Solar Industry®

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Major Opportunities Ahead For Solar Development In New Jersey

State legislators recently approved changes that will further enhance New Jersey's SRPS program.

Todd Alexander & Chadron Edwards

Although New Jersey is the fifth-smallest state in terms of area, the Garden State has more solar installations than any other state except for California. The primary reason for this disproportionate representation is New Jersey's solar renewable portfolio standard (SRPS).

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In place since 2004, the SRPS requires load-serving entities, which are the electricity suppliers and producers serving retail customers in New Jersey, to hold credits representing solar power production, thus creating a solar-only renewable energy credit market.

Other states have solar requirements, but New Jersey's SRPS program includes a mandate for load-serving entities to purchase solar renewable energy credits (SRECs). The number of required SRECs increases by several gigawatts over time, as does the penalty pricing for noncompliance, as shown in Figure 1 on page 10. In this way, the program creates a framework through the use of SRECs for dramatic growth in New Jersey's installed solar capacity, as well as price supports that should allow the industry to grow to meet the mandates.

Further, recent legislative changes have increased the predictability of pricing and reduced the regulatory risk for new entrants into this market. As a result, there will be a tremendous opportunity for utility-scale solar developers during the next decade, especially for those that are best able to maximize the value of their SRECs.

Chadron Edwards

The following is a discussion of the structure of the New Jersey SREC program, including recent legislative changes that lower regulatory and oversupply risks, and structures that producers are using to maximize the value of their SRECs.

New Jersey's renewable portfolio standard (RPS) supports a wide variety of alternative energy technologies, including non-solar technologies such as wind, biomass, landfill gas and hydroelectric generation. These sources are split into Class I and Class II, with the more technologically advanced generation methods in Class I.

Since 2004, solar has been separated from both classes and given its own mandated level of use within the overall New Jersey RPS. The financial effect of this approach becomes clear when we observe the price of credits. From June 2008 to September 2009, Class I credits sold at an estimated average of $12/MWh, and Class II credits sold at an estimated average of $1/MWh. During the same period, SRECs sold at a weighted-average price of $544.85/MWh.

From 2004 to 2010, the SRPS was expressed as a percentage of the overall RPS, calculated as a percentage of the power sold by load-serving entities. However, on Jan. 18, the Solar Energy Advancement and Fair Competition Act (SEAFCA) was enacted, converting the SRPS from a percentage of the overall RPS to an absolute megawatt-hour requirement. At the end of each energy year - June 1 to May 31- designated by the year in which the period ends, load-serving entities are required to hold SRECs based on their pro-rata share of retail electricity sold to customers.

If a load-serving entity does not hold its pro-rata number of SRECs for each energy year, it must make solar alternate compliance payments (SACPs) in lieu of SRECs. These payments serve as a penalty for failing to contract for a sufficient number of SRECs and also establish a maximum price at which SRECs are likely to trade.

Solar projects earn one SREC for each megawatt-hour produced, and SRECs are tracked on an electronic platform that allows real-time monitoring and trading of SRECs. SRECs are labeled with the vintage of the year in which they are produced and may be sold in the current or next two energy years.

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Projects generate SRECs for a qualification life of 15 years, after which point these projects produce only the less-valuable Class I credits sold with other Class I generation technologies.

Recent changes

In addition to the change from a percentage of generation to an absolute requirement, there have been several other legislative changes affecting the New Jersey SREC market.

The SEAFCA puts forth a schedule of the amount of solar energy required to be held by load-serving entities in each energy year from 2011 to 2026, starting with 306 GWh in 2011 and increasing to 5,316 GWh in 2026, as shown in Figure 2.

The act also mandates that the Public Utilities Commission extend its future publications of the price of SACPs to 15 years, rather than the current eight years. Because SACPs must be purchased in the event of a shortage of SRECs, these projections of SACP prices provide support to future SREC prices. Figure 2 shows the SACP prices currently published by the New Jersey Office of Clean Energy.

Recent changes in the SRPS program are designed to mitigate regulatory risk by minimizing the risk of SACP price changes and allowing credits to be traded for up to three years after production. Historically, the New Jersey SRPS has delegated great power to regulators, who could change previously published SACP prices. This level of price uncertainty impaired the financeability of solar projects.

SEAFCA addresses this concern by prohibiting the Board of Public Utilities from reducing previously published SACP prices. Therefore, the price ceiling will not unexpectedly drop. Once the prices are published, project developers and their financing counterparties can only expect these amounts to change as a result of action by the New Jersey Legislature - still a risk, but a diminished one.

Additionally, the Solar Energy Advancement and Fair Competition Act specifies that the board may allow electric public utilities to offer long-term contracts for the purchase and resale of SRECs, and that after such contracts have been approved, such approval may not be modified by subsequent board orders. However, current regulations implementing these programs cap project output levels at 500 kW - well under the output of typical utility-scale projects.

To address concerns that the incentives given to producers of SRECs would cause an oversupply, the SEAFCA mandates an automatic 20% increase in SRPS requirements if the number of SRECs generated meets or exceeds the requirement for three consecutive reporting years, starting with energy year 2013, and the average SREC price for all SRECs purchased by entities with RPS obligations decreases in the same three consecutive reporting years.

The act also increases the time during which SRECs may be sold to two years after the energy year in which they are produced so that projects are better able to hold their SRECs off the market until prices improve.

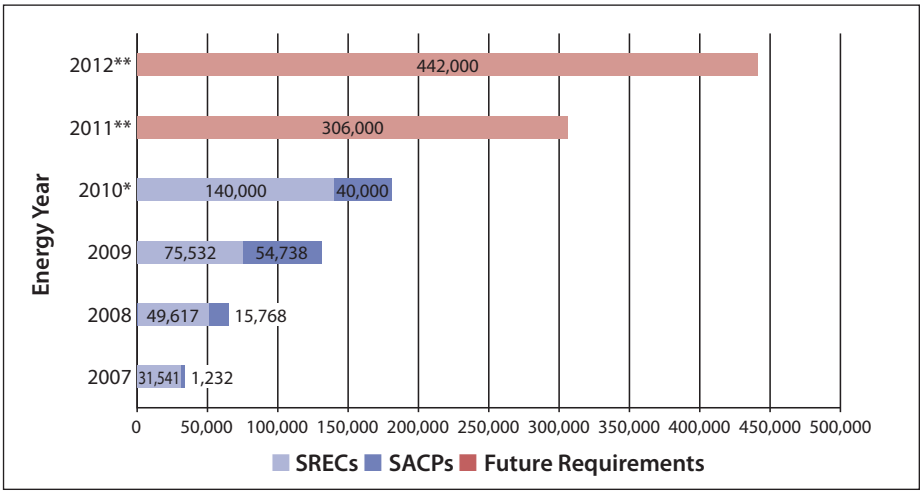
While the supply of SRECs in New Jersey is increasing due to continuing investment in solar projects, the SRPS requirement continues to outpace production and is expected to do so for the foreseeable future. In energy year 2009, the SRPS required 130,267 SRECs, but the market supplied only 75,532.

According to the New Jersey Office of Clean Energy, based on energy-year 2009 consumption levels, the 2010 SRPS will require approximately 180,000 SRECs to be purchased, while solar installations are expected to produce approximately 140,000 SRECs. The shortfall of 40,000 SRECs will be covered by SACPs at the 2010 rate of $693/MWh - totaling $27.27 million in payments.

Additional projects will continue to come online, but the 2011 SRPS will require 306,000 SRECs to be held by load-serving entities, representing an increase of approximately 70% from energy-year 2010 projections. The SACP price in 2011 will be $675. This trend of rapid SRPS-requirement growth - over 20% per year - continues through energy year 2015, as listed in Figure 2.

Figure 1 shows the growth in the SRPS from energy year 2007 to energy year 2012, as well as the mix of

Figure 1: 2007 - 2012 New Jersey SRPS Requirements



*Estimate provided by the New Jersey Office of Clean Energy.
**SRPS requirements for energy years 2011 and 2012 will be met by a combination of SACPs and SRECs based on future solar installations.
Source: Newport Corp.

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SRECs and SACPs used to meet these requirements.

Maximizing SREC value

There are several ways for developers - especially those seeking to develop utility-scale projects - to maximize the value of their SRECs, including demonstrating an ability to bring production online in 2010 and 2011, addressing purchasers' concerns that sellers will fail to deliver contracted SRECs and adopting a strategy to appropriately match risk tolerance with the forward-pricing curve.

Given the current shortage of SRECs, it is critical to show speed to market. Load-serving entities are expected to be forced to pay the SACP during the near term to satisfy a portion of their requirements. Because most load-serving entities would prefer to be able to enter into negotiated agreements to lessen this cost and lend support to the solar market, the shortage presents an immediate opportunity for developers with new SRECs.

This shortage of SRECs, however, is not likely to last into the medium term in light of the increasing number of solar installations coming online. The New Jersey Office of Clean Energy estimates that 69 MW of solar capacity will be installed in energy year 2010. SRECs produced in each succeeding energy year will not be as valuable, because SACP prices decline over time.

Another means of maximizing the value of SRECs is to lessen purchasers' risk of non-delivery. Experience to date shows that many SREC contracts have been negotiated for projects that failed to deliver SRECs on time or at all. As a result, the market is generally skeptical of new entrants. To date, some developers have addressed this skepticism through a combination of demonstrating their experience in successful solar projects, presenting a record of on-time construction performance in other power projects and, oftentimes reluctantly, through the use of performance security in the form of letters of credit or guarantees.

Third, the market for long-term SREC sales has not been very liquid. As a result, utility-scale projects likely will require strategies that utilize both bundled and unbundled sales to best match the forward-price curve with the requirements of their equity investors and their debt providers.

For instance, although lenders may express a strong preference for a single purchaser of all of a project's SRECs, this is currently difficult to achieve for larger projects, because load-serving entities are reluctant to become overly reliant on one supplier. However, this reluctance to enter into larger contracts may dissipate with time as the mandates applicable to load-serving entities continue to increase.

Unbundled sales are currently the most common approach to maximizing value. In this arrangement, the power generated from a project is sold separately from the SRECs.

The length of SREC purchase agreements in the current market environment generally is supportive of three-year contracts - with five-year contracts less common, but possible - and seven-year contracts rare and deeply discounted. In three-year contracts with creditworthy counterparties, reported SREC pricing has been in the $575 to $600 range. (The three-year average SACP price for 2011-2013 is $658.) In five-year contracts, reported SREC pricing for the fourth and fifth years has dropped to the $400 to $450 range. (The three-year average SACP price for 2014 to 2015 is $617.)

Very few contracts over five years have been reported - making generalizations difficult - but the infor-

Figure 2: SREC Requirements And SACP Price By Energy Year

Energy Year	SREC Requirement (GWh)	% Increase In SREC Requirement	SACP Price
2009	130*	--	$711
2010	180**	38%**	$693
2011	306	70%	$675
2012	442	44%	$658
2013	596	34%	$641
2014	772	29%	$625
2015	965	25%	$609
2016	1,150	19%	$594
2017	1,357	18%	†
2018	1,591	17%	†
2019	1,858	17%	†
2020	2,164	16%	†
2021	2,518	16%	†
2022	2,928	16%	†
2023	3,433	17%	†
2024	3,989	16%	†
2025	4,610	15%	†
2026	5,316	15%	†

*Actual result reported by the New Jersey Office of Clean Energy.
**Estimate provided by the New Jersey Office of Clean Energy based on energy year 2009 consumption; actual amount will be 0.2210% of electricity sales.
†SACP prices for energy years 2017-2026 not yet published.
Source: Chadbourne & Parke

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mation available indicates a drop in SREC pricing in the sixth and seventh years to between $200 and $300. (The 2016 SACP price is $594, and the 2017 SACP price has not yet been published.)

Given the disparity between the long-term offers and SACP prices, it may be beneficial not to contract for sales of SRECs longer than two to three years unless a long-term contract is necessary for a producer's financing model.

In bundled sales, projects sell both electricity and SRECs to the same purchaser. A potential benefit of this approach is the certainty of revenue that it provides to financing parties and the possibility of avoiding the steep discount in SREC pricing that we have witnessed in the unbundled market in contracts greater than three years.

Although this approach would be the easiest to finance, it has not been widely adopted because, in unbundled sales, terms of greater than three years are rare, given the regulatory uncertainty of longer contracts. However, we have observed indications that bundled contracts may be considered by load-serving entities for utility-scale projects in limited circumstances.

Even in situations where a bundled or unbundled approach is taken, projects typically do not contract to sell the full amount of expected power and SREC production in order to minimize underproduction risk that, in solar applications, may arise from technological shortfalls or unfavorable solar production conditions.

When not all of the SRECs are sold in a contract, the remaining SRECs may be sold in the spot market for SRECs. Numerous brokers and aggregators operate Dutch-auction or electronic markets, which, in energy year 2010, sold SRECs at or above 95% of the SACP price of $693.

Overall, New Jersey's SRPS creates a demand for new solar generation and an opportunity to finance projects utilizing SRECs. The revised regulations adopted earlier this year have lessened the regulatory risks associated with solar development, and the market for SRECs remains strong. Nevertheless, developing the appropriate strategy for maximizing the value of a project's SRECs remains critically important until a more liquid long-term market is established.

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