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US coalition of big-name actors calls for international real-time power data mandate

DRSG, GE, Google, Whirlpool float idea in Copenhagen

Governments worldwide should give citizens access to real-time information on their energy use, said Google, GE, the Demand Response & Smart Grid Coalition and 11 other American organizations gathered in Copenhagen.

"The bottom line: we can't solve climate change if people are in the dark about how they use energy in their own homes," the group of entities wrote in a one-page "Call To Action," that they issued at the UN Climate Change Conference.

Having minute-by-minute data on power use can save consumers up to 15% on their power costs, the groups said, and nations should ensure citizens have access to real-time or near-real-time pricing, pricing plans and the source and carbon content of fuel burned to create their power. "This information can be delivered to citizens with technologies that exist today and can be rapidly deployed," they said.

If all households in developed countries achieved a 15% energy savings by 2020, that would cut CO2 emissions by about 470 million tons, they said, equivalent to:

• About 10 Denmarks or 100 Copenhagens;

• Taking over 200 million cars off the road in the EU;

• Shutting down 124 large coal power plants, or

• Two to four times more than the total estimated cuts in CO2 emissions from the first phase of the EU Emissions Trading System from 2005-2007.

Other entities signing the document were the Alliance to Save Energy, the Center for American Progress, the Climate Group, the Digital Energy Solutions Campaign, Dow, the Energy Future Coalition, Intel, Kleiner Perkins Caufield & Byers, the National Resources Defense Council, the US Green Building Council and Whirlpool.

Real-time data would be voluminous compared even to the daily smart meter readings some utilities propose, much less to the monthly bare-bones use data now offered to most consumers. Questions abound as to who would pay for storing and analyzing that vast quantity of data. Would it be consumers, utilities, meter makers, meter-data analysts, local, state or federal agencies, or some combination? And as data becomes more detailed, it raises privacy concerns (EDITOR'S NOTE: Privacy is an issue we plan to address in tomorrow's issue).

Whether minute-by-minute meter data is economically feasible was the focus Monday at a meeting of Maryland public utility regulators, where one commissioner insisted that "day-old data is pointless because it is stale" (SGT, Dec-15).

On the other hand, "asking for real-time data is like asking for instant-on TV -- it's possible but wasteful and expensive," Larry Silverman, president of conservation automation firm GridPlex

Knoxville's SGIG award will grow AMI pilot to new heights

All the Knoxville Utilities Board (KUB) needs to do before it begins to spend over $7 million on the smart grid initiative it has been brewing for three years is to choose an AMI vendor and sign the DOE Smart Grid Investment Grant program contract that will pay for half of the project, Eric Greene, the multi-service municipal utility's AMI project manager, told us yesterday. The seven commissioners that govern KUB have voted to fund the DOE grant match.

KUB is a self-starter. It put together an "AMR" team in 2006 meant to complete pilots and develop a long-term strategy with automated metering. It did those things and then reached out to the Chicago-based consulting firm West Monroe Partners for help in putting together its DOE grant application that won under the "integrated systems" category.

The initiative goes far beyond smart meters.

"We looked at this project as multiple components: AMI and the operational efficiencies you gain with it; the home area network for everyone in this three-year pilot" with over 3,000 customers in and around the University of Tennessee and a 1.5-square-mile, mixed-use area nearby called Fort Sanders; and light DA and substation automation to help control voltage and cut system losses plus to faster pinpoint the causes of customer outages, said Greene.

The 3,000-plus customers will all get energy-use-display devices and access to meter data through the internet. Thus they will have at their fingertips near real-time data about how they use power.

Utilities more commonly sell in-home display units to customers, drawing in those "who really have the propensity to really use that device and that information because they requested it," Greene said. "We're going to find out what happens when everyone is provided one of these. Our consulting group said that giving people information about their usage really reduces their usage. We'll be able to measure that in detail." The cost of the devices is covered in the project DOE is helping to fund.

West Monroe Partners recommended covering all study participants with home-energy displays and access to near-real-time data about their use so that DOE would find the KUB's grant application appealing.

"The DOE is treating it very much as a learning project, just like we are," Greene reported. "I have not seen everything that's available but the home energy displays I have seen are both AC and DC powered devices that can sit on your coffee table or anywhere in the

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Networks in Upper Darby, Pa, told us Tuesday. His firm offers hardware and software to automate power conservation in multi-unit buildings (SGT, Dec-02) and he has been an outspoken advocate for ratepayer ownership of meter data. "The customer owns the data and should get access to it in near-real time," he said yesterday, "say, one-minute increments -- for a nominal fee and the utility should store that data on its servers."

> **QUOTE OF THE DAY:** Look, the customer is really already paying for smart grid data through the tax bite behind the stimulus grants and the power costs.
>
> *Larry Silverman, President, GridPlex Networks*

FERC "is not disinterested" in meter data, spokeswoman Barbara Connors told us yesterday. That federal agency deals with wholesale power and smart meter data would be generated by retail sales, Connors noted. But a commissioner has been collaborating with the National Assn of Regulatory Utility Commissioners and in September FERC released its fourth annual report on DR and AMI (SGT, Sep-14).

"To say we would not have anything to do" with meter data "is incorrect," Connors said.

BOTTOM LINE: FERC is the Obama administration's arm in getting state regulators to let IOUs recoup smart grid investments in rate cases until the smart grid interoperability standards are completed (SGT, Jul-17) -- and we imagine if the US signs onto an international agreement to mandate real-time data, FERC would likely be the federal arm making it happen at the state level, though we appreciate that FERC is not in a position to discuss such a possibility.

It seems to us that near real-time or truly real-time data is key to the vision enlightening the power consumer to their energy use decisions yet we don't think the utility needs to have a network big enough to handle all that data for the idea to work. If ratepayers are asked to pay for a network to handle all that data, we are concerned about the backlash.

First, the average power customer is not going to interact with real-time data very often, we bet -- other than one time for the novelty of it, turning off some appliances to see a change, and maybe by employing a system that watches use-trends for them and then alerts them to points of interest. That sort of interactivity from power users is not exactly a basis for mandating the expense of real-time data. It's hard to justify spending billions on data pipes back to the utility for what most ratepayers will likely see as a novelty, despite its educational value.

The customer should have access to near real-time data, we agree, but it seems to us it should be sent to them within the premises from the meter or from another in-premises device, not via the utility's network. We will be interested to see whether that fits with what the coalition that issued the document in Copenhagen yesterday is trying to achieve.

[Comments]

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home. And that device can [show] near-real-time meter data and even outage information and estimated restoration information."

KUB is not under TOU rates, "but if we were, you could also display real-time what rate that customer would be under," he added.

The firm sees operational savings from AMI as a main attraction of the smart grid, especially on the UT area, Greene said. "Each semester we make so many field trips to perform several thousand final-bill reads," he noted. "It's a very good pilot area."

The previous, year-long AMI pilot KUB ran, starting in late 2007, included over 120 communication devices in the UT-Fort Sanders neighborhood -- to simply prove that the technology worked. "We selected the worst locations we could find in terms of an RF signal penetrating -- behind walls, indoors, underground. KUB wanted to see that two-way, fixed network, RF technology work."

KUB was relieved to find that it could, indeed, communicate with the meters remotely. And it recorded the results of its first AMI pilot in its SGIG application.

"The plan all along was, if that was successful, we'd move to the project we have in front of us now which is to convert to AMI every meter in that area and further test and further explore and learn about the technology," Greene said. Once an AMI partner is under contract, that will take a year, he added.

The municipal utility will spend three-six months evaluating results of the current project after the UT-Fort Sanders area is saturated with AMI technology. "If it's successful, in year two of the DOE grant project, we'd expand the communication infrastructure to the entire KUB service territory."

The network could be radio frequency or cellular, depending on the AMI vendor KUB selects this spring. The RFP KUB has open for an AMI vendor includes all of the HAN hardware and software. "Our intention is the AMI provider will also be the HAN provider but they can bid on bits and pieces," Greene noted. Bids are due Jan 11 and KUB plans to choose a vendor or vendors by mid-March.

The communication network will let KUB convert to AMI its 420 or so larger C&I customers plus give KUB a platform from which it can give inquiring customers access to meter data and to let KUB avoid spending a lot of time and money gaining access to meters behind fences or indoors, said Greene.

KUB doesn't have a plan in place to provide smart meters for the rest of its roughly 200,000 power customers but it may well be able to afford the meters by shifting spending away from the over 5,000 meter access issues it now experiences annually.

DA devices will come in years two and three of KUB's smart grid initiative. They will, for starters, alert KUB to faults along its electric system infrastructure and let the utility stop relying on phone calls from customers to learn of faults.

The third year will bring the installation of HAN and a load-control-management system.

With AMI in place, KUB will be able to respond to any new rate structures that TVA might require or make available for voluntary participation, Greene noted.

The smart grid team at KUB has in the last three years learned the value of long-term planning and something about spending money to essentially make money. "If we had not done that work [in 2006-2007], we really would not be in a position to put together a good project like this," Greene said.

The first AMI pilot cost KUB about $20,000. "Because that went well," he said, "we grew the pilot into something we can learn even more from" -- that garnered $3.6 million from Uncle Sam.

[Comments]

5 stories in 2 minutes

Australian firm hires IBM for smart grid: Australian energy provider Western Power chose IBM as the systems integration and project management partner for its smart grid-AMI pilot, IBM told the press yesterday. IBM is set to map the design and implementation of an intelligent network, using smart meters and a communication backbone that will allow Western Power to deliver more reliable, sustainable and cost effective energy solutions to homes and businesses in part of western Australia. Western Power's smart grid-AMI pilot program could establish a platform for several energy-efficiency and demand-management initiatives. The utility is set to lead a $74 million initiative called Perth Solar City, intended to help people rethink how they make, use and save energy. The deployment of "a digital, open standards-based network of sensors, metering, communications, computer processors and analytics is … key to the success of the Solar City initiative," IBM said.

Siemens evokes smart grid amid HV news: By year-end, German giant Siemens will put into operation a 5,000 mw, 1,400-mile DC transmission system in China, it told the press Tuesday. It will commission an 800 kv DC transformer in China in mid-January, which will be part of a 6,400 mw DC transmission system. "We have to … convert our power supply systems into smart grids so that we can manage the fluctuating amounts of electricity fed into the grid intelligently," said Siemens Power Transmission Division CEO Udo Niehage. High-voltage direct current systems are "an important element of the smart grid," Siemens said.

NEC, Renesas to merge in April: NEC Electronics and Japan-based chipmaker Renesas Technology agreed to complete their merger April 1, the firms told the press Tuesday. Each plans a shareholders' meeting Feb 24, where the merger is expected to be approved. Renesas makes microcontrollers, devices and memory products used in smart grid product, according to its website.

Eaton sells Echelon displays to utilities: Power-management firm Eaton, of Cleveland, will resell networked home energy-use displays from Echelon, of San Jose, Calif, the two firms told the press Tuesday. The collaboration will focus on utilities in Europe, the Middle East and Asia, they said.

BPL Global adds temperature monitors: BPL Global of Pittsburgh integrated temperature monitors into its Serveron online transformer-monitoring products, it told the press yesterday. Coupled with its substation automation systems, the firm can now provide utilities with both substation monitoring and automation, it said.

[Comments]

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Abbreviations: To see a glossary of *Smart Grid Today*'s abbreviations, go to www.smartgridtoday.com/glossary.

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