



# Reliability Analysis Update

Transmission Expansion Advisory  
Committee  
June 13, 2019

- The following definitions explain the basis for excluding flowgates and/or projects from the competitive planning process and designating projects to the incumbent Transmission Owner.
- Flowgates/projects excluded from competition will include the underlined language on the corresponding slide.
  - Immediate Need Exclusion: Due to the immediate need of the violation (3 years or less), the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity. - Operating Agreement, Schedule 6 § 1.5.8(m)
  - Below 200kV Exclusion: Due to the lower voltage level of the identified violation(s), the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(n)
  - FERC 715 (TO Criteria) Exclusion: Due to the violation need of this project resulting solely from FERC 715 TO Reliability Criteria, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(o)
  - Substation Equipment Exclusion: Due to identification of the limiting element(s) as substation equipment, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(p)



# 2019 RTEP Analysis Update

- Continue to work on initial analysis
- Intend to finalize analysis to open window by July 1 with exception of Winter N-1-1, and close window on August 30. Window close date will be adjusted to be 60 days from the actual opening
  - PJM does not expect significant to be identified in the winter N-1-1 studies
  - Should significant issues be identified, window may be extended

# Dominion End of Life Criteria

# First Review

## Baseline Reliability Projects



# Dominion Transmission Zone: Baseline 230kV Line #254 Rebuild (End of Life Criteria)

**Process Stage:** First Review

**Criteria:** End of Life

**Assumption Reference:** FERC 715

**Model Used for Analysis:** 2018 Series 2023 Summer RTEP

**Proposal Window Exclusion:** FERC 715 (TO Criteria)

**Problem Statement:**

The 230kV Line #254, from Clubhouse to Lakeview, is approximately 18 miles long and was constructed on wooden H-frame structures in 1962. Industry guidelines indicate equipment life for wood structures is 35-55 years, conductor and connectors are 40-60 years and porcelain insulators are 50 years.

Reliability studies indicate that retiring Line #254 will result in thermal overloads in accordance with P1, P2, P4, P6, and P7 NERC criteria violations. There is also an operational performance need for Line #254, as generator AB2-100 would be left unserved if the line were retired.

**Existing Facility Rating:** 399 MVA STE

**Proposed Solution:**

Rebuild 230kV Line #254 with single-circuit wood pole equivalent structures at the current 230kV standard with a minimum rating of 1047 MVA.

- **Estimated Cost:** \$27.0 M

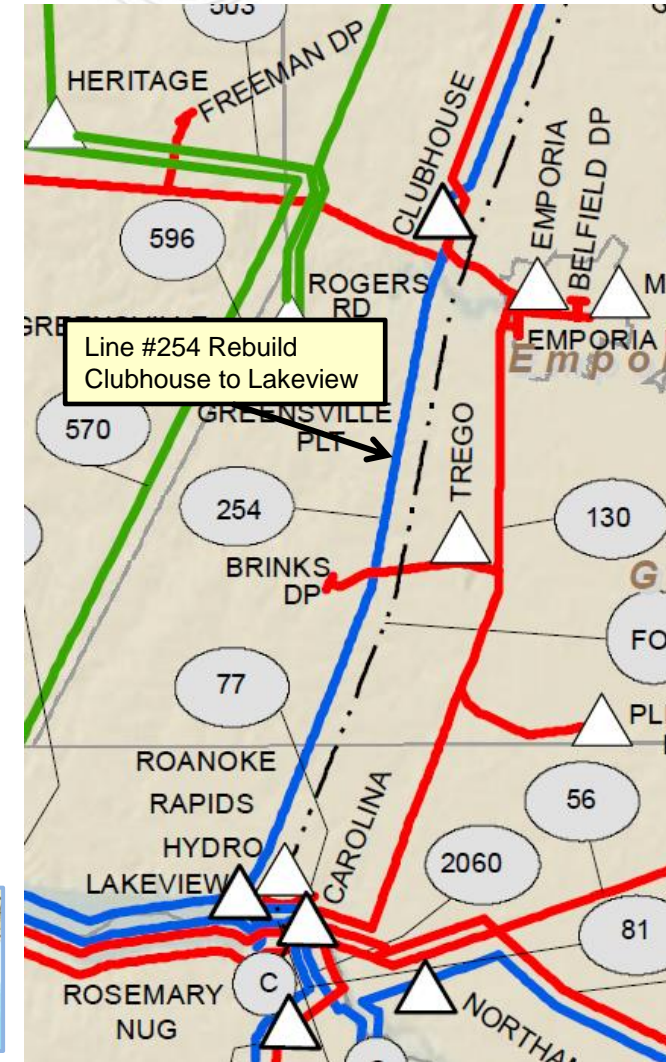
**Alternatives:**

No feasible alternatives.

**Required In-Service:** Immediate Need

**Project Status:** Conceptual

COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
Green	500 KV.	500 thru 599
Blue	230 KV.	200 thru 299 & 2000 thru 2099
Red	115 KV.	1 thru 199
Orange	138 KV.	AS NOTED
Cyan	69 KV.	AS NOTED





# Dominion Transmission Zone: Baseline 230kV Line #2181 and 230kV Line #2058 Rebuild (End of Life Criteria)

**Process Stage:** First Review

**Criteria:** End of Life

**Assumption Reference:** FERC 715

**Model Used for Analysis:** 2018 Series 2023 Summer RTEP

**Proposal Window Exclusion:** FERC 715 (TO Criteria)

**Problem Statement:**

The 230kV Line #2181 and Line #2058 Hathaway – Rocky Mount (Duke Energy Progress) was constructed on Cor-ten lattice-type double circuit towers in the 1960s for approximately 4.1 miles. These towers have been shown to have inherent corrosion problems that continuously deteriorate the steel members. These lines have been identified to be rebuilt as part of Dominion’s End of Life criteria.

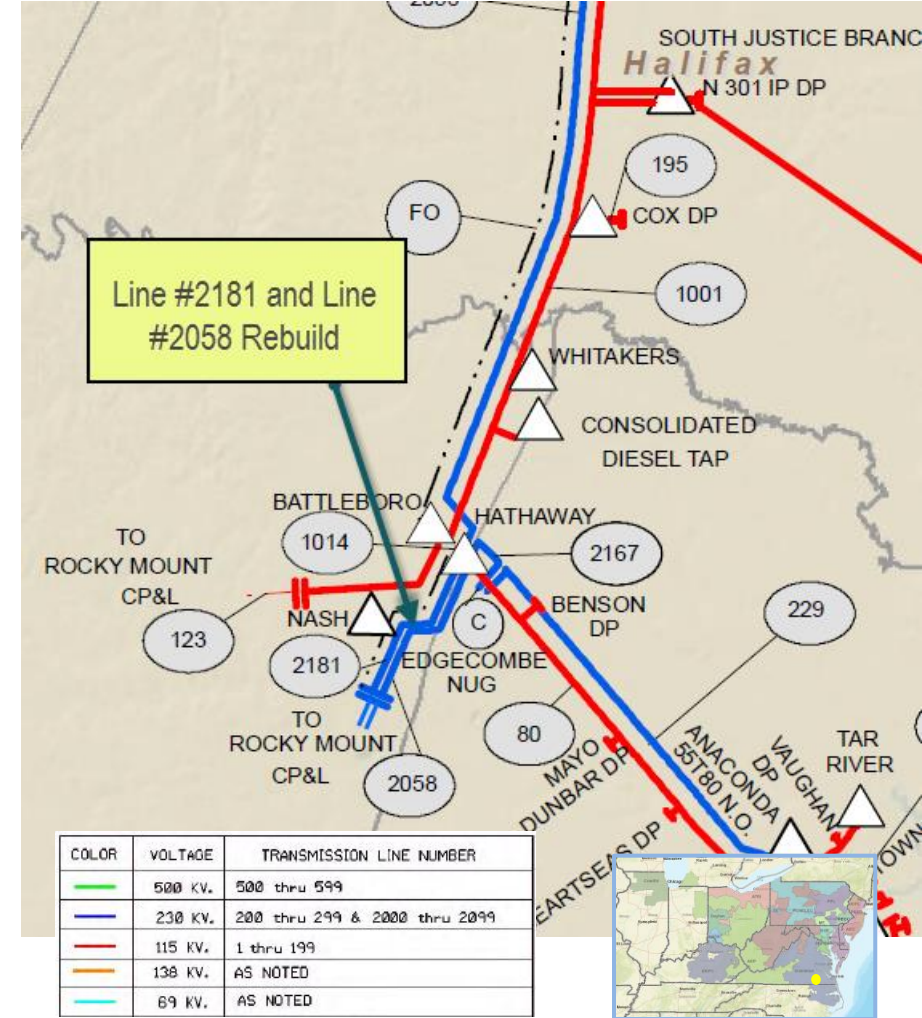
The Line #2181 provides service to Nash and City of Rocky Mount #4 substations with approximately 16 MW and 54 MW tapped load.

With Lines #2181 and #2058 removed from service, N-1 loss of Line #218 Everetts – Greenville (Duke Energy Progress) overloads Line #123 Battleboro – Rocky Mount (Duke Energy Progress) (NERC Category P1 – Single Contingency).

Existing VACAR South Operating Limits Procedure identifies these tie-lines between Dominion and Duke Energy Progress as possible overloads under certain system conditions.

**Existing Facility Ratings:** 478 MVA STE

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# Dominion Transmission Zone: Baseline 230kV Line #2181 and 230kV Line #2058 Rebuild (End of Life Criteria)

## Proposed Solution:

Rebuild 230kV Line #2181 and Line #2058 Hathaway – Rocky Mount (Duke Energy Progress) with double circuit steel structures using double circuit conductor at current 230kV standards with a minimum rating of 1047 MVA.

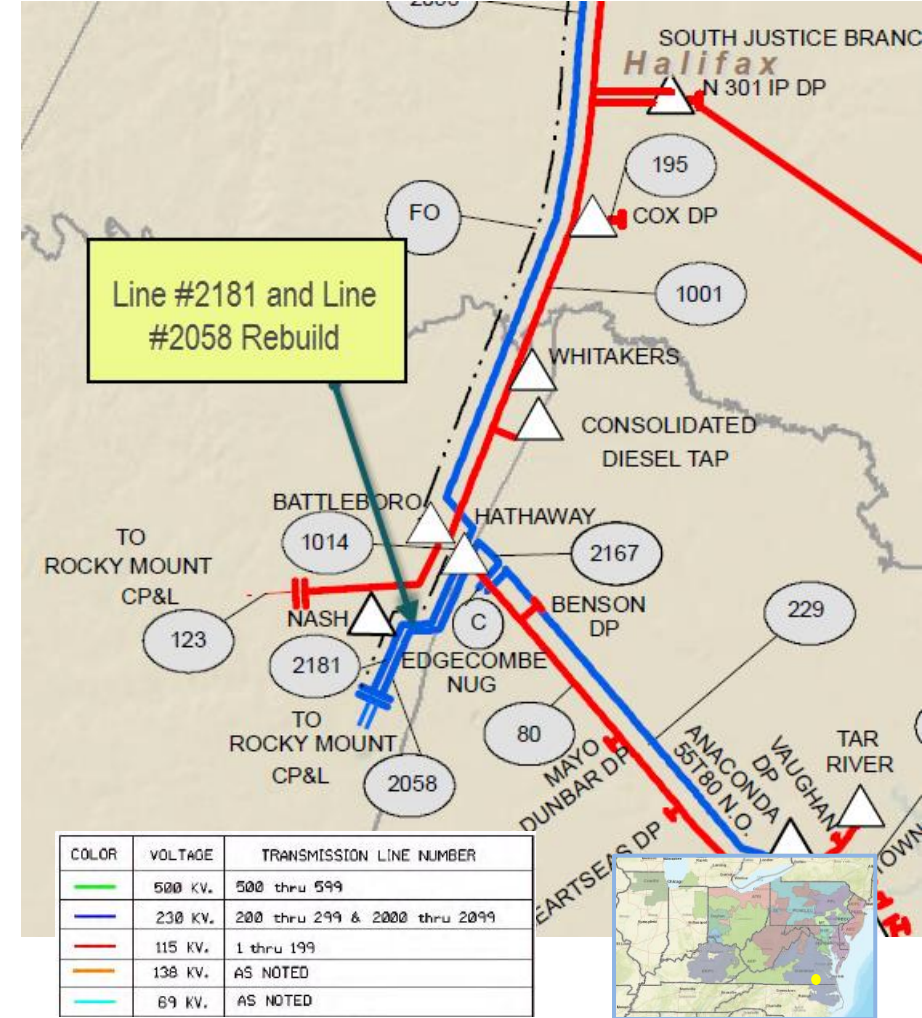
- **Estimated Cost:** \$13.0 M

## Alternatives:

No feasible alternatives.

**Required In-Service:** Immediate Need

**Project Status:** Conceptual





# Dominion Scope Change



# Dominion Transmission Zone: Baseline Scope Modification – 230kV Line #274 Pleasant View to Beaumeade Rebuild

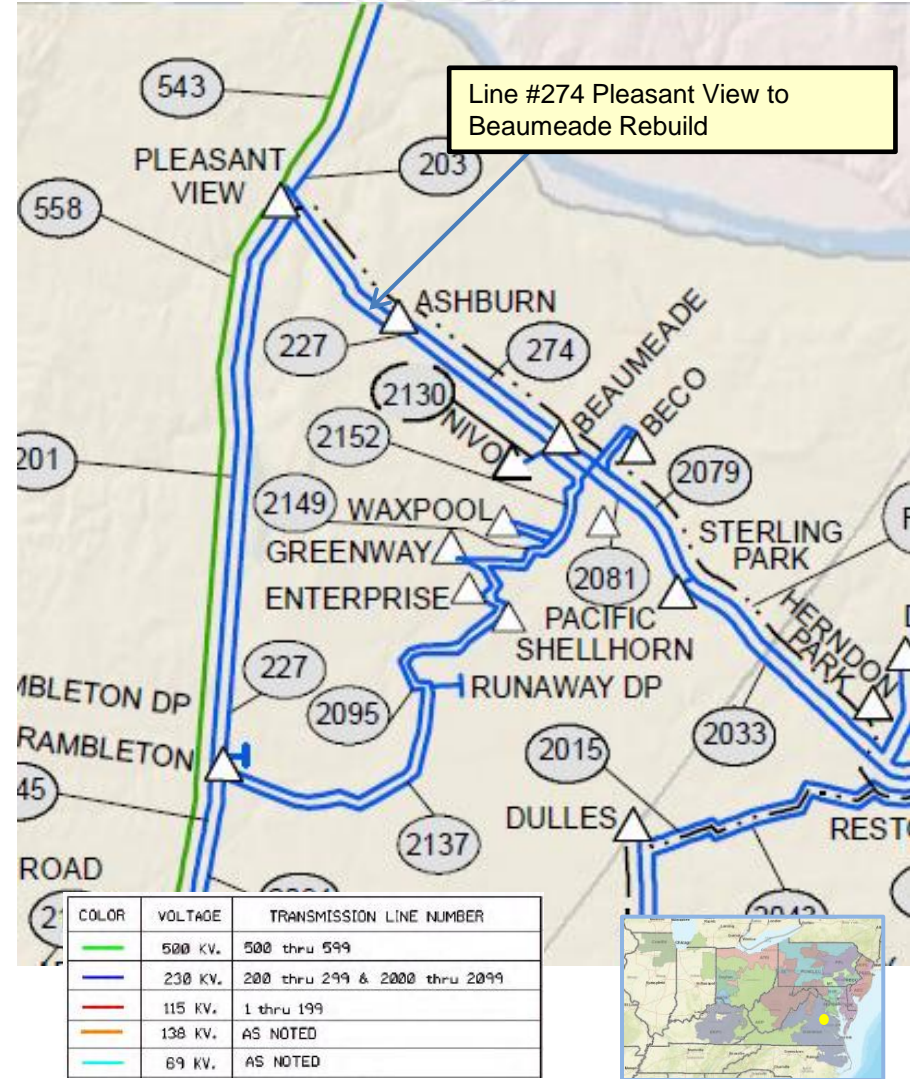
**Existing b3026 Scope Modification**  
**Date Project Last Presented:** 08/09/2018 TEAC

**Original Problem Statement:**  
 PJM has identified a generator deliverability violation with an overload of 104.28% on the Pleasant View to Ashburn line for the N-1 loss of 230kV Line 227. This project is considered Immediate Need since it is identified in the 2021 RTEP study.

**Original Solution:**  
 Re-conductor the entire 230kV Line #274 (Pleasant View – Ashburn – Beaumeade) with a minimum conductor rating of 1200 MVA. Also upgrade terminal equipment.

**Revised Solution:**  
 Re-conductor the entire 230kV Line #274 (Pleasant View – Ashburn – Beaumeade) using a higher capacity conductor with an approximate rating of 1572 MVA.

**Estimated Project Cost:** \$10.0 M (no change)  
**Projected In-service Date:** 06/01/2021 (no change)  
**Project Status:** Conceptual



# Questions?



2019

- TEAC meetings are the following Thursdays in 2019
- **1/10, 2/7, 3/7, 4/11, 5/16, 6/13, 7/11, 8/8, 9/12, 10/17, 11/14, 12/12.**

- V1 – 6/7/2019 – Original slides posted