-eligible sub-contractor, the project gets sold to the county, and then leased by the county back to the third party through a capital lease. The bond allowed the county to accommodate the future SREC value in order to ease financing, says Roper. The county was also able to indirectly cash in on the 30 % investment tax credit by allowing an independent third party to own the system. "Documentation was not without some brain damage," mentions Roper. But the paperwork is worth the payoff. This model alone has resulted in 50 MW of solar facilities being developed on government buildings, schools, firehouses, libraries, etc. Now the Morris Model is spreading throughout New Jersey. "We know there are half a dozen New Jersey counties that are pursuing this type of financing," says Roper. But with the end of the 30 % tax credit at the end of this year, the future of financing schemes like the Morris Model is unclear. "If the grant

After a rapid market growth, uncertainty about the future value of solar credits has led to a slowdown in solar trading of both, commercial and residential systems.

expires at the end of this year, it will change the financing mix by changing who can participate in the solar market," adds Roper. The SREC market is volatile and financing schemes will have to continue to evolve with the changing solar market.

SREC market collapse?

Due to questions of the future of financing in New Jersey because of the ending of the 30 % federal tax credit, the SREC market has started to decline. Solar system owners in New Jersey had been trading their SRECs for more than US$ 600 each. Solar producers earn one SREC for every 1,000 kW of generating capacity. But the SREC price has dropped to less than US$ 200 each. Much like how uncertainty causes declines in any market, uncertainty about the future value of the solar credits have caused people to slowdown their solar trading. The value of the SREC is also declining because developers have been over-building in the market in efforts to capitalize on the 30 % tax credit before the end of the year, says Dennis Wilson, President of the Mid-Atlantic Energy Industries Association. The price of solar modules is also dropping quickly, which has caused the value of existing solar systems to depreciate faster than expected.

Fast price-depreciation of solar modules and SRECs has effectively halted any SREC trading because SREC holders are waiting to sell, hoping that the price will go up again before selling. If consumers sold their SRECs now, they would only receive a third of what they would have received a few months ago. The payback for projects has essentially tripled. "The SREC market is in threat of crashing and many projects are being put on hold," states Wilson. In order to remedy the situation, Wilson believes the grid supply needs a whole new mechanism outside of the SREC market in order to accommodate the increasing number of projects getting installed at cheaper and cheaper rates. This could be something more like the feed-in tariff system that was so successful in Germany, says Wilson. "The governor's office does not yet understand how much the cost of solar has declined and new legislation is needed to adjust to this cost," he adds.

But some in New Jersey, like Naik, are more optimistic about the solar market in the future because New Jersey has continued to make long-term legislative commitment to solar energy, ensuring that the market will not go away completely. “We are making significant progress from the policy prospective to actually set fines for compliance payments through to 2026,” says Naik.

By extending the parameters of the SREC market from 2016 to 2026, the state is guaranteeing to its investors that the solar market is long lasting and reliable. “The fact that there is something driving the demand for these SRECs will allow stakeholders in different market segments to get solar systems financed and installed and have a payback mechanism before entering into the SREC contracts,” he explains. The SREC market may slow down for a while and projects may be put on hold for a few months while the government adjusts to the new market conditions, says Naik. “There will be a lag for a few quarters because everyone has to make their proposals and have hearings,” says Naik. “Everyone is waiting to see what happens when the SREC schedule gets extended.” This should happen by the end of November and the interested parties will move forward to try and extend their specific SREC financing programmes, he says.

The future of market-based incentives

Whatever happens in New Jersey, the solar market is definitely going to go through an adjustment at the end of this year with the ending of the federal tax credit. As the solar market in New Jersey has grown, the state’s success has inspired other states to better organize their solar programmes. New Jersey’s SREC market was more effective than other states because it was much better organized, and gave careful consideration to changing solar market conditions.

This large commercial system in New Jersey was installed by SunPower dealer GeoGenix.

Promising SREC markets are under development in Maryland and Connecticut, says Wilson. Massachusetts has also recently more clearly defined its rules and modeled it more after New Jersey, says Michael Judge, RPS solar carve-out coordinator at the Massachusetts Department of Energy Resources. As solar systems get larger and more get developed, New Jersey and other states will need to continually adjust their solar programs to meet changing political and market conditions.

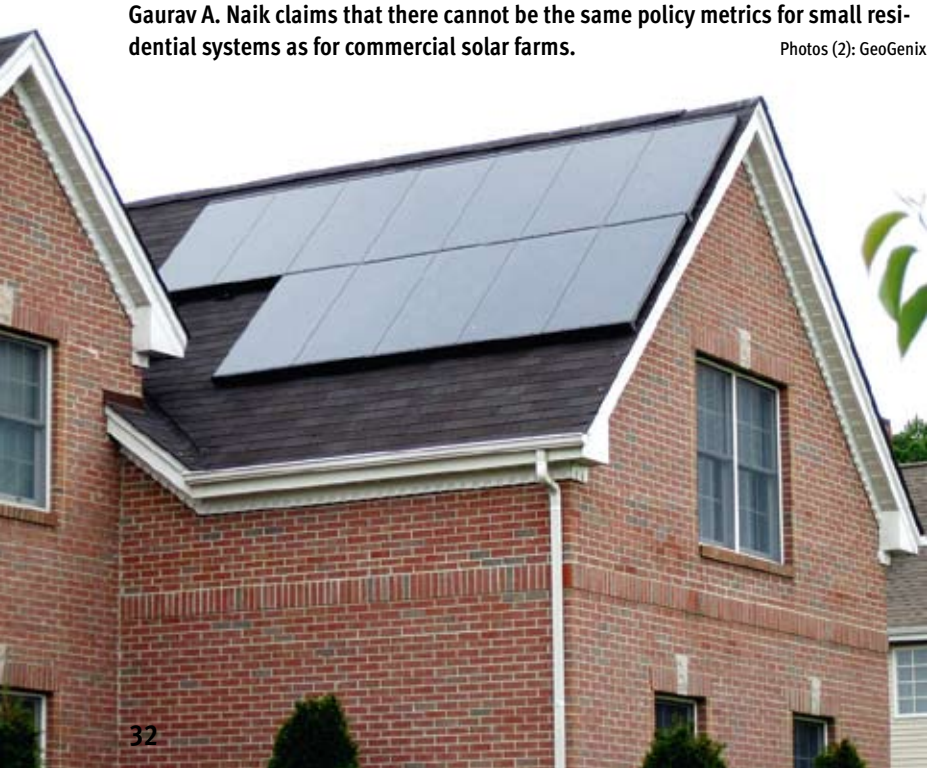
Reid Smith, Lisa Cohn

"We need segmentation in the market"

SUN & WIND ENERGY spoke with Gaurav A. Naik, Managing Member of GeoGenix, a privately-held company specialized in both residential and commercial solar installations, about New Jersey's solar sector.

S&WE: Can you start off by telling me a little about GeoGenix and its history?
Gaurav A. Naik: GeoGenix was founded in 2001 with a primary focus on green building design and construction catered towards geothermal energy and high-performance wall systems. When the New Jersey Clean Energy Program started in 2002, we made the transition to focusing on solar electric systems. What changed about 4 years ago was that New Jersey was one of the first states in the country to actually legislate an RPS and put in a specific solar carve out in the legislation along with Solar Alternate Compliance Payments (SACP). This made it clear to the load-serving entities that if they did not have the appropriate solar kilowatt hours in their procurement portfolio each year then they would have to pay a fine, the SAC. This is the incentive that pushed these entities to start buying solar renewable energy certificates (SREC) from system owners in all market segments.

Gaurav A. Naik claims that there cannot be the same policy metrics for small residential systems as for commercial solar farms. Photos (2): GeoGenix



S&WE: These SRECs have guided the market in the past. Is this going to be the main driver in the future?
Naik: Yes. We have clearly moved away from being a rebate-based program to basically being a performance-based one. We are one of the few states to have a specific solar carve out all the way until 2026. This sets the platform for interested parties to enter into long-term contracts in different segments of the market.

S&WE: Sounds like New Jersey has already done a lot in terms of legislation, but is there anything else you would like New Jersey to do to help the solar market?
Naik: Yes. We have close to 450 MW of solar installed in New Jersey to date. We are essentially on track with our RPS requirement for the first time since it started. But there are a couple of things missing moving into the future.
The first is that we need segmentation in the market when it comes to policy. You cannot have the same policy metrics in place for a solar developer building a 50 MW solar farm as for a homeowner looking to purchase a 5 kW residential system. Now that our market is basically a performance-based program, we don't have segmentation. It is imperative that we create segmentation from a policy perspective so that we can have solar deployed at all levels of the marketplace from the small residential system to the solar farm.
Secondly, I believe that it is critical to have very simple, long-term contracts and contracting mechanisms in place. Our current programs are structured to last until the end of 2011, so the state needs to extend these programs beyond this year. Longer term contracts (5 to 10 years) are required for a solar system owner in order to obtain financing and receive a viable rate of return.

S&WE: How has GeoGenix financed its solar systems?
Naik: We have an extremely flexible approach, which is why I think we have been able to stay on top of the market and become a market leader. We explain the pros and cons of our different programs to our customers so that they can decide what is right for them. This year we aligned ourselves with more third-party financing mechanisms, which has allowed people who can't purchase systems using traditional loans to go solar through leasing or power purchase agreements.

Gaurav A. Naik

S&WE: Can you explain Ford's Drive Green For Life Program and GeoGenix's role in it?
Naik: As a SunPower elite dealer, we have aligned ourselves with this program because SunPower has a strategic alliance with Ford Motor Corporation. In early 2012 Ford will have their version of the electric car being sold at their dealerships. Customers purchasing an electric car will have the option to get a basic solar charging system installed on their homes, allowing them to charge their electric cars with solar energy generated from their rooftops. It will be a small system, about 2.5 kW, and will cost less than US$ 10,000 after all federal incentives are accounted for. They can purchase the system or lease it. Leasing the system will essentially be like "leasing the fuel" that will run your car over its whole lifetime. That's the beauty of solar power: whatever the economics, you are fixing the price of the future energy; unlike gasoline.

S&WE: Can you lease the charging system and the electric car together?
Naik: For now it is a separate transaction. Customers will lease the car through Ford and lease the solar system through SunPower separately. In a few years it will morph into one, that's my personal opinion.

S&WE: Are there any market projections for the Ford electric vehicles in New Jersey?
Naik: Right now the projections are low. Ford is being very cautious about the rollout of the car. We don't know how many cars yet they expect to have on the ground in New Jersey and Pennsylvania by 2012. By announcing this partnership, people will get wind of this program. Consumers interested in electric cars will hopefully become aware that they can lease a solar electric car charging station. We are fully engaged on the ground to support this new deployment.

The interview was conducted by Reid Smith.

Further information:
www.geogenix.com