

February 20, 2023

VIA ELECTRONIC FILING

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

Re: Docket No. M-100, Sub 163

Dear Ms. Dunston:

On February 17, 2023, Piedmont Natural Gas Company, Inc. (“Piedmont” or the “Company”) filed its First Submission of Responses to the Public Staff’s Second Set of Data Requests (“PS DR”) in the above-referenced docket.

It has come to Piedmont’s attention that the attachments referenced in the Company’s responses to PS DR 2-1 and PS DR 2-12 were inadvertently omitted from the filing. Also, Piedmont’s response to PS DR 2-2(b) contained an incorrect reference to the attachment for PS DR 2-1, and should have read as follows:

“b. Checklists in the Winter Weather Playbook have been previously provided. Please see the attachment provided herewith for documentation of the completion of work.”

In order to correct these errors, Piedmont hereby submits for filing its Corrected First Submission of Responses to the Public Staff’s Second Set of Data Requests Nos. 2-1, 2-2(b) and 2-12.

Thank you for your assistance with this matter. If you have any questions regarding this filing, you may reach me at the number shown above.

Sincerely,

/s/ James H. Jeffries IV
James H. Jeffries IV

JHJ/bms

cc: Elizabeth Culpepper
Megan Jost
Brian Heslin
Pia Powers
Brian Franklin
Mason Maney

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the attached is being served this date upon all of the parties to this docket electronically or by depositing a copy of the same in the United States Mail, First Class Postage Prepaid, at the addresses contained in the official service list in this proceeding.

This the 20th day of February, 2023.

/s/ Brooke M. Szymanski
Brooke M. Szymanski

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

Topic: Piedmont's (PNG) winter planning and system preparedness

1. Provide a general description and list of the Company's policies and procedures for routine winter preparedness.
 - a. Please provide a copy of the "Winter Playbook" referenced in the Company's presentation at the January 30th Staff Conference.
 - b. Please provide a detailed discussion of all changes made to 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.

Response: The Winter Weather Playbook is the procedure used to ensure readiness for winter events.

- a. Please see the attached Winter Weather Playbook provided herewith.
- b. The origination of the Winter Weather Playbook was in response to Winter Storm Uri. There were equipment enhancements performed based on the prior weather events capturing best practices from industry peers, which are also included in the playbook. After Winter Storm Uri, Piedmont scheduled meetings and site visits with regional utilities that operate LNG plants and compressor stations to ensure the inclusion of all best practices into our equipment, facilities, and winter weather playbook while providing our lessons learned to those other utilities.
 - i. Creation of the Winter Weather Playbook was the enhancement that prepared Piedmont for Winter Storm Elliot.
 - ii. The Winter Weather Playbook will be updated based on lessons learned from Winter Storm Elliott to make Piedmont even more prepared for the next event.
 - iii. Any changes made will increase equipment reliability and availability.

**Piedmont 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**


Name and title of responsible person: Adam Long, Vice President-Gas Pipeline Operations

Name and title of preparer: Andrew Donato, Manager – Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022 Page 1 of 29



Natural Gas Business Unit

Winter Weather Playbook

Natural Gas Pipeline Operations

Issue Date: 11/15/2021

Revised Date: 08/29/2022

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment



	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 2 of 29

Table of Contents

1.	Introduction	3
1.1.	Process	3
1.2.	Scope	3
1.3.	Definitions.....	3
1.4.	Effective Dates	3
2.	Roles and Responsibilities	4
2.1.	Vice President of Pipeline Operations.....	4
2.2.	Director – Gas Control & SCADA Teams.....	4
2.3.	Director – Compression	4
2.4.	Director – Supplemental Gas.....	4
2.5.	Director – Gas Technical Field Operations	4
3.	Winter Weather Response	5
3.1.	Compression	5
3.2.	Supplemental Gas	15
3.3.	Technical Field Operation.....	22
4.	Revision Log	29

Piedmont Natural Gas Company, Inc.
 Docket No. M-100, Sub 163
 Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022 Page 3 of 29

1. Introduction

1.1. Process

- 1.1.1. Duke Energy's Natural Gas Business Unit (NGBU) Winter Weather Playbook has been developed to respond to potential cold weather events. To ensure continuity of operation during winter weather events, NGBU Pipeline Operations has reviewed and identified equipment design temperatures and processes potentially impacted by low temperatures by reviewing vendor documentation and field checks. Action steps are identified below that shall be taken when first forecasted weather temperatures for the winter season, should meet the trigger thresholds identified.
- 1.1.2. The Winter Weather Playbook shall be maintained by the NGBU Gas Control department and made readily available to all locations covered within this Playbook. Both hardcopy and electronic versions may constitute availability for the purposes of this document. Temperature mitigation actions shall be documented by Gas Control in eLogger when completed as temperature thresholds are first forecasted for the winter season.

1.2. Scope

- 1.2.1. This plan applies to any Duke Energy NGBU Pipeline Operations location including Compression, Supplemental Gas, and Technical Field Operation facilities. Action items have been identified to be initiated upon temperature forecast thresholds as determined in this playbook.

1.3. Definitions

Abnormal Operating Condition (AOC) - A condition identified by the controller that may indicate a malfunction of a component or deviation from normal operations that may:

- A) Indicate a condition exceeding design limit; or
- B) Results in a hazard(s) to persons, property or the environment.

Pipeline Operations – Include Technical Field Operations, Supplemental Gas, and Compression facilities.

Forecasted Temperature – The lowest temperature forecasted by major media outlets.

Mitigation – Any measure taken prior to forecasted threshold temperature to include preventative maintenance, best practices, intermediate precautions, etc.

1.4. Effective Dates


- 1.4.1. The original Duke Energy Winter Weather Playbook was implemented November 15, 2021. With each review process, any changes to the plan will be effective upon the date of the review. Subsequent changes to this procedure will be effective as of the originated or revised date annotated in the footer of each applicable procedure.

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163

Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022 Page 4 of 29

- 1.4.2. The Winter Weather Playbook devices and mitigation must be reviewed annually prior to winter operations. Upgraded or newly installed equipment shall be reviewed and included to the playbook as needed.

2. Roles and Responsibilities

- 2.1. Vice President of Pipeline Operations
 - 2.1.1. The Vice President of Pipeline Operations is directly responsible for the safe operation of the gas pipeline system and for assuring the reliability and continuity of operations of the Duke Energy NGBU Compression, Supplemental Gas, and Technical Field Operations.
- 2.2. Director – Gas Control & SCADA Teams
 - 2.2.1. The Director Gas Control & SCADA Teams is responsible for maintaining this playbook including, but not limited to, reviewing with applicable parties, updating, and maintaining this playbook
- 2.3. Director – Compression
 - 2.3.1. The Director Gas Compression Teams is responsible for ensuring the action items identified in this playbook are implemented and completed upon forecasting of threshold temperatures. In addition, responsible for ensuring all processes and equipment have been reviewed and included as needed.
- 2.4. Director – Supplemental Gas
 - 2.4.1. The Director Supplemental Gas Teams is responsible for ensuring the action items identified in this playbook are implemented and completed upon forecasting of threshold temperatures. In addition, responsible for ensuring all processes and equipment have been reviewed and included as needed.
- 2.5. Director – Gas Technical Field Operations
 - 2.5.1. The Director Gas Technical Field Operations Teams is responsible for ensuring the action items identified in this playbook are implemented and completed upon forecasting of threshold temperatures. In addition, responsible for ensuring all processes and equipment have been reviewed and included as needed.


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 5 of 29

3. Winter Weather Response

3.1. Compression

3.1.1. **Cabarrus Compressor** site located at 2560 Derita Road, Concord, NC 28027. Lowest recorded temperature is -5° F recorded in 1985. (according to Weather.Gov)

3.1.1.1. Mitigation actions when the temperature reaches 32° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Unit valves	-40° F	Verification of process valves and cycling as needed.
2	Infrared/Electric Heater	N/A	Verify indoor building heater(s) operations
3	Site Utilities	32° F	Check to verify water supply is running properly, verify backflow preventer is operating properly. Verify all HVAC is operating properly.
4	Backup Generator Control room	Unknown	Verify backup generator battery charger and hot start are operational. Verify no faults at control panel.
5	Compressor	Unknown	Verify Oil Hot start for proper operation. Increased inspections to confirm normal operation.
6	Drivers	Unknown	Verify oil and coolant hot starts are operational via increased inspections.
7	Oil Head Tanks	N/A	Verify tanks are full, transfer as necessary to mitigate cold weather impacts.
8	Liquid Hydrocarbons	N/A	Check tanks, separators, knockouts for liquids transfer as necessary, schedule offload as required


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 6 of 29

3.1.1.2. Mitigation actions when the temperature reaches 0° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Yard Valves	-15° to -40° F	Check to verify icing does not interfere with operations.
2	Compressor Station	0° F and below.	Staff site, as necessary, increase in station inspections to confirm normal operations. Compressor Techs to communicate with Gas Control on a routine basis to verify plant status.


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 7 of 29

3.1.2. **Clayton Compressor** site located at 4106 Compressor Drive, Clayton, NC 27520. Lowest recorded temperature is -9° F recorded in 1985.

3.1.2.1. Mitigation actions when the temperature reaches 32° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Unit valves	-40° F	Verification of process valves and cycling as needed.
2	Infrared/Electric Heater	Unknown	Verify indoor building heater(s) operations
3	Site Utilities	32° F	Check to verify water supply is running properly, verify backflow preventer is operating properly. Verify all HVAC is operating properly.
4	Backup Generator Control room	Unknown	Verify backup generator battery charger and hot start are operational. Verify no faults at control panel.
5	Compressor	Unknown	Verify Oil Hot start for proper operation. Increased inspections to confirm normal operation.
6	Drivers	Unknown	Verify oil and coolant hot starts are operational via increased inspections.
7	Oil Head Tanks	N/A	Verify tanks are full, transfer as necessary to mitigate cold weather impacts.
8	Liquid Hydrocarbons	N/A	Check tanks, separators, knockouts for liquids transfer as necessary, schedule offload as required


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 8 of 29

3.1.2.2. Mitigation actions when the temperature reaches 0° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Yard Valves	-15° to -40° F	Check to verify icing does not interfere with operations.
2	Compressor Station	0° F and below.	Staff site, as necessary, increase in station inspections to confirm normal operations. Compressor Techs to communicate with Gas Control on a routine basis to verify plant status.


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 9 of 29

3.1.3. **Lumberton Compressor** site located at 3012 Singletary Church Road, Lumberton, NC 28358. Lowest recorded temperature is -1° F recorded in 1985.

3.1.3.1. Mitigation actions when the temperature reaches 32° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Unit valves	-40° F	Verification of process valves and cycling as needed.
2	Infrared/Electric Heater	Unknown	Verify indoor building heater(s) operations
3	Site Utilities	32° F	Check to verify water supply is running properly, verify backflow preventer is operating properly. Verify all HVAC is operating properly.
4	Backup Generator Control room	Unknown	Verify backup generator battery charger and hot start are operational. Verify no faults at control panel.
5	Compressor	Unknown	Verify Oil Hot start for proper operation. Increased inspections to confirm normal operation.
6	Drivers	Unknown	Verify oil and coolant hot starts are operational via increased inspections.
7	Oil Head Tanks	N/A	Verify tanks are full, transfer as necessary to mitigate cold weather impacts.
8	Liquid Hydrocarbons	N/A	Check tanks, separators, knockouts for liquids transfer as necessary, schedule offload as required


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 10 of 29

3.1.3.2. Mitigation actions when the temperature reaches 0° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Yard Valves	-15° to - 40° F	Check to verify icing does not interfere with operations.
2	Compressor Station	0° F and below.	Staff site, as necessary, increase in station inspections to confirm normal operations. Compressor Techs to communicate with Gas Control on a routine basis to verify plant status.


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 11 of 29

3.1.4. **Wadesboro Compressor** site located at 259 Pleasant Grove Church Road, Wadesboro, NC 28170. Lowest recorded temperature is -6° F recorded in 1985.

3.1.4.1. Mitigation actions when the temperature reaches 32° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Unit valves	-40° F	Verification of process valves and cycling as needed.
2	Infrared/Electric Heater	Unknown	Verify indoor building heater(s) operations
3	Site Utilities	32° F	Check to verify water supply is running properly, verify backflow preventer is operating properly. Verify all HVAC is operating properly.
4	Backup Generator Control room	Unknown	Verify backup generator battery charger and hot start are operational. Verify no faults at control panel.
5	Compressor	Unknown	Verify Oil Hot start for proper operation. Increased inspections to confirm normal operation.
6	Drivers	Unknown	Verify oil and coolant hot starts are operational via increased inspections.
7	Oil Head Tanks	N/A	Verify tanks are full, transfer as necessary to mitigate cold weather impacts.
8	Liquid Hydrocarbons	N/A	Check tanks, separators, knockouts for liquids transfer as necessary, schedule offload as required


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY


Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 12 of 29

3.1.4.2. Mitigation actions when the temperature reaches 0° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Yard Valves	-15° to -40° F	Check to verify icing does not interfere with operations.
2	Compressor Station	0° F and below.	Staff site, as necessary, increase in station inspections to confirm normal operations. Compressor Techs to communicate with Gas Control on a routine basis to verify plant status.

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 13 of 29

3.1.5. **WS Lee Compressor** site located at 1425 Cannon Bottom Road, Belton, SC 29627. Lowest recorded temperature is -2° F recorded in 1985.

3.1.5.1. Mitigation actions when the temperature reaches 32° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Unit valves	-40° F	Verification of process valves and cycling as needed.
2	Infrared/Electric Heater	Unknown	Verify indoor building heater(s) operations
3	Site Utilities	32° F	Check to verify water supply is running properly, verify backflow preventer is operating properly. Verify all HVAC is operating properly.
4	Backup Generator Control room	Unknown	Verify backup generator battery charger and hot start are operational. Verify no faults at control panel.
5	Compressor	Unknown	Verify Oil Hot start for proper operation. Increased inspections to confirm normal operation.
6	Drivers	Unknown	Verify oil and coolant hot starts are operational via increased inspections.
7	Oil Head Tanks	N/A	Verify tanks are full, transfer as necessary to mitigate cold weather impacts.
8	Liquid Hydrocarbons	N/A	Check tanks, separators, knockouts for liquids transfer as necessary, schedule offload as required


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 14 of 29

3.1.5.2. Mitigation actions when the temperature reaches 0° F

	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Yard Valves	-15° to - 40° F	Check to verify icing does not interfere with operations.
2	Compressor Station	0° F and below.	Staff site, as necessary, increase in station inspections to confirm normal operations. Compressor Techs to communicate with Gas Control on a routine basis to verify plant status.


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 15 of 29

3.2. Supplemental Gas


3.2.1. **Bentonville LNG** facility located 2256 Harper House Road, Four Oaks, NC 27524. Lowest recorded temperature is -9° F recorded in 1985.

3.2.1.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
N/A	Utility and Fire Water Systems	32° F	Verify all heat trace is functioning properly.
N/A	Motor servos	32° to 140° F	Monitor indoor heater building temperature. When temperature reaches 35°-40° F start electric heaters by the WPG heaters to verify proper temperature for equipment.
Nexus	Digital controller for WPG heaters	32° to 140° F	Monitor indoor heater building temperature. When temperature reaches 35°-40° F start electric heaters by the WPG heaters to verify proper temperature for equipment.
Pk104/105	Instrument air compressor	32° to 140° F	Monitor indoor heater building temperature. When temperature reaches 35°-40° F start electric heaters by the Air compressors to verify proper temperature for equipment.
TK-102/ T-8000	Fire Water Tank	32° F	Recirculate tank once Low Temperature Alarm is received
H-305	Fuel Gas Heater	32° F	Verify and monitor control panel heaters are working

3.2.1.2. Mitigation actions when the temperature reaches 0° F


<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
PCV 8-1	Discretionary valve	Valve body - - 320° to 200° F Actuator - 20° to 180° F	Open and close valve remotely once a day to verify proper functioning.

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 16 of 29

3.2.2. **Huntersville LNG** facility is located at 11001 McCoy Road, Huntersville, NC 28078. Lowest recorded temperature is -5° F recorded in 1985.

3.2.2.1. Mitigation actions when the temperature reaches 32° F


<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
	Utility and Fire Water Systems	32° F	Verify all heat trace is functioning properly.
P-7 & P-8	Fire Pumps	Unknown	Verify indoor heaters are working properly at weekly pump testing through Operator rounds.
Heater Building (HTR-501/601/701)	Glycol Heaters	32° F	Run heaters as needed to maintain bath temperatures
Well Pump	Pump	Unknown	Verify heat trace is working properly
IAC-1 & IAC-2	Instrument Air	Unknown	Verify heater is working properly and in auto
HTR-301	Fuel Gas Heater	32° F	Verify and monitor control panel heaters are working

	Winter Weather Playbook		Winter_Weather_Playbook
	Pipeline Operations		Revision Number: 1
			Effective Date: 8/29/2022
			Page 17 of 29

3.2.2.2. Mitigation actions when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
Standby	Valves	-4° to -60° F	Verify valves are in good working condition on operational rounds install insulation or other mitigation devices
Vaporization	Valves	-4° to -60° F	Verify valves are in good working condition on operational rounds install insulation or other mitigation devices
Fuel Gas Train	Fuel Gas	-4° F	Verify valves are in good working condition on operational rounds install insulation or other mitigation devices

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment


	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 18 of 29

3.2.3. **Nashville LNG** facility located at 1398 County Hospital Road, Nashville, TN 37218. Lowest recorded temperature is -17° F recorded in 1985.

3.2.3.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
P – 001/002/003	Fire Pumps	32° F	Verify and monitor building heaters are working on a weekly check
H-1-2-3	WG Heaters	32° F	Run heaters as needed to maintain bath temps
C-2-3-4	BOG Comp	32° F	Verify proper operations of oil heaters
	Plant water	Unknown	Verify proper operation of heater in backflow preventer building
	Servos	32° F	Verify and maintain heat trace
Mac 1/2	Plant Air	Unknown	Maintain air dryer and verify moisture indicating beads are good
	All Building A/C units	Unknown	Serviced and operation verified before and during winter season
T-001	Fire Water Tank	32° F	Maintain tank heaters through Fire Panel alarm and weekly verification of tank water temperature
Vaporization System	Water Glycol	Unknown	Verify by testing freeze temperature annually
H-5	Fuel Gas Heater	32° F	Verify and monitor building heaters are working

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 19 of 29

3.2.3.2. Mitigation actions when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
Mac 1/2	Instrument Air	-4° F	Verify proper operation of building heater
G-1	Generator	0° F	Maintain battery temp above 0 degrees
HP – 1/2/3	Asco Pressure Switches	-4° F	Use Heat trace if needed
H – 1/2/3	WG Heater Control Panels	-4° F	Verify proper operation of panel heaters


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
	Pipeline Operations		Revision Number: 1
			Effective Date: 8/29/2022
			Page 20 of 29

3.2.4. **Robeson LNG** facility located at 680 Reverend Bill Road, Maxton, NC 28364. Lowest recorded temperature is -3° F recorded in 1985.

3.2.4.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
P-9001/9002/ 9003	Fire Pumps	32° F	Verify and monitor building heaters are working
G-8009 A/B	Generator	Unknown	Daily verification of unit and panel status. Verify engine coolant heater is working properly
H-3008 A/B/C	Glycol Heaters	32° F	Run heaters as needed to maintain bath temperatures
T-9000	Fire Water Tank	32° F	Recirculate tank when Low Temperature Alarm is received
Well Pump	Pump	Unknown	Verify heat trace is working properly
C-9001 A/B	Instrument Air	Unknown	Verify heater is working properly and in auto. Verify proper operation of air dryer.
	Plant water	32° F	Verify proper operation of heater in backflow preventer building. Verify proper operation of heat trace.
Vaporization System	Water Glycol	Unknown	Verify by testing freeze temperature annually
E-5003	Fuel Gas Heater	32° F	Verify and monitor control panel heaters are working
E-6001 A/B	Boil-off Gas Pre-heaters	32° F	Verify and monitor control panel heaters are working


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY


Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 21 of 29

3.2.4.2. Mitigation actions when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
G-8009 A/B	Generator	0° F	Maintain battery temp above 0 degrees
H – 3008 A/B/C	WG Heater Control Panels	-4° F	Verify proper operation of panel heaters

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 22 of 29

3.3. Technical Field Operation

3.3.1. **Nashville, TN.** Lowest recorded temperature is -17° F recorded in 1988.

3.3.1.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Williams Odorizer Pump	-10° to 200° F	Routine Preventive maintenance, Check day tank levels, Verify blanket pressure, Verify odorant injections in SCADA
2	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
4	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 23 of 29

3.3.1.2. Mitigation action when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Williams Odorizer Pump	-10° to 200° F	Heat trace tape and cold weather blankets and pipe insulation, along with 45-degree maintenance
2	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
4	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations
5	Regulators	-20° to 180° F	Check regulator for external icing and confirm pressures are within setpoint limitations
6	Reliefs	-20° to 180° F	Check relief for external icing and confirm proper operation


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 24 of 29

3.3.2. **Ohio/Kentucky.** Lowest recorded temperature is -25° F recorded in 1977.

3.3.2.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY


Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 25 of 29

3.3.2.2. Mitigation actions when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations
3	Regulators	-20° to 180° F	Check regulator for external icing and confirm pressures are within setpoint limitations
4	Reliefs	-20° to 180° F	Check relief for external icing and confirm proper operation
5	Daniel Senior Sonic USM Transducers	-4° to 131° F	Monitor Scada networks for outages and coordinate with gas control to get back online

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 26 of 29

3.3.3. TFO West.

3.3.3.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations


Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY


Feb 20 2023

	Winter Weather Playbook		Winter_Weather_Playbook
			Revision Number: 1
	Pipeline Operations		Effective Date: 8/29/2022
			Page 27 of 29

3.3.3.2. Mitigation actions when the temperature reaches 0° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations
4	Regulators	-20° to 180° F	Check regulator for external icing and confirm pressures are within setpoint limitations as needed
5	Reliefs	-20° to 180° F	Check relief for external icing and confirm proper operation as needed

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 28 of 29

3.3.4. **TFO East.** Lowest recorded temperature is -5° F recorded in 1989.

3.3.4.1. Mitigation actions when the temperature reaches 32° F

<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations

3.3.4.2. Mitigation actions when the temperature reaches 0° F


<u>Tag Number</u>	<u>Component</u>	<u>Equipment Temp Rating</u>	<u>Mitigation</u>
1	CWT Heater	-40° to 395° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
2	Bath Heaters	-20° to 195° F	Verify that the Glycol is at the proper levels, complete burner, controller and ignitor inspections and monitor Scada networks for temperature fluctuation
3	Pilot Heaters	Unknown	Verify that burner will light; change out element as necessary. Monitor Scada for temperature fluctuations
4	Regulators	-20° to 180° F	Check regulator for external icing and confirm pressures are within setpoint limitations as needed
5	Reliefs	-20° to 180° F	Check relief for external icing and confirm proper operation as needed

PRINTED COPIES ARE NOT DOCUMENT CONTROLLED.

Please refer to the Duke Energy NGBU Portal site for the latest authorized version.

OFFICIAL COPY

Feb 20 2023

	Winter Weather Playbook	Winter_Weather_Playbook
		Revision Number: 1
	Pipeline Operations	Effective Date: 8/29/2022
		Page 29 of 29

4. Revision Log

The table below documents the history of each revision issued and identifies the following: Revision Number, Date, Summary of Changes (including reason for change, and a list of Legacy Duke/Piedmont Documents used to integrate this document), Responsible Party (person or group facilitating changes).

Rev #	Date	Summary of Changes	Responsible Party
0.0	11.15.2021	Initial Release	
1.0	08.29.2022	Remove Propane Operations due to closure of facilities, added Fuel Gas Heaters controls to all LNG facilities due to finding of one component rated at 32F. No changes for Compression confirmed by Tyler Barbare, No changes for TFO confirmed by Alan Henderson.	Ryan Smith
2.0			
3.0			

Piedmont Natural Gas Company, Inc.
Docket No. M-100, Sub 163
Public Staff Data Request No. 2-1 Attachment

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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 LNG plant, compressor station, gas infrastructure and other associated infrastructure to supply fuel 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.

Response: Personnel from the Company's Gas Compression, LNG, and Technical Field Operations (TFO) teams have actions required for completion within the Winter Weather Playbook prior to forecasted temperature thresholds.

- a. Field staff are responsible for thorough completion of assigned tasks when reporting completion of winter preparedness activities.
- b. Checklists in the Winter Weather Playbook have been previously provided. Please see the attachment provided herewith for documentation of the completion of work.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Ryan Smith, Director - LNG and Compression

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

Log Detail Report



Entry ID:	289465	Location:	Pipeline System
Log:	Pipeline	Created By/Date:	Jerry K Morgan - 11/10/2022 3:03 PM
Crew:	N/A	Mod By/Date:	Wyatt Gould - 12/23/2022 9:32 AM
Shift:	Day Shift	Completed By/Date:	
Log Date:	11/10/2022 2:59 PM		

Log is NOT complete

Comments: "WINTER WEATHER PLAYBOOK"
#287078 Nashville LNG
#287077 Huntersville LNG

Shift Turnover Log

Shift Turnover Log Daily Operations
Types Information

Appended Comments

Eric @ WS Lee confirms Winter checklist complete (Kim E Alsop, 11/10/2022 3:06 PM)

Dwayne Stewart did WWP checklist. (Tony C Hall, 11/10/2022 3:08 PM)

At Clayton Compressor. (Tony C Hall, 11/10/2022 3:10 PM)

Aaron Muniz did WWP checklist at Wadesboro Compressor. (Tony C Hall, 11/10/2022 3:11 PM)

Richard Wentland did WWP checklist at Lumberton Compressor. (Tony C Hall, 11/10/2022 3:11 PM)

Andy,

Robeson LNG has completed the prep work in the winter weather playback. Thanks.

Respectfully, Andrew Park

(Mickey Martin, 11/11/2022 9:57 AM)

per Eric Stakem- Cabarrus winter playbook has been successfully completed (Robert Trull, 11/11/2022 10:30 AM)

per Lance Eckford all sites have made preparations for Compression and reported to Andy Donato by email and he asked for GC to update T# 289465 . (Mickey Martin, 11/11/2022 12:15 PM)

Charles 252-343-1946- all East winterization has been completed heaters have been lit (Ryan W Laney, 11/12/2022 8:13 PM)

Ryan Smith called and noted that Robeson LNG station is ready to Vaporize with 3 to 4 hours notice. (Wyatt Gould, 11/26/2022 5:10 PM)

Increased WT Harris 440 Pineville RS 440

(Ryan W Laney, 12/20/2022 4:27 PM)

Nashville LNG called and since they hit 0° yesterday they have completed the 0° Winter playbook and are complete. (Wyatt Gould, 12/23/2022 9:32 AM)

OFFICIAL COPY

Feb 20 2023

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

3. Is the Board of Directors of the Company or Duke Energy, Inc. (Boards), any committee of the Boards, 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.

Response: Neither the Company's Board of Directors, Board committees, nor the Senior Management Committee are routinely briefed on Piedmont's winter preparedness. Any open or outstanding item(s) in Piedmont's winter preparedness that would impose a risk to system reliability would be a matter that the Board would be briefed on. To date, Piedmont has not had any open or outstanding items that would pose a risk to system reliability.

- a. No briefings have occurred.
- b. Piedmont classifies winters by the entire winter season. December 2022 is part of the Winter 2022/2023 season.
- c. No briefings were held.
- d. No briefings were held in 2020, 2021, or 2022.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Adam Long, Vice President - Gas Pipeline Operations

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

OFFICIAL COPY

Storm planning and restoration from storm related outages

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

Response: When cold temperatures are forecasted, the Company convenes a meeting of its "Cold Weather Team" to finalize readiness for the weather event. The Company's Operations, Gas Supply, and Engineering personnel evaluate readiness from a staffing, gas supply, and gas system perspective. The Company may schedule additional meetings as necessary to evaluate follow up items, or as the projected forecast changes.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Andrew Donato, Manager - Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

Feb 20 2023

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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. Please provide the following:

- 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 (both on-system and off-system) 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 describe any actions taken to prevent gas supply interruption due to potentially interrupted service.
 - ii. Please provide 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.).

Response:

- a. Internal leadership stakeholders critical to the Company's immediate preparation and real-time oversight of Winter Storm Elliott gathered at the following junctures:
 - December 16, 2022: Pipeline Operations Winter Meeting;
 - December 20, 2022: Cold Weather Team Meeting;
 - December 23, 2022: LNG Weekend Finalization Meeting; and

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

- System Status Meetings on December 24, 2022 at 0800, 1300, 2000, and on December 25, 2022 at 0900 and 2000.

All forecast data are shown in the Company's response to PS DR 2-15(a).

- b. None of the communications and coordination of weather forecasts with Company staff, interstate pipelines, and storage staff during this period were different from or in excess of those performed during standard business operations. The Company made several calls to interstate suppliers, but it had nothing beyond normal standard business communications with these parties.
- c. All the Company's natural gas purchases to serve its customer needs through the duration of Winter Storm Elliott were "firm" supply purchases, which is no different than the Company's normal gas purchasing protocols for system supply. In other words, the Company did not purchase any natural gas supply during this winter storm event that would be considered "interruptible" gas supply.
 - i. To further ensure that the Company's firm gas supply purchases would not be interrupted because of a gas supplier's invocation of the Force Majeure terms that are part of North American Energy Standards Board ("NAESB") gas supply purchase agreements, the Company purchased gas using term supply daily call options and spot purchases at points with liquidity in the market and from suppliers that have proven to be dependable in the past.
 - ii. Gas supply purchases can be made through the Intercontinental Exchange ("ICE") trading platform, ICE Chat instant messaging system, email or via phone. All the Company's gas traders and all the counterparties the Company transacts with have access to the ICE trading platform and the ICE Chat instant messaging system.
- d. Please see the timeline provided in the Company's response to PS DR 2-5(a).

Name and title of responsible person:

- a. Adam Long, Vice President - Gas Pipeline Operations & Sarah Stabley, Managing Director - Gas Supply Optimization & Pipeline Services
- b. Adam Long, Vice President - Gas Pipeline Operations
- c. Todd Breece, Manager - Natural Gas Trading & Optimization & Sarah Stabley, Managing Director - Gas Supply Optimization and Pipeline Services
- d. Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer:

**Piedmont 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**

- a. Adam Long, Vice President - Gas Pipeline Operations & Sarah Stabley, Managing Director - Gas Supply Optimization & Pipeline Services
- b. Andrew Donato, Manager - Gas Control
- c. James Manning, Senior Gas Trader
- d. Andrew Donato, Manager - Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

6. Please provide a detailed discussion of 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.

Response: Piedmont held a standard cold weather preparation meeting early during the week of Winter Storm Elliot to discuss the potential storm impacts. It was determined at these meetings that the normal operations staffing would be sufficient, given the pipeline system condition and forecasted weather.

- a. No internal memos of this nature were generated regarding the need for staffing, working through the holiday, or gas conservation. The Company's Operations leadership had on-going meetings prior to and during the winter storm to assess preparation and operations.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Andrew Donato, Manager - Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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 the Storm Elliott.

Response: The Company's LNG department is staffed 24/7. The Company's Compression department is staffed 24/7, if weather dictates. The Company's TFO personnel is deployed from home on an as-needed basis.

- a. No additional work crews are scheduled.
- b. After Storm Uri, there were no changes to field deployment.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Alan Henderson, Director - Gas Technical Field Operations

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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:

- a. Firm Transportation customers
- b. Firm Sales service customers
- c. Interruptible Transportation customers
- d. Interruptible Sales service customers

Response: For context, and as described in the Company's comments filed on June 29, 2022, in Docket No. M-100, Sub 163, Piedmont does not have immediate perfect control over customer demands on its system (i.e. Piedmont cannot turn service to every customer on and off remotely). For the vast majority of Piedmont's customers - namely those who are provided firm gas service under Residential, Small General and Medium General Service Rate Schedules, involuntary curtailment would involve physically turning valves at customer locations. With close to a million customers in North Carolina, this physical curtailment approach is simply not workable as a general strategy. Instead, Piedmont relies on its customers served on Large General Service Rate Schedules – notably Large General Service Interruptible Sales and Large General Interruptible Transportation Service Rate Schedules, whom are provided interruptible gas service under a relatively lower margin rate than customers receiving firm gas service—to comply with the Company's directives to interrupt service when notified by the Company.

- a. Firm Transportation customers refers to those customers served by Piedmont under its Large General Transportation Service Rate Schedule. The curtailment of gas service to Piedmont's Firm Transportation customers and to Piedmont's Large General Service Firm Sales customers would only occur, if needed, after the interruption of gas service to the Company's customers served on an interruptible basis, which are those Large General Service customers (interruptible sales service and interruptible transportation service).

All customers interrupted or curtailed under the Company's four Large General Service Rate Schedules and related special contracts would be individually notified by Piedmont of an impending service interruption/curtailment event via telephone call and/or email in advance, as practicable. All interrupted/curtailed Large General Service Customers are expected to cease utilizing gas at or before the time indicated in the Company's interruption/curtailment notice. If a Large General Service customer continues draw gas after the Company's initiation of an interruption/curtailment event, the Company can resort to manually shutting the customer's valve in the field. At the end of the interruption/curtailment event,

**Piedmont 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**

the impacted Large General Service customers would be informed by the Company via telephone, email or in person that they are now authorized to resume their use of natural gas. Any customer valve manually shut by the Company would thereafter be manually re-opened by the Company.

- b. See the Company's response to PS DR 2-8(a).
- c. See the Company's response to PS DR 2-8(a).
- d. See the Company's response to PS DR 2-8(a).

Name and title of responsible person: Sarah Stabley, Managing Director - Gas Supply Optimization and Pipeline Services

Name and title of preparer: Brady Gould, Manager - Natural Gas Scheduling

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

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.

Response: Please see the Company's response to PS DR 2-5(a), which indicates the daily meetings the Company held during this period regarding active preparation for and real-time oversight of Winter Storm Elliott.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Andrew Donato, Manager - Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

OFFICIAL COPY

Feb 20 2023

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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.

Response: In the Company's annual winter design day planning process, the Company computes a five percent (5%) reserve margin upon its forecasted firm sales demand for Design Day. The Company then arranges for capacity to provide for the delivery of forecasted Design Day demand inclusive of the reserve margin quantity. The Company utilizes a reserve margin in its plans to accommodate statistical anomalies, unanticipated supply or capacity interruptions, Force Majeure impacts, emergency gas usages, and/or actualized colder-than-design day weather.

Name and title of responsible person: Jeff Patton, Manager – Pipeline Services & Sarah Stabley, Managing Director – Gas Supply Optimization and Pipeline Services

Name and title of preparer: Jeff Patton, Manager – Pipeline Services

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

**Piedmont 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**

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.

Response: The Company’s operating best practice is to pack the lines during warmer temperatures/lower demand times. Piedmont implemented this practice during the night shift of 12/23/22 into 12/24/22. LNG was brought online during the early evening on 12/23/22 at all three NC locations, in accordance with the predetermined operations plan.

Name and title of responsible person: Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer: Andrew Donato, Manager – Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

OFFICIAL COPY

Feb 20 2023

**Piedmont 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**

OFFICIAL COPY

Feb 20 2023

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 the similarities between the December 2022 cold weather event versus those of the 2014, 2015, and 2018 polar vortexes and cold weather event, 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.

Response: Please see the Company's responses to PS DR 2-1, 2-4, 2-5(a), 2-5(d), and 2-6 describing the Company's preparation plans for cold weather events.

- a. Piedmont utilizes Duke Energy's Meteorology weather forecasting services and receives weather forecast files hourly from 7am to 5pm. Piedmont uploads these weather files to its forecasting program, GasDay. For its North Carolina and South Carolina jurisdictions, Piedmont receives data from nine weather stations. The GasDay forecasting program carefully tunes weighted averages of weather forecasts from multiple stations in or near the target operating area for an optimal natural gas load forecast.
- b. Piedmont uses a licensed forecasting program called GasDay that produces daily and hourly short-term natural gas demand forecasts. This forecasting program is provided from an outside vendor, Marquette Energy Analytics (MEA).
- c. Piedmont used the GasDay forecasting program in 2014, 2015, and 2018.
- d. See the attachment provided herewith for the actual average temperature and wind for Piedmont's service territories in NC and SC during the 2014, 2015, 2018 and 2022 cold weather events, as well as top ten throughput days (excluding gas throughput to the Company's power generation customers). The cold weather on gas day December 23, 2022 produced the 7th highest load day. The highest

**Piedmont 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**

throughput day occurred on January 4, 2018. Winter Storm Elliot did have higher than average winds compared to the events in 2014 and 2018, but was similar to the observed 24-hour winds in 2015. Both the 2022 weather event (Dec 22 to Dec 23) and the 2014 weather event (Jan 5 to Jan 6) included periods where the 24-hour average temperatures dropped significantly from the prior day; the 2022 event had the greatest day-over-day drop in temperature.

- e. The Company's preparation in 2014, 2015, and 2018 did not include the Winter Weather Playbook. All other preparations have remained the same. There were no complications that resulted in an operational impact in 2022.

Name and title of responsible person:

- a.-d. Jeff Patton, Manager - Pipeline Services and Sarah Stabley, Managing Director - Gas Supply Optimization and Pipeline Services
- e. Adam Long, Vice President - Gas Pipeline Operations

Name and title of preparer:

- a.-d. Jeff Patton, Manager - Pipeline Services
- e. Andrew Donato, Manager – Gas Control

Response provided by Piedmont Natural Gas Company, Inc. on February 17, 2023.

Averages based on 24 hour Gas Day

Date	Day of the Week	Actual Avg. Temp	Actual Avg. Wind
1/5/2014	Sunday	40.4	5.9
1/6/2014	Monday	19.4	11.3
1/7/2014	Tuesday	19.8	4.1
1/8/2014	Wednesday	32.9	3.3

Date	Day of the Week	Actual Avg. Temp	Actual Avg. Wind
2/18/2015	Wednesday	24	13.5
2/19/2015	Thursday	15	7.4
2/20/2015	Friday	26	5.7

Date	Day of the Week	Actual Avg. Temp	Actual Avg. Wind
12/30/2017	Saturday	36.8	8.4
12/31/2017	Sunday	23.7	9.3
1/1/2018	Monday	18.8	6.5
1/2/2018	Tuesday	23	2
1/3/2018	Wednesday	25.7	5.8
1/4/2018	Thursday	20.5	10.6
1/5/2018	Friday	22.2	6.5
1/6/2018	Saturday	20.2	5.4
1/7/2018	Sunday	24.5	4.9
1/8/2018	Monday	37.2	3.4

Date	Day of the Week	Actual Avg. Temp	Actual Avg. Wind
12/22/2022	Thursday	41.7	11.4
12/23/2022	Friday	16.5	13.2
12/24/2022	Saturday	18.9	6.7
12/25/2022	Sunday	26	4.4
12/26/2022	Monday	32.4	2.6

Averages based on 24 hour Gas Day

TOTAL CAROLINAS THROUGHPUT WITHOUT POWER GENERATION					
	NC EAST	NC WEST	SC	CAROLINAS	HDD
1/4/2018	404,291	767,382	210,525	1,382,198	44.2
2/19/2015	400,015	761,516	203,490	1,365,021	49.5
1/6/2018	425,862	744,130	192,481	1,362,473	45.4
1/7/2014	432,759	719,800	209,319	1,361,878	45.5
1/5/2018	427,485	733,799	197,636	1,358,920	43.5
1/2/2018	425,293	727,350	202,500	1,355,143	42.3
12/23/2022	397,883	713,796	216,903	1,328,582	48.5
1/3/2018	404,123	709,067	201,631	1,314,821	38.9
1/1/2018	402,642	705,327	199,226	1,307,195	46.0
12/24/2022	459,414	636,735	210,803	1,306,952	28.0