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
  – PMJM 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
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
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 – Greensville (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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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
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?
Upcoming TEAC Meetings

- 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