

Solar Powered

PosiGen Deploys Itron Solar Meters and Partners with Itron Managed Services to Monitor Residential PV Systems and Save People Money on Their Utility Bills

EXECUTIVE OVERVIEW

PosiGen, headquartered in New Orleans, Louisiana, offers an innovative leasing program for solar power generation and energy efficiency that targets low- to moderate-income families. The company bundles energy efficiency measures, such as sealing and insulation, with rooftop solar PV and thermal systems, and offers them to consumers through 10-year lease agreements. Itron supplies its revenue-grade, cellular-enabled Solar Meter, which sits between the solar inverter and the utility net meter to monitor solar generation, as well as a Managed Services component to perform data collection and management. The leasing program saves customers an average of \$100 per month on their electricity bills.

INTRODUCTION

Solar power is in the news. It comes with equal shares of opportunity and obstacle. Utilities must contend with sometimes unpredictable solar generation and by extension, load balancing; while consumers must confront questions of cost, feasibility and accessibility. There is little doubt that there remains more work to be done, but a number of technological developments are starting to open new doors and answer fundamental questions.

Once exclusively a privilege of higher-income consumers, residential solar is now within reach for a broader demographic. Tax incentives and industry subsidies have certainly helped, but as the technology has improved and costs fallen, the business and consumer models (at least in some areas) become more sustainable every year.

Third-party vendors and financiers have stepped in to help consumers enter the solar market. That trend shows no sign of abating and is steadily reflected by growth in other states—even those situated above the traditional Sun Belt.



CUSTOMER

PosiGen Solar Solutions

CHALLENGE

Lower barriers to green energy and help low- to moderate-income consumers save money on their utility bills

SOLUTION

PosiGen leases rooftop solar PV and thermal systems and deploys revenue-grade, cellular-enabled Itron Solar meters to monitor solar electricity output.



PosiGen Rooftop Photovoltaic Installation

“It cuts the light bill down. And you can’t beat that.”
-Greg Martin, PosiGen Customer

BACKGROUND

In 2007, the Louisiana legislature passed Act 371, which grants personal income tax credits for residential solar or wind generation systems installed on or after January 1, 2008. The system must be installed at either a residence or a residential rental apartment complex to be eligible for the credit. The tax credit can be applied to both solar electric systems (photovoltaic) and solar thermal systems where the energy is used for space heating, space cooling or water heating. These tax credits are scheduled to decrease, on a yearly basis, and will terminate in 2015.

THIRD-PARTY PROVIDERS

PosiGen is a New Orleans-based company that offers solar leasing, energy efficiency and energy education solutions. The solar leasing arrangement is innovative. After customers sign a 10-year lease commitment, PosiGen designs and installs rooftop photovoltaic or solar thermal systems at customers' homes. In addition, the company performs an audit to identify ways to improve the home's energy efficiency. This could include sealing gaps, insulating walls and attic spaces, as well as upgrades to HVAC equipment and appliances. Customers pay nothing on the front end. Instead, all the costs for equipment, materials and installation are spread out over the term of the lease. Federal and state tax credits, which reduce the end cost, dramatically lower lease payments. The program requires no credit check and is targeted primarily at low- to moderate-income residents. By lowering the barriers to entry, the program enables these families to enter the clean energy market and guarantees that they will save more than they owe to PosiGen.



PosiGen Customers in Front of Their New Solar Panel Installation

The company motto is fitting: Empowering People One Home at a Time. As PosiGen CEO Tom Neyhart explains, “For many of our customers, energy represents a huge part of their monthly expenditures—20, 30, even 40 percent. We are trying to help families take control of their energy costs and take back their financial freedom. Anyone who owns a home can now have solar power.”

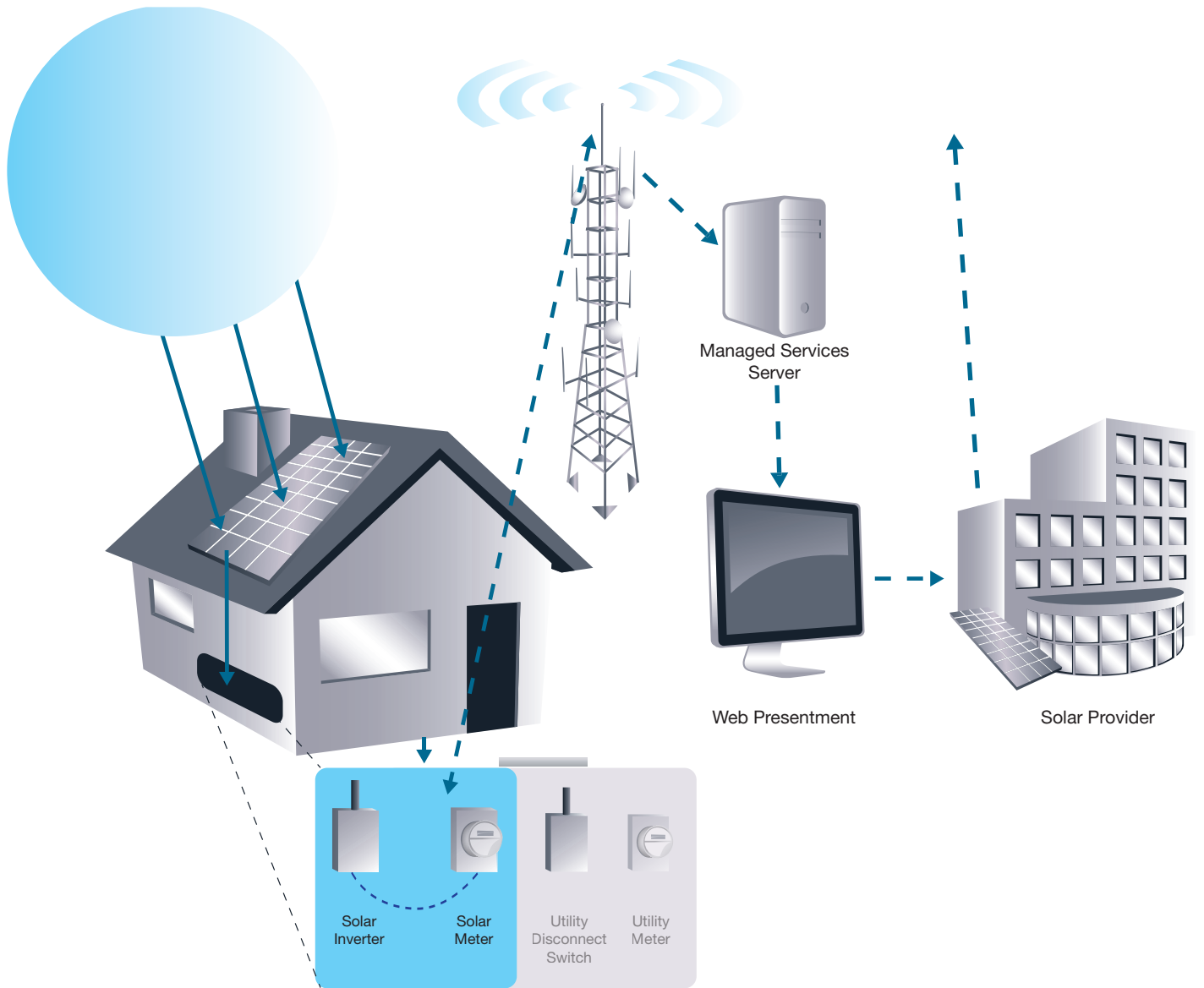
“Anyone who owns a home can now have solar power.”
-Tom Neyhart, PosiGen CEO

CHALLENGE

The challenge for consumers and utilities alike has always been monitoring and managing electricity output from solar systems. Solar generation can either be a benefit, when surplus is used to satisfy peak load, or an unexpected problem, when excess positive generation goes back onto the grid and puts stress on grid assets.

Analytical tools that facilitate monitoring and evaluation are key to the integration of distributed and renewable generation. By delivering interval metering data and providing net metering capability, advanced metering infrastructure (AMI) has granted unprecedented visibility into the status and performance of distributed generation assets, including those operating independently on customer premises.

For third-party solar vendors such as PosiGen, AMI is also an important means for demonstrating the value of solar generation to customers. Two-way meters sit between the solar panels and the utility net meter so customers and vendors can monitor how much power is produced and then relate it back to how much money is saved on the utility bill.



Itron's Solar Monitoring Infrastructure

SOLUTION

System set-up and commissioning is usually accomplished within a month after the contract is executed. First, PosiGen installs the rooftop rails and solar panels. Next, an electrician makes the terminations between with the inverter and the home's electrical system. The system is turned on to ensure it is functioning, then turned off so power does not flow back through the utility meter. Finally, PosiGen contacts the local utility to install the net meter. It is not until the utility installs a net meter that PosiGen is able to fully commission the system. Once done, the company activates the solar generation system.

To monitor solar generation, PosiGen uses Itron's revenue-grade Solar Meter. Factory equipped with cellular communications capability, the Itron Solar Meter acts as a submeter to the main utility net meter, transmitting 15-minute interval data over the AT&T network. Usage data does not require much bandwidth, so even in areas where coverage is poor, meters can be read accurately and reliably.

"The solar panels have such a positive effect on the environment. It helps us to recycle the energy we already get through the sun."

-Rosalind Condoll,
PosiGen Customer



GOING BEYOND: ROOTING OUT ENERGY INEFFICIENCY

PosiGen's solar program is a paradigm of partnership and collaboration. PosiGen has teamed up with the local utility on a number of tough projects to do it right—the first time.

The potential of customer-sited solar generation will be limited if the underlying contributors to energy efficiency aren't addressed. A number of homes enrolled in the program were in need of a complete energy efficiency retrofit. The local utility contributed charitably to the cause and PosiGen matched with additional free services. Complimentary upgrades included HVAC, insulation, sealing gaps around doors and windows; all performed to ensure maximum saving potential for the customer.

An Inspector Looks for Sources of Energy Inefficiency

PosiGen uses Itron Managed Services to perform data collection and management functions. The programmed meters transmit over a secure cellular channel to Itron's data center in Liberty Lake, Washington. There, the metering data is verified and any exceptions are resolved. After which, an .xml data file is sent to PosiGen daily and uploaded into a third-party solar monitoring software application, PowerDash, which displays data and helps PosiGen visualize and track solar energy production for their roughly 2,000 customers. Through PowerDash fleet analytics and asset management, the PosiGen operations team is able to identify underperforming systems, prioritize field maintenance, track asset replacements in the field and manage other essential operational tasks.

RESULTS

Using creative financing, leasing models and Itron technology, PosiGen's residential solar program has lowered the barriers to entry for low- to moderate-level incomes. For this demographic, the savings are significant. The leasing program saves customers an average of \$100 per month on their electricity bills.

The response to PosiGen's solar program has been positive. In just three years, PosiGen has signed around 2,000 customers and generated over 7 million kWh of electricity from solar installations. More customers sign up every month and company leadership projects that sales will double in the next two years. The company even plans to expand its territory to other states.

Using the Itron solar meters to isolate and measure electricity generated by the solar installations, PosiGen can validate the savings for its customers. In the summer, \$20/month power bills are not uncommon and the PowerDash software, which takes the solar generation data and displays it graphically, enables customer service agents to talk customers through what accounted for changes in utility bills. The generation data streamlines the customer service process, hastens resolution and generally improves customer satisfaction. In some cases, the solar installations are producing significant amounts of electricity, but consumer behaviors such as longer showers or higher thermostat settings can dramatically affect energy usage and can directly impact the savings consumers see on their utility bills.



“You rely a little less on fossil fuels and I'm glad I'm contributing to helping the environment.”

-Jose de Mann,
PosiGen Customer

Actual/Rated: Nearby	Actual/Rated: Peer	Actual/Rated: Custom	Actual/Modeled	Diagnostics
13 Nov 2013				
Asset	Key Events	Peer Count	Approx. Loss (kWh)	Peer Comparison
1899) PV t., New Orleans, LA 70117 210 56483342	📅 12/31/12: Commissioned	2	-11.6	🚫 -46.80%
36038) PV 1 St, New Orleans, LA 70114 210 56483268	📅 10/05/12: Commissioned	5	-8.6	🚫 -44.40%
1894) PV lia St, New Orleans, LA 70115 210 56483312	📅 12/18/12: Commissioned	1	-8.7	🚫 -43.39%
1G2271) PV lead Ave, Metairie, LA 70005	📅 9/10/13: Commissioned	10	-12.1	🚫 -40.77%

PowerDash Automated Solar Performance Analytics Identify Problem Systems in a Fleet, Helping Operations Teams Prioritize Field Maintenance

	Fri 11/08	Sat 11/09	Sun 11/10	Mon 11/11	Tue 11/12	Wed 11/13	Thu 11/14
Comparison	-2.32%	-4.30%	4.85%	0.76%	-2.07%	0.28%	-10.28%

Key Indicators: Daily Yield (kWh/kW) [+ Add note to event log](#)

Asset/Peer Comparison	Asset Yield	Avg. Yield
-10.28%	2.738	3.052

Estimated Daily Loss

-1.4 kWh

PowerDash Analytics Detail Page, Showing a System's Normalized Energy Yield Trends in Comparison with Peer Systems

THE FUTURE

An important improvement to PosiGen's solar program will be to make production data available to its customers through a customer web portal. Right now, the PowerDash software, which receives and processes energy production data relayed by Itron Managed Services, is only available to PosiGen customer service representatives. Therefore, customers must call in to get information on their solar generation.

In early 2014, this customer web portal will be easily accessible to any customers with internet service. With the online dashboard, customers will be able to compare solar generation on a month-to-month or week-to-week basis. Interval data from Itron solar meters, received daily from PowerDash, makes this possible. The program will even allow them to overlay weather data. For those without internet access, PosiGen plans to send out hard copy reports in the mail. This consumer engagement is expected to reduce customer service call volumes and improve customer satisfaction.

Dan Holley, PosiGen's Director of Customer Programs, explains, "The data that comes from Itron solar meters is a powerful tool. We can show our customers the savings: before solar, you were using this much energy; now you've offset that usage with essentially free power from the sun. People get excited when they learn how it's hitting their pocketbooks in positive ways."

"The sun isn't going away, so it's simply a question of when the technology becomes cheap enough."

-Tom Neyhart, PosiGen CEO



PosiGen Installation Team at Customer Premise

As the hard and soft costs associated with the installation of solar panels continue to fall, there may soon come a day when government subsidies and tax credits are no longer needed to make the solar leasing model viable for both third-party providers and end consumers.

Asked when grid parity might happen, PosiGen CEO Tom Neyhart responded, "The sun isn't going away, so it's simply a question of when the technology becomes cheap enough. In the South, where we operate, my sense is that we aren't that far off. In three to five years, we may find that the business model works for PosiGen and our customers—without any help from the government."

POSIGEN CUSTOMERS BY THE NUMBERS

- » 2,000 customers (projected to double by 2015)
- » Average consumer savings: \$100/month
- » Average household income: \$20k to \$50k
- » 95 percent live in economically distressed areas
- » 7 million kWh generated by solar



Itron is a world-leading technology and services company dedicated to the resourceful use of energy and water. We provide comprehensive solutions that measure, manage and analyze energy and water. Our broad product portfolio includes electricity, gas, water and thermal energy measurement devices and control technology; communications systems; software; as well as managed and consulting services. With thousands of employees supporting nearly 8,000 customers in more than 100 countries, Itron applies knowledge and technology to better manage energy and water resources.

Together, we can create a more resourceful world. Join us: www.itron.com.

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