

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Reliability Technical Conference

Docket No. AD19-13-000

NOTICE INVITING POST-TECHNICAL CONFERENCE COMMENTS

(July 23, 2019)

On Thursday, June 27, 2019, the Federal Energy Regulatory Commission convened a Commissioner-led technical conference to discuss policy issues related to the reliability of the Bulk-Power System.

All interested persons are invited to file post-technical conference comments on the topics concerning the reliability of the Bulk-Power System discussed during the technical conference, including the questions listed in the Final Notice issued on July 3, 2019. Attached to this notice are the electric reliability topics and questions related to each Panel. Commenters need not respond to all questions asked. Commenters should organize responses consistent with the numbering of the attached questions and identify to what extent their responses are generally applicable. Commission staff reserves the right to post additional follow-up questions related to those panels if deemed necessary. In addition, commenters are encouraged, when possible, to provide specific examples and data in support of their answers. Comments must be submitted on or before 30 days from the date of this notice and should not exceed 30 pages.

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Nathaniel J. Davis, Sr.,  
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# 2019 Reliability Technical Conference

**Docket No. AD19-13-000**

**Thursday, June 27, 2019**

## **Panel I: Status of the Electric Reliability Organization and Reliability**

**Presentations:** As the Electric Reliability Organization (ERO), the North American Electric Reliability Corporation (NERC) and its Regional Entities are responsible for maintaining the reliability of the Bulk Electric System (BES). Panelists will be asked to address the following:

- a. What trends and risks from the State of Reliability Report does NERC consider to be the most significant challenges facing BES reliability? How should NERC prioritize these challenges to ensure reliability of the BES is maintained? How have these challenges affected NERC's and Regional Entities' resource requirements and allocations?
- b. How should NERC address the risk of high-impact, low-frequency events such as gas pipeline contingencies and electromagnetic pulses? What additional steps, if any, should NERC be taking to address these types of threats?
- c. Over the past year, two Regional Entities have been disbanded and their responsibilities have been turned over to other Regional Entities. What, if any, additional changes, should NERC consider with respect to the Regional Entity structure?
- d. How is NERC using its observations of BES performance, event analysis information, compliance monitoring program, and other data collection and analysis activities to assess and take action on the need to update NERC Reliability Standards to reflect the evolving BES?
- e. What new steps is the Electricity Information Sharing and Analysis Center (E-ISAC) taking to further assist the industry to prepare for and respond to cyber and physical threats, vulnerabilities, and incidents? Are there additional actions the Commission could take to further encourage participation in E-ISAC's information sharing activities?
- f. In what ways can the Commission, NERC, and the Regional Entities work

together to identify and address evolving threats to maintain and improve reliability and security of the BES? When should the Commission and/or NERC conclude that a new or modified standard is necessary to address an identified threat?

## **Panel II: The Impact of Cloud Based Services and Virtualization on BES Operations, Planning and Security**

**Presentations:** This panel will explore the growing use of cloud services and virtualization as utilities strive for higher performance, system availability, and cost savings. Utilities and regulators must work collaboratively to ensure that regulatory paradigms, including the NERC Critical Infrastructure Protection (CIP) Reliability Standards, encourage the secure and reliable adoption of these technologies. Utilities will need to overcome barriers, including the integration with legacy systems, as utilities have historically acquired their own physical assets, stored all related data in-house, and used their own staff to perform associated business processes. Panelists will be asked to address the following:

- a. Cloud services providers offers many services to utilities from providing software as a service (SaaS) to infrastructure as a service (IaaS). How can cloud services be used effectively and securely for utility planning and operations? In what areas and what type(s) of applications? What, if any, use cases should not be considered for cloud services and why?
- b. What are the security and operational concerns associated with the increased use of virtualization in utility environments that must comply with the NERC CIP Reliability Standards? How can the NERC CIP Reliability Standards adapt to the increased use of virtualization?
- c. Cloud based computing may be used for storage of information as well as performing non-real-time calculations, such as day-ahead planning studies. What real-time operations can leverage the flexibility of cloud based computing? What would that service look like from a usage and security perspective?
- d. Discuss the potential security and operational benefits of cloud services and virtualized environments. For example, could the increased use of cloud and virtualized environments benefit operational planning and/or recovery and restoration processes?
- e. How should the NERC CIP Reliability Standards be modified to help assist entities in addressing compliance concerns related to cloud services, while still encouraging the adoption of cloud services for appropriate planning and operations applications?
- f. Cloud-based resources can be used to process large amounts of information and perform complex computations. Please explain how the cloud can be used to

support security such as analyzing security logs from firewalls, intrusion detection systems, hosts, servers, and other systems since this type of data requires massive storage and processing. Discuss how virtualized security appliances, both on-site and in the cloud, may enhance the reliability of the grid.

### **Panel III: Reliability Issues Associated with Reliability Coordinator Seams**

**Presentations:** This panel will explore the existing and emerging seams issues between Reliability Coordinators (RCs) and how RCs are coordinating to maintain reliability of the BES. Developments in the Western Interconnection, such as the expansion of the Energy Imbalance Market and the dissolution of Peak Reliability, present the potential for new seams issues between Reliability Coordinator Areas. In particular, neighboring RCs with different market and operating structures may present challenges for coordinating operations.

- a. Discuss any existing or emerging reliability issues related to Reliability Coordinator seams and associated Joint Operating Agreements (JOA) between Reliability Coordinator Areas in the Eastern Interconnection.
- b. How are RCs in the Eastern Interconnection coordinating operations in areas such as information sharing, outage coordination, communication, reserve sharing, congestion management, etc.?
- c. How are RCs in the Eastern Interconnection coordinating planning activities to proactively address potential reliability issues?
- d. In addition to NERC Reliability Standards, are additional procedures or agreements needed, such as JOAs, to better coordinate between neighboring RCs during operations? Is there potential for improvements to existing JOAs?
- e. In the West, what are the potential risks for day to day system operations created by RC seams? How are RCs in the West coordinating in areas such as outage scheduling, operation planning, information sharing, wide area monitoring, congestion management, and reserve sharing?
- f. With the establishment of new RCs in the Western Interconnection and the expanding Energy Imbalance Market, what are the key reliability risks that RCs should be focused on and actively managing?
- g. What are the reliability challenges with the RC seams in both the East and West? What advice would RCs in the Eastern Interconnection give to those in the Western Interconnection that are preparing to go-live in December?

### **Panel IV: Managing Changes in Communications Technologies on the New Grid**

**Presentations:** This panel will explore challenges and opportunities as a result of the

changes in communications and potential impacts on the BES. Utilities' communication requirements are increasing as a result of technology advances at both the bulk and distribution levels. Utilities' wireless communication systems demand reliable and secure coverage in order to reach all areas of the utilities' service territory. 5G communication is poised to allow utilities' to increase wireless coverage, and allow for greater communication amongst connected devices and equipment. With the increased use of wireless technology in all aspects of our society, pressure is being put on the Federal Communications Commission (FCC) to reallocate bands of the electromagnetic spectrum for new uses. Panelists will be asked to address the following:

- a. What are the current and emerging communication requirements for utilities in real-time operations? Will bandwidth requirements continue to grow? How are current requirements being met with both utility-owned and vendor-owned systems?
- b. 5G communication systems are poised to become the next major development in how information and data is exchanged. How do you expect utilities to adopt and deploy 5G communications infrastructure? Does 5G enable new applications? What are the advantages of using 5G communications? Are there dangers raised by the use of 5G, for example, to cyber-security? Can 5G systems and services be leveraged to increase reliability and resilience of the BES? What challenges could be faced with reliance on the 5G system? What challenges will industry face when adapting to 5G communication?
- c. Increasing use of wireless technology is placing new demands the electromagnetic spectrum. For example, the FCC has proposed allowing unlicensed non-electric utility applications in the 6 GHz band. How can reliability impacts be identified, quantified and appropriately considered? Is there a need for dedicated spectrum to support utility operations and restoration activities?
- d. Every utility, including electric, water and natural gas companies rely on communication networks to control equipment and share information. How have the water and natural gas utility companies addressed potential lapses in the ability of equipment and/or individuals to communicate? What types of backup communications systems do you currently have in place? Do you routinely conduct emergency preparedness tests and drills?
- e. Do you have any new initiatives underway to ensure that there are adequate backup communications systems between the different critical infrastructure owners/ operators (electric, water, and natural gas) and to ensure continuity of operations between the different critical infrastructures, emergency services personnel, and the customers? How do you ensure continuity of operations and timely restoration of service in the absence of communications systems? What measures have you put in place to ensure that the communications infrastructure is operable in a blackout restoration situation?

- f. Advanced communications networks, including 5G, will be deployed using equipment and parts manufactured by U.S. and foreign suppliers. How can risks stemming from global supply chains to communications systems, both for utilities and also other critical sectors, be identified and mitigated?