

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Climate Change, Extreme Weather, and Electric System  
Reliability

Docket No. AD21-13-000

NOTICE INVITING POST-TECHNICAL CONFERENCE COMMENTS

(August 11, 2021)

On June 1, 2021 and June 2, 2021, the Federal Energy Regulatory Commission (Commission) staff convened a technical conference to discuss issues surrounding the threat to electric system reliability posed by climate change and extreme weather events.

All interested persons are invited to file post-technical conference comments to address the questions raised below and, if they wish, any other issues raised during the technical conference or identified in the Supplemental Notices of Technical Conference issued March 15 and May 21, 2021. Commenters need not answer all of the questions, but commenters are encouraged to organize responses using the numbering and order in the below questions. Commenters are also invited to reference material previously filed in this docket but are encouraged to avoid repetition or replication of their previous comments. Comments must be submitted on or before 45 days from the date of this Notice.

Comments may be filed electronically via the Internet.<sup>1</sup> Instructions are available on the Commission's website <http://www.ferc.gov/docs-filing/efiling.asp>. For assistance, please contact FERC Online Support at [FERCOnlineSupport@ferc.gov](mailto:FERCOnlineSupport@ferc.gov) or toll free at 1-866-208-3676, or for TTY, (202) 502-8659. Although the Commission strongly encourages electronic filing, documents may also be paper-filed. To paper-file, submissions sent via the U.S. Postal Service must be addressed to: Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street NE, Washington, DC 20426. Submissions sent via any other carrier must be addressed to: Federal Energy Regulatory Commission, Office of the Secretary, 12225 Wilkins Avenue, Rockville, Maryland 20852.

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<sup>1</sup> See 18 CFR 385.2001(a)(1)(iii) (2020).

For more information about this Notice, please contact:

Rahim Amerkhail (Technical Information)  
Office of Energy Policy and Innovation  
(202) 502-8266  
[Rahim.Amerkhail@ferc.gov](mailto:Rahim.Amerkhail@ferc.gov)

Michael Haddad (Legal Information)  
Office of the General Counsel  
(202) 502-8088  
[Michael.Haddad@ferc.gov](mailto:Michael.Haddad@ferc.gov)

Kimberly D. Bose,  
Secretary.

**Post-Technical Conference Questions for Comment**

1. Multiple panelists at the technical conference suggested that utilities and other industry participants should engage in an assessment of climate change risks to their systems.<sup>2</sup> Should public utilities be required to engage in either a one-time assessment or periodic assessments of climate change risks to their assets and/or on how their system is expected to perform under expected climate change driven scenarios? If so, should such requirements be incorporated into jurisdictional local transmission planning and/or regional transmission planning/cost allocation process tariff provisions? Similarly, should such requirements be incorporated into FERC-jurisdictional resource adequacy tariff provisions?
2. Several panelists at the technical conference suggested that greater use of probabilistic approaches could provide a more robust approach to accounting for extreme weather.<sup>3</sup> Would incorporating probabilistic methods into local transmission planning and/or regional transmission planning/cost allocation processes allow public utility transmission providers to more effectively assess low probability/high impact events and common mode failures?<sup>4</sup> If so, should such practices be incorporated into public utility transmission providers' local transmission planning and/or regional transmission planning/cost allocation processes? What, if any, jurisdictional tariff changes would be necessary to incorporate these practices into existing transmission planning and cost allocation processes? Similarly, should such practices be incorporated into any resource adequacy assessments carried out under FERC-jurisdictional tariff provisions?
3. At the technical conference, panelists noted the importance of coordinating transfers across the seams between Regional Transmission Organizations/Independent System Operators (RTOs/ISOs) and non-RTO/ISO areas to both reduce costs and improve the resilience of the transmission grid

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<sup>2</sup> See June 1 Tr. at 14 (Adam Smith); 17 (Jessica Hogle); 55, 83 (Romany Webb); 79 (Derek Stenlik).

<sup>3</sup> See June 1 Tr. at 36-37, 81 (Lisa Barton); 53, 69-70 (Judy Chang); 79, 92 (Derek Stenlik); 83 (Romany Webb); 119 (Richard Tabors); 129 (Neil Millar).

<sup>4</sup> As described in the March 15, 2021 Supplemental Notice of Technical Conference Inviting Comments in this proceeding, common mode failures occur where, due to climate change or an extreme weather event, a large number of facilities critical to electric reliability (e.g., generation resources, transmission lines, substations, and natural gas pipelines) experience outages or significant operational limitations, either simultaneously or in close succession.

during extreme weather events.<sup>5</sup> How do RTO/ISO and non-RTO/ISO transmission providers manage congestion at system seams? What are the benefits and drawbacks of the current management regime, from the perspectives of cost, resource participation, and ability to maximize reliability and other benefits of transmission service? Can more cost-effective congestion management at the border between RTOs/ISOs and neighboring non-RTO/ISO transmission providers be facilitated through new *pro forma* Open Access Transmission Tariff (OATT) provisions? If so, how could the *pro forma* OATT be modified to achieve this enhanced coordination? For example, could existing *pro forma* OATT section 33.2 (Transmission Constraints), which permits a transmission provider to use redispatch to maintain reliability during transmission constraints, be modified to enhance coordination with a neighboring RTO/ISO during such redispatch? Are there any other potential modifications to the *pro forma* OATT that might facilitate cost-effective congestion management at the border between RTOs/ISOs and neighboring non-RTO/ISO transmission providers? If so, please describe them in as much detail as possible. If such modifications were made to the *pro forma* OATT, could they also help improve coordination between RTOs/ISOs and non-jurisdictional entities through their inclusion in the reciprocity tariffs that are voluntarily filed by some non-jurisdictional entities? What challenges would any such modifications need to address?

4. RTOs/ISOs currently have differing levels of authority to approve or recall outages.<sup>6</sup> Can generation and transmission outage scheduling practices be improved? For example, should RTOs/ISOs have greater authority to deny generation and transmission outage requests, such as having the ability to deny such a request based on estimated economic impact, as ISO New England currently has? Similarly, should transmission owners be given an incentive to schedule transmission outages more efficiently by making transmission owners responsible for uplift they cause from outages, as the New York Independent System Operator currently does? Would such changes help system operators better prepare for or respond to extreme weather events?
5. Transmission topology optimization (also sometimes known as transmission switching) involves dynamically modifying transmission topology as a component of determining optimal day-ahead and real-time energy market solutions.<sup>7</sup> Should

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<sup>5</sup> See June 2 Tr. at 64, 66-67 (Renuka Chatterjee); 68 (Amanda Frazier); 153 (Dan Scripps); 66 (David Patton).

<sup>6</sup> See June 2 Tr. at 21-23, 32 (Wesley Yeomans); 23-24 (Renuka Chatterjee); 30-31, 74-75 (David Patton).

<sup>7</sup> See June 2 Tr. at 7(Amanda Frazier), 55 (Renuka Chatterjee), 55-57 (Mads Almassalkhi), 58-59 (David Patton), 60-61 (Robin Broder-Hytowitz), 61-62 (Anne

RTOs/ISOs be required to incorporate transmission switching or transmission topology optimization in their day-ahead and real-time energy markets? Could the adoption of such optimization approaches both reduce costs and improve the resilience of the transmission grid?

6. Panelists at the technical conference suggested that current requirements for system performance under extreme weather scenarios may need to evolve.<sup>8</sup> Should the transmission planning requirements established under North American Electric Reliability Corporation (NERC) reliability standard TPL-001-4/5 be modified to better assess and mitigate the risk of extreme weather events and associated common mode failures? Should any additional changes be considered to the NERC Reliability Standards to address the risk of extreme weather events?
7. Multiple panelists at the conference emphasized the need to establish a requirement for interregional transmission planning and improve existing interregional cost allocation methods to prepare for extreme weather events.<sup>9</sup> How can the existing requirement to have an interregional transmission coordination (not planning) and cost allocation process be modified to better account for the benefits that interregional transmission facilities provide during extreme weather events? Would defining a set of uniform transmission benefit metrics that can be used across regions in the interregional transmission coordination and cost allocation processes help interregional transmission projects come to fruition? If so, please propose such metrics in as much detail as possible.
8. Would having a target level of interregional transfer capacity help facilitate more effective development of interregional transmission projects? Should minimum amounts of interregional transmission transfer capability be required or encouraged as a way to improve the resilience of the power system?<sup>10</sup> If so, how should such minimums be determined (e.g., a stated MW or percentage of load basis), and how specifically should such minimum requirements be implemented (e.g., NERC reliability standards or new tariff requirements)?
9. Multiple panelists at the conference suggested that the current reliance on the 1 day in 10-year Loss of Load Expectation is outmoded.<sup>11</sup> Are there alternative resource adequacy planning approaches that could be more robust alternatives to

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Hoskins), 94-96 (Charles Long), 97-98 (Daniel Brooks), 136 (Letha Tawney).

<sup>8</sup> June 1 Tr. at 138-40 (Mark Lauby).

<sup>9</sup> June 2 Tr. at 64-66 (Renuka Chatterjee), 147 (Patricia Hoffman), 153 (Dan Scripps).

<sup>10</sup> June 2 Tr. at 64-66 (Renuka Chatterjee).

the use of the 1 day in 10-year Loss of Load Expectation standard? Please describe such alternatives, including describing whether such alternatives have been used either in the United States or elsewhere.

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<sup>11</sup> See June 1 Tr. at 85 (Judy Chang), 119 (Richard Tabors), 122-123 (Alison Silverstein), 125 (Devin Hartman), 127 (Mark Lauby).