



M-100, Sub 163
PSDR2-1

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Jan 25 2023

June 29, 2022

VIA ELECTRONIC FILING

Ms. Shonta A. Dunston
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**RE: Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's Initial
Comments
Docket No. M-100, Sub 163**

Dear Ms. Dunston:

Enclosed for filing in the above-referenced docket are Duke Energy Carolinas, LLC
and Duke Energy Progress, LLC's Initial Comments.

If you have any questions, please let me know.

Sincerely,

A handwritten signature in black ink that reads "Jason Higginbotham". The signature is fluid and cursive, with the first name "Jason" and last name "Higginbotham" clearly legible.

Jason A. Higginbotham

Enclosure

cc: Parties of Record

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. M-100, SUB 163

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Investigation)	INITIAL COMMENTS OF DUKE
Regarding the Ability of North Carolina's)	ENERGY CAROLINAS, LLC
Electricity, Natural Gas, and)	AND DUKE ENERGY
Water/Wastewater Systems to Operate)	PROGRESS, LLC
Reliably During Extreme Cold Weather)	

NOW COME Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP") (collectively the "Companies" or "Duke Energy") pursuant to the North Carolina Utilities Commission's ("Commission") May 12, 2022 *Order Requesting Comments* ("Order") and hereby submit the following Comments for the Commission's review.

BACKGROUND

In February 2021, the state of Texas experienced a severe winter storm that resulted in extreme cold temperatures and freezing and caused more than 4.5 million Texans to lose power (the "February 2021 Event" or the "Event").¹ During the February 2021 Event, the Electric Reliability Council of Texas ("ERCOT") averaged 34,000 MW of generation unavailable for over two consecutive days, the equivalent of nearly half of ERCOT's all-time winter peak load. In response to the February 2021 Event, the Federal Energy Regulatory Commission ("FERC"), the North American Electric Reliability Corporation ("NERC"), and all of NERC's Regional Entities initiated a Joint Inquiry into the causes of

¹ See <https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and>

the outages. That investigation, which included a team of nearly 50 subject matter experts, culminated in the publication of the “FERC, NERC, and Regional Entity Staff Report: The February 2021 Cold Weather Outages in Texas and the South Central United States” (the “Joint Report”), which described the Event, outlined various key findings and causes, and made nine key recommendations. Those key recommendations require NERC to develop new or modify existing NERC Reliability Standards to address FERC’s reliability-related findings in the Joint Report. NERC has initiated a proceeding called “Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination” (“Project 2021-07”), to develop new and modify existing Reliability Standards in response to FERC’s directives.²

In the Commission’s *Order Opening Investigation, Scheduling Technical Conferences, Requiring Responses, and Allowing Comments and Reply Comments*, issued on January 26, 2022 in this docket (“January 26 Order”), the Commission stated that the purpose of this proceeding was to investigate whether North Carolina’s electricity, natural gas, and water/wastewater utilities are prepared to continue operating reliably during extreme cold weather.³ The January 26 Order summarized the February 2021 Event and acknowledged that FERC, NERC and the Regional Entities had conducted an extensive review of the causes of the Event and had published the Joint Report. The January 26 Order also acknowledged that FERC had ordered NERC to revise its Reliability Standards to ensure that utilities had implemented necessary cold weather preparedness procedures

² See https://www.nerc.com/pa/Stand/Project202107ExtremeColdWeatherDL/2021-07%20Extreme%20Cold%20Weather%20Grid%20Operations%2c%20Preparedness%2c%20and%20Coordination%20Cold%20Weather%20SAR_112221.pdf

³ January 26 Order, at 2.

and could operate reliably during extreme cold weather.⁴ Accordingly, the Commission explicitly stated that its investigation was not intended to address issues that were being addressed by FERC and NERC.⁵ Instead, the Commission intended to focus its investigation on issues related to (1) water and wastewater utility preparedness for extreme cold weather; (2) natural gas utility preparedness for extreme cold weather; (3) weather and load forecasting practices by electric, natural gas, and water utilities; (4) import capabilities of the North Carolina electric transmission grid during cold weather emergencies; and (5) training for electric and natural gas system operators and coordination between electric and natural gas utilities during curtailment caused by cold weather emergencies.⁶ The Commission ordered utilities subject to its jurisdiction, including Duke Energy, to respond to various questions related to their efforts to prepare their systems to operate reliably during extreme cold weather.

On February 23, 2022, the Companies filed their responses to the Commission's questions, and on April 19, 2022, the Companies appeared before the Commission for a Technical Conference at which the Companies presented their responses to the questions set forth in the January 26 Order and answered questions from the Commission and the Public Staff. At the Technical Conference, Duke Energy indicated that it has taken various steps over many years to prepare its system for extreme cold weather. These actions have included, among other things:

- Enhancing winter preparedness training and reviews among team members and performing a multi-disciplined drill to test integrated responses to large-scale emergency events

⁴ *Id.* at 2-3.

⁵ *Id.*

⁶ The Companies' comments do not address the preparedness of water and wastewater utilities to operate during extreme cold weather and only address the Companies' coordination with natural gas utilities.

- Implementing new NERC Reliability Standards aimed at improving cold weather preparedness with some being implemented prior to the deadline established by NERC
- Developing accurate weather and load forecasting processes with the use of sophisticated modeling tools and expert meteorologists to determine when extreme weather might impact the Companies' service territories
- Coordinating with upstream natural gas suppliers to establish procedures to mitigate the risk of curtailment and operating dual fuel optional generating units that can operate on natural gas as well as coal or fuel oil
- Planning sufficient transmission capacity and securing firm transmission service for import capacity purchase to ensure that the Companies can respond to the unexpected loss of a large capacity resource

Additionally, the Companies filed supplemental information in this docket in response to questions they received from the Commission and Public Staff during the Technical Conference. Those responses provided additional information and greater clarity into the measures the Companies have taken to ensure that their system can operate reliably during extreme cold weather.

COMMENTS

Based on the responses to the Commission's questions and the information presented at the Technical Conference, Duke Energy is taking appropriate steps to ensure reliable operation of its system during extreme cold weather events. Therefore, the Commission's rules do not require revision to ensure continued reliable operations. In making this conclusion, the Companies have evaluated the impact of implementing the FERC's recommendations in the Joint Report, which NERC is currently doing, and the likelihood that additional Commission rules would augment the expected outcome of Project 2021-07. The Companies have not identified any gaps in FERC's recommendations that require updates to the Commission's rules to ensure that the

Companies can continue to operate reliably during extreme cold weather. Additionally, as discussed below, the Companies recommend that the Commission avoid proposing any new rule that would result in duplicative reporting requirements, administrative inefficiencies, or potential issues around state and federal jurisdictional authority.

I. The Companies' Responses to the Commission's Questions and Presentation at the Technical Conference Demonstrated that Duke Energy Can Operate its System Reliably During Extreme Cold Weather

The information provided to the Commission in response to the January 26 Order and during the April 19 Technical Conference demonstrated that substantive revisions to the Commission's rules are not required to ensure that North Carolina's electric utilities can operate reliably during extreme cold weather events. The Companies provided in their responses and during their presentation robust information around each of the topics at issue in the Commission's investigation in this proceeding. The Companies' procedures and practices related to those items are summarized below.

A. Weather and Load Forecasting

Duke Energy demonstrated that it uses sophisticated weather forecasting tools which allow it to receive the same weather data as the National Weather Service ("NWS"). These models are advanced computer neural networks and regression-based time series models that utilize proprietary algorithms to analyze and forecast load. The models use historical hourly loads and hourly weather forecast variables for temperature, dew point, cloud cover and wind speed provided by a team of skilled data analysts and meteorologists. This team also produces a 15-day forecast of hourly weather parameters for four key locations across their Carolinas Service Area. Forecasts are then blended using a weighted average that is representative of each load base and incorporated into load forecasting models. The load model forecasts utilize both Duke Energy Meteorology Balancing

Authority (“BA”)-specific weather forecasts as well as NWS forecasts to produce separate load models for each weather forecast. In addition, the Companies’ Load Forecasting/Unit Commitment Analysts utilize automated tools that can generate forecasts based on historical loads during similar weather conditions for up to seven (7) years in the past.

Additionally, Duke Energy simulated the performance of its load models assuming a temperature of 10 degrees below the recorded temperature over the last 30 years, and the BA load models showed that such extreme temperatures would not compromise the reliability of the DEC or DEP systems. The Companies also provided a breakdown of the accuracy of their weather and load forecasts leading up to each winter peak day from 2019 to 2021 and demonstrated that their weather models predicted the weather forecast with an accuracy of 98.5% to 99.3%, and their load models predicted the load forecast with an accuracy of 94.6% to 98.3%.

B. Import Capabilities

The Companies explained that they maintain a Transmission Reliability Margin (“TRM”)⁷, which allows them to import or deliver power along the grid in the event additional capacity is required because of an unplanned generator outage. TRM is used in the Companies’ calculation of its Available Transfer Capability and incorporates requirements for members of the VACAR Reserve Sharing Group in which Duke Energy participates. Duke Energy explained that it secures approximately 1,800 MW of capacity from neighboring utilities through firm transmission service agreements and also maintains approximately 1,000 MW of transmission capacity to enable it to import energy from its

⁷ The Companies’ responses to the Commission’s question defined “TRM” as Transmission Reserve Margin. In subsequent communications with the Commission and the Public Staff, Duke Energy has clarified that “TRM” refers to Transmission Reliability Margin.

neighbors in the event of the loss of a large capacity resource. During the February 20, 2015 winter peak, the Companies imported 1,057 MW of energy. Accordingly, the amount of reserved capacity and transmission capacity ensures that Duke Energy can respond to an emergency caused by extreme cold weather by importing additional energy from its neighbors.

C. Electric and Gas System Operator Training

The Companies demonstrated that their system operators and other personnel receive ample training on responding to emergency events. Duke Energy conducts an annual multi-discipline winter preparedness review, which includes other operational departments and is used to evaluate and update the Companies' seasonal readiness. During this drill, the Companies test their integrated responses to a large-scale event and identify and correct any issues related to the execution of the function that are vital to responding to an extreme weather event. Following the February 2021 Event, certain additional participation and process steps for the preparedness review were implemented to strengthen the depth of evaluation of operational readiness of key systems. For example, the Companies required business unit senior leaders to participate along with subject matter experts to provide additional leadership oversight of the review.

The Companies also described the role of their Tailgate Team – a cross-functional team of Duke Energy personnel that is responsible for Generation, Nuclear, Corporate Communications, Customer Delivery, Regulatory Affairs, Fuels and System Optimization, and Wholesale Accounting. The Tailgate Team coordinates with the Companies' system operators to disseminate information throughout the Company whenever there is an emergency situation and coordinates with necessary personnel to accomplish various emergency responses actions such as (1) requesting that additional generation to be brought

online; (2) implementing Voltage Reduction Programs to reduce demand-side load; (3) implementing Demand-Side Management Programs for wholesale customers; (4) requesting the purchase of emergency power from other utilities; (5) activating the Companies' Distribution Feeder Rotation Program; and (6) coordinating the interruption of Transmission Firm Load.

D. Coordination with Natural Gas Utilities

Duke Energy demonstrated that it regularly coordinates with natural gas utilities to ensure that the Companies can operate reliably during extreme cold weather. The Companies established their awareness of the cold weather issues that can impact upstream gas suppliers and explained that they have implemented actions to minimize the risks to their natural gas-fueled generators associated with these cold weather impacts. These actions include constant communication and coordination with the primary interstate natural gas pipeline serving the Carolinas, purchasing incremental seasonal firm transportation gas capacity when it is available and economic, and maintaining a large percentage of their combined cycle, combustion turbine and coal-fired units as dual fuel capable. The Companies stated that they maintain approximately 80 full load burn hours of fuel oil inventory for its fuel oil capable units and provided specific information to the Commission about the Companies' black-start units.

On the issue of Duke Energy's coordination with its natural gas facility customers, the Companies explained that they have established a prioritization methodology for their General Load Reduction Plan ("GLRP") and have included critical natural gas infrastructure and water and wastewater facilities in the highest priority tier. As a result, those customers are less likely to be impacted by a load shedding event. In addition, the

Companies expect that, in the future, they will remove critical natural gas infrastructure, water, and wastewater facilities from their GLRP.

E. Additional Reliability Information

In addition to the categories outlined in the Commission's January 26 Order and described above, the Companies reported that none of their coal, gas, or hydro units experienced outages due to cold weather or weather-related fuel constraints. Additionally, Duke Energy provided information on its communications to customers during emergency events, which included guidance on preparing for extreme weather and steps customers can take to reduce their energy use and reduce the potential for isolated power outages.

II. The Commission Should Review the Results of Project 2021-07 Before Proposing New Reliability Rules

Project 2021-07 is currently underway to implement the FERC's recommendations in the Joint Report and will likely result in new and modified NERC Standards that the Companies will be required to implement. These new standards are expected to be highly technical in nature and are intended to address the FERC's findings regarding the causes of the February 2021 Event. The Companies support the Commission's efforts to improve system resiliency, reliable operations, education, and coordination during extreme weather events and applauds the Commission for initiating this investigation. However, given the scope of Project 2021-07 and the fact that the expected new and modified NERC standards have not yet been finalized, the Companies recommend that the Commission decline to revise its rules at this time. Project 2021-07 will comprehensively address the recommendations of the Joint Report and will be subject to numerous procedures for evaluating and approving the new and modified NERC standards. Commission action to revise its rules prior to the finalization of the new NERC Reliability Standards could result

in administrative inefficiencies, redundant reporting, or potential federal and state jurisdictional issues.

A. NERC's Reliability Standards

As the FERC-certified electric reliability organization under Section 215 of the Federal Power Act⁸, NERC develops Reliability Standards that are aimed to ensure the continued reliable operation of the bulk power system. The process by which Reliability Standards are approved involves input from numerous stakeholders and is subject to multiple levels of approval.⁹ All standards must be developed after submission of a Standard Authorization Request ("SAR") – the document that identifies and defines the scope and purpose of the standard. The NERC standards committee must determine that there is sufficient consensus among stakeholders to move forward with the SAR and then must appoint a team of industry experts to draft the standard with input from NERC personnel. Once drafted, the standard may be field tested, during which actual data is used to determine whether the standard is effective, and the standard must be made available for public comment for 45 days. The standard is then submitted to a ballot pool which must vote on the standard and approve it with at least a 75 percent majority. If the ballot pool approves the standard, the NERC board of trustees must then review and adopt or reject the standard. Finally, NERC must submit the proposed standard to FERC for final approval. Therefore, the numerous levels of review, approval, and input from stakeholders, interested parties, and industry experts ensure that all NERC Standards are properly vetted and carefully reviewed prior to their adoption.

⁸ See 16 U.S.C. § 824o.

⁹ See https://ferc.gov/sites/default/files/2020-04/reliability-primer_1.pdf.

B. The Commission's Power Reliability Rules

The Commission's Power Reliability Rules are contained in Article 7, Chapter 8 of the Commission's Rules. Rules R8-40 and R8-41 require North Carolina's electric utilities to report on impending emergencies, load reductions, and service interruptions and to file load reduction plans and emergency procedures in advance of system emergencies. These rules appropriately complement NERC's technical requirements by providing the Commission with information to fulfill its statutory mandate to regulate the rates, services, and operations of North Carolina's public utilities, as required by Chapter 62 of the North Carolina General Statutes.¹⁰ These reporting and planning requirements also provide the Commission with clear insight into utility operations and preparedness for emergency events, such as those that might result from extreme cold weather, so that the Commission can ensure that utilities subject to its jurisdiction are appropriately prepared to withstand extreme events. The Commission's rules do not prescribe technical requirements for utilities, as those fall under the purview of NERC and reflect the separation of state and federal jurisdiction over the regulation of utilities.

C. The Commission Should Consider the Benefits of Concurrent Reporting

The Companies support all efforts to improve system resiliency, reliable operations, education, coordination, and customer communications, if they provide sufficient benefits to customers considering their relative costs. In general, reporting and compliance requirements at the state and federal levels should avoid unnecessary duplication, administrative inefficiencies, or potential issues around federal and state jurisdictional authority. The Companies are subject to NERC's reporting and compliance requirements

¹⁰ See G.S. 62-1 *et seq.*

and will be required to comply with the new and modified standards that are developed through Project 2021-07. As a result, the Companies will be actively involved in that proceeding and will implement new processes and procedures, as needed, to ensure that they comply with the NERC requirements.

Although the Companies do not believe changes to the Commission's rules are required to ensure that North Carolina's electric public utilities can operate reliably, Duke Energy acknowledges the importance of transparency and openness in its reporting and is committed to keeping the Commission informed of all significant events that impact the Companies' system. To that end, the Companies propose that for any new reporting requirements borne out of Project 2021-07, the Commission consider whether it would be useful for utilities to provide copies of those reports to the Commission.

III. Conclusion

WHEREFORE, Duke Energy Duke Energy Carolinas, LLC and Duke Energy Progress, LLC respectfully request that the Commission take these Initial Comments into consideration.

Respectfully submitted this 29th day of June, 2022.

/s/ Jason A. Higginbotham

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*Counsel for Duke Energy Carolinas, LLC
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CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's Initial Comments, in Docket No. M-100, Sub 163, has been served by electronic mail, hand delivery, or by depositing a copy in the United States Mail, 1st Class Postage Prepaid, properly addressed to parties of record.

This the 29th day of June, 2022.



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