

Will your company be powered by Tesla?

SolarCity officially has a new line of business: installing batteries at companies to shave their electricity bills and provide backup power.

The solar company last week announced a service, called DemandLogic, to install and operate lithium-ion batteries made by Tesla Motors alongside photovoltaic panels. Business customers sign a 10-year contract with monthly fees, rather than purchase the batteries and solar panels up front. SolarCity is also putting combined solar-storage systems at residential buildings in California but has not yet made that offering generally available.

The batteries themselves are the same used in Tesla's electric cars, but packaged with power electronics to store solar energy, provide power to a building and connect to the grid. The entire system is remotely monitored by SolarCity.

Equally significant is the creation of a financing product that allows businesses to opt for energy storage with no capital outlay. SolarCity will be able to use the 30 percent renewable energy federal tax credit with the combined solar-storage installations, said company spokesperson Jonathan Bass. The business customer also needs to have good credit to qualify for the batteries.

In a traditional off-grid scenario, batteries store energy generated during the day to power the home at night. SolarCity's batteries are instead designed to reduce power during the hours of peak usage, which are typically in the late afternoon. Although it varies by utility and region, business customers pay demand fees for the maximum power they draw during the month.

SolarCity says it can reduce demand charges by 20 per cent by using battery power instead of pulling power from the grid without the customer having to actively manage the operation. The system uses a cloud-based service to calculate when it's best financially to store energy from solar panels or the grid and when to use battery power. The battery is also designed to provide backup power to critical functions, such as computers or cash registers, in the case of an outage.

The power rating of batteries will range from tens of kilowatts to hundreds of kilowatts but they will provide at least two hours at full capacity, said Eric Carlson, senior director of grid systems integration. The smallest battery is about as big as a large refrigerator and many can be linked together.

For the economics of this to work, businesses need to be paying relatively high demand charges. SolarCity is offering the service in regions served by the California utilities Pacific Gas & Electric and Southern California Edison, areas of Massachusetts served by NStar, and to commercial customers of Connecticut Light & Power.

Using a grant from the California Public Utilities Commission, SolarCity has been testing Tesla-based battery systems since 2010. But their commercial availability is a sign that onsite energy storage is reaching new levels of maturity.

With higher volumes of electric vehicle batteries being sold, the price of lithium-ion battery packs is going down. "The economics and scale that Tesla has achieved in the automotive market now make stationary energy storage more cost effective and reliable than it has ever been in the past. We expect this market to grow very rapidly now that we have crossed this economic threshold." Tesla CTO and co-founder JB Straubel said in a statement.

The SolarCity-Tesla relationship extends beyond business. Lyndon Rive, the CEO and founder of SolarCity, is cousins with Tesla Motors CEO Elon Musk, who is also chairman of SolarCity.

Solar City was one of the pioneering companies in developing financing for residential solar, which has helped fuel a boon in distributed solar. Now it's among a few energy companies finding ways to finance energy storage. One company called Solar Grid Storage also offers a combined solar and storage for businesses, which it finances through reduced demand charges and government incentives. Another company called Stem recently secured project financing to install its on-site batteries at businesses without an upfront fee.

For solar installers, energy storage is attractive adjacent product they can offer to businesses that want to reduce demand charges or have backup power. A string of severe storms, including Hurricane Sandy, along the east coast of the US in the past few years has prompted more commercial customer to invest in on-site power generation so they can operate at least partially during prolonged outages. SolarCity expects to have 30 to 50 customers for combined solar and storage next year, Bass said.

Regulations could hamper the speed of adoption for behind-the-meter energy storage. In California, a number of installations have been delayed over utilities' concerns that customers will receive the subsidy for feeding clean solar electricity back in the grid when it actually comes from the battery. Also, utilities, in general, are wary of technologies that allow electricity users to disconnect or rely less on the grid. But Carlson expects that there will continue to be good financial incentives for on-site storage. "We think the market will continue to open up and allow batteries with solar to provide peak power," he said.

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