



**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

January 7, 2022

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

Re: Docket No. M-100, Sub 163 – Investigation Regarding the Ability of
Carolina's Electricity, Natural Gas, and Water/Wastewater Systems
to Operate Reliably During Extreme Cold Weather

Dear Ms. Dunston:

Please find enclosed for filing the Public Staff's Data Request No. 2 –
Questions on Winter Storm Elliott to Frontier Natural Gas Company

Please do not hesitate to contact me with any questions.

Sincerely,

Electronically submitted
/s/ Gina C. Holt
Manager, Public Staff Legal
Natural, Gas, Water, Sewer,
Transportation & Telephone Sections

cc: Parties of Record

Attachment

Executive Director
(919) 733-2435

Accounting
(919) 733-4279

Consumer Services
(919) 733-9277

Economic Research
(919) 733-2267

Energy
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Water/Telephone
(919) 733-5610

Frontier Natural Gas, LLC
Docket No. M-100, Sub 163
Public Staff Data Request No. 2 – Questions on Winter Storm Elliott
Date Sent: February 7, 2023
Requested Date Due: February 17, 2023

Public Staff Technical Contact: **Blaise Michna**
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Public Staff Legal Contact: **Lucy Edmondson**
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This data request is being filed in the docket. Please file your responses to this data request in the docket as well so that the Commission and other parties have access to the responses.

Please provide responses to this request in a searchable native electronic format (e.g., Excel, Word, or PDF files). If in Excel format, please include all working formulas. In addition, please include: (1) the name and title of the individual who has the responsibility for the subject matter addressed therein; and (2) the identity of the person making the response by name, occupation, and job title.

Topic: Winter planning and system preparedness for Frontier Natural Gas (FNG)

1. Provide a general description and list of the Company's policies and procedures for routine winter preparedness.
 - a. Please provide detailed discussion of all changes made to in the Company's policies and procedures since the 2018 cold weather event in North Carolina and in response to Winter Storm Uri.

- i. Please discuss how these changes to the Company's policies and procedures improved the Company's preparedness for Winter Storm Elliott.
 - ii. Please discuss changes the Company plans to implement from lessons learned during Winter Storm Elliott.
 - iii. Please provide detailed discussion on how these changes will help the system's performance.
 - iv. Last annual inspection performed on its generating units under its cold weather preparedness plan maintenance and any freeze protection maintenance performed on such units.
2. Identify and describe the Company division, department, staff, etc. responsible for completing the winter preparedness checklists.
 - a. Please describe how the Company performs quality control and verifies through secondary or independent means that all steps are completed/reviewed and accurate.
 - b. Provide each of the completed checklists (or equivalent) for each compressor station, gas infrastructure and other associated infrastructure to supply gas for electric generation, large commercial and/or industrial customers for each year from 2020 winter preparedness to present, as well as:
 - i. the date the checklist was completed;
 - ii. the party/entity who signed off on the completed checklist;
 - iii. the parties/entities who reviewed the checklist; and

- iv. a list and description of any open or outstanding checklist items that were not completed and how the open item could impact the reliability of the equipment/component/plant.
- 3. Is the Board of Directors of the Company (Board), any committee of the Board, or the Senior Management Committee briefed on: (1) winter preparedness; and (2) whether any open or outstanding items may impose a risk to system reliability. If so, when did the last briefing occur?
 - a. Please list by name and title all attendees of such meetings.
 - b. Does the Company consider or classify December 2022 as part of its 2022 winter preparedness or 2023 winter preparedness? Please explain how the Company makes this determination.
 - c. How is the briefing provided/communicated to all Board members, committee members and/or Senior Management Committee?
 - d. If the Board, any committee of the Board, or the Senior Management Committee was briefed in 2020 regarding its 2021 winter preparedness, in 2021 regarding its 2022 winter preparedness, and/or in 2022 regarding its 2023 winter preparedness, please provide any associated Board/committee materials (e.g., Power Point, memo, email, document, meeting minutes, etc.) and workpapers and supplemental information used in the creation of the Board/committee materials.

Storm planning and restoration from storm related outages

4. Please describe the Company's typical actions and planning for an anticipated winter storm.
5. Provide a timeline, from December 19, 2022, through December 25, 2022, of the Company's actions related to the pending winter weather event. The timeline should include, at a minimum, sufficient detail of the Company's internal processes and actions taken in advance of the pending weather event.
 - a. The daily weather forecasts that were produced internally by the Company and/or by vendors/contractors, including system average temperature, wind chills, dew points, and supporting documentation.
 - b. A narrative that explains the communication and coordination of weather forecasts with Company staff and interstate pipelines and/or storage staff during the period in question.
 - i. Please include key communications with gas suppliers and fuel availability.
 - ii. Please include the time frame when all communication was received and length of time any action plan was to remain in effect during the timeline in question.
 - c. The firm vs. interruptible service ratio of the Company's daily imported gas supply over this period

- i. Please provide any actions taken to prevent gas supply interruption due to potentially interrupted service
 - ii. Please describe the common platform for such communication and all parties who would have access to this platform
 - d. If not already provided in response to prior questions, identify pertinent information related to the Company's decision making based on information it received from or provided to operations/planners/management/specific generation units (e.g., changes in weather, wind speed, timing of the storm, locational impacts, load/demand impacts, etc.).
6. Please provide a detailed discussion on how the Company was preparing for the storm impacts given the pending holiday weekend?
- a. Provide all general internal memos and minutes of meetings held or general bulletin announcements from business unit leaders, senior managers, and vice presidents to divisions or division leads of the Company advising of the potential storm, the need for staff, and requests to work through the holiday, gas conservation, along with the dates of these communications.
7. Please describe how the Company's internal pipeline service employees are deployed when a storm or winter weather event occurs.

- a. Please indicate whether the Company's winter weather response requires scheduling additional work crews, what those procedures are, and if the Company's field crews are cross-trained for these responses.
 - b. Please discuss if changes implemented after Storm Uri led to better weather impact response during Storm Elliott.
8. Please describe the Company's protocols for the following customer classes beginning when curtailments are possible, when they occur, up to the point when service is restored:
- c. Firm Transportation customers.
 - d. Firm Sales service customers.
 - e. Interruptible Transportation customers.
 - f. Interruptible Sales service customers.

Lead-up to December 2022 cold weather event

9. On a daily basis, beginning December 19, 2022, please describe how the Company considered and prepared for the pending weather event.
10. Please discuss the Company's planning and its process on executing its reserve margin management on an as needed basis during such winter storm events.

11. Please describe any “line pack” process the Company deployed leading to this event and how this would benefit the system in the oncoming Storm. Please include the timeline.
 - a. Please describe the Company’s process to hedge.
12. Please discuss how the Company was preparing for and forecasting cold temperatures and system responses compared to its responses to the 2014, 2015, and 2018 polar vortexes and cold weather build up events prior to the beginning of the December 2022 cold weather event, including daily updates. Please include the following:
 - a. Weather forecasting models and tools used.
 - b. Whether the predicted peak demands were performed in-house.
 - c. The predictive methods employed in 2014, 2015, and 2018 versus today.
 - d. A discussion of similarities between the December 2022 cold weather event versus those of the 2014, 2015, and 2018 polar vortexes and cold weather events, including whether the prior cold weather events had both a storm component (wind event that contributed to curtailments) in addition to the extreme cold weather events.
 - e. Explain the complications, from a system operational standpoint, that occurred during this event compared to the 2014, 2015, and 2018 polar vortex or cold winter weather events.

December 2022 cold weather event

13. Provide a timeline beginning when the system started to experience storm related impacts through midnight December 29, 2022, in 15-minute increments, including but not limited to:
- a. For each interstate pipeline receipt point at the Company or the Company's city gates:
 - i. The expected and measured pressure, and
 - ii. The tolerance and low pressure set point at each receipt point.
 - b. For each compressor station point:
 - i. The expected and measured pressure, and
 - ii. The tolerance and low pressure set point at each receipt point.
 - c. At the meter and relay station (or equivalent) at each electric generation asset in North and South Carolina:
 - i. The expected and measured pressure, and
 - ii. The tolerance and low pressure set point at each receipt point.
 - d. Any customer curtailment or outages that occurred.
 - e. Any additional volumes of gas bought (dts) and the respective gas price at zone 3 and 5 as a response to tightened operating conditions for customers and to prevent outages or curtailments.
 - f. General map or other locational guidance showing how the weather was impacting the Company's overall system.

14. Please identify the actual hourly demands observed for December 24, 2022.
This response should include a timeline of the long-range load forecast, the seven-day ahead forecast, the three-day ahead forecast, and the day-ahead forecast showing the loads that the Company was anticipating prior to December 23, 2022, through December 29, 2022. In the Company's response, please distinguish between residential, commercial, and gas demand for electric generation.
15. Please provide graphs and supporting data (in working Excel files with working formulas intact) that illustrate the following: demand; gas storage; expected gas supply; load curtailments and quantity of interrupted service or supply (if applicable) from December 23, 2022, through December 29, 2022, with Company service area specific information in as granular periods as possible, but no less than hourly. (Note: Individual graphs or a composite of graphs may be provided in response.)
16. For the period December 23, 2022, through December 29, 2022, provide a general timeline in 5-minute increments showing changes in, but not limited to:
 - a. Day ahead and hourly demand forecasts;
 - b. Notifications (phone calls, emails, social media, etc.) to other utilities, gas suppliers, or other regulatory agencies;
 - c. Gas purchases; gas sales; firm or interruptible purchases/sales;

- d. Gas availability, notifications from Gas suppliers or shippers on constraints or any deliverability restrictions;
 - e. Transmission system constraints;
 - f. Gas conservation notifications to customers;
 - g. Curtailment notification to interruptible customers;
 - h. Operational Flow Order (OFO) notices from Transco or any other suppliers on the distribution system;
 - i. OFO notices from Piedmont to its customers; and
 - j. Any other information that would show how the Company was informed or provided information as the situation was unfolding.
17. In regard to gas supply system performance, customer curtailment, and demand exceeding predicted supply, provide dates and times of meetings, emails, discussions, and other communications in which decisions were made, as well as a list of all persons participating in decision making, including their job titles.
18. Please provide the following unit outage information:
- a. A list of Frontier assets that were known to be unavailable going into December 23, 2022.
 - b. A list of Frontier assets that were expected to be online or available but failed or failed to respond when called upon from December 23, 2022, through December 29, 2022.

- c. A list of Frontier assets that underperformed or were constrained (gas supply below expected output) from December 23, 2022, through December 29, 2022.
 - i. A list of the amount of constrained natural gas in dts, and the dates and hours impacted for each component and/or gas purchase.
- 19. For all units/resources/programs that failed to perform, perform as expected, or perform at full nameplate potential from December 23, 2022, through December 29, 2022, please provide:
 - a. The time at which they failed/underperformed;
 - b. Period of time associated therewith;
 - c. The root cause (or most likely suspected cause) of the failed/underperforming asset;
 - d. Amount of lost gas supply at each component; and
 - e. Steps taken to mitigate such issues.
- 20. In regard to gas supply from December 23, 2022, through December 29, 2022, please describe the Company's understanding of the status of the natural gas supply before and during the event period for:
 - a. Transco
 - b. Other interstate pipeline/storage providers and suppliers/marketers

21. Please provide a detailed discussion regarding when the Company received notifications from its interstate pipeline/storage provider, suppliers/marketers, etc., of potential natural gas supply or pressure issues.
 - a. Please provide a general timeline of the notifications and what the Company did in reaction to the notifications.
 - b. Please list how the notifications were issued to the Company and the timeframe for each.
 - c. Please provide a list of all the mitigating actions required due to loss of pressure on Transco's system.
22. Please discuss how the Company provided its customers, including electric generation customers, notification of impending gas supply issues or curtailment.
23. Please provide the commodity prices being used during this period, along with supporting information from source data (values should be expressed in \$/dts).
24. The following questions are specific to potential load curtailment. Please provide the following information:
 - a. A general narrative (or any written procedures) that describe the Company's process for determining when to begin its process for potential curtailments.
 - b. A discussion of how close the Company was to potentially performing curtailments to maintain system reliability.

- i. Was curtailment the next feasible action to be taken at any point during from December 22, 2022, through December 28, 2022? If so, list each time this was so.
 - c. A discussion of how a system operator determines that a curtailment is needed and the process by which the operators select the customers to curtail and outage durations.
 - d. A description of the process for notifying customers prior to curtailment.
 - e. A discussion and copies of any mass communications provided to customers regarding gas conservation and potential curtailment events.
 - f. A discussion and copies of all communications the Company had with the NCUC and NC Public Staff:
 - i. Prior to event.
 - ii. Real time during event.
 - iii. Subsequent to event, through December 28, 2022.
25. Provide any notifications, request for relief, or emergency operations to or from the Department of Energy or the FERC from December 23, 2022, through December 29, 2022.
26. For each day of the event, please provide any notification received from gas producers/marketers on existing well-head conditions and all related gas supply.

27. At each of the Company's compressor stations, please list the following:
- a. Location of the compressor station (show on a map).
 - b. Operating pressure before Winter Storm Elliott and operating pressure during December 23, 2022, through December 28, 2022.
 - c. Mitigation measures put in place to overcome the pressure differentials in order to serve:
 - i. Firm customers; and
 - ii. Interruptible customers.
 - iii. The location of the Company's vulnerable points where the Company experienced pressure drops on a map.