

Media Release

Loss of Reactive Power, Voltage Instability Most Likely Outcome from GMD, NERC Report Finds

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ATLANTA – Loss of reactive power is the most likely outcome from a severe solar storm centered over North America, a report released by the North American Electric Reliability Corporation (NERC) finds. Significant losses of reactive power could lead to voltage instability and, if not identified and managed appropriately, power system voltage collapse could occur.

The report – *2012 Special Reliability Assessment: Effects of Geomagnetic Disturbances on the Bulk Power System* – takes a comprehensive look at multiple, complex issues to evaluate geomagnetic disturbance (GMD) effects. The report outlines the most likely outcomes, while offering short- and long-term recommendations for industry.

“The effect of GMD on the reliability of the bulk power system remains an important consideration,” said Gerry Cauley, NERC’s president and chief executive officer. “NERC’s report identifies grid vulnerabilities from GMDs and highlights solutions to mitigate risk to bulk power system reliability.”

While loss of reactive power was found to be the most likely outcome from a severe solar storm, the Geomagnetic Disturbance Task Force also assessed the vulnerability of high-voltage transformers. While some transformer types were found to be at risk from geomagnetically induced currents, they tend to have certain design characteristics that increased their vulnerability, or were transformers nearing their end-of-life.

The task force identified short-term recommendations that NERC and industry can implement quickly, including the review of both system operating and training requirements with a focus on GMDs; an update to NERC’s GMD alert to include information from this new assessment; and a public webinar to outline the assessment and highlight next steps. The task force, which had high-level



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participation from experts across multiple fields in both private industry and federal government, also made long-term recommendations, which include:

- Developing additional open source tools and models to develop GMD mitigation strategies.
- Improving tools for system operators to manage GMD impacts.
- Educating and sharing information between researchers and industry.
- Reviewing the need for enhanced NERC Reliability Standards.

“NERC has mapped out short-term and mid- to long-term actions to address GMD affects” said Mark Lauby, vice president and director of Reliability Assessment and Performance Analysis at NERC. “NERC will address GMD effects through a multi-year collaboration with industry and governmental agencies.”

This carefully planned effort was one of the key steps identified in the *High-Impact, Low-Frequency Event Risk to the North American Bulk Power System* (HILF) report completed by NERC and the Department of Energy in June 2010. That report focused on a class of rare risks to the bulk power system, including GMD, that were identified as part of NERC and the Electricity Subsector Coordinating Council roadmap for addressing these types of events. The GMD report is the second of four ongoing efforts from the roadmap that include the spare equipment database report, which has already been released; and two upcoming reports from task forces focused on cyber attack and severe impact resilience.

Click [here](#) to download *2012 Special Reliability Assessment: Effects of Geomagnetic Disturbances on the Bulk Power System*. For a copy of the *2010 High-Impact, Low-Frequency Event Risk to the North American Bulk Power System*, click [here](#).

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The North American Electric Reliability Corporation’s mission is to ensure the reliability of the North American bulk power system. NERC is the electric reliability organization (ERO) certified by the Federal Energy Regulatory Commission in the United States to establish and enforce reliability standards for the bulk-power system. NERC has equivalent relationships with provincial and federal authorities in Canada. NERC develops and enforces reliability standards; assesses adequacy annually via a 10-year forecast, and summer and winter forecasts; monitors the bulk power system; and educates, trains and certifies industry personnel. Learn more at www.nerc.com