175,000 interconnections & counting: **PG&E streamlines and automates its way to № 1 solar utility**

BY HEATHER JOHNSON

This spring, Pacific Gas and Electric Company (PG&E) announced it had achieved a major milestone—connecting 150,000 solar customers to its electric grid. Four months later, the company topped that marker when it reached 175,000 solar customers, far outpacing its average interconnect rate of 4,000 customers per month—more than any other utility in the United States.

The Solar Electric Power Association's (SEPA's) No. 1 solar utility for the seventh consecutive year, PG&E hit those numbers in part because its northern and central California customer base prioritizes energy conservation and clean power. The market is also tech-savvy, so the utility's focus on technological and application-processing improvements has played a large role in the 1,504 megawatts of new solar power it connected to the grid last year.

"Our solar teams work every day with other California utilities, vendors, installers and other partners to make sure customers have the resources and tools that they need before, during and after they choose solar," said Ari Vanrenen, spokesperson for PG&E. "We also coordinate with installers during the connection process to provide the best customer service possible."

PG&E streamlined its interconnection procedures by first overhauling application processing to reduce the number of contact points, that is, the number of people who actually have to handle or sign off on each application. In 2012, a solar application went through a minimum of 13 contact points. Today, that number has been whittled down to three, which allows the company to process more applications daily.

PG&E also simplified its application form and collaborated with the installer community to design a new website to offer contractors an automated option for completing the solar interconnection paperwork.

"Recent changes to totally online net energy metering simplify the entire application process," said Bryan Raymond, director of sales and marketing for Diablo Solar, a solar system design and installation company based in Martinez. "Getting permission to operate (from the utility) happens much quicker."

A TALE OF MULTIPLE MARKETS

The story of utility solar expansion in the United States has, in recent years, become a tale of multiple markets.

California still leads the pack, both in numbers of installations and the innovation that the market's exponential growth has produced, but the momentum driving the market has become ubiquitous. The leaders on the Solar Electric Power Association's (SEPA's) 2014 Top 10 utility solar rankings—released in April—cover all types and sizes of power companies in locations as disparate as a sunbelt community in Utah and a small town in rural Tennessee.

In total, U.S. utilities interconnected about 5.3 gigawatts of new capacity, or more than 182,000 new solar systems, to the grid in 2014, and accompanying that growth are changes in utilities' business practices and organizational culture.

Each of our Top 10 utilities has its own story to tell, providing unique snapshots of solar growth and the impacts of different market and regulatory landscapes, customer demographics and the fast-evolving technologies being integrated to the grid.

The short profiles collected here underline the ongoing need for regional models of energy system change and utilities' central role in moving these discussions forward.

From receiving a customer's application to plugging a system in—"permission to operate" in utility-speak—the industrywide average for interconnection is about four weeks, according to a SEPA report. At PG&E, it takes about five days, Vanrenen said.

"Our average client at Diablo Solar will save around $200 per month because of solar installation," says Raymond. "If it takes five weeks to obtain a permission to operate, (a month of savings) disappear. The faster interconnection process allows the customer to see a return on investment that much sooner."

"We are 100 percent committed to solar energy and its role in California's energy future," said Laurie Giammona, PG&E's senior vice president and chief customer officer. "With our customers and partners, we have worked to shorten connection times and help solar grow in our state."

KEEPING UP WITH TECH-SAVVY CUSTOMERS

PG&E's website is another part of this commitment, providing the utility's tech-savvy customers with information for every step of solar interconnection. Prospective solar customers can take an online "Home Energy Checkup" to find out how to make their home more energy efficient before installing rooftop panels—an important first step in the decision-making process.

Those considering solar can also use PG&E's solar calculator to estimate energy and bill savings and the size of the system needed to power the home. Customers simply enter their ZIP code, energy usage and any intended energy-efficiency improvements; and the calculator feeds back the estimates.

"Installation is very complex endeavor," says Diablo Solar's Raymond. "The solar calculator is a great start. The more the homeowner can learn, the quicker we can get to installation."

The PG&E site also details incentive programs and provides a comparison of basic financing options—buying or leasing a system, or going with a power purchase agreement.

Customers in the final stages of a solar decision can find a contractor via a link to the California Solar Initiative Contractor Database. They can also check a contractor's license on the Contractors' State License Board website.

"We're constantly updating the site as we work more with customers and figure out their needs," said Vanrenen. "Our solar customers tend to be more tech savvy and use the Internet to find information. We do have other ways to reach out to customers, however. It's all about providing the channels customers want to use."

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PICKWICK ELECTRIC COOPERATIVE: SOLAR BRINGS JOBS AND ECONOMIC DEVELOPMENT TO RURAL TENNESSEE

Take a quick look at the Pickwick Electric Cooperative website, and what you see -- beside the co-op's modern headquarters in Selmer, Tennessee -- are images of a rural community, with a small gazebo on the town square, Civil War cannons, and marsh birds on a nearby lake.

Not the most likely place for two 20-megawatt (MW) photovoltaic solar farms, taken together the state's largest installation to date. But helping to get those 40 MW online put Pickwick at No. 1 on the Solar Electric Power Association's Top 10 list of U.S. utilities that interconnected the most new solar watts per customer in 2014. The co-op scored a whopping 1,679 watts per customer.

Co-op President John Bowers said he was pretty surprised, too, when Strata Solar, a North Carolina solar developer, first approached the 20,000-member co-op about locating the project in its service territory in southwest Tennessee.

Strata had procured a contract to sell the power to the Tennessee Valley Authority (TVA) -- Pickwick's electricity provider -- and pretty soon, the co-op was actively working to bring the projects to the region.

"It would help us market ourselves," Bowers said. "It was temporary jobs -- that was a big plus for our community."

Pickwick Electric designed and built a substation and distribution feeders for the two solar farms because, he said, "we didn't want anything that was incompatible with our current distribution system."

The co-op was concerned about the project's impact on its existing 25-kilovolt distribution lines, and while it's seen "some deep swings," Bowers said, the smart inverters used at the two installations are maintaining power quality across the system.

Strata has since sold the projects to Dominion Power, which sells the power to the TVA, which in turn sells it to Pickwick. Meanwhile Bowers and the co-op hope to leverage their new knowledge of solar to bring more projects -- and economic development -- to the region.

"Pickwick Electric will be able to say to industrial prospects, 'We've interfaced 40 MW of solar. Whatever you need power-wise, we are capable of providing it,'" he said.

—K Kaufmann

PG&E CONTINUED ↓

FACING DOWN THE TRUE-UP CHALLENGE

PG&E takes a multipronged approach to address the myriad challenges and questions surrounding net energy metering (NEM) and the NEM True-up statement. Net metering compensates solar customers for the excess power they feed into the grid, paying them per-kilowatt-hour retail rates which are then credited against the power they use from the grid. The true-up statement arrives once a year and details annual energy charges and any final balance due.

Utility representatives communicate with customers frequently during their first year of solar ownership to make sure they understand the NEM and billing process. New customers receive a welcome kit that explains net metering, and PG&E redesigned the solar bill so customers can more easily understand charges and credits.

"Customers receive a consolidated statement," Vanrenen said. "If they have a question, there is an explanation that can easily answer it."

PG&E's website offers both video and text information on NEM, net surplus compensation and the simplified energy statement. Existing customers can log on to a web portal to track their solar charges throughout the year and see their money and energy savings.

For customers who prefer to talk with a real person, PG&E maintains a Solar Contact Center, with employees specially trained to "answer a wide range of questions, from financing options to finding a contractor," Vanrenen said.

The next step for PG&E may be reaching out to customers who want solar but, for various reasons, aren't able to install rooftop panels. A recent report from the National Renewable Energy Laboratory report found that only a quarter of residential rooftops in the United States are suitable for solar due to structural, shading or ownership issues.

To expand solar access to this largely untapped market, PG&E earlier this year announced the Community Solar Choice program, which will launch in early 2016. Participating customers will have the option to cover up to 100 percent of their energy use by buying into a pool of locally produced clean solar energy for a modest premium.

"In San Francisco and other parts of California, a lot of people are renting, but they are also energy conscious," said Vanrenen. "This is a great option for them to be a part of the solar movement."

Not to mention, another way for PG&E to put more megawatts on the grid and hold on to its No. 1 spot. ■

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UTAH TOWN IS MICROCOSM FOR NATIONAL ISSUES

St. George, Utah is a small city—full-time population, 78,500—that is trying to green up its power supply with solar, while grappling with many of problems that have emerged across the country as the shift to renewable power spreads to communities of all sizes.

With 751 new watts of solar per customer in 2014, the southwest Utah city ranked third on the Solar Electric Power Association's Top 10 list of utilities that added the most new solar watts per customer last year.

Rene Fleming, conservation coordinator with the St. George Energy Services Department, credits the city's noteworthy performance at least partly to increasing numbers of residential rooftop solar installations.

Located near the Arizona border, St. George residents enjoy a Las Vegas-like climate, with more than 300 days of sunshine per year. Beside all that sunlight, falling solar prices and federal and state incentives, city residents going solar also receive retail-rate net metering compensation for the excess power they feed into the grid. The city had previously tried to stimulate the solar market with a 250-kW community solar project, launched in 2008.

St. George shares the community solar project with Dixie Power, a nearby electric cooperative that provides power to part of the city. Designed and built by the two utilities, the project is only about half subscribed due to high buy-in costs—$5,000 per kilowatt unit or $2,500 per half unit -- that were necessary at the time, Fleming said. Located near a substation, the excess power is also shared by the two utilities, she said.

The takeoff in the rooftop market has raised concerns about the economic sustainability of the city's net metering program. With about 28,000 customers and more than 100 rooftop installations, the city currently has about 1.3 megawatts of power behind the meter and is working on revisions to its solar policies. Fleming expects the revisions to go to the St. George City Council sometime this fall.

—K Kaufmann