

# Smart-Grid Technology Critical to Electric Utilities' Future

AGING PLANTS, RISING DEMAND, SUPER STORMS AND CYBER THREATS—UTILITIES CONFRONT MULTIPLE CHALLENGES.



➔ It's been 10 years since cascading power outages left some 50 million people across the Northeast, Midwest and Canada in the dark. Since then, significant progress has been made to prevent or limit the scope of such events in the future.

“The average age of power plants is over 30 years old.<sup>1</sup>

” percent of the grid's transmission lines and power transformers are now over 25 years old, and the average age of power plants is over 30 years, according to the U.S. Department of Energy.<sup>1</sup>

## THE TIME FOR GRID MODERNIZATION IS NOW.

Experts say grid modernization will help address many of the problems utilities face. High-speed, low-latency, two-way wireless communication capabilities can provide the real-time data utilities need to pinpoint problems, speed repairs, balance supply and demand and operate more efficiently. Modernization can also help accommodate renewable energy supplies and give consumers tools to better control their energy use.

In fact, according to the Department of Energy, the aftermath of Hurricane Sandy could have been worse if smart-grid technology hadn't already been in place in some affected cities. The Philadelphia Electric Company estimated that it was able to restore power more quickly to about 50,000 customers after the storm because of its new smart-grid systems. In the Washington, DC, metro area, advanced meter infrastructure helped the Potomac Electric Power Company restore power to 130,000 homes in just two days.<sup>1</sup>



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“The number of applications that can be used on the smart grid once the data communications technology is deployed is growing as fast as inventive companies can create and produce them,” reports the federal Office of Electricity Delivery and Energy Reliability.<sup>2</sup> “Benefits

include enhanced cyber security, handling sources of electricity like wind and solar power and even integrating electric vehicles onto the grid.”

Working together, Verizon and Ambient are providing a powerful solution, Ambient Smart Grid® Nodes, which allows real-time meter information and other system data to be monitored remotely, and collected and transmitted over the Verizon Wireless 4G LTE network.

“The Verizon 4G LTE network is designed to securely carry the large volumes of data that are making the energy grid more efficient and manageable with real-time visibility into grid conditions,” says Michael Brander, vice president of sales for the energy and utilities vertical.

Verizon and Ambient also jointly developed the Open Smart Grid Communications Architecture. Launched in 2010, it's designed to accelerate the deployment of secure smart grids, saving utilities the operational investment and maintenance cost of deploying a proprietary communications network.

## CYBER THREATS DEMAND VIGOROUS DEFENSE.

In addition to increasing demands and natural disasters, utilities must prepare for cyber threats.

All sectors of the economy face cyber security risks, but utilities are a target with national security implications, so vigilance is critical.

In 2012, 20% of discovered network intrusions involved manufacturing, transportation and utilities, according to the most recent *Data Breach Investigations Report* (DBIR). The report is compiled annually by Verizon with cooperation from 19 investigating organizations around the world.

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**FAST FACT**  
20% of network intrusions discovered in 2012 involved manufacturing, transportation and utilities.

“When it comes to cyber threats, some organizations will be targeted regardless of what they do, but most become a target because of what they do,” the report's authors write. “If your organization is indeed a target of choice, understand as much as you can about what your opponent is likely to do and how far they are willing to go.”

## THE KEY TO BUILDING A SMARTER GRID

With so much at stake for utilities—and for the country—public and private organizations must work together to defend against potential threats and build a more resilient grid.

With cutting-edge smart-grid technology, the largest 4G LTE network in the U.S. and deep knowledge of cyber security, Verizon is ideally positioned to be a part of a public-private team helping utilities meet the challenges of the future.

<sup>1</sup> *Economic Benefits of Increasing Electric Grid Resilience to Weather Outages*. President's Council of Economic Advisers, U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability, and White House Office of Science and Technology. August 2013.  
<sup>2</sup> Energy.gov, Office of Electricity Delivery and Energy Reliability.

4G LTE is available in more than 500 markets in the U.S. Network details & coverage maps at [vzw.com](http://vzw.com) © 2013 Verizon Wireless.

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