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VIA ELECTRONIC FILING

March 23, 2023

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
Dobbs Building
430 North Salisbury Street
Raleigh, North Carolina 27603

RE: Docket No. M-100 Sub 163

Dear Ms. Dunston:

Enclosed for filing in the above-referenced proceeding on behalf of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina ("DENC") is its *Public Responses to Public Staff Data Request No. 2*. In its Data Request No. 2, the Public Staff requested that DENC file its responses.

Please do not hesitate to contact me should you have any questions. Thank you for your assistance with this matter.

Sincerely,

/s/ Lauren W. Biskie

Lauren W. Biskie
Senior Counsel

Enclosures

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Mar 23 2023

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 1 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to generation assets and preparedness, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 1:

Provide a description and list of the Company's policies and procedures for routine winter preparedness.

Response:

The Company continually works to improve the reliability of its generation and transmission assets during cold weather. The following procedures are carried out at each of the Company's generating stations to prepare for cold weather:

- **Fleet Master Freeze Prevention Program:** The purpose of this master program is to ensure that the Company's cold weather preparedness standard adheres to the minimum requirements for power Generation assets to operate during periods of cold weather and freezing conditions.
- **Heat Trace Protection Preventative Maintenance (PM):** The purpose of this procedure is to provide necessary instructions to proactively inspect, troubleshoot, and perform maintenance on the Heat Trace circuits to ensure continued, reliable station operations during winter months.
- **Winter Supply Procurement Procedure:** The purpose of this procedure is to provide an action plan for the procurement of winter-related consumables necessary to ensure the safe, reliable, and environmentally compliant operations of the power stations during winter-related events.
- **Winter Equipment Preparation Procedures:** The purpose of this procedure is to provide an action plan for preparing station winter-related equipment for service to ensure the reliable, safe, and environmentally complaint operations of these assets.
- **Winter Readiness Validation Check List (Itemized in Question 2):** The purpose of this check list is to ensure that the Company's cold weather planning preparations comply with the Company's fleet master freeze prevention program, and to ensure reliable operations during cold and winter weather.
- **Winterization & Freeze Protection Procedure:** The purpose of this procedure is to ensure that all enclosure heaters are operating properly and are ready for use before freezing conditions begin.

- **As-needed Third-Party Heat Trace Comprehensive Audits:** This program permits the Company to hire third parties on an as-needed basis to perform audits to identify any repairs needed on heat trace equipment and insulation needs.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
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The following response to Question No. 1 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to distribution assets and preparedness, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 1:

Provide a description and list of the Company's policies and procedures for routine winter preparedness.

Response:

The Company's storm restoration strategy is also a part of its winter preparedness efforts. These restoration procedures are flexible, scalable, and can be applied to all storm events, including Winter Storm Elliot.

In general, there are four components to a wide-scale outage restoration strategy. Execution of the components occurs continuously and simultaneously throughout an individual restoration effort. A brief description of the four components is included below.

Component 1: Safety

In any outage restoration, as in our day-to day activities, ensuring the safety of the public and of workers involved in the restoration effort is paramount. Examples of safety activities include responding to down wire calls, assisting municipalities with road clearing, and providing electrical protection for tree crews and line workers. In general, these activities are performed by line workers. We also provide general safety messages to protect our employees, customers, and the public.

Component 2: Damage Assessment

Understanding the extent of damage incurred following a severe weather event is a critical driver for both resource efficiency and the ability to effectively communicate estimated restoration times to customers. The Company utilizes a trained work group to patrol circuits and electronically capture circuit damages which provides ongoing intelligence as to the severity of impact. During the course of damage assessment, patrollers may also identify potential

hazardous downed wire situations and are responsible for standing by the location until a line worker arrives to make the situation safe. In some downed wire scenarios, separate wire watchers are utilized to stand by until a crew arrives, enabling the patroller to continue with the important task of damage assessment.

Component 3: Circuit Switching and Damage Repair

The actual restoration of power following a wide-scale outage is accomplished through circuit switching and the repair of damages incurred on the electric grid. Circuit switching enables the re-routing of electricity on main feeders, which can restore power to groups of customers.

Damage repairs require larger groups of resources and take longer to accomplish. Typically, a hierarchal approach is taken with an emphasis on restoring power to critical services and main feeders. The hierarchy also includes repair of damages to tap lines, individual transformers, and individual service drops – which can occur either simultaneously or sequentially to the main feeder restoration.

Component 4: Resource Utilization and Efficiency

Initially, weather forecasts are utilized to determine potential threat areas and to determine areas where resources should be pre-staged and, in some cases, supplemented through advanced movement of Company and/or contractor crews. The Company continually evaluates resource levels during an outage restoration to ensure proper resource utilization and efficiency.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 2 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to generation assets and preparedness, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 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 generation plant and associated infrastructure for each year from 2022 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.

Response:

The Company has invested significant resources in preparing for winter at its power stations. This work includes heat trace maintenance, moving key equipment indoors or to weather protected areas, pre-winter insulation inspection and repairs, and building both temporary and permanent wind wall enclosures around weather sensitive areas of the plants. All of these activities are part of winter readiness program and get carried out by the local station leadership at the generating facilities.

- a. The Company leadership at each generating facility is accountable for implementing winter readiness work. The corporate leadership requests attestation via normal communication methods (e-mail or teams meeting) from generating station leadership. The local leadership at generating facilities provides a completed "Winter readiness validation check list" initialed and dated, back to the Power Generation Operation support group for conformance of winter readiness.

- b. See Confidential Attachments Public Staff Set 2-02(b)(i-iii)(RJ) and Public Staff Set 2-02(b)(iv) in response to sub-parts (i)-(iii). In response to sub-part (iv), the Company states that there were no outstanding checklist items that affected the reliability of equipment/component/plant. The attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 2 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to distribution assets and preparedness, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 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 generation plant and associated infrastructure for each year from 2022 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.

Response:

The Company's transmission and distribution team also uses a major event pre-storm checklist prior to storm events to ensure we are prepared for all restoration activities. Please see Confidential Attachment Public Staff Set 2-02(MJH) for a copy of this checklist. Please also see the below responses for sub-part (b):

- i. December 19th – 22nd;
- ii. The checklist was reviewed jointly with the Incident Command Storm Team and was officially signed-off on by the Incident Commander, Matthew J. Holland, on December 22nd;
- iii. See Confidential Attachment Public Staff Set 2-02(b)(iii)(MJH) for the parties/entities who reviewed the checklist; and

- iv. None. All items that were necessary for this event were reviewed and completed as part of storm preparation activities.

The attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 3 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023 was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

J. Scott Gaskill
General Manager, Regulatory Affairs
Dominion Energy North Carolina

Question No. 3:

Is the Board of Directors of the Company or Dominion Energy, Inc. (Board), any committee of the Board, or the Senior Management Committee briefed on: (1) winter preparedness; and (2) whether any open our outstanding items may impose a risk to system reliability. If so, when did the last briefing occur?

- a. 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.
- b. 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, etc.) and workpapers and supplemental information used in the creation of the Board/committee materials.

Response:

During winter/inclement weather, Power Generation leadership is debriefed continuously about generating station readiness via normal communication protocols, e-mail, Microsoft Teams and in-person meetings. On December 19, 2022, the department operations coordinator sent an internal memorandum to all generating station leadership relaying leadership expectations with cold weather season readiness.

With respect to Winter Storm Elliott specifically, Power Generation leadership was debriefed by e-mail on 12/21/22 after receiving confirmation that the preparedness check list had been

completed for each generating station, and senior leadership continued to be briefed multiple times per day throughout the duration of Winter Storm Elliott, as outlined below:

Morning Communications. Morning meetings were held between 0700 and 0830, as broken down further below. Attendees included the Director of Energy Supply, Director of PG Operations and VP of System Operations.

- Normal system operations meeting - weather/load projections, unit status, and dispatch schedule review (0730 hrs)
- Station unit status update call to review: (0800 hrs)
 - Unit status
 - Weather related issues
 - Fuel/commodity constraints
 - Dispatch/operations schedule for the day
- System Operations/Energy Supply meeting to update issues from the early morning unit operations/status meetings (0830 hrs)
- After the morning meetings, the Director of Power Generation Operations or the VP System Operations would summarize the unit statuses and commodity constraints and send an email to the Senior VP of Power Generation
 - The Director of Power Generation Operations/VP System Operations would address any questions from the SVP arising from the morning update email
 - SVP would update the President of VEPCO via email

Afternoon Communications. An afternoon meeting between the Director of Energy Supply, the Director of PG Operations, and the VP of System Operations was held to discuss the following topics: (1400 – 1500 hrs, depending when the unit awards were posted)

- Next day unit dispatch
- Any unit issues affecting generation or operations
- Any fuel/commodity constraints
- Market or system changes potentially affecting reliability
- System emergency actions

The Director of Power Generation Operations or the VP of System Operations would summarize the afternoon unit statuses and fuel/commodity constraints and send an email to the SVP of Power Generation, and the SVP would update the President of VEPCO via email.

Ongoing Communications. Throughout the day, the Director of Energy Supply, Director of PG Operations, VP System Operations, and the SVP Power Generation will be updated on an as needed basis with information regarding:

- Units returning to service
- Units being removed from service
- Any fuel/commodity constraints immediately impacting generation
- Market or system changes potentially affecting reliability
- System emergency actions

Paging System. Finally, Power Generation utilizes a paging system that notifies the Director of Energy Supply, the Director of PG Operations, the VP System Operations, and the SVP Power Generation of the following events:

- Instantaneous unit breaker open or close status (if a unit comes offline or online)
- Unit derate/trip causes and equipment status updates with expected return to service times.

Please see Confidential Attachment Public Staff Set 2-03 (RJ) for examples of the various communications described above.

- A. The Company continually works to improve the reliability of its generation assets during cold weather and focuses on being operationally ready. Winter preparedness is a yearlong effort, though the Company's winter readiness efforts begin in earnest on Sept 1st, when the Company begins to implement] the various preparedness procedures identified in question 1 above, and continue into April 1st of the following year. December 2022 was part of the winter season readiness. For this winter season, the Company established the expectation for 2022-2023 winter season to be operationally compliant with NERC procedure EOP011-2 in time for the 2022 winter season, even though this standard does not go in effect until April 1,2023. Greater focus was placed on developing the winter readiness procedures meeting the requirements of EOP-011-2.
- B. As described above, Power Generation leadership is debriefed continuously about generating station readiness via normal communication protocols, e-mail, Microsoft Teams or in person meetings. See Confidential Attachment Public Staff Set 2-03 (RJ) for examples of these communications. The Company's Board of Directors was also briefed during Winter Storm Elliott. Please see Confidential Attachment Public Staff Set 2-03 (JSG) for a copy of that communication.

The attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 4 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to generation assets and preparedness, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 4:

Please describe the Company's typical actions and planning for an anticipated winter storm.

Response:

The Company is proactive and invests significant resources in preparing for winter storms at its power generating stations. The Company's power generation department periodically performs a business continuity tabletop exercise for a predicted winter storm. The tabletop exercise was conducted with generating station leadership on 12/14/2022. Please see Confidential Attachment Staff Set 2-04 (RJ) for a copy of the PowerPoint presentation prepared in connection with this exercise.

This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 4 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, as it relates to distribution assets and preparedness, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 4:

Please describe the Company's typical actions and planning for an anticipated winter storm.

Response:

Initially, weather forecasts are utilized to determine potential threat areas and to determine areas where resources should be pre-staged and, in some cases, supplemented through advanced movement of Company and/or contractor crews. The Company's North Carolina electric service territory is divided into 5 geographic areas, each served by a local office that is staffed by both line worker and non-line worker employees. When a wide-scale outage occurs, each local office executes the activities associated with components 1, 2, and 3. It is important to understand that while all impacted local offices are implementing components 1, 2, and 3, each office area is progressing at different paces based on local damage impact and resource staffing. The Company continually evaluates resource levels during an outage restoration to ensure proper resource utilization and efficiency.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
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The following response to Question No. 5 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations Centers
Dominion Energy North Carolina

Question No. 5:

Please describe the Company's typical actions and planning for an anticipated high wind event. To the extent possible, please note the differences in actions and planning for a hurricane/tropical storm with high winds versus a storm with straight-line winds (e.g., the storm that occurred during December 2022, Derecho, etc.).

Response:

See the Company's response to Question No. 1, above.

Dominion Energy North Carolina
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Public Staff
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The following response to Question No. 6 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle (as it pertains to part a)
Manager – Market Analytics
Dominion Energy North Carolina
Wesley A. Hudson (as it pertains to b, c, d)
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 6:

Provide a timeline, from December 19, 2022, through December 25, 2022, of the Company's actions related to the pending winter weather event for both wind, cold temperature, and potential outages. 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. Provide the daily weather forecasts that were produced internally by the Company and/or by vendors/contractors, including system average temperature, wind speeds, wind chills, dew points, and supporting documentation.
- b.1. Explain the communication and coordination of weather forecasts with Company staff and PJM staff during the period in question.
- b.2. Include key communications with fuel suppliers and fuel availability.
- c. 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.).
- d. List and provide key communications from PJM to the Company regarding:
 - i. Load forecasts;
 - ii. Congestion;
 - iii. Transmission line outages;

- iv. Generating unit availability/operating reserves;
- v. Power transfers/sales outside PJM;
- vi. Power transfers/sales into PJM.

Response:

- a. See Confidential Attachment Public Staff Set 2-06(a) (WAC). This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).
- b.1 The Company continually analyzes weather and weather forecasts throughout each day. Specifically, weather and weather forecasts for the next 2 weeks are discussed in detail internally among Power Generation, Energy Supply, and Fuels each weekday at 0730 am. In addition, weather and weather forecasts are discussed internally as needed during weather events, such as: hurricanes, tornadoes, severe weather, winter weather, extreme temperatures, derechos, etc. Weather and weather forecasts are not discussed between the Company and PJM.
- b.2 See the Company's response to Question No. 28(b).
- c. Not applicable; provided in other responses.
- d. Key communications from PJM to the Company for the requested PJM data and information are disseminated through PJM's public data management tool, Data Miner 2, and PJM's eDART system. The URL to PJM's Data Miner 2 is: <https://dataminer2.pjm.com/list>, and the categories associated with the requested PJM data and information are: Load Forecast, Constraints, Generation, and Imports and Exports. The Company views and queries PJM Transmission Line Outages from PJM's eDART system. The URL to PJM's eDART system is <https://edart.pjm.com/mui/index.htm>. The Company views and queries this information and data frequently.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
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The following response to Question No. 7 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 7:

Please explain any specific actions deemed necessary and taken because of the pending holiday weekend.

- a. Provide all general internal memos 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, voltage conservation, along with the dates of these communications.
- b. In regard to the planning, preparation, and recovery actions for the transmission and distribution system from the pending and known wind and extreme low temperature events, please explain and provide a timeline of the Company's notifications and requests for field work support from neighboring utilities, contractors, or other Company affiliates for system restoration-related work.
 - i. Provide a list of all communications in which the Company requested support from other utilities, affiliates, contractors, etc., as well as the dates and times of the communications and the parties to the communications.
 - ii. If the Company did not request supplemental or field support for storm restoration from other utilities, affiliates, contractors, etc., please explain why.

Response:

As explained in question 3 above, it is normal protocol for the system production coordinator to send an advisory memo related to any potential upcoming storms to the generating facilities. The Company's generating stations have local protocols to appropriately staff the facilities for operational reliability and availability for generation. During the December 2022 event, generating station leadership took additional measures for the unmanned sites to secure additional resources during inclement weather. Additional staff were brought into the stations in

anticipation of poor weather. Vacations were cancelled to ensure enough workforce was available to support generation activities. Operating shifts were altered (Chesterfield Power Station and Clover Power station) to ensure staff were available to support operations. Unmanned CT sites were staffed in anticipation of the cold temperatures, our Biomass stations shifts were supplemented with 2 additional contractors for the overnight hours of Dec. 24th, 25th, and 26th. Contractors were also employed to help keep liquid heat on conveyor belts and local leadership secured on-call maintenance with contractors for Biomass Facilities.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
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The following response to Question No. 8 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 8:

Provide a timeline beginning when the system started to experience storm related outages and restoration through midnight December 26, 2022, in 15-minute increments, including but not limited to:

- a. number of customers without service;
 - i. Virginia and North Carolina customers – 280,000k
- b. number of customers restored;
 - i. Virginia and North Carolina customers – 280,000k
- c. estimated system load/demand that was lost due to customers being without service; and
- d. map or other locational guidance showing how the storm was impacting the overall system by circuit or by number of customers per county and state.

Response:

- a. See Attachment Public Staff Set 2-08(a) (MJH)
- b. See Attachment Public Staff Set 2-08(a) (MJH)
- c. See Attachment Public Staff Set 2-08(c) (MJH)
- d. See Attachment Public Staff Set 2-08(d) (MJH)

Dominion Energy North Carolina
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Data Request No. 2

The following response to Question No. 9 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations Centers
Dominion Energy North Carolina

Question No. 9:

For the last five years, list annually by county and region the number of internal transmission and distribution craft employees (or equivalent titles and designations) that the Company has available and employed.

- a. Please list the total number of equivalent deployable work crews.

Response:

- a. As of December 2022, the Company had 1,800 resources (direct employees and individual contractors) available, and all were deployed during Winter Storm Elliot to meet customer needs. These crews can be broken down further as follows:
 - a. 734 contractor resources
 - b. 1006 Dominion Energy resources

Please see Confidential Attachment Public Staff Set 2-10 (MJH) for a breakdown of internal and external work crews by title and region. This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
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Data Request No. 2

The following response to Question No. 10 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 10:

For the last five years, list annually by county and region the number of external (contractor) transmission and distribution craft employees (or equivalent titles and designations) that the Company has utilized (represented in full time equivalent employees).

Response:

See Confidential Attachment Public Staff Set 2-10 (MJH). This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 11 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations
Dominion Energy North Carolina

Question No. 11:

Please describe how the Company's internal transmission and distribution craft employees are deployed when a storm or winter weather event occurs, including any impacts to the total number of deployable work crews.

Response:

The Company will typically augment its daily shift organization with line crews and other support personnel during large storm restoration efforts. In general, daytime and nighttime work periods are established either in advance of the storm or shortly thereafter, based on the weather forecast and/or severity of the restoration. From a field perspective, the goal is to have the majority of Dominion Energy crews, on-system contractors, and off-system crews working during the daytime period as certain work methods can only be performed in daylight hours and daylight allows crews to be more productive. The nighttime work period is usually staffed with Dominion Energy line crews, servicemen, and supervision. The nighttime team will continue responding to emergency and safety issues, perform restorations, and perform circuit switching. The duration of both daytime and nighttime work periods is typically 12 – 16 hours.

Dominion Energy North Carolina
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Data Request No. 2

The following response to Question No. 12 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Matthew J. Holland
Director Operations Centers
Dominion Energy North Carolina

Question No. 12:

Please provide the work hour limits and fatigue rules in place for Company internal and external line crews, as well as the hours that may be worked consecutively, including rolling daily averages.

- a. Describe how the Company enforces the fatigue rules.

Response:

The Company follows 16-hour maximum work hour guidelines for all distribution craft employees. Once this limit is reached, employees must receive 8.5 hours rest time prior to returning to work. During restoration events, distribution crews move to 12-16 hour rotating schedules for all craft employees while continuing to follow the 16-hour maximum work guidelines.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 13 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 13:

Please describe the actions and staffing that occurs at generation plants when a known winter storm or weather event is pending.

- a. For each generation plant, how were staff notified of the pending December 2022 storm, the actions they needed to complete in advance, and staffing requirements?

Response:

The Company's generating stations have local protocols to appropriately staff the facilities for operational reliability and availability for generating assets. The following list is an example of such measures utilized by local station management. The station employees are debriefed during each pre-job brief leading into the storm/inclement weather. Station protocol procedures include specific items and strategies to combat an extreme weather event. Potential operating schedules are also discussed with the Company's Energy Supply employees. Appropriate measures are taken to staff the plants, including adding additional operations and maintenance craft to shifts, scheduling 24-hour coverage and scheduling operators to unmanned facilities. In response to Winter Storm Elliott, these activities were undertaken proactively in the days leading up to the storm to ensure the workforce had time to react to the change in schedules.

- Operations staffing needs as necessary for forecasted Winter Weather Events (Supervisor of Shift Operations).
- Maintenance staffing needs as necessary for forecasted Winter Weather Events (Maintenance Supervisor).
- ARRANGE staffing support for tenting and insulation support (site O&M manager)
- ARRANGE Hotel accommodations for dayshift and nightshift personnel and creating work orders to track hotel costs (Administration Assistant).
- ARRANGE for transportation from hotel for support staff as needed (Site O&M manager)
- STOCK Food Pantry at site to accommodate staff for duration of the storm (Administration Assistant).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 14 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson (as it pertains to paragraph 2)
Manager – Electric Market Operations
Dominion Energy North Carolina

Michael L Barmer (as it pertains to paragraph 1)
Manager – System Operation Planning
Dominion Energy North Carolina

Question No. 14:

From December 19, 2022, through December 25, 2022, list how PJM was informing the Company of the pending storm from both a wind and outage event and then followed by a cold weather event.

Response:

PJM does not usually inform members of pending wind and outage events unless there are unique issues of concern. Storm monitoring and management of the transmission system is a Dominion Energy responsibility. PJM manages load and capacity balance and does provide information related to those items.

For the pending cold weather event, PJM informed member companies via advisories and alerts. The advisories and alerts issued were:

- Cold Weather Alert issued on 12/21/2022 for the Western Region for 0700 on 12/23/2022 through 2300 on 12/25/2022
- Cold Weather Advisory issued on 12/21/2022 for the Western Region for 0700 on 12/26/2022 through 2300 on 12/26/2022
- Cold Weather Advisory issued on 12/22/2022 for the RTO for 0700 on 12/23/2022 through 2300 on 12/26/2022
- Cold Weather Alert (Revised) issued on 12/23/2022 for the Western Region for 0700 on 12/23/2022 through 2300 on 12/23/2022
- Cold Weather Alert issued on 12/23/2022 for the RTO for 0000 on 12/24/2022 through 2359 on 12/25/2022
- Cold Weather Alert for the Western Region issued on 12/25/2022 for 0700 on 12/26/2022 through 2300 on 12/26/2022

Note: all of the Company's generating units are in the Southern Region, except Virginia City Hybrid Energy Center, which is in the Western Region.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 15 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle (as it pertains to a-c.)
Manager – Market Analytics
Dominion Energy North Carolina

Michael L. Barmer (as it pertains to d)
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 15:

Please explain how the Company's preparation for and forecasting for cold temperatures and system responses was different than its preparation for and forecasting for the 2014 and 2015 polar vortexes including daily updates.

- a. Were the peak load predictions performed in-house?
- b. Please describe the peak load predictive methods employed in 2014 and 2015 versus today.
- c. Explain similarities between the December 2022 cold weather event and the 2014 and 2015 polar vortexes, including whether the prior cold weather events had both a storm component (wind event that contributed to outages) in addition to the extreme cold weather events.
- d. Explain the complications, from a system operational standpoint, that occurred during this event compared to the 2014 and 2015 polar vortex events. Please include a discussion of the challenges of the storm restoration efforts versus load reduction efforts.

Response:

The responses below provided for in sub-parts a and b describe the Company's current preparation process for cold temperatures as it relates to load forecasting, as well as similarities and differences as compared to the 2014 and 2015 polar vortex events.[BEGIN CONFIDENTIAL]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED] [END

CONFIDENTIAL]

d. The December 2022 cold weather event was very similar to the 2014 and 2015 polar vortex events. There were no transmission system issues or challenges related to the storms in any of the 3 events.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 16 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer (as it relates to transmission (Paragraph 1))
Manager – System Operations Planning
Dominion Energy North Carolina

Matthew J. Holland (as it relates to distribution (Paragraphs 1 and 2))
Director Operations
Dominion Energy North Carolina

Question No. 16:

Please discuss how the Company was coordinating or prioritizing storm (wind) restoration efforts (both transmission and distribution) versus cold weather restoration efforts.

Response:

The Company's transmission system did not experience outages that required specific prioritization. The few events were handled as they occurred. The Company's distribution team uses the same prioritization process for all restoration events, including Winter storm Elliott. That prioritization process is described below:

Critical Public Services such as hospitals, police and fire stations have the highest priority when the Company is engaged in restoration efforts. The Company then focuses on areas with the highest number of customer outages and safety concerns, continuing down to individual customer outages.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 17 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 17:

Discuss how the coordination of restoration efforts took place between the Company and PJM.

Response:

There were no transmission events for the specified period that required PJM and Dominion Energy to coordinate restoration efforts.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 18 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle
Manager – Market Analytics
Dominion Energy North Carolina

Question No. 18:

Identify the hourly loads observed for December 24, 2022 (both Dominion Zonal Peak and Dominion's Load Ratio Share of the DOM Zone), and 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 28, 2022. In the Company's response, please distinguish between retail loads, firm wholesale loads, and total balancing area loads.

Response:

See Confidential Public Staff Set 2-18 (WAC). The Company does not distinguish between retail loads, firm wholesale loads, and total balancing area loads in its hourly observed loads and load forecasts. This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott – Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 19 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle
Manager – Market Analytics
Dominion Energy North Carolina

Question No. 19:

Please provide graph(s) and supporting data that illustrate the following, at a minimum: load; aggregate Company owned generation; imports; exports; frequency; balancing, and area control error (ACE) from December 23, 2022, through December 28, 2022, with Company service area specific information in as granular periods as possible, but no less than hourly. (Note: Individual graph(s) or a composite of graph(s) may be provided to illustrate other key elements that were taking place during the period in question.) Please provide as granular information as the historian (data recorder) allows, as ACE, frequency, and generation information will likely be more granular than hourly intervals.

- A. To the extent that the information is readily accessible from the Company, please provide the ACE and frequency from PJM during the same time period.
- b. Please provide any other key values the Company believes appropriate to illustrate system conditions and monitoring related to the real time operations and balancing of the BES, include supporting data from the Company's system as well as PJM.

Response:

See Confidential Attachment Public Staff Set 2-18 (WAC) for load data.
See Confidential Attachment Public Staff Set 2-19 (WAC) for Company owned generation.
These attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Key communications and data from PJM are disseminated to the Company through PJM's public data management tool, Data Miner 2. As such, all other requested information, including imports, exports, frequency, and balancing/area control error (ACE), can be viewed, queried, and downloaded from Data Miner 2, which is accessible through the following link:

<https://dataminer2.pjm.com/list>.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 20 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle (only as it pertains to (1), (4) and (9) DSM activation)
Manager – Market Analytics
Dominion Energy North Carolina

Rizwan James (as it pertains to (2), (3), (6)-(8))
Director Power Generation Operations
Dominion Energy North Carolina

Dale Hinson (as it pertains to (5))
Manager of Market Origination
Dominion Energy North Carolina

Michael L. Barmer (as it pertains to (10))
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 20:

For the period December 23, 2022, through December 26, 2022, provide a timeline in 5-minute increments showing changes in, but not limited to: (1) day ahead and hourly load forecasts; (2) notifications to other utilities or other regulatory agencies, as well as PJM; (3) unit generation availability; (4) power purchases; power sales; firm or non-firm purchases/sales; (5) fuel source availability, notifications from fuel source suppliers or shippers of fuel constraints or fuel deliverability restrictions; (6) transmission system constraints; (7) curtailment, notification to interruptible customers; (8) notifications of blackouts (actual notifications that blackouts were in process, not that they were a possibility); (9) voltage control activation, DSM activation; (10) power flows to and from the Company's service area; and/or (11) any other topic that would provide context to how the Company was informed throughout the time period.

Response:

- (1) See Confidential Attachment Public Staff Set 2-18 (WAC)
- (2) System Operations made no notifications to other utilities, regulatory agencies, or PJM
- (3) See Confidential Attachment Public Staff Set 2-20(3) (RJ) for a Generating Unit Status Report.
- (4) See Confidential Attachment Public Staff Set 2-20(4) (WAC)

- (5) For the period noted in this Question 20, the Company did not receive any fuel supply notifications from fuel source suppliers. See Confidential Attachment Public Staff Set 2-20(5) (DEH) for copies of interstate pipeline operational notices, effective for the period.
- (6) PJM is responsible for managing system constraints on the Dominion Energy system
- (7) No curtailments. Interruptible customer management is coordinated by PJM through established PJM procedures
- (8) No notification of blackouts
- (9) No voltage control action; See Confidential Attachment Public Staff Set 02-20 (9) (WAC) for DSM activation
- (10) See Confidential Attachment Public Staff Set 02-20(10)(MB) for the requested information.

These attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 21 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 21:

Explain the process by which PJM coordinates and provides generation schedules for the Company.

Response:

As the Balancing Authority, PJM is responsible for the coordination and scheduling of the Company's generation fleet. PJM sends each online unit a setpoint based on the unit's incremental offer curve and the Locational Marginal Price (LMP) at the unit.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 22 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson
Manager – Electric Market Operations
Dominion Energy North Carolina

Roderick J. Gagen
Manager – Electric Market Operations (Real-Time)
Dominion Energy North Carolina

Question No. 22:

For the period December 23, 2022, through December 26, 2022, provide a detailed list of what Dominion generation units PJM called on to operate/dispatch and how the units performed to PJM dispatch.

- a. Explain any actions that the Company or PJM may have taken to potentially disable the ability to perform. For example, did PJM require the Company's pumped hydro units to run in such a manner that would have depleted their ability to perform the next day?

Response:

- a. Trade Date 12/23/22, PJM issued an operating directive to load all Bath Generation to full capability which was active throughout the Max Generation Emergency Action ended at 23:00. Bath County Dominion share generated 8,769 MW above day-ahead ("DA") award on 12/23/22. 7,254 additional MW outside PJM DA Awards were generated during the PJM Max Gen Emergency Action in HE 18-23. Bath provided > 550 MW of response to 4 of 5 Synchronized Reserve Events between 10:14 on 12/23/22 and 0600 on 12/24/22. From HE 1-6 on 12/24/22 Bath generated 676 MW under DA Generation Award, and per PJM Instruction Pumped additional 9,200 MW to rebuild inventory for Generation PJM needed for forecasted PM peak of 12/24/22 to include HE 7-9 with DA Generation awards. Dominion followed PJM directives to ensure system reliability and never fell below minimum storage levels needed to generate. Over PM peak of 12/24/22, Bath County Dominion share generated 2,669 MW in real time MW's during Max Gen Emergency Action issued by PJM which was ended at 22:00

If a unit was not performing to a PJM dispatch, a ticket was entered in PJM's eDART system. See also the Company's response to Question 25.

See Confidential Attachment Public Staff Set 2-22 (WAH) for PJM Day-Ahead Awards.

See Confidential Attachment Public Staff Set 2-22 (RJG) PJM Real Time Dispatch.xlsx

These attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 23 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 23:

In regard to generation unit availability, unit tripping, load shedding, and load exceeding predicted demand, please provide dates and times of meetings, emails, discussions, and other communications in which the Company made decisions, as well as a list of all persons participating in decision making, including their job titles.

Response:

Throughout the duration of Winter Storm Elliott, there were no directives given for unit tripping, load shedding or load exceeding predicted demands. In general, there were scheduled communications with the generating stations held during the December winter event each day from 12-23-2022 through 12-27-2022 to understand any operational issues. Additionally, Power Generation leadership was provided with reports during each of these days summarizing any operational issues and unit status.

- 0700 with Market operations – Meeting Purpose – to discuss market conditions and electric grid conditions; expected unit operations, potential unit abnormal operating conditions, restrictions, or limitations., (Director PG operations, VP Operations, Director Market Operations)
- 0730 system Generating Unit status meeting (Operations System Production Coordinating team inclusive of DA, MOC, Fuel, Fleet Operations) Meeting Purpose – normally scheduled meeting to review unit operating condition, unit generating schedules, unit maintenance and testing schedules and a 7-day operating look ahead schedule.
- 0800 Station Cold weather check in meetings (VP of Operations, Director of Operations, Generating Station Directors) Meeting Purpose – Update PG leadership and the MOC of unit operations, potential unit abnormal operating conditions, restrictions, or limitations, and to review the expected operating schedule with the stations
- 1430 with market operation next day dispatch (Director PG operations, VP Operations, Director Market Operations, Fuel) Meeting Purpose – to discuss market conditions and electric grid conditions; expected unit operations, potential unit abnormal operating conditions, restrictions, or limitations.,
- 1500 Issues report out meeting (VP of Operations, Director of Operation, Generating

Station Directors) Meeting Purpose – Update PG leadership and the MOC of unit operations, potential unit abnormal operating conditions, restrictions, or limitations, and to review the expected operating schedule with the stations

Dominion Energy North Carolina
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Data Request No. 2

The following response to Question No. 24 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle (as it pertains to purchases)
Manager – Market Analytics
Dominion Energy North Carolina

Brian M. Keefer (as it pertains to QFs)
Manager – Power Contracts and Origination
Dominion Energy North Carolina

Wesley A. Hudson (as it pertains to company generation)
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 24:

From December 23, 2022, through December 26, 2022, please provide generation from each Company asset, purchase, and aggregated QFs in five-minute intervals.

- a. Please include the primary fuel source used for each unit's generation in each time interval. To the extent the fuel source used from power purchases is unknown, please provide the Company's base assumption of fuel use.

Response:

See Confidential Attachment Public Staff Set 2-24 (WAH) for Company generation data.

See Confidential Attachment Public Staff Set 2-20(4) (WAC) for Company purchases. These transactions are sourced by PJM; therefore, the Company does not have sufficient information to make assumptions pertaining to the base fuel use.

See Confidential Attachment Public Staff Set 2-24 (QF Generation) (BMK) for QF generation. Note that the lowest level of granularity available for this information is 30 minutes.

These attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 25 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 25:

Please provide the following unit outage information:

- a. A list of units that that were known to be unavailable prior to December 23, 2022.
- b. A list of units that were expected to be online or available but failed to respond when called upon from December 23, 2022, through December 28, 2022.
- c. A list of units that underperformed or were derated (energy production below expected output) from December 23, 2022, through December 28, 2022.
 - i. A list of the de-rate amount in MWs and the dates and hours for each unit and or power purchase.

Response:

See the Company's response to Question 2-27. Additionally, please note that Mount Storm Unit 1 was initially unavailable due to a planned outage at the beginning of the event, but the Company was able to bring this unit online early to support the generation fleet as the storm progressed.

Dominion Energy North Carolina
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Public Staff
Data Request No. 2

The following response to Question No. 26 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

William A. Coyle (as it pertains to DSM programs activated by Energy Supply)
Manager – Market Analytics
Dominion Energy North Carolina

Question No. 26:

For all load reduction programs, please provide:

- a. A list of programs and their respective MW reduction that were called upon from December 23, 2022, through December 28, 2022. Include the date, hour(s) of activation, and MW reduction;
- b. List what entity called on the programs. Was it Dominion and/or PJM.
- c. A list of programs and their respective MW reduction amounts that were expected to be online or available, but failed to respond when called upon from December 23, 2022, through December 28, 2022; and
- d. A list of programs that underperformed.
 - i. The underperformance amount in MWs and the hours impacted for program.

Response:

See Confidential Attachment Public Staff Set 2-20(9) (WAC).

This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 27 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 27:

For all units/resources/programs that failed to perform, perform as expected, or perform at full nameplate potential from December 23, 2022, through December 28, 2022, please provide: (a) the time at which they failed/tripped/derated; (b) period of time associated therewith; (c) the root cause of the failure/trip/derate or most likely suspected cause; and (d) amount of lost generation at each unit.

Response:

See Confidential Attachment Public Staff Set 2-27 (RJ) for the details requested in items a-d.

This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

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Public Staff
Data Request No. 2

The following response to Question No. 28 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Brian M. Keefer (as it pertains to h)
Manager – Power Contracts and Origination
Virginia Electric and Power Company

Wesley A. Hudson (as it pertains to g, j, k)
Manager – Electric Market Operations
Virginia Electric and Power Company

Roderick J. Gagen (as it pertains to g, Solar real time output)
Manager – Electric Market Operations (Real-Time)
Virginia Electric and Power Company

Dale Hinson (as it pertains to a-f and i)
Manager of Market Origination
Dominion Energy North Carolina

Question No. 28:

Fuel and Fuel supply from December 23, 2022, through December 28, 2022:

- a. Describe the Company's understanding of the status of the natural gas supply before and during the event period for: (a) Transco; (b) suppliers/marketers; and (c) LDCs.
- b. Please explain any natural gas supply or pressure issues.
- c. Provide a map that outlines the gas line route and interconnection back to Transco for Greenville, Brunswick, and Warren Combined Cycle plants.
- d. Was the Company notified by natural gas LDCs, Transco, suppliers/marketers, etc., of potential natural gas supply or pressure issues? If so, please provide a timeline of the notifications and what the Company did in reaction to the notifications.
- e. For each of the Company's natural gas generators, please provide a sub hourly log of the incoming natural gas pressures and the limits/tolerances of natural gas supply pressure. (Note: The Company may provide more granular time series to illustrate if any

pressure issues or pressure variations occurred.)

f. Provide the commodity prices being used during this period and supporting information from source data. Values should be expressed in \$/MMBTU or equivalent \$/MWh with specific unit heat rates applied.

g. Provide a summary of how Company-owned solar facilities operated during the event period, as well as forecasted-day-ahead estimates and real-time data (in increments no less than 30 minutes).

i. Were any of the Company-owned solar units in an outage status during the event period? If so, please describe.

h. Provide a summary of how the Company's QFs (non-utility-owned solar and non-solar) operated, as well as forecasted-day-ahead estimates and real-time data (in increments no less than 30 minutes).

i. Was the Company made aware of any units being in an outage during the event period? If so, please describe.

ii. Based on post-event analysis, provide a description of whether all non-utility-owned generation (solar and non-solar) operated as expected given the weather conditions during the event period in question.

iii. Did the Company call for any non-utility-QF generation to be curtailed during the event period in question? If so, why?

i. Did the Company have any issues with coal pile freeze up? If so, please describe when the event occurred, what preventative actions were taken, why those actions did not prevent the freeze up, and how it impacted unit availability.

j. Did the Company switch to back-up fuel oil at any generation units?

If so:

i. Explain why.

ii. Provide a timeline of the switch to back-up fuel oil and then the transition off the back-up fuel oil during the event.

iii. Was the transition related to economic dispatch, fuel availability, or a combination? Please explain how the Company determines whether to switch between fuel source due to economic or uneconomic dispatch.

1. Describe if PJM required the Company to shift to back-up fuel oil or if it was a Company decision.

iv. Were there any unit performance issues related to switching to back-up fuel oil or switching off back-up fuel oil? If so, please identify the units and associated problems/issues.

k. Please describe any other fuel issues that occurred.

Response:

(a) For the event period, December 23rd and the four-day holiday weekend [December 24-27th] gas day(s), the Company augmented term supplies with spot purchases made in the day-ahead natural gas market on December 22nd and December 23rd, respectively. The Company was not aware of natural gas supply disruptions on any of its contracted pipelines, LDCs or with individual marketers/suppliers, during its day-ahead procurement activities. The Company became aware of a lack of natural gas supply availability/liquidity during the intra-day market period, starting the morning of December 24th, for the December 24th gas day. Specifically, the Company sought incremental, intra-day natural gas supply at Transco Zone 5, but was only able to find 2,500 dth. The Company cannot speak to the relative liquidity of intra-day natural gas at other supply locations during the event period.

(b) For the event period, the Company did not experience natural gas supply issues. Please see the Company's response to subpart E for a further explanation of natural gas pipeline pressure issues during the event period.

(c) See the Company's Confidential Attachment Public Staff Set 2-28(c) (DEH). The Company fuels its natural gas-fired generation fleet using a portfolio of contracted interstate pipeline capacity. Namely, the Company does not dedicate a particular firm transportation contract to any generation station location. Consequently, the attached confidential map illustrates the various interstate pipelines along with some of the natural gas supply sources used to supply and deliver fuel to the Warren Co, Brunswick Co., and Greenville Co. power stations during the event period in question.

(d) No.

(e) For the event period defined in this discovery request, all but one of the Company's gas-fired generation stations experienced sufficient upstream, natural gas pipeline pressure. Namely, the Company's Greenville Co. Power station experienced upstream pipeline pressure issues, during the event period. See the Company's Confidential Attachment Public Staff Set 2-28(e) (DEH). The pressure graph illustrates natural gas pressures at the outlet of the M&R station, whereas the pressure limit figure (slide #2) denotes an operating pressure at the inlet of the M&R station. There is some expected pressure drop between the inlet and outlet of the M&R station, as the natural gas flows through various equipment (e.g., gas heater and filters). The upstream pipeline gas pressure drop noted in Confidential Attachment Public Staff Set 2-28(e) (DEH) caused the Greenville Co. station to back down some of its generation (MWh) across a portion of the 12/24 and 12/25 gas days.

(f) See the Company's Confidential Attachment Public Staff Set 2-28(f) (DEH) for a listing of applicable natural gas daily price indices for the event period.

(g) See Confidential Attachment Public Staff Set 2-28(g) (WAH) for forecasted day-ahead estimates.

See Attachment Confidential Public Staff Set 2-28(g) (RJG).xlsx for Real-Time MW output.

No Outages for Company-owned solar units occurred during the event period.

[BEGIN CONFIDENTIAL]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[END CONFIDENTIAL]

(i) No.

(j)

i The Company switched to back-up fuel oil for several of its dual fuel generation units. The spread between natural gas and oil was significant over a multiple day period; therefore, generating the units on oil instead of natural gas was much more cost effective.

ii. See Confidential Attachment Public Staff Set 02-28(j) (WAH) for a timeline of the fuel swap for the applicable dual fuel combined cycles.

iii. Many factors go into the decision to switch units to their secondary fuel source. Economics is a primary reason. During Winter Storm Elliott, the cost to generate a unit on gas was higher on most units than it was to generate a unit on oil. Fuel and resource availability are both key factors to consider. Both gas and oil have limitations on availability. For most combustion turbines, gas is not available during the winter. For the combined cycles, oil is not unlimited. Reliability is key, so station input is also a factor. It is typically a Company decision, but PJM can direct the Company to switch fuel sources. For Winter Storm Elliott, the Company made all decisions on which fuel to burn.

iv. The Company's Bear Garden station experienced certain operational inefficiencies when switching from gas to oil. Between 00:01 12-24 - 09:13 12/24, Unit 1A tripped offline during the fuel swap from natural gas to liquid fuel due to high exhaust temperature (non-related to freezing issues). The unit was inspected and returned to

service on 12/24/22 at 16:00. Unit 1B came offline at 00:01 due to a liquid fuel stop valve malfunction (non-related to freezing weather) and returned to service at 09:13 on 12/24/22.

- (k) No other fuel issues occurred other than what has been provided in other responses.

These attachments contain confidential information as indicated and are being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 29 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer
Manager – System Operations Planning
Dominion Energy North Carolina

J. Scott Gaskill (only as it relates to sub-part (i))
General Manager, Regulatory Affairs
Dominion Energy North Carolina

Question No. 29:

The following questions are specific to rolling outages and load curtailment.

- a. Describe the Company's process for determining location and timing for rolling outages.
- b. Explain if the Company or PJM initiated any rolling outages in Dominion's service territory?
- c. If the Company did not have any rolling outages during this event, please describe how close the Company came to potentially needing to perform rolling outages to maintain system reliability.
 - i. Has the Company ever had rolling outages due to insufficient generation to supply load?
 1. If so, when was the last time?
 2. How much load was shed and how many customers were impacted?
- d. Describe the coordination of rolling outages and load curtailment between the Company and PJM.
 - i. Describe if Dominion can have rolling outages or load curtailment without notification from PJM.

- ii. Describe if PJM can initiate rolling outages or load curtailment in Company's territory without requesting Company's approval prior to the event.
 - iii. Describe how much notice PJM is required to provide to the Company prior to load curtailment.
- e. In regard to automation being used to activate rolling outages or demand reduction programs:
 - i. Please describe the automation.
 - ii. Please discuss whether the Company's automation for rolling demand reduction performed as planned.
 - iii. If the Company could not use the automated process and was relegated to a using a manual process, please provide an explanation and timeline of events.
 - iv. Please describe how the Company has tested the actions of the automation in simulations and other testing.
- f. Please explain how a system operator determines that a rolling outage is needed, the process for automation of circuit outage or, if necessary, the manual process in which the operators select the lines and outage durations.
- g. In the event of rolling outages or load shedding, please provide the Company's communications plan prior to and during an outage including a list of the main steps of public engagement and notification.
- h. Provide all mass communications to retail and wholesale customers that occurred prior to and during the demand reductions.
- i. Provide all communications the Company had with the NCUC, Virginia State Corporation Commission, and NC Public Staff.
 - i. Prior to event.
 - ii. Real time during event.
 - iii. Subsequent to event, up to December 28, 2022.

Response:

- a. For systemwide events, PJM issues the Load Shed Action with a specified amount of load to be shed. This amount is loaded into Dominion Energy's Load Shed program, which executes the action. The Load Shed program is reviewed semi-annually. Load shed blocks

are predetermined and include loads that are spread across the entire Dominion Energy system. Once executed, the amount of load shed is rotated in 15-minute increments to other circuits within the program to maintain the desired load shed target.

b. No rolling outages were initiated in the Dominion Energy service territory for this event.

c. Dominion Energy did not have any rolling outages during this event. PJM will be publishing an Analysis Report that will provide the proximity to load shed; however, Dominion Energy never even executed Voltage Reduction in its zone.

i. Dominion Energy has not had rolling outages due to insufficient generation supply since becoming a PJM member in 2005, but did have a load shed event prior to joining PJM.

1. The only known rotating outages in Dominion Energy's service territory occurred on January 19, 1994.

2. A historical report indicated that 800 MW was shed for approximately 4 hours affecting 854,000 customers.

d. See the Company's response to sub-part (a) above. Once the emergency condition no longer exists, PJM will cancel the load shed directive and all load will be restored.

i. Dominion System Operators are obligated to comply with the directives and the Operating Instructions of the PJM System Operators, to enable PJM to execute its responsibilities as Transmission Operator, Reliability Coordinator, Interchange Authority, and Balancing Authority, unless such actions would violate safety, equipment, regulatory or statutory requirements. However, during both normal and emergency conditions, the Dominion Energy System Operator has the responsibility, authority, and obligation to take and/or direct timely and appropriate real-time actions, up to and including, the shedding of firm load to maintain the reliability of the BES. Therefore, the Dominion System Operator can initiate rolling outages without notification from PJM but ONLY in extreme emergency circumstances and in the absence of the ability to communicate and coordinate these events with PJM.

ii. PJM has the authority to direct all necessary actions to secure the BES. PJM does not need to request Dominion's approval prior to giving an operating order to shed load.

iii. Coordination between PJM and Dominion Energy is the typical course of action for load shed events, but PJM is not required to give notice prior to requesting load curtailment.

e.

- i. For Voltage Reduction, the Dominion Energy System Operator will execute a command in the Load Shed Program to implement voltage reduction, and subsequent commands will be sent from the program via SCADA to transformer load tap changers in substations to reduce the voltage by a predetermined amount, resulting in corresponding reduction in load.

For Load Shed, the Dominion Energy System Operator will enter the desired amount of load to be shed into the Load Shed program. The program will send commands via SCADA to open distribution circuit breakers based on predetermined load blocks to meet the requested load shed amount. After a 15-minute period, the system will shed additional circuits before restoring the circuits shed in the previous block. This occurs continuously, for as long as needed, to maintain load shed amounts at or above the requested levels until the emergency condition no longer exists.

- ii. During this event, the load shed program was not needed or used.
- iii. During this event, the load shed program was not needed or used.
- iv. The Dominion Energy load shed program is trained on annually by all System Operators and simulations are utilized during this training to test the expected actions of the production load shed program.

f. Dominion Energy System Operators coordinate with PJM to determine the need to implement rolling outages. The circuits are grouped into blocks and are predetermined during a semi-annual review and entered in the load shed program based on circuit priority and customer sensitivity. The load shed program automatically rotates the circuits to maintain the requested amount of load off the system.

g. The Company communicates the potential for load shedding in press releases, on its website, through social media and within its customer call system. There is no specific notification to individual customers during an actual load shed action.

h. During this event, there was only a communication to the public for voluntary Conservation. No other communications were made as no other load shed actions were implemented.

i. No communications were made to any regulatory organizations by the Transmission Operations group, as there were no load shed actions

Executed to be communicated. See also Confidential Attachment Public Staff Set 2-29(i)(JSG).

This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 30 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 30:

Provide a timeline of the Company's Grid Status changes from December 23, 2022, through December 28, 2022.

- a. Provide a timeline of PJM's Grid Status changes from December 23, 2022, through December 28, 2022.

Response:

See Confidential Attachment Public Staff Set 2-30 (MLB).

This attachment contains confidential information as indicated and is being provided to the Public Staff pursuant to the confidentiality provisions of N.C. Gen. Stat. 62-34(c).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 31 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 31:

Provide a timeline of the Company's and PJM's NERC EEA status and changes from December 23, 2022, through December 28, 2022.

Response:

PJM is responsible for issuing EEAs within its control area. Dominion Energy did not issue any Company-specific EEA changes. Changes issued by PJM, and the details of such changes, can be obtained from the [PJM Emergency Procedures web site \(link embedded\)](#).

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 32 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Michael L. Barmer
Manager – System Operations Planning
Dominion Energy North Carolina

Question No. 32:

To the extent that it is known, please provide the NERC EEA status of adjacent utilities and a timeline of changes to their status from December 23, 2022, through December 28, 2022.

Response:

Dominion Energy is not aware of changes to the EEA status of adjacent utilities outside the PJM footprint during this event.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 33 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Rizwan James
Director Power Generation Operations
Dominion Energy North Carolina

Question No. 33:

Provide any notifications, request for relief, or emergency operations to or from the Department of Energy from December 23, 2022, through December 28, 2022.

Response:

The Company received no requests for relief, or emergency operations to or from the Department of Energy from December 23, 2022, through December 28, 2022.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 34 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 34:

Did the Company reduce or derate nuclear generation at any time from December 23, 2022, through December 28, 2022? If so, please describe the event, cause, and what other exhaustive actions had taken place prior to the reduction.

Response:

The Company did not reduce or derate nuclear generation at any time from December 23, 2022 through December 28, 2022.

Dominion Energy North Carolina
Questions on Winter Storm Elliott - Docket No. M-100, Sub 163
Public Staff
Data Request No. 2

The following response to Question No. 35 of Public Staff's Data Request No. 2 – Questions on Winter Storm Elliott to Dominion Energy North Carolina received on February 16, 2023, was prepared by or under the supervision of:

Wesley A. Hudson
Manager – Electric Market Operations
Dominion Energy North Carolina

Question No. 35:

In regard to maintaining ACE near zero and the stability of the Company's system from December 23, 2022, through December 30, 2022, please explain how the Company and PJM considered ramping, managing the lowest reliability operating limit (LROL), afternoon peaks, low load conditions as the temperatures increased, additional stressors of the system other than the morning peak, unit start-up time requirements, minimum loading, etc., and provide any additional information for each day, which the Company believes is important for a complete understanding or to highlight.

Response:

PJM is the Balancing Authority, and as such, the Company does not have access to this information.