

Monday December 14 2009

## Delurey, Hamilton report to us from Copenhagen

While smart grid has premiered at the UN Climate Change Conference, its meaning remains unclear to many, two attendees of the talks in Copenhagen told us Friday. Confusion over the definition of the term smart grid is a central theme for those new to our industry and maybe many in it (SGT, [Jul-21](#)).

“For the first time, smart grid is a topic” at a Conference of Parties (COP), Dan Delurey, executive director of the Demand Response and Smart Grid Coalition, told us in an e-mail from Denmark, using the seldom-heard official name of the global climate conference. “It is coming up in discussions on the floor and it is one of the main topics for many presentations being made in the official US pavilion here.”

On Friday, US Commerce Secretary Gary Locke “became the latest [one per day] of US cabinet secretaries to make an appearance and presentation in the pavilion,” said Delurey. “He

spent most of his time talking about the need for clean tech and smart grid in an approach to climate-change planning and mitigation.”

Delurey is in Copenhagen as member of a UN-approved nongovernmental organization called the Green Grid Initiative (SGT, [Nov-25](#)). The delegation includes representatives from CPower, Echelon, Google, Honeywell, Landis & Gyr and Whirlpool. Some parties, including the coalition, have begun to talk about whether it would make sense to add a smart grid and green-buildings element to the climate agreement, he added. The Green Grid Initiative will this week make several presentations at the meeting, Delurey said, “and smart grid may be more prominent as the COP continues -- but the main stage will still be on the climate agreement and the front-and-center issues that parties continue to struggle with.”

The smart grid is seen at COP as

vital, Katherine Hamilton, president of the GridWise Alliance, told us in an e-mail from Denmark. Just one problem, she added: “People don’t know exactly what smart grid is.”

None of the four speakers at the World Energy Council-hosted side event Thursday mentioned the smart grid, Hamilton said. After the event, she asked the speakers whether they considered smart grid important in linking clean-supply technologies and energy storage with DR, energy efficiency and DG. Two of them “jumped in and declared that smart grid is, indeed, key to enabling all of these other technologies,” she said.

The conference continues through Friday and Energy Secretary Steven Chu is set to speak today in Copenhagen about the smart grid in a talk titled “Leading in Energy Efficiency and Renewables,” according to a press advisory distributed yesterday.

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## Vendors not yet picked for SGIG AMI, transmission projects

We continue below with profiles of Smart Grid Investment Grant winners. The DOE announced those 100 grants totaling \$3.4 billion in October (SGT, [Oct-28](#)).

### Lafayette adds 57k meters

The Lafayette (La) Consolidated Government won a grant of \$11.6 million toward a \$23.3 million project installing 57,000 smart meters, covering the entire service area of the Lafayette Utilities System. The utility ran a fiber backbone ring throughout the city that delivers to 2,000 homes a combination of phone, TV and internet, Andrew Duhon, customer and support service manager, told us Friday. Those homes’ meters will be

connected to the back office via the fiber.

The connection method to other homes has not yet been picked -- but will ultimately send data to collectors on the fiber backbone and vendors have been identified but not chosen, Duhon said.

The grant will pay for about 1,000 in-home power-management displays and 10,000 devices that let the utility control homeowners’ HVAC systems. Vendor have not yet been picked for those either, Duhon said.

T&D will get some part of the grant too, Chief Electrical Engineer Scotty Touchette told us. About 50 electromechanical relays protecting transmission lines will be replaced with microprocessor-based

models. The new relays, from Schweitzer Engineering, provide better control, new features and improved SCADA reporting, Touchette said.

About 200 new capacitor-bank controllers will communicate with Lafayette’s SCADA system via radio or fiber, unlike those they will replace. Roughly 600 oil-based switches -- three per-capacitor bank -- will be replaced with more environmentally friendly vacuum switches. Vendors were not yet chosen for the switches or controllers.

Single-function Hathaway fault recorders monitoring transmission lines will be replaced by power system recorders that both monitor and perform other functions, Touchette said. Two vendors for that equipment have made the short list.

The project’s biggest challenge is educating consumers about AMI, said Duhon.

“‘Smart grid’ is a term that’s thrown around a lot and a lot of people aren’t

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quite sure what it is and what benefit it brings them,” he said. “And electricity has become such a convenience it’s back of mind, so to bring it to the forefront of their minds is a challenge.”

The utility will get help from the University of Louisiana at Lafayette in the educational effort, he added.

Before the project can begin, its added funding has to be agreed to by the Lafayette City Council, through a rate increase and bond issue, Duhon said.

### Jacksonville switches to AMI

JEA, the Jacksonville, Fla municipal utility serving 360,000 power customers, won a \$13 million grant toward a \$26.2 million project replacing 3,000 one-way meters with AMI -- with vendors not yet picked.

The old meters “are plenty smart but you can’t deliver anything to the customer,” Randy Boswell, VP of corporate data integration, told us Friday. “We can’t do remote turn-on or turn-off or use them as a portal into the residence.”

JEA will test some TOU variations once the new meters are in place, he added.

The grant will also underwrite upgrading the two-way communications link between the utility’s computer center and “several thousand” pole-top devices that capture meter data, Boswell said. That upgrade will require replacing all the pole-top devices and several dozen substation collection points and vendor choices were not yet made, he added.

Grant money will help JEA upgrade its meter data-management software from eMeter, of San Mateo, Calif.

“We evaluated alternatives, but with eMeter it’s an upgrade cost and with everyone else it would have been new,” Boswell noted.

The biggest challenge of the project will be figuring out how to orient customers to the new information and control they will have with the two-way meters, Boswell said. “It’s not just

## DOE reports growth of energy information services covering smart grid

One of the “gateways” on Open Energy Information ([www.openEI.org](http://www.openEI.org)), the DOE’s coming open-source web platform, will be devoted to the smart grid, DOE Deputy Press Secretary Jen Stutsman told us Friday. The wiki-platform site seeks to make DOE resources and energy data widely available to the public, DOE said last week. DOE envisions the data and tools housed on the free and editable site to be used by government officials, the private sector and project developers to help deploy “clean energy” technologies around the world.

“We expect the smart grid to play an important role,” Stutsman told us. “As we move forward and we see the benefits of the smart grid, we will share some of that information with consumers.”

Meanwhile the Smart Grid Information Clearinghouse ([www.SGIClearinghouse.org](http://www.SGIClearinghouse.org)) is beginning to take shape at Virginia Tech (SGT, [Dec-08](http://Dec-08)) as more of a “technology resource for companies and utilities,” Stutsman noted.

Virginia Tech won a \$1.3 million DOE contract to develop the clearinghouse over the next five years and still plans to include education as a “building block” of the smart grid.

“If the public doesn’t know or doesn’t care, none of this will work,” Saifur Rahman, a principal investigator on the SGIC team and director of the Advanced Research Institute inside Virginia Tech, told the user group. That group a week ago today began assembling the SGI Clearinghouse.

DOE worked with the National Renewable Energy Laboratory (NREL) and other US labs to develop and populate the Open Energy Information Platform. The site houses over 60 “clean energy resources and data sets,” including maps of worldwide solar and wind potential, information on climate zones and best practices, DOE told the press last week.

OpenEI.org also links to the Virtual Information Bridge to Energy (VIBE), a data analysis hub that DOE hopes will help improve understanding of energy data.

DOE plans to eventually add online training and technical expert networks.

OpenEI.org is part of a broader effort -- at DOE, the White House Office of Science & Technology Policy and across the Obama administration -- to promote accessibility, openness and transparency in the federal government.

[\[Comments\]](#)

technical. It’s a human-behavior point,” he added. “We’re not experts at that. We don’t even like to be behind the customer’s meter -- that’s their stuff -- but now we’ll be there and interacting with them.”

Lafayette’s half of the project cost was worked into the city’s capital budget, Boswell said. The utility was already planning to do the meter upgrades but it “enhanced” some projects with the DOE grant in mind, he added.

JEA is anxious to get started on the projects but is constrained by a DOE requirement that the grant money not be spent over 90 days before the grant is made final, he added.

### NY ISO boosts reactivity

The New York ISO won a \$37.4 million grant to support a \$75.7 million project in New York State. The project involves installing 39 PMUs across the HV grid. PMUs transmit power system data 60 times/second, enabling faster responses to grid events and more effective mitigation of potential outages, NYISO said. Its current monitoring systems sample conditions every two-six seconds.

The grant will also allow installing about 950 megavars (one million volt-amperes-reactive) of controllable capacitor banks on the lines, NYISO told us in an e-mail Friday. That could save 48.7 gwh/year and be worth \$9.7 million, it said.

Generators are typically used to maintain a line’s voltage but some locations can’t reasonably support

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one and thus using capacitors at those locations is the best way to provide voltage support, NYISO said.

Currently, ideal voltage levels can't be maintained on many transmission lines, creating operating inefficiencies. As a result, power is lost in transit through the extra effort needed to overcome reactance on the lines. Vendors were not yet picked for any portion of the project.

NYISO submitted its grant application in cooperation with Central

Hudson Gas & Electric, Consolidated Edison, Long Island Power Authority, National Grid, New York State Electric & Gas, Rochester Gas & Electric and the New York Power Authority.

New York State's PSC in July gave preliminary approval an array of proposed smart grid projects, including the PMU network and capacitor bank project. NYISO's portion of the funding was approved as part of its 2010 budgeting process, it said in Friday's e-mail.

[Comments]

## BGE makes case for smart grid to PSC, Capitol Hill

The Maryland PSC meeting Friday heard final remarks on a request from Baltimore Gas & Electric (BGE) to deploy smart grid and set a surcharge mechanism to recover costs. BGE expects regulators to issue a ruling early next year, Mark Case, senior VP for strategy & regulatory affairs at BGE, told us Friday. He declined to comment further to us but presented the utility's perspective recently at briefing on Capitol Hill.

Rising power prices are a force to be reckoned with and the smart grid will help, he told a couple dozen people gathered at a GridWise Alliance briefing in Washington, DC, that called attention to two industry-assessment documents.

"Certainly, if you're from this area, you know about the issues of rising power prices. In the Baltimore region, we had overnight something close to a 72% increase in rates as we transitioned to market prices back in 2006," he said. "While in the short term we've seen prices start to come back down and demand drop off a little bit

as the economy has suffered, there's no question that the longer term outlook for both demand and cost is probably in an upward direction."

BGE is of course aware that "there's a large concern in our region about transmission congestion and resource adequacy," said Case. "Only about 12 months ago, people were talking about the worries of rolling blackouts and how do we keep the lights on in 2011, 2012." On the horizon are "more stringent environmental regulations and where we're trying to go as a country in clean energy and clean air -- and the ability to accommodate growing levels of renewable energy and, finally, the emergence of electric vehicles. Smart grid addresses each of those challenges."

BGE last year started a peak rewards program where consumers let utilities cycle AC units on and off during the peak summer days. In exchange, consumers get annual credits on their bills. They can take part with a smart thermostat or a switch on their outdoor AC unit, and can choose from three levels of cycling --

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"We have already more than a quarter-million customers enrolled," said Case. "Today, however, it operates in a one-way communication flow. We send a signal to the smart thermostat or the switch outside to tell it to do its cycling routine of the AC unit but we don't really know if the unit is there, if it's working, if it was removed when the AC was replaced."

With the two-way communication flow afforded by the smart grid, "when we send a signal to the smart thermostat, it sends a signal back saying, 'Yes, I got the signal and I'm cycling the unit,'" he noted. "You know you got the load reduction you were counting on."

Everyone is concerned with cost effectiveness. "With a program like 'peak rewards,' which is DR, we typically look at how many mw we can shed and what each unit cost is, and compare that to the cost of building a new peaking plant," said Case. "It's

*Continued on page four*

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*From page three*

somewhere on the order of a 6-1 effectiveness ratio versus the alternative of building additional power plants.”

Case showed a slide with a graphic depicting peak rewards coming in at \$165/kw versus a new peaking plant at about \$1,000/kw.

Smart grid will increase consumer interest in participating in energy efficiency and conservation programs, he said. “If you know more about what your energy bill is running, you can look at different energy use components and you’ll be a lot more interested in taking advantage of programs utilities and states often offer to help reduce that usage. Once again, reducing load represents a significant cost savings

-- somewhere around 2-3¢/kwh versus 9-10¢/kwh to continue to buy more power.”

### Price signals really work

The smart grid is “transformational” in two dimensions, Case said.

First, on the grid itself, it delivers “information about power flows, the ability to anticipate when problems are going to occur, being able to re-route power so the obstruction never takes place -- or, if there is an outage, having remote sensors that tell us exactly where that outage is. It’s sort of an oddity that today we wait for a phone call to know a consumer has lost power.”

Second, in homes and businesses, “smart grid can shape consumer behavior. There are a lot of opportunities to grow

the amount of renewable energy out on the system. It’s one thing if you’ve got 2-3% solar and wind power in your territory -- you can manage the ebbs and flows of that. But if you think about 20-30% renewable energy that comes on and off sometimes with very little notice, you need a smart grid to accommodate those shifts in output.”

**BGE has been focused on AMI connected to DR and HAN, he added. Surveys of pilot participants in the last two years found most were “highly satisfied” or “satisfied” with the experience and most said they wanted the chance to take part going forward, said Case. Customers respond emphatically to pricing signals, cutting use by up to 33%, he added.**

As it moves forward with deployment, BGE will carefully measure not only customer benefits but also operational benefits.

“On the operational side, we project a 500 mw reduction in [peak] demand -- just through DR,” Case said. “Today our peak is 7,000 mw.”

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