

NRG EVGo, Princeton Power back DOE Solar Decathlon

Team offers ‘first-of-kind’ solar-EV converter, charger

NRG EVGo and Princeton Power Systems are together providing solar-powered charging technology for four southern California schools in the DOE’s Solar Decathlon, Darren Hammell, co-founder and chief strategy officer at Princeton Power, told us recently. The two firms are supplying a first-of-its-kind “CA-10” power converter that lets an EV charge at a rate of 10 KW directly from the home solar array – and send power back to the grid, he added.

The charging stations are outputting power to Southern California Edison (SCE), which is piloting the technology, Hammell said.

The power converter is “first of its kind” because it is the first to combine fast-charging of an EV with discharging the battery into the grid, as well as discharging the battery into the home for backup power when the grid is unavailable, and charging the battery directly from a solar array without first converting to AC power and then back to DC power, he added.

The product is commercially available, certified to commercial requirements by Underwriter’s Laboratories (UL), and compatible with commercial vehicles supporting the Chademo charging standard, such as the Nissan Leaf, Hammell said. The name of that standard is reportedly based on a Japanese expression asking, “how about some tea?,” a reference to the time needed to charge an EV.

NRG EVGo makes public DC fast-charging stations. Princeton Power designs and makes technology products and embedded software for energy management, microgrid operations and EV charging. The schools in the competition are Chapman University, Irvine Valley College and Saddleback College and UC Irvine, he added.

The EV charging firm commissioned Princeton Power Systems to develop the technology, Hammell said, noting it provides a more efficient and fast way to directly charge an EV from solar energy, as well as the capability to provide power for the home independent of the grid.

DOE’s Solar Decathlon this year is challenging college teams to design, build and run solar-powered homes that are cost-effective and energy efficient. The 20 national and international teams are in the process of

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demonstrating their projects through Oct 18, in Irvine, Calif, DOE told the press recently.

The CA-10 maximizes the DC power output from the solar array – and through a DC-DC converter provides DC fast-charging directly to the EV. The direct DC-DC conversion reduces losses associated with power conversion by over 50%, maximizing efficiency and reducing charging time, Hammell said.

Projects at a few US Air Force bases, including one in Louisiana, use the “CA-30”, a similar product but higher power level (30 KW instead of 10 KW), he added.

NRG EVGo is donating the CA-10 product to the UC Irvine team, while Princeton Power is providing design consulting and onsite support, Hammell said.

The CA-10 solar charging station is based on Princeton Power’s DRI-10, 4-port hybrid inverter and will be the first solar fast-charger UL-listed to both 1741 and 2202 for grid-interaction and car-charging, respectively, he added.

UL publishes commercial safety standards for products and UL 1741 is a unique standard that determines how a power converter has to safely operate when connected to the grid and discharging power. It is typically used for solar arrays and solar inverters and covers power quality and “anti-islanding,” for example, Hammell said.

“It’s very difficult to perform advanced features like vehicle charging and backup power while still meeting the safety requirements of UL 1741,” he added. “However, it’s also much easier and safer to permit electric products if they have a “UL sticker,” meaning they’ve been testing and certified by an independent auditor to adhere to UL 1741 requirements, so UL-listing is generally considered a pre-requisite for commercialization.”

Ideal Power offers bigger converter for utility-scale jobs

Power converter firm Ideal Power received UL1741 conformance certification from a nationally recognized testing lab for its 125 KW power conversion systems, the firm told the press yesterday. This larger, more powerful system expands the firm’s market reach by officially launching its patented technology into the utility market for MW-plus applications including utility-scale demand management, grid support and large-scale microgrids, Ideal Power said.

The certification was on both the system’s two-port and three-port configurations, the firm said, using its patented power packet switching architecture (PPSA) for energy storage applications needing larger, more powerful power conversion systems.

The system features microgrid-forming capabilities that enable back-up power for critical loads in the event of grid challenges such as outages, Ideal Power said. They are also software configurable to enable operation in both 50 HZ and 60 HZ environments, letting customers worldwide

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support both grid-tied and off-grid applications, it added.

“Our grid-resilient products already support global 50 HZ and 60 HZ geographical markets, but the 125 KW system now adds more power to our portfolio which will accelerate our expansion into larger system installations and MW-sized utility projects,” said Ryan O’Keefe, senior VP of business development at Ideal Power in prepared remarks.

The UL1741 standard is a benchmark for safety and compatibility of inverters, converters, controllers and interconnection system equipment used with distributed energy resources on the grid in the US and Canada, Ideal Power said. Certification for conformance is required for such systems to be connected to the grid.

Hyatt hotel to generate 70% of power with Bloom fuel cell

Hyatt Hotels teamed with fuel cell maker Bloom Energy in the hotel firm’s continuous effort to innovate around sustainability and improve the communities that it calls home around the world, it told the press yesterday. The Hyatt Regency Greenwich (Conn) hotel was picked to receive the first 500 KW fuel cell, which will provide up to 75% of the hotel’s energy load, generating significant cost savings, Hyatt said.

[EDITOR’S NOTE: Fuel cells typically generate clean power with little or no emissions depending on whether natural gas or hydrogen is used as the fuel. Hyatt did not specify what fuel it plans to use. It also did not say whether it would be capturing the heat from the fuel cell for hot water or other heating needs – a not uncommon practice for hotels and institutions using a fuel cell or other CHP system.]

By generating its own electricity onsite with Bloom Energy, the hotel will reduce its carbon emissions by 40% compared to power purchased from the grid, Hyatt said.

The fuel cell investment reflects the firm’s 2020 carbon vision that includes using resources more thoughtfully, making more environmentally responsible purchasing decisions, building more efficient and sustainable hotels and encouraging broader adoption of sustainable practices by working with business partners and testing new solutions, it added.

ICL to save 16% on power bill with own bromine battery

Minerals-based product maker ICL deployed its own bromine-based flow battery system at its fire-retardant production site in Rancho Cucamonga, Calif, it told the press this week. The deployment used a Primus Power EnergyCell system to manage power consumption from the grid and lower demand charges and peak power use, ICL said.

The firm expects the behind-the-meter battery to yield a 16% reduction

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to annual operating expenses with no impact to the facility's operations.

"The deployment of our energy storage technology at our facility in California is ICL's next step in our commitment to the growth of energy storage technologies," said ICL CEO Stefan Borgas in prepared remarks. "Effective energy storage is vital for reducing the impact of energy consumption on the environment through improved efficiency and successful deployment of renewable sources.

"ICL's bromine-based energy storage technology presents a financial growth area for our business while also delivering environmental and social benefits," he added.

One of the greatest challenges to the success of renewable energy is the ability to ensure continuity of supply, ICL said. Bromine-based batteries are ideally suited for the long-duration stationary market as a solution to help companies efficiently and effectively store power, letting them deploy it when it is needed most, cutting energy waste and overall energy use and costs, it added.

ICL produces approximately a third of the world's bromine, which is extracted from its vast reserves of Dead Sea brines, the firm said.

"We believe bromine-based flow batteries are the ultimate solution for smart grid energy management," said Charles Weidhas, CEO of ICL Industrial Products in prepared remarks. "Bromine is an abundant resource enabling cost-effective energy storage without supply concerns.

"This is a cost reduction project with the goal of proving the capabilities and benefits of ICL's electrolyte solutions at our own production site, he added.

3 stories in 90 seconds

Florida regulator visits

net-metering factory: October is US DOE-promoted National Energy Awareness Month, the Florida PSC noted this week as it recognized a solar array powering a 40,000 square foot manufacturing facility reportedly fully taking advantage of the state's net metering policy. PSC Commissioner Jimmy Patronis joined state lawmakers to tour the solar system that powers VizCo-US, a plastic injection-molded products maker.

RFF blog to weigh

climate pledges: The European Commission last week said the climate commitments submitted by 149 countries in advance of the Paris climate conference in December were not enough to "avoid dangerous consequences," US environmental group Resources for the Future (RFF) said yesterday. The commission is examining "which elements should be introduced at Paris to help make a final global warming agreement work." Critical to negotiating a climate deal in Paris is "understanding the comparability of the pledged mitigation efforts," RFF's Joe Aldy of Harvard and Billy Pizer of Duke University said in prepared remarks. RFF started [a blog series](#) called, "Are We Becoming More Environmental?"

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Reflections on Trends in Environmental Desire,” on its website to help inform the process.

OPIC finances big

African solar deals: The Overseas Private Investment Corporation (OPIC), the US government’s development finance institution, signed an agreement recognizing OPIC’s \$400 million commitment of debt financing to support the development of a South African solar plant, OPIC told the press yesterday. US energy developer SolarReserve and Saudi Arabia-based ACWA Power will use the money to build the 100 MW Redstone Concentrating Solar Power (CSP) project in Northern Cape, South Africa. The deal is part of Secretary of State John Kerry’s Climate & Clean Energy Investment Forum, OPIC said. A similar deal will be signed today for \$15 million in OPIC debt financing to support Nova Lumos’ Txtlight project, scaling up a business that provides off-grid solar electricity to homes and small business throughout Nigeria, OPIC said.

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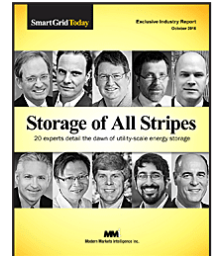
Storage of All Stripes

20 experts detail the dawn of utility-scale energy storage

Historians will mark 2015 as the dawn of utility-scale energy storage. The huge surge in energy storage R&D, as well as in companies chasing an emerging market, is a natural outgrowth of the solar boom that started a few years back. That is, of course, because energy storage helps solve solar’s intermittency issues.

“Storage of All Stripes” chronicles how leaders are feverishly working to get utility-scale energy storage solutions on the market around the globe. The exclusive, in-depth report includes discussion of “heatcrete,” molten-salt thermal energy storage, power conversion systems, lithium-ion battery-based “demand-reduction systems,” flywheel systems, storage-as-service and “that black box called storage.”

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