

Monday, July 18, 2011

## Nuvve's V2G is gaining non-US traction, investors, CEO says

When people say V2G is 10 years away, Gregory Poilasne, CEO of San Diego-based Nuvve, just smiles. After all, his firm developed vehicle-to-grid technology two years ago, and car-makers are now vying for his product while they and others talk about investing -- all before Nuvve conducts a single pilot, Poilasne told us in an interview Friday.

"I've been bringing new technology to the market for a long time, and you see the same things," Poilasne said. "There are those who are not embracing it right away and don't understand where the market is going. There are people who do not like change and will always come up with a reason why the technology will not work in the future. But in this case, once we share with them in detail how our system works, they're actually buying into it. That's really when you have something in your hands."

### Creating a power plant

Nuvve's system aggregates plugged-in battery-powered vehicles into a virtual power plant through

bi-directional power flow between EVs and the grid, mimicking an ancillary power service, he said. It includes communications technology and security that let the grid adjust its power flow by the use of EVs. Such technology flattens load and enhances reliability, Poilasne said. With V2G in just 3-5% of US vehicles, EVs could replace the entire US ancillary-service market, Willett Kempton, Nuvve CTO and University of Delaware V2G pioneer, told us in March during an exclusive interview (SGT, [Mar-16](#)).

Kempton and Poilasne travel around the world extolling V2G's virtues. Nuvve's V2G system still needs patent approval, but an unnamed Danish utility has already struck a handshake deal for a pilot beginning in September (SGT, [Jun-29](#)), and some Asian entities, whose names Poilasne declined to disclose, are courting the privately held firm, he said "There are lots of other people who issue press releases, but we have the stuff that actually works," Kempton told us Friday. "You want to see a PowerPoint? Sure,

then there are five to 10 companies that do V2G. You want a system that works? We're the only one."

### Pitch to utilities easy

The sales pitch to utilities is easy, Poilasne said. V2G delays grid upgrades because it manages capacity. V2G supplements during peak demand because utilities can siphon power from EVs when needed. V2G mitigates cost increases from an increasingly local production of power from renewable energy sources -- while overall consumption remains constant or rises -- by serving as a power reservoir.

Car-makers see V2G as a competitive advantage, as drivers could cut power bills through net metering, a formula that pays consumers for the power they supply to the grid, Poilasne said. Net metering also will encourage people to charge EVs more frequently, thereby preventing batteries from becoming discharged. That will prolong battery life because battery charge/

[Continued on page two](#)

## Well into SGIG, FPL details AMI, T&D progress; wants 'DOE 101'

If there's one thing Bryan Olnick wishes he had known going into Florida Power & Light's SGIG-funded AMI project and T&D upgrades, it is how to work well with DOE, said that FPL executive, who oversees the utility's smart grid efforts. "If there were a class we could have taken in 'Dealing with DOE 101,' that would have been helpful," Olnick told us recently.

"They have a lot of rules and regulations that typically a utility may not be familiar with," including regulations issued by departments other than DOE, Olnick said. To prevent problems at this point in their project, Olnick's team has weekly discussions with a DOE representative. "You just need to make sure you're in constant contact," he said.

Such caution and attention to detail have characterized all the utility's smart grid efforts, which were funded in part by a \$200-million SGIG approved March 30,

2010. Through this year's second quarter, FPL had received \$165.3 million of that money from DOE and had matched that amount with its own funds. The money is being used to install automation and two-way communication throughout the T&D system, to install AMI, and to run a pilot of devices that display and automate in-home power use.

In addition to its SGIG, FPL expects to spend more than \$600 million of its own funds on its smart grid initiative, which runs from 2007, when FPL began an AMI pilot, through the end of 2013. These funds were raised from FPL's base rate, with no rate case or surcharge, Marie Bertot, an FPL spokesperson, told us.

### Upgrading T&D

On the T&D side, the SGIG money and matching funds are helping pay for deployment of 9,000 intelligent devices, as well as upgrades to centers that keep tabs

on grid performance for FPL's 4.5 million customers, Bertot said. FPL serves about half of Florida, including the south, southeast and northeast parts of the state.

The T&D updates include more than 200 automatic feeder switches. These devices, mounted on utility poles, detect faults on distribution lines, automatically isolate the malfunctioning section and reroute power around it to restore service to unaffected sections. To do this, they can open, close, reconfigure themselves and communicate with other devices through a mesh network.

FPL is installing 45 phasor measurement units from Schweitzer Engineering Labs at substations. PMUs measure electrical quantities on the grid to determine stress points, where power can flow unbidden. Their data will go to a centralized energy-management system, which FPL said will help system operators keep closer tabs on the state of the grid.

This can help prevent outages or restore power more quickly after an outage.

FPL is also placing more than a dozen digital disturbance recorders, from APP Engineering, at some of its substations. These devices capture detailed information on the transmission grid, allowing better analysis of problem areas. The utility is installing microprocessor controls on feeder breakers and voltage regulators at 100 distribution substations. Both technologies are automated, capable of two-way communications and controllable from a central location.

In addition to those upgrades, FPL through 2012 is installing 50 microprocessor-based systems to protect and control the transmission grid. Those systems, also from Schweitzer, are designed to gather data on the power system, assess equipment operating conditions and restore outages automatically.

### AMI nearly half done

FPL has already installed smart meters for 2 million of its 4.5 million residential and small and mid-sized business customers, it said, with completion scheduled by the end of 2013. It plans to install 80,000 smart meters on large commercial accounts in the Miami area beginning in 2012.

Residential customers can now view and analyze their energy use online through what the utility calls an energy dashboard, which includes graphs showing use by the month, day and hour. "It's a great tool so customers can dig into their energy usage," Olnick said. Billing information is viewable at the same site. Customers without internet access can call FPL to get the same information.

FPL's careful approach to grid modernization includes a distributed-generation pilot using a group of 60 customer volunteers with home solar

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*From page one*

discharge cycles will decline, decreasing deterioration, he said.

"We can drive people to really change their habits -- to have people charge their cars as much as possible," Poilasne said. "We're giving an incentive to plug in as often as possible, because every time you plug in your car, you're going to make money."

Mass-produced EVs on the US market today, such as the Chevy Volt and Nissan Leaf, cannot take advantage of V2G because their batteries lack bi-directional-charging capabilities, Poilasne said. They cannot both accept power from and provide power to the grid. But Mitsubishi will make its Miev EV bi-directional beginning in 2012, which could signal a widespread change in EV batteries, Poilasne said.

### Non-US market becons

For now, Nuvve concentrates on Europe and other markets outside the US, Kempton said. The US EV

market is relatively small compared to those, which makes it less imperative for Nuvve to do business in the US, Kempton said. Additionally, navigating US regulations has proven more time consuming than the "ready-to-go" European markets, he said.

"We don't really care what's going on in the US," Kempton said. "We have a license to practice all around the world and have done research on where it makes the most sense to start. We don't have to wait for rules or wait for FERC."

V2G did seem like fantasy technology just years ago, Poilasne acknowledged, but it is closer to fruition than people think, he said. In fact, it is "ready for the big show," he said. "There are few people now who really understand that V2G is around the corner," Poilasne said. "I have very big companies talking to me that want to invest in Nuvve. I think people are going to be understanding pretty fast."

Nuvve declined to disclose its investors, total capitalization or competitors.

[\[Comments\]](#)

arrays. The study, scheduled to begin this summer, is designed to monitor the output of the arrays and to help FPL integrate this technology and other forms of distributed generation into the grid while maintaining reliable service.

### Testing in-home devices

FPL is also running a pilot of 500 residential customers testing technologies to monitor and control home energy use. The study breaks participants into four groups.

One group has sophisticated in-home energy displays from GE; a second is testing home-energy controllers from GE and Cisco; and a third, with 10 customers, will get a home-energy controller and one or more smart major appliances from GE that can respond to signals from the home energy controller. A fourth group includes volunteers for a dynamic-pricing pilot in which they will get a discounted price 99% of the time and pay a high price the rest of the time,

*[Continued on page three](#)*

## 8 stories in 3 minutes

### Chinese solar firm

**opens California office:** China Sunergy, a solar-cell maker based in Nanjing, China, on Thursday opened a San Francisco office, it told the press. The firm appointed Willis He as CEO of its US operations. PV capacity in the US grew by more than 100% last year, with 28% of that growth in California, the firm said. Opening a San Francisco office, which the company said will "invest in the US, hire people in the US and serve customers in the US," is intended to "demonstrate our commitment to and confidence in the US market."

### Report summarizes South

**Korea modernization plans:** South Korea has a "rich and determined plan for a completely integrated grid by 2030," according to a free 18-page [report](#) publicized Friday by researchers Zpryme. The smart grid market in that country of 48 million people will be worth \$290 million by 2015, the report said.

### Consumers Energy to

**open 10 EV stations:** Michigan IOU Consumers Energy is opening 10 EV charging stations where drivers can pull up and charge their vehicle for

free. The stations are meant to ease the transition to PEV ownership and accommodate added customer demand for PEVs and PEV infrastructure, said utility officials yesterday.

### Meter opt-outs have

**'long-term implications':** If other states follow California and Maine in letting customers opt out of wireless smart meters, "we should be concerned about the longer-term implications," wrote Rob Wilhite, a consultant with KEMA, in a [blog post](#) Friday. "Utilities were granted exclusive franchises with

*[Continued on page three](#)*