

Press Release

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Report Marks Initial Steps on Reliable Integration of Large-Scale Wind, Solar Into Electric Grid

PRINCETON, N.J., April 16, 2009 — Reliably integrating larger amounts of wind, solar, and other variable generation into the bulk power system will require changes to the way the system is planned and operated, stated the North American Electric Reliability Corporation (NERC) in the special report “Accommodating High Levels of Variable Generation,” released today. The report highlights transmission additions and reinforcements, better forecasting of variable generation output, and access to flexible grid resources (including customer participation in targeted demand management, plug-in hybrid electric vehicles, and large-scale electricity storage) as key contributors to reliably integrating variable resources into the system.

The report comes as a significant amount of wind generation is proposed to be added to the North American bulk power system in the coming decade. This pioneering effort identifies and prioritizes a number of areas of work that will be needed to maintain bulk power system reliability as these and other variable resources are added to the grid.

“This report is just the beginning of our efforts in this area,” commented Warren Frost, Alberta Electric System Operator Vice President Operations and Reliability and Chair of NERC’s Integration of Variable Generation Task Force (IVGTF)¹. “Throughout the report, we’ve identified key homework assignments for NERC and the electric industry that we expect to be completed in the coming years.”

A number of these assignments take the shape of additional study on technical issues, including power flow and stability modeling, consistent and accurate calculation and forecasting of variable resource availability, and advancing proposed upgrades to the transmission grid across North America. Other work includes evaluating existing NERC reliability standards in light of new system requirements and developing new tools needed to improve system operator awareness of and communication with variable resources.

“The efforts of the NERC task force on this issue have resulted in a set of excellent recommendations that are clearly a priority for NERC and our stakeholders,” commented Rick Sergel, president & CEO of NERC. “I offer my congratulations to the members of the task force for their leadership and dedicated work on this unprecedented report.”

Some of the report’s specific recommendations include:

Planning practices and methods require change — The integration of high levels of variable generation will require system planners to change planning practices, procedures, methods, and tools to ensure reliability in the coming years. Incorporating resources located at the distribution-level (such as roof-top solar panels and “smart grid” technologies) into bulk power system planning studies is a key area in need of improvement, along with integrated analysis of transmission and resources in probabilistic planning studies.

Grid operators require new tools and practices — Ensuring the efficient, effective, and reliable use of variable resources will require a number of changes in system operations centers, including incorporating consistent and accurate forecasting of daily and seasonal variable generation output and advanced control techniques into daily and real-time practices. A comprehensive regional analysis of the operational impacts of proposed system changes (i.e., larger balancing areas or participation in wider-area balancing management) is also recommended.

Industry encouraged to pursue research and development and establish appropriate market signals — A renewed focus on research and development for new system models, continued improvement of variable generation technologies, and advanced planning techniques is needed. The report also recommends that organized markets consider instituting mechanisms designed to ensure the availability of adequate flexible balancing resources. Appropriate requirements for generation ramping requirements, minimum generation levels, and shorter operations scheduling intervals should also be considered.

Policy makers encouraged to remove barriers to transmission development and consider reliability — The report encourages policy makers to accelerate transmission siting, approve permits for needed facilities, and otherwise remove barriers to needed transmission development. It also encourages policy makers to consider the opportunities and issues associated with proposed system changes, the importance of coordinated planning, and the impacts of variable generation on wide-area system reliability.

Today’s special report is available on NERC’s website at:

Executive Summary: http://www.nerc.com/fileUploads/File/Assessments/IVGTF-Exec.Summ_041609.pdf

Full Report: http://www.nerc.com/files/IVGTF_Report_041609.pdf

NERC will be hosting an industry briefing on the subject at 11:00 AM EDT today. Register online to attend at: <https://www.nerc.net/nercsurvey/Survey.aspx?s=593d1de466e741faa6a36733b8b0b5df>

The North American Electric Reliability Corporation (NERC) is an international regulatory authority for electric reliability of the bulk power system in North America. NERC develops and enforces reliability standards; assesses adequacy annually via a 10-year forecast and winter and summer forecasts; monitors the bulk power system; and educates, trains, and certifies industry personnel. NERC is a self-regulatory organization, subject to oversight by the U.S. Federal Energy Regulatory Commission and governmental authorities in Canada. Learn more at www.nerc.com.

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ⁱ **NOTE TO EDITORS:** NERC’s Integration of Variable Generation Task Force was formed by NERC’s Planning and Operating Committees in 2008. The group was commissioned to study the reliability impacts of large-scale integration of variable generation into the bulk power system in North America. The group’s members include a broad cross-section of industry participants, from wind and solar developers to grid operators to utilities.