STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 173

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Petition for Investigation Regarding the Reliability and Integrity of the Electric Grid in North Carolina	)))))	MOTION TO LIFT ABEYANCE AND SCHEDULE TECHNICAL CONFERENCE

NOW COMES THE PUBLIC STAFF – North Carolina Utilities Commission (Public Staff), by and through its Executive Director, Christopher J. Ayers, and respectfully moves the North Carolina Utilities Commission (Commission) to lift the abeyance on this docket as provided in the Commission's May 21, 2021 *Order Holding Docket in Abeyance*, and schedule a technical conference to address the reliability and integrity of the systems of electric utilities in North Carolina during extreme weather events. In support of this motion, the Public Staff respectfully shows the Commission the following:

1. On May 18, 2021, the Public Staff filed a petition in the above-captioned docket requesting that the Commission open an investigation into the reliability and integrity of the systems of electric utilities in North Carolina during extreme weather events in light of the outages and rolling blackouts experienced in Texas in February 2021 as a result of Winter Storm Uri.

2. On May 21, 2021, the Commission issued its *Order Holding Docket in Abeyance* wherein the Commission ordered that this docket be held in abeyance pending the publication of the results of the joint inquiry of the Federal Energy

Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC) into the operations of the bulk power system during the extreme winter weather conditions in February 2021.

3. On November 16, 2021, FERC and NERC issued their *Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States* (FERC/NERC Report),[1] wherein it, among other things, made 28 recommendations (not including sub-recommendations), including revising the mandatory Reliability Standards to address the continued failures of generating units due to freezing issues and requiring a number of changes to address natural gas fuel issues, which were the second leading cause of the generation unit outages.

4. Some of the recommendations are specific to the unique circumstances of Texas and ERCOT, while other of the recommendations could have application in North Carolina. In general, the recommendations applicable in North Carolina are that the electric utilities should continue to evaluate grid preparedness, ensure that there is adequate fuel supply with a transitioning generation fleet, and manage system operations and transmission congestion with real-time contingency analysis.

5. The Public Staff believes that it is appropriate at this time for the Commission to initiate the investigation into the reliability and integrity of the systems of electric utilities in North Carolina during extreme weather events in light

[1] Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States

of the outages and rolling blackouts experienced in ERCOT, MISO and SPP in February 2021 as a result of Winter Storm Uri, capitalizing on the findings of the FERC/NERC Report. Additionally, the weather events and generator outages in the south central areas of the country, including generators and system operation in the SERC Reliability Corporation, as discussed in the January 2018 report[2] by FERC/NERC, experienced similar issues as studied in the 2021 Report. Both reports address the need to evaluate fuel supply, unplanned generation outages, cold weather hardening, system planning, peak load planning, load reduction, and transmission coordination.

6. The Public Staff recommends that Dominion Energy North Carolina, Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC (collectively, "the Companies"), be made parties, any other provider of electric utility service in North Carolina be invited to intervene.

7. The Public Staff requests that the Commission schedule a technical conference for the purpose of allowing the Companies to present information regarding their efforts to address the issues that led to the outages and rolling blackouts, as well as the findings of the FERC/NERC Report.

8. The Public Staff has prepared questions (attached as Appendix A) to which it requests that the Commission order the Companies to respond at the technical conference, as well as the Commission's questions.

[2] 2019 FERC and NERC Staff Report The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018

9. The Public Staff requests that it be allowed to participate in the technical conference as was allowed at the February 23, 2018 Staff Technical Conference in Docket No. E-100, Sub 153, and the August 28, 2019 Technical Conference on Integrated Systems and Operations Planning in Docket No. E-100, Sub 157.

WHEREFORE, the Public Staff requests that the Commission lift the abeyance, allow intervention, and schedule a technical conference for the Companies to present information and answer questions of the Commission and Public Staff regarding the reliability and integrity of the electric grid in North Carolina.

Respectfully submitted this 17th day of December, 2021.

PUBLIC STAFF
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Electronically submitted
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CERTIFICATE OF SERVICE

I certify that I have served a copy of the foregoing Motion on all parties of record in accordance with Commission Rule R1-39, by United States mail, postage prepaid, first class; by hand delivery; or by means of facsimile or electronic delivery upon agreement of the receiving party.

This the 17th day of December, 2021.

Electronically submitted
/s/ Lucy E. Edmondson

Docket No. E-100, Sub 173

Petition for Investigation Regarding the Reliability and Integrity of the Electric Grid in North Carolina

Public Staff's Questions for Each Electric Utility

1. Please provide a summary of lessons learned from past extreme weather events beginning in 2014, and how the Utility has addressed and implemented programs to address or remediate impacts to system users. To the extent that the Utility has not implemented or completed programs based on lessons learned, please explain in detail why it has not done so.
2. For each of the recommendations from the FERC - NERC - Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States, November 2021, please discuss whether the recommendation is applicable to the Utility for not only cold-weather events, but all severe weather events (extreme cold, heat, wind, rain, snow, ice, hurricanes, and/or drought). If the Utility has determined that the recommendation is not applicable, please explain why not. In the discussion of each applicable recommendation, please include:
    a. Sites/units/locations where the recommendation applies.
    b. Beginning in 2014, a history of unit outages/derates associated with each recommendation, and the Utility's efforts to prevent the issue from reoccurring across the Utility's fleet.
    c. Any processes/procedures/guidelines/corrective actions/etc., which the Utility has developed or implemented to address/resolve the issues raised in each recommendation.

i. Whether the Utility continues to maintain these developed or implemented recommendations by unit.

d. Any physical improvement necessary to address each recommendation and the status of each improvement.

i. Challenges that the Utility experienced while completing modifications (retrofits or equivalent) for Utility assets to maintain or improve system reliability during extreme weather events.

ii. Whether these processes/procedures/guidelines, physical improvements, and training are functioning effectively.

e. Identification of critical spare parts necessary to maintain reliability during the events.

f. Units that were affected and went offline during extreme weather events, including any outages post retrofit.

3. Please provide details of any other weather-related unit outages or derates, not discussed above, for which the Utility has taken, or plans to take, actions to avoid future occurrences.

4. Please describe how extreme weather events affect distributed energy resources (both Utility-owned and nonutility-owned) and how the Utility accounts for these effects in its planning for extreme weather events.

5. Please describe how the Utility develops its weather forecast for each generation site and at the system level.

6. Please describe how the Utility incorporates its daily/weekly weather forecasts into its load forecasts, and provide a comparison of the estimated loads to actual loads for extreme weather conditions.
7. Please explain how the Utility trains both existing and new employees in regard to corrective action plans or systematic upgrades/modifications to improve system reliability during extreme weather events.
8. Please discuss the Utility's electric reliability planning for fuel and generation plant operation including:
    a. Identification of various reliability impact events, or causes of reliability impacts that have occurred or are likely to occur from an extraordinary weather event(s), including the impact on:
        i. Fuel supply, the logistics of how the fuel supply is delivered and stored on site, and coordination with fuel suppliers;
        ii. Fuel Contracts: including type, duration, comparative studies for reliability purposes;
        iii. Measures in place to mitigate a disruption to fuel supply for 24-168 hours; and
        iv. Fuel storage (on-site or available to be supplied to the station within 6 hours for each type of major weather event/category identified).
    b. How the Utility ensures that supply resources not directly owned by the Utility have action plans in place to continue service in the event of fuel supply interruption.
9. Please discuss curtailment planning, coordination and grid stability, including:

a. How the Utility evaluates and prioritizes curtailment zones/circuits in the event of excess load and or inadequate generation;
b. How often the Utility reviews the prioritized zones or circuits;
c. The date of last review of the Utility's respective system, or a rotational cycle of subsets of the entire utility system;
d. How the Energy Control Center (or equivalent) maintains awareness of the system (inclusive of weather changes and forecasting), while also monitoring and evaluating individual circuits on the system that may not be curtailed, or have a higher priority to not be curtailed;
e. The degree or types of system automation used to maintain system reliability during extraordinary events, and whether system automation is in place to prevent user error;
f. The Utility's verification process (or equivalent) to determine the adequacy of its current procedures;
g. How communications and planning occur between critical infrastructure facilities/services and the utility's operators (i.e., control operators and/or the ECC);
h. The internal processes identified or taken to coordinate periods of curtailments across the entire system, including:
    i. Methods to improve dissemination of customer information and notification during extreme weather events and over expected time durations;

ii. How the Utility evaluates grid ties (including PJM loop flows) to other utilities, electric membership cooperatives (EMCs), municipalities, and other wholesale customers, and curtailment prioritization of these entities.

i. Staffing and the ability for critical staff to report to work locations during extraordinary events.

10. Please discuss system operations and metrics for evaluation of performance during extraordinary events in real time as well as post processing including:

a. Identification of key metrics used both by FERC and the utility for each of the respective weather events in the Carolinas and Virginia (as applicable) and the minimum and maximum deviations of each metric for each event along with the allowable thresholds (limits): Hurricane Matthew, Hurricane Florence, 2012 derecho, 2009 Winter Storm, 2014 cold weather event, 2015 cold weather event, and 2018 cold weather event.

b. A description of any frequency drops that have occurred during historical North Carolina extreme weather events, as well as any larger scale impacts causing exceedance of the allowable frequency range;

c. A comparison of the Utility's metrics for each of the above-named extreme weather events with those of ERCOT during Winter Storm Uri as listed in the FERC report (i.e., outages, MWhs, generation type, system frequency and voltage, transmission interties, etc.); and

d. A discussion of the transmission system and the power flows across the Utility's interties, as well as the maximum import capability at the same period.

   i. Whether the Utility uses dynamic or static line ratings (or equivalent line rating nomenclature) to increase maximum deliverability.

e. The Utility's available reserves and the associated peak load.

11. How the Utility evaluates the costs of improving system reliability for extraneous weather events while weighing alterative solutions.

12. In regard to the Utility's future plans:

    a. Please discuss technology enhancements that are likely to be completed in the next 10 years and explain how they would improve or hamper system reliability.

    b. Please discuss fuel and generator diversification from both a system response and a risk portfolio.

    c. Describe how the Integrated Resource Plan will evaluate fuel and generation diversity benefits.