

What Five Grid Operators Said About Resilience

Date : April 2, 2018

On January 8, FERC issued an order that did two things: first, it terminated its rule on Grid Reliability and Resilience Pricing that was proposed by DOE last October to help prevent the premature retirement of coal and nuclear power plants(i) and, second, it initiated a new proceeding to evaluate the resilience of the bulk power system (BPS) in wholesale electricity markets.(ii) (The BPS is comprised of electricity generation and transmission facilities but not local electricity distribution networks.) As the first step in the new grid resilience proceeding, FERC asked the RTOs/ISOs (grid operators) to answer 25 questions by March 9. Comments from other stakeholders are due May 9.

Because two-thirds of the nation's coal fleet(iii) is located in five RTO/ISO regions, we reviewed the comments of these five grid operators. These are our big-picture, nuance-free takeaways from their comments:

- ISO-NE has a major fuel-security risk because of the region's dependence on natural gas and the retirement of coal and nuclear generating capacity.
- PJM supports further steps by FERC to address grid resilience.
- MISO, SPP and ERCOT said, in so many words, that their grids are resilient. (Note: There is no universally agreed-on definition of resilience, nor are there any criteria or metrics for determining whether the grid is resilient. This is part of the reason for the new FERC proceeding.)

We also excerpted below a few statements from their comments(iv):

ISO-NE —

- “The most significant resilience challenge is fuel security – or the assurance that power plants will have or be able to obtain the fuel they need to run.” (p. 1 of ISO-NE comments)
- “ISO-NE recognizes that fuel security is just one aspect of the bulk power system's resilience; however, it is the most significant challenge for the New England bulk power system's resilience, and it currently has no defined long-term solution.” (p. 4)
- “Challenges with fuel procurement, transportation and storage are most acute with natural gas ...” (p. 5)
“The shift away from generators with on-site fuel to natural gas-fired generators relying on ‘just-in-time’ fuel-delivery infrastructure has further exposed the limitation of New England's existing fuel-delivery system and heightened the region's fuel security risk.” (p. 28)
- “... New England continues to see the retirement of coal, oil, and nuclear power plants, which are needed to maintain reliability when the natural gas-fuel infrastructure is

unavailable to the generators.” (p. 7)

PJM —

- “The Commission needs to provide ... metrics ... to apply to resilience vulnerability and threat analysis.” (p. 5 of PJM comments)
- FERC should “[r]equest that all RTOs submit ... tariff amendments, for any proposed market reforms to address resilience within nine to twelve months from the issuance of a Final Order in this docket.” (p. 6)
- FERC should “[a]rticulate in this docket that the ... RTOs ... [have] an obligation to assess resilience.” (p. 5)
- “[T]he specific [resilience] risks to be analyzed and the measuring criteria need to be further developed.” (p. 19)
- “[T]here is additional work to be done ... in order to address these [resilience] risks that go beyond what is needed for meeting existing reliability standards.” (p. 19)
- “RTO wholesale electricity, Ancillary Service markets, capacity markets ... were not originally designed with resilience in mind.” (p. 66)

MISO —

- “MISO’s grid is resilient.” (p. 2 of MISO comments)
- “... MISO does not have any imminent or immediate resilience concerns ...” (p.2)
- “[T]he MISO region has successfully ensured resilience (and reliability) for decades.” (p. 6)
- “... MISO recently initiated an in-depth study to identify potential consequences that may occur in the event of natural gas pipeline contingencies.” (p. 23)
- “[R]esilience is not just a fuel security matter.” (p. 3)
- “Future resilience endeavors must balance risk with costs to consumers.” (p. 6)
- “Grid resilience is a national issue that broadly impacts the bulk power system.” (p. 2)

SPP —

- “SPP believes the current NERC construct for continually monitoring and enhancing the NERC reliability standards is sufficient to address current and future needs with regard to enhancing resilience ...” (p. 18 of SPP comments)
- The risk of over-dependence on any particular fuel type “has been thus far minimal in SPP ...” (p. 5)
- “SPP supports further discussion on which types of extreme scenarios should be considered in studies that RTOs perform ...” (p. 7)
- “SPP is in the early stages of developing a study process that will focus on generation retirement’s impact to reliability and resilience.” (p. 8)
- “Changes to requirements to address resilience could increase the costs of transmission

owners' systems, and those increased costs would ultimately impact transmission customers and their end-use customers." (p. 19)

ERCOT —

- "ERCOT's scarcity pricing mechanisms are designed to alleviate the need for many resilience-based regulatory controls." (p. 5 of ERCOT comments)
- "One of the most critical elements of system resilience is ensuring that the transmission system is planned in such a way as to ensure continued operations following an unexpected outage ..." (p. 7)
- "If ERCOT determines that [a] retirement would cause a [problem], then ERCOT may seek to negotiate a reliability-must-run (RMR) agreement with the generation owner ... The availability of RMR agreements thus provides an important reliability backstop ..." (p. 12)
- "Ancillary services play a critical role in ensuring system resilience." (p. 13)
Black-start generators "... provide resilience by enabling restoration of the ERCOT system in the event of a partial or complete loss of power." (p. 15)

Recently, DOE issued a report that highlights the resilience of the coal fleet during the Bomb Cyclone(v). The report is a case study for why we need to preserve coal-fueled generation. However, more than a third of the coal fleet nationwide has retired or is expected to retire(vi). DOE thinks these retirements may be underestimated(vii).

There are any number of steps FERC could take next to ensure the BPS is resilient. However, if FERC does not act with urgency, more of the coal fleet will retire, and the resilience of the BPS will be diminished.

Footnotes:

i Grid Resiliency Pricing Rule, 82 Fed. Reg. 46,940 (Oct. 10, 2017).

ii Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, FERC, January 8, 2018.

iii The coal fleet totaled approximately 256 GW as of January 2018. EIA, Electric Power Monthly, Release Date March 23, 2018. Coal-fueled generating capacity in the five RTO/ISO regions total 167 GW: MISO 63 GW, PJM 62 GW, SPP 26 GW, ERCOT 15 GW and ISO-NE 1.1 GW.

iv Response of ISO New England, Inc. March 9, 2018; Comments and Responses of PJM Interconnection, L.L.C., March 9, 2018; Responses of the Midcontinent Independent System Operator, March 9, 2018; Joint Comments of the Electric Reliability Council of Texas, Inc. and the

America's Power

American Coalition for Clean Coal Energy

<http://www.americaspower.org>

Public Utility Commission of Texas, March 9, 2018; Comments of Southwest Power Pool, Inc. on Grid Resilience Issues, March 9, 2018.

v Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units Volume 1: The Critical Role of Thermal Units During Extreme Weather Events, March 13, 2018, DOE/NETL-2018/1881. (“DOE/NETL report”)

vi ACCCE, Retirement of U.S. Coal-Fired Generating Units, January 2018.

vii See Chapter 2 (“The Prospect of Further Large -Scale Retirements”) of the DOE/NETL report.