

A month of smart grid breakthroughs and concerns



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On February 8 IBM announced the debut of its new POWER7 system that will support even the most demanding smart grid applications. With this announcement, IBM set the tone for a month of smart grid breakthroughs. Concerns were raised over the cost of the huge effort and customers in Texas worry that their smart meters are inaccurate.

IBM built POWER7 around the venerable UNIX platform and includes the latest advancements in virtualization technology and other efficiencies. Smart grid deployments require a constant stream of data to allow for the most efficient transmission of electric power in real time at the utility end. Customers must also be provided with information in real time that allows them to monitor their energy consumption and make informed decisions based upon the current price of energy for a smart grid deployment to be successful.

IBM's POWER7 is able to handle, process, analyze, and present this enormous amount of generated data with high-end servers that have as many as 64 cores, or central processing units (CPUs). New TurboCore optimization capability delivers twice the performance per CPU as the previous POWER6 system.

Wireless machine-to-machine (M2M) specialist Digi International announced the debut of its ConnectPort system on February 11. ConnectPort is the first gateway available that can connect, control, or accumulate data from ZigBee Smart Energy devices with or without a **smart meter**.

"Utilities will deploy millions of ZigBee Smart Energy metering devices over the next several years," said Charles Porter, chief strategy officer of ista North America, a leader in energy management. "Our ista/net EMS platform uses Digi's ConnectPort X2 for Smart Energy gateway to engage consumers in real time energy decisions, allowing them to save money and improve the environment."

On February 16 Wateco SAS and Coronis announced that they are developing a gateway that will help automation technology within the home – a critical component for the smart grid of the future. The new gateway will include the European DIN rail standard found in European electric control panel and will allow for widespread adaptation of Internet Protocol (IP)-based gateways, sensors, and actuators.

Bloom Energy has been manufacturing fuel cells-based power generation systems for the commercial sector since July of 2008. Bloom says that its patented solid oxide fuel cell (SOFC) generates cleaner, more stable, and more cost-effective power than any other system currently available.

Customers that install Bloom's energy server can expect to recoup their investment within 3 to 5 years from the reduced energy costs. Bloom Energy counts major industry giants – such as Coca-cola and Bank of America – among its clients and says that 14 million pounds of CO2 have been saved as a result of its product.

ComEd has launched a year-long project that is the largest of its kind in the United States that is designed to study how consumers change their behavior according to pricing signals. Distributed solar energy – available from solar panels installed at 100 homes – will be made available that will turn the homes into "mini utilities" that act as power generators.

"They will be able to buy and sell electricity at a real-time hourly price, which is very close to the wholesale price, from their homes," said Val Jensen, vice president of Environmental and Marketing at ComEd, to the Chicago Sun-Times.

In Texas energy consumers are concerned that their smart meters have caused their bills to rise. As a result of the complaints, the Texas Public Utility Commission has agreed to test the accuracy of the meters that are currently being installed throughout the state.

Customers have complained that their **smart meter** "is running faster" than the old meter, implying charges are racked up more quickly. Some claim that their bills have doubled or tripled since the new meters were installed.

Texas energy provider Oncor hasn't found a meter yet that isn't measuring energy consumption accurately, Schein explained. In 1 case out of 100 the meter installer incorrectly read the old meter. Oncor can usually detect these mistakes without a test.

An Oncor spokesperson explained that consumers typically don't understand how much energy it takes to heat their homes during a particularly cold winter. Space heaters can demand several dollars' worth of power a day. Central heating systems can lose some efficiency when the temperatures are very low. Some retail electric providers that purchase power from Oncor may be charging high rates.