



Eastern Interconnection Planning Collaborative



NEWS RELEASE

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Contact: John Buechler
EIPC Executive Director
Jpbuechler@eipconline.com
(631) 499-1555

Eastern Interconnection Planning Collaborative Completes Report on the Frequency Response of the Eastern Interconnection

The interconnected power systems serving two-thirds of the US and Canada are projected to maintain system frequency for at least the next five years, despite a changing resource mix that could affect this capability, according to a [report](#) issued today by the Eastern Interconnection Planning Collaborative (EIPC).

The EIPC, a coalition of 20 major transmission Planning Coordinators responsible for the planning of the bulk power grid throughout the Eastern Interconnection, conducted a detailed power system frequency response analysis for the North American Electric Reliability Corporation (NERC). In response to a request from the NERC Essential Reliability Services Working Group, EIPC formed its Frequency Response Task Force (FRTF) in July 2017 to take a leadership role in providing forward-looking frequency response measures.

“The EIPC has completed its initial review of the future frequency response of the Eastern Interconnection. As the generation resource mix continues to evolve over time to incorporate new and emerging technologies and address energy and environmental policies, it is essential to understand how the Eastern Interconnection will be poised to maintain system frequency under a wide range of operating conditions,” said Stephen Rourke, vice president of system planning for ISO New England and chair of the EIPC Executive Committee. “EIPC’s Frequency Response Task Force will update its analysis in the years ahead, in support of this NERC request. EIPC has also provided additional analysis on broader power system modeling issues for the Eastern Interconnection. We are pleased that the EIPC organization is able to conduct power system analyses that provide critical information to maintain the reliability of the bulk electric power system.”

Frequency is one measure of the state of the power system. Electricity generation and electricity consumption must remain in almost perfect balance to maintain system stability.

If a generator trips offline, electricity generation will be lower than electricity consumption, or load, and system frequency will drop. If the frequency drops too far and too quickly, load may be shed automatically or by grid operators to mitigate the imbalance between load and generation. Synchronous generators on the power system respond automatically (inertial response) by slowing down slightly and releasing more energy into the grid, helping to arrest frequency decline. The asynchronous characteristics of wind and solar power generators can make them less responsive to frequency variations unless they have been designed and equipped to provide some form of frequency control.

With the planned retirements of synchronous resources (such as oil, coal and nuclear) that automatically respond to arrest frequency variations, combined with the addition of non-synchronous generation (such as wind, solar and other renewables), there are concerns about the continuing ability of large interconnections to maintain frequency. The EIPC has been tasked with identifying and understanding how future generation contingencies could lead to Under Frequency Load Shedding (UFLS) events on the Eastern Interconnection due to the reduction of frequency support from the changing generation resource mix.

“Our analysis demonstrated the Eastern Interconnection’s resource mix over the next five years will retain sufficient system inertia to maintain adequate frequency response,” said Steven Judd, lead engineer in system planning for ISO New England and chair of the EIPC Frequency Response Task Force. “This first effort to track the interconnection’s inertial response has established a framework and baseline for system planners to improve the system network models going forward, provide sufficient notice when the changing resource mix could have an adverse effect on frequency response, and develop solutions to those adverse effects.”

The Frequency Response Task Force [report](#) is available on the EIPC website.

About the EIPC

Formed under an agreement by 20 planning authorities from the Eastern United States and Canada, the EIPC has developed a “bottom-up” approach to transmission planning, starting with a roll-up of the existing grid expansion plans of electric system planning authorities in the Eastern Interconnection. The EIPC membership includes Associated Electric Cooperative, Inc.; Cube Hydro Carolinas, LLC; Duke Energy Carolinas, Duke Energy Florida, and Duke Energy Progress; Louisville Gas & Electric Company and Kentucky Utilities Company; Florida Power & Light Company as agent for Gulf Power; Georgia Transmission Corporation (An Electric Membership Corporation); ISO New England, Inc.; JEA; Midcontinent Independent Transmission System Operator, Inc.; Municipal Electric Authority of Georgia; New York Independent System Operator, Inc.; PJM Interconnection; PowerSouth Energy Cooperative; South Carolina Electric & Gas Company; South Carolina Public Service Authority (Santee Cooper); Southern Company Services Inc., as agent for Alabama Power Company, Georgia Power Company, Gulf Power Company, and Mississippi Power Company; Southwest Power Pool, Inc.; and the Tennessee Valley Authority.

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