

California's Wild Solar Ride Nears A Crossroads

Policy direction and bipartisan support are needed as the solar sector approaches a critical juncture in 2016.

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Bolstered by an eight-year 30% federal investment tax credit (ITC) runway, precipitous drops in photovoltaic module pricing, an ambitious 33% renewable portfolio standard (RPS), a progressive net metering program, generous state and local rebate programs, high utility costs, a sunny climate, and bipartisan political support for green energy policy, the Golden State has become a global leader in the development and deployment of solar technology.

Over 10,000 MW of new solar generating capacity has been installed in the U.S. since the beginning of 2010. Domestically, approximately 40% of all distributed installed capacity and 50% of all utility-scale installed capacity are sited in California. The solar sector has created over 1,500 California companies, employing over 40,000 people in the state. One-fourth of all residential solar systems in the U.S. are installed in Pacific Gas & Electric's service territory alone.

However, the sands of the solar sector that fueled industry growth for years are shifting. The end of 2016, as well as the expiration of the 30% ITC, is now in sight (after which time, the ITC will be reduced to 10%). Consolidation and insolvency have significantly flattened the decline of PV equipment pricing. RPS saturation and transmission questions have

quelled the once ravenous green power appetite of the state's investor-owned utilities. The Vanguard California Solar Initiative cash award program is, as a practical matter, fully subscribed.

Whether these negative indicators mean the end of the domestic solar sector - both in and out of state - remains to be seen. Yet, the response of California policymakers to issues such as net metering, the shared renewable energy program, increased RPS targets, permitting reform and solar storage solutions will shape the future of solar in the Golden State and across the country.



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Renewing the portfolio standard

California's 33% by 2020 RPS is the most aggressive in the country. With the state well on its way to meet or exceed this target, green energy advocates are already talking about increasing the RPS to 51% by 2030. Yet, there is growing resistance to further expanding the RPS from utilities, businesses and the legislature.

Earlier this year, legislation (AB.177) to require utilities to adopt a strategy to achieve a target of procuring 51% of electricity products from renewable energy resources by December 2030 was dropped under opposition from utilities and business groups. The utilities have argued against taking the RPS to 50%, citing a January study by San Francisco-based energy market research firm Energy and En-

vironmental Economics Inc. (E3) that says utility rates could climb between 9% and 23% under a 50% RPS scenario and that serious overgeneration and integration issues could result. However, the E3 report did not shut the door on RPS expansion, suggesting that improved demand response, storage and diversification of technology might facilitate incremental intermittent resource integration.

Gov. Jerry Brown calls the current 33% RPS target a "floor" and has been meeting with stakeholders from municipal and investor-owned utilities to discuss how to expand renewable energy after 2030. Parties are exploring the possibility of replacing the RPS with a new clean energy standard for retail sales. Such a standard could be based on California's low carbon fuels standard for the transportation sector - which requires regulated parties to sell or purchase credits based on the carbon content of the fuel they produce.

Utilities argue that a standard based on reducing the overall carbon footprint of energy they procure would lower costs, provide flexibility and bolster reliability, while expanding deployment of renewable energy resources beyond the 33% RPS level. This shift in thinking may explain the California Air Resources Board's decision not to propose increasing the RPS beyond 33% in the new AB.32 Scoping Plan, released on May 16. While talk of scrapping the RPS after 2030 has raised concerns among renewable energy advocates, zero-carbon solar energy should continue to fare well under either standard.

Green choice for ratepayers

While the future of the RPS is being debated, California is rolling out a new green initiative to allow retail electricity customers to directly purchase green power. In September 2013,



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California passed SB.43, which requires investor-owned utilities to offer customers the opportunity to subscribe to renewable energy. Utilities will serve subscribers by procuring renewable energy and passing the cost through with a tariff-based service charge. The program would create up to 600 MW of new generation outside of the RPS.

The cost of the program must be borne exclusively by subscribers to ensure other ratepayers remain unaffected. Renewable energy credits associated with energy sold to subscribers will be immediately retired and will not count toward the procuring utility's RPS obligations. The investor-owned utilities have made administrative proposals to the California Public Utilities Commission (CPUC) for service-territory-wide "green tariffs" and community-level renewable energy procurement. The CPUC was required to issue a decision on the utility submissions by July 1.

SB.43's effect on the solar sector will largely be determined by the economics of green power tariffs. Growth of utility-scale solar in California is due mainly to mandatory RPS requirements. SB.43 is a voluntary program that is entirely dependent on how many investor-owned utility customers sign up. SB.43 will also compete with distributed solar, which has strong economic legs - solar developers offering customer contracts that undercut retail energy costs and save consumers money. Thus, if SB.43 green energy tariffs do not offer a similar value to program subscribers, the program will effectively be a voluntary renewable energy credit program for altruistic ratepayers.

However, the likelihood of a "value" green energy tariff seems low. The procurement tools available to utilities under SB.43 are not different from those generally in use. If utilities deliver incremental value to customers under green tariffs (which, unlike historical utility renewables procurement, are not permitted to burden non-subscribers), that will beg the questions of whether, and to what extent, there are inefficiencies in standard utility procurement practices. Such questions might be difficult for

the utilities to answer, not to mention for the CPUC, which is charged with protecting ratepayer interests.

In fact, SCE's initial tariff filings propose a premium price for energy sold under SB.43 as compared to its customary bundled service. Whether the CPUC will effectively require utility shareholders to subsidize subscriber rates remains to be seen, though such a result would be fiercely resisted by investor-owned utilities - therefore, it would be doubtful.

Widely distributed generation

If there is a bright spot for the solar sector, it is distributed generation. The rise of microgrid technology that allows residential and commercial customers to virtually unplug from the grid and the rapid decrease in the cost of deploying solar technology are fueling an explosion in distributed generation.

Major U.S. companies such as Verizon, Wal-Mart and MGM Resorts are adopting solar and microgrid technology to lower their energy costs. The airwaves are saturated with advertisements that offer to cut homeowners' utility costs through rooftop solar systems. Gov. Brown has called for the installation of 12 GW of local solar power by 2020 - the equivalent of 12 nuclear power plants. Consulting firm Navigant recently estimated that revenue from the installation of solar power systems will reach \$112 billion a year globally by 2018 - an increase of 44%. Last year, a report by the Edison Electric Institute flagged growth in distributed generation as a threat to the financial health of the utility industry and cautioned that the utilities could find themselves in the unenviable position faced by U.S. airlines and telecom giants after deregulation in the late 1970s.

While the distributed generation explosion is creating new opportunities for the solar sector, it is also presenting new challenges. How California policymakers deal with issues such as net metering, building permits and storage will have huge ramifications for the solar sector.

As competition in the distributed solar market tightens, developers are experiencing costly delays in obtaining

local building permits due to bureaucratic inefficiency and "NIMBYs." In Los Angeles' San Fernando Valley, developers of a solar project on a 2.5-acre vacant lot were denied a building permit after opposition surfaced from local residents about the project's effect on their view shed. City Councilman Felipe Fuentes has vowed to write an ordinance restricting where small solar projects can be located. Other developers are facing lengthy delays in obtaining necessary permits.

With reform of California's beleaguered Environmental Quality Act (CEQA) bottled up in the legislature, some policymakers are focusing on smaller reforms to facilitate distributed solar. Assembly Bill 2188, for example, would require statewide implementation of a streamlined permitting process for distributed solar projects. Of particular interest, residential rooftop solar inspections would need to occur within five days of a customer's request, and solar installation applications would need to be processed in 30 - rather than 60 - days. If approved, the uniform application of expedited permitting processes in AB.2188 should improve the rate of residential solar project deployment and reduce installation costs.

Tapping energy storage

As noted above, transmission and distribution grid reliability are critical barriers to the expansion of renewable power beyond the existing 33% RPS. Concerns regarding overgeneration will be a technical and economic barrier to the growth of increased capacity in California. Combined PV and energy storage solutions present a possible mitigant for overgeneration and a compelling economic opportunity for customer peak shaving using stored energy - rather than grid power - to serve demand when time-of-day rates are highest and available solar capacity is insufficient.

California supports distributed energy storage solutions through the Self-Generating Incentive Program and its recent groundbreaking 1.3 GW storage mandate - including 200 MW set aside for customer-sited storage. To date,

distributed storage has not been widely adopted. Utilities claim that technical concerns have prolonged the process of integrating storage projects to the grid, though installers have expressed skepticism and frustration with this position.

Distributed generation players, such as SolarCity, who have been attempting to bring an integrated solar storage product to market for some time, have been putting pressure on utilities to solve the technical roadblocks and clear the way for broader adoption. There has been some movement at the CPUC, exempting applicants from redundant application fees in instances of prolonged approval. More forceful direction from the CPUC may be required to reach tipping point for the effective deployment of customer-sited solar storage projects.

Ensnared in net metering

Net metering, the opportunity for customers to effectively sell power back to the utility at retail rates, is the lifeblood of distributed solar. In a significant victory for the solar sector, California paved the way for further expansion of distributed generation with the October 2013 passage of AB.327, which removed the 5% cap on investor-owned utilities' obligation to support net metering. The CPUC is in the process of rulemaking, mandated by AB.327.

In March of this year, the CPUC released its first round of guidelines, assuring that anyone seeking net metering service prior to the exhaustion of the former 5% cap - or, if earlier, July 2017 - will be entitled to participate under existing net metering rules and continue participation under those rules for 20 years.

The next phase of rulemaking, which must be completed before the end of 2015, will deal with net metering rules beyond 2017. These rules will be critical to distributed solar in California. The guiding principles for this process are as follows:

- Ensuring sustainable growth for distributed solar;

- Balancing costs and benefits of customer-sited renewable energy; and

- Assuring that the costs of net metering to all utility customers, whether or not they net meter, do not outweigh the benefits.

Paramount in this process will be pricing and allocation of solar system integration costs. Utilities contend that the charges respecting net meter services under the existing program do not adequately compensate for the cost of supporting net metering. Distributed solar proponents have concerns that excessive integration charges may chill the absorption of solar. A balanced policy that fairly compensates utilities without excessively burdening new system deployment will be critical to the future of solar energy in California.

Political climate change

One key driver of the success of renewable energy deployment in California is the bipartisan support green energy policy has received in the halls of California government over the past 15 years. Groundbreaking RPS and greenhouse gas reduction initiatives have been launched by Democratic Govs. Gray Davis and Brown and by Republican Gov. Arnold Schwarzenegger. Yet, voter-enacted changes in the way California draws its legislative districts and elects its legislators are altering the tone of politics in the legislature in ways that can affect the solar sector.

While Democrats are virtually assured control of the legislature and the governorship after this year's elections, California's new "top two" primary system and nonpartisan redistricting commission have yielded a more centrist political body in Sacramento. Concerns about the costs and logistics of RPS, net metering and taxpayer-funded solar subsidies are finding more receptive ears in the halls of the capitol.

Developers of alternative renewable energy sources, such as biogas and geothermal power, are using the legislative process to gain a toehold in the energy marketplace to compete with wind

and solar. At the same time, a growing number of legislators are calling for reform of the CEQA, which could help streamline the permitting of renewable energy projects. Lawmakers, aware of the popularity of distributed solar with their constituents, are pushing measures to make unplugging from the grid easier. This changing political climate necessitates that the industry continue its advocacy and education of key policymakers about the economic and environmental benefits of solar energy development.

While the solar sector faces many challenges in the year ahead, prospects are still very bright for growth and expansion in certain sectors. The most pressing issues between now and the end of 2016 will be smoothing the transition from a 30% ITC to a 10% credit and coming to grips with 33% RPS compliance. In a changing political environment, where leaders are more skeptical about taxpayer-funded subsidies and concerned about energy costs, the days of taxpayer-funded cash incentives like the California Solar Initiative and command and control programs like the RPS may be numbered.

However, the popularity of distributed solar and the advancement of a carbon-based clean electricity standard will create new opportunities for solar energy. Policies that promote net metering, shared renewable energy, permitting reform and solar energy storage solutions are in line with this new direction. One thing is certain: California will continue to lead in shaping the future of the solar sector. ☞

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