

# Planning for Grid Resilience

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Prepositioning Equipment for Greater Reliability

Michael Deggendorf | Feb 22, 2017

Ensuring that the electric grid is secure is nothing new. As an industry, we continue to look at ways to improve resiliency and recovery, but are we ready to respond and recover from a full-scale, multi-site, major event?

New threats have emerged and risks to the grid have increased in recent years. Among these are cyberattacks, natural disasters, and physical assault. While the industry has a history of collaboration and improvement, the window of opportunity is closing for the industry to take the lead in developing comprehensive solutions for grid resiliency. We are seeing resiliency concerns resulting in proposed legislation, government action and potential mandates.

Several utility-owning companies have developed a solution. Our answer to grid recovery is Grid Assurance.

This solution combines storage of new, dedicated and ready to be delivered critical replacement equipment with the cost efficiencies of pooling inventory costs. It offers an innovative, sure and cost-effective way to enhance utilities' ability to recover from a catastrophic event.

A key part of grid resiliency is ensuring that transmission owners can quickly replace critical transmission equipment that has failed. Procuring large power transformers requires an extended lead time. The time between order and delivery can take up to two years.

By subscribing to Grid Assurance, transmission owners increase their access to critical long-lead-time equipment while reducing costs through inventory pooling. This shared inventory approach provides savings in purchasing, warehousing, protecting and maintaining replacement equipment as well as logistics planning. Subscribers benefit from a team that is focused and dedicated to ensure immediate and full replacement of major equipment following large scale events.

Grid Assurance is an asset-based means of mitigating the risk when replacement equipment is not immediately available in the aftermath of a catastrophic event. In essence, it provides insurance on prompt access to critical spare equipment for grid recovery. It gives transmission-owning utilities a cost-effective way to promptly get replacement equipment that will supplement any surviving spare equipment they already own.

Grid Assurance works with utilities to identify the major equipment that will be needed to restore their system when a catastrophic event happens. We house and maintain that equipment in secure, strategically located warehouses allowing for quick deployment. We work with each member to develop a logistics plan to deliver equipment following a devastating event.

It is not possible to protect or harden the grid across the hundreds of thousands of miles of transmission lines and tens of thousands of substations. And while utilities maintain some operational spares to replace large power equipment that fails due to normal wear and tear, it is economically prohibitive for every utility to stockpile a sufficient number of these expensive pieces of equipment to prepare for their own worst case scenario. Substantial economic benefits are achieved by pooling the needs across multiple, geographically-diverse utilities.

Our services are intended to complement existing sparing programs at individual energy companies and established industry solutions.

The electric industry has a history of collaboration, a history of working together, partnering in safely delivering electricity to homes every day. It's not easy work, but hundreds of thousands of men and women get up every day proud to be part of this industry. And when something goes wrong, we band together to see that you are not without electricity for long. We leverage the depth and breadth of industry knowledge and expertise to ensure the best solution.

In 2006, the power sector took a critical first step to address replacement of transformers damaged by terrorist acts. The Edison Electric Institute and a number of utilities formed the Spare Transformer Equipment Program. STEP provides participating utilities the right to buy large transformers from other participating utilities, but only after a Presidentially-declared terrorist emergency.

This was a good first effort. However, the risk with mutual aid is that it provides no increased capacity for the industry. In the event of a catastrophic event, we have what we have. In addition, this mutual aid is vulnerable to competing needs and could break down if those who could help either have been hit by a similar event or fear that they will be hit next.

The U.S. Department of Energy noted in its 2015 Quadrennial Energy Review that STEP alone is not sufficient to address large-scale grid vulnerabilities. The STEP inventory is not large enough to respond to a large, coordinated attack.

Grid Assurance is another tool in a larger tool box. It is designed to complement your current plans to respond and recover from larger catastrophic events. It also provides for the sure and quick delivery of needed equipment without a presidential declaration, or willingness of neighbors to part with their assets to help you when they are in distress.

The Federal Energy Regulatory Commission has already addressed many regulatory questions with regard to Grid Assurance. FERC issued two positive orders in August 2015 and March 2016 to Grid Assurance that provide regulatory clarity supporting transmission-owning entities participating in and subscribing to Grid Assurance as a way to strengthen transmission grid resiliency.

Grid Assurance is not FERC regulated, but charges cost-based subscription fees, like FERC-regulated transmission formula rates. These cost-based subscription fees will facilitate members' ability to recover their expenses.

Grid Assurance continues to work with FERC, as well as the Department of Energy, Department of Homeland Security, EEI, North America Electric Reliability Corp. and other entities to improve resiliency for high impact events.

It has been recognized by DOE and other agencies as an industry led solution to address grid recovery.

Grid Assurance is an industry-driven, innovative, cost-effective response to concerns about attacks on our nation's power delivery system. Our pooled inventory model will provide members with access to critical equipment needed to recover from catastrophic events that damage the transmission system.

It will also reduce the cost of enhancing resiliency for utility customers. When you become a member of Grid Assurance, you increase your ability to quickly restore power delivery helping to protect consumers and communities from the devastating impacts that delays in restoring electricity can have on quality of life and the nation's economy.

This no-regrets approach deserves careful consideration by transmission owners and regulators, given the growing risks to the grid.

*Michael Deggendorf is chief executive officer of Grid Assurance which is owned by Kansas City Power & Light parent Great Plains Energy, American Electric Power, Duke Energy, Eversource Energy, Edison Transmission and BHE U.S. Transmission.*