

PPL Electric Utilities' Smart Grid Improving Reliability in Harrisburg Area

System automation results in 38 percent boost in service reliability

PPL Electric Utilities

Less than a year after PPL Electric Utilities completed its smart grid pilot project, customers in Dauphin and Cumberland counties are already experiencing a 38 percent improvement in service reliability, meaning fewer power interruptions and shorter outage duration.

The three-year, \$38 million project, supported by a federal stimulus grant, involved installation of hundreds of automated devices along 50 local distribution circuits serving about 60,000 customers. It also included upgrades to 10 area electric substations across 150 square miles and development of a dedicated, secure communications system. The reliability improvement was noted on the performance of the newly automated circuits compared with non-automated circuits in the region over the past two years.

"We're encouraged by the early success of the PPL smart grid in the Harrisburg area," said David Bonenberger, vice president, Distribution Operations. "We're implementing a stronger, more modern distribution system to better serve our customers for years to come."

With this technology, smart devices alert system operators in real time when an outage occurs and allow them to remotely reroute power flow to quickly restore as many customers as possible.

In the event of a local interruption — such as a tree falling on a power line — within the next few years the smart grid sensors will detect the fault and automatically send energy to another circuit serving the area. It will happen in a matter of moments so the majority of customers only experience a momentary interruption.

Customers can often be back on line 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.

Check out a video on PPL Electric Utilities' smart grid initiative at <http://www.youtube.com/watch?v=yxRVYhPthj4> and more information about the company's system improvements at <https://www.pplelectric.com/smartgrid>.

The Harrisburg project began with an application for a federal stimulus grant in 2009 and a contract with the Department of Energy in the spring of 2010. It was considered a pilot to collaborate with industry partners and demonstrate the benefits of advanced technology. As a result of the Harrisburg area reliability improvements, plans were developed to expand deployment of distribution automation in other areas of the PPL Electric Utilities service territory over the next five years, beginning with a \$10 million investment this year in the Poconos region, Bonenberger said.

The broader project also includes a new distribution management system, provided by Alstom Inc., which will serve as the "brain" of the modernized delivery system that will help the company more effectively manage outages. With updated electronic mapping, the DMS will provide system operators with much greater awareness of how the system is operating in real time and enable the delivery system to recognize and instantly respond to problems. Installation will be completed in 2014.

The new centralized distribution management system also will help system planners with more detailed information about electric usage and load on different utility equipment, so they can better plan reliability improvements and prioritize future investments.

"Our five-year business plan includes targeting circuit upgrades in areas that will realize significant reliability improvements," Bonenberger said. "By targeting these areas, we're planning our reliability investments to have the largest, most lasting effects possible to benefit our customers."

Under the five-year plan, the utility has committed \$100 million for smart grid deployment. All of the company's customers will be served by automated circuits by the end of 2018. This year's Pocono smart grid project will

improve the reliability of electric service to 70,000 customers in Monroe County.

PPL Electric Utilities is investing nearly \$1 billion this year — \$3.8 billion over five years — to strengthen its delivery system, address aging infrastructure, enhance its operations and improve reliability for customers.

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

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