Silver Spring® NETWORKS

EXECUTIVE SUMMARY

Smart Grid Makes Restoration Faster, Easier for Utilities

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Energy powers the lives of people worldwide, and when the switch goes off, customers want it back – fast.

Residents and businesses rely on utilities to respond to power outages quickly and restore power as fast as possible. Given the wind and flooding of Hurricane Sandy, power outages were unavoidable. Despite the scope of damage, utilities, government officials and environmental organizations were universal in noting the benefits of the smart grid in accelerating power restoration.

> "They [smart meters] certainly **improve recovery time without a doubt**. They help to improve the efficiency of the restoration."
>
> **MARCUS BEAL**
> **SENIOR PROJECT MANAGER OF SMART METERS**
>
> pepco
> A PHI Company

Even for utilities with only partially complete smart grid implementations, AMI and distribution automation (DA):

- Delivered insight into affected areas with two-way communications;
- Located and automated rerouting of power around trouble spots on the network; and
- Improved and simplified outage management.

In Washington, D.C., Pepco, with 425,000 activated smart meters, was able to restore power to all its impacted customers within 48 hours of the storm hitting, using AMI to quickly and easily verify restoration. U.S. Secretary of Energy Steven Chu praised Pepco's speed in restoring service.

With just 10 percent of a planned 1.3 million smart meters installed, Baltimore Gas and Electric (BGE), had restored power to 90 percent of affected customers within 48 hours. According to CEO Kenneth DeFontes, BGE's ability to restore power in areas already using AMI was much faster than in areas without smart meters. With smart meter technology, BGE could target crews to work on remaining outages and not waste time in areas where the power had already been restored.

Capturing and Communicating Essential Outage Data

During a time of crisis, the ability to restore service faster and more efficiently is invaluable. With two-way communications, smart grid devices gave utilities a much more granular and real-time view into power grid events during Sandy, helping to focus valuable resources on the hardest hit areas. Smart meters gave utilities a comprehensive view, letting them know when and where power had been restored. Two-way communications to other grid devices enabled them to route around power failures, automatically restoring service to as many customers as possible.

> "**Without smart meters, they'd have to phone customers to ask if the power is back on**. In storm conditions, … two-thirds of those calls go unanswered, which means they have to dispatch crews block by block across the region."
>
> **MIRIAM HORN**
> **DIRECTOR OF THE SMART GRID INITIATIVE**
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> EDF ENVIRONMENTAL DEFENSE FUND
> Finding the ways that work

By directly communicating with meters, BGE could quickly determine whether power was on or off, automating a typically labor-intensive and time-consuming process.

Smart meters provide both outage alerts and, even more valuable, power restoration alerts, enabling utilities to focus crew efforts on remaining outages, including identifying "nested" outages.

Pepco, for example, was able to cancel more than 600 outage orders during Sandy through alerts sent from restored smart meters. With immediate restoration information available to them, Pepco could quickly cross-reference outage orders and cancel those no longer needed. BGE noted the value of being able to communicate with a smart meter in lieu of trying to reach customers on the phone or in person during a storm like Sandy. Eliminating those phone calls and house visits while still confirming power was back up enabled BGE to free up valuable resources and manpower to assist customers in areas still suffering outages.

> **"We are seeing a glimpse of what is ahead for the future of power grids.** This storm has provided an opportunity to see how the smart meters BGE is currently installing will function in storm restoration efforts."
>
> **JEANNETTE MILLS**
> **VICE PRESIDENT OF CUSTOMER OPERATIONS, BGE, BGE CORPORATE BLOG**

Distribution automation (DA) allows utilities to be more efficient and reliable in the wake of a weather disaster. In the past, crews would need to go out physically to the site and handle everything manually – a process that could take hours. Smart grid DA technologies identify and pinpoint outages for utilities, allowing them to more easily isolate and work around problem areas. If a tree goes down and causes a line to fall, DA can redistribute power around the affected pocket – avoiding faults – to ensure that customers in the nearby area don't lose power.

With fast and accurate information from smart grid devices, utilities can serve their customers better by shortening power outage durations and letting communities rebound and recuperate faster.

The Need for Continued Smart Grid Investment

In the immediate aftermath of Sandy, many industry experts and government officials, including Governor Martin O'Malley of Maryland, said that the grid is simply not as strong as it needs to be for the more frequent violent weather patterns emerging today. As part of a resilient and standards-based smart grid network, automated solutions such as AMI and DA help fill this need by enabling utilities to operate more effectively and restore reliable service to their customers in the fastest way possible. Miriam Horn, director at the Environmental Defense Fund, stated that smart grid investments proved their value during Sandy in reducing recovery times, keeping crews and customers safer and saving money.

Approximately 60,000 workers responded to about nine million customers who lost power in Hurricane Sandy. Automating manual processes through continued modernization of the smart grid offers tremendous opportunity in easing restoration for future superstorms.

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