

PPL Electric Utilities' Smart Grid Pilot Project Moves into Action

Technology Will Improve Service to 60,000 Customers in Harrisburg, Pa., Area

ALLENTOWN, Pa., July 10, 2012 /PRNewswire/ -- PPL Electric Utilities' "smart grid" pilot project, which uses 21st-century technology to strengthen the electric delivery system and make it more reliable and responsive, is fully installed and beginning to return benefits for about 60,000 customers in Dauphin and Cumberland counties around Harrisburg. The three-year, \$40 million project was supported with a federal stimulus grant.

The capabilities of the [smart grid](#), which will be further enhanced over time, include:

- **Strengthening reliability** by quickly detecting problems that cause outages and rerouting power around the problem area to restore power.
- **Saving customers energy and money** by improving operating efficiency. Our upgrades will let us operate at slightly lower voltages, reducing power consumption. Many appliances will use less electricity to perform the same jobs.
- **Helping reduce carbon dioxide emissions** by saving energy.
- Providing a foundation for **better integrating future wind and solar power.**
- **Improving our understanding of the system** and the demands placed on it.

"This is the biggest technological improvement to the power delivery grid in decades," said Steve Gelatko, manager of Distribution Asset Management and smart grid project manager for the company. "The smart grid is poised to produce real benefits to customers in the Harrisburg area and ultimately across our 29-county service area."

What it is and how it works

In the event of a local interruption – like a tree falling on a power line – the smart grid sensors can detect the fault and automatically send energy to another circuit serving the area. Customers could be back online within minutes. By comparison, it might take a field crew an hour or more to patrol the line, identify the problem and reroute power to another circuit before fixing the line.

The technology that makes this possible can be compared to a brain, a body and a nervous system that connects the two.

- The "brain" is a new **distribution management system** that is made up of many operating programs. Developed by [GE Energy](#), it constantly monitors and analyzes power flow and can take action in some situations. The system's capabilities can also be used on areas of PPL Electric Utilities' delivery network that do not yet have smart grid devices installed.
- The "body" is **more than 500 remote switches, relays, sensors and other devices** that gather information from local circuits, and can respond or act based on remote commands from the utility control center.
- The "nervous system" is **high-speed communications equipment**. Wireless towers and fiber optic links enable communication between system operators and our substations and devices in the field.

PPL Electric Utilities has finished installing all the equipment to support the smart grid, and there are already examples of the system shortening outages for local customers.

Gelatko noted some capabilities of the distribution management system, such as improved voltage regulation, are still under development and will be added at a later time.

Partners and financial support

The [U.S. Department of Energy](#) has awarded \$19 million in matching funds for the company's deployment of smart grid technology in the Harrisburg area. This funding was announced in 2009 as part of more than \$3.4 billion in DOE utility grants to support efforts to upgrade the nation's power grid. Only one in four companies

competing for grants was successful. A brief case study on PPL Electric Utilities' project is posted on the [DOE website](#).

The Harrisburg smart grid project also depended on the contributions of leading technology partners:

- [GE Energy](#) provided the distribution management system that automatically controls devices in the field.
- [Alcatel-Lucent](#) established the high-speed communications network that connects automated devices with GE Energy's distribution management system.
- [Lockheed Martin](#) focused on systemwide cyber security to protect the newer, smarter hardware and software.
- [Drexel University's](#) research and analytical expertise helped PPL Electric Utilities optimize the placement of smart grid devices throughout the system.

Next steps in system improvement

The Harrisburg-area project is just the first step in [PPL Electric Utilities'](#) ongoing work to strengthen and modernize its delivery system.

By the end of this decade, the utility plans to install distribution automation technology to improve system performance and better serve customers in roughly half its service area, through a prudent pace of one regional project per year. The next phase of distribution automation will be installed in Monroe County in Pennsylvania's Poconos region next year, which will benefit about 70,000 area customers. Engineering work in support of that project began late last year.

The utility plans to invest \$664 million this year and \$3.4 billion over five years to upgrade its transmission and distribution systems. In addition to installing new technology, the company is also replacing aging equipment, rebuilding existing lines and adding new ones, and taking other steps to maintain and improve reliability.

[PPL Electric Utilities](#), a subsidiary of PPL Corporation (NYSE: PPL), provides electric delivery services to about 1.4 million customers in Pennsylvania and has consistently ranked among the best companies for customer service in the United States. More information is available at www.pplelectric.com.

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