



Reliability Analysis Update

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Transmission Expansion Advisory Committee

February 7, 2023

First Review

Baseline Reliability Projects



Dominion Transmission Zone: Baseline 230/115kV Bremono Transformer Overload

Process Stage: First Read

Criteria: Light Load N-1 & Generator Deliverability

Assumption Reference: 2027 RTEP assumption

Model Used for Analysis: 2027 RTEP Light Load case

Proposal Window Exclusion: None

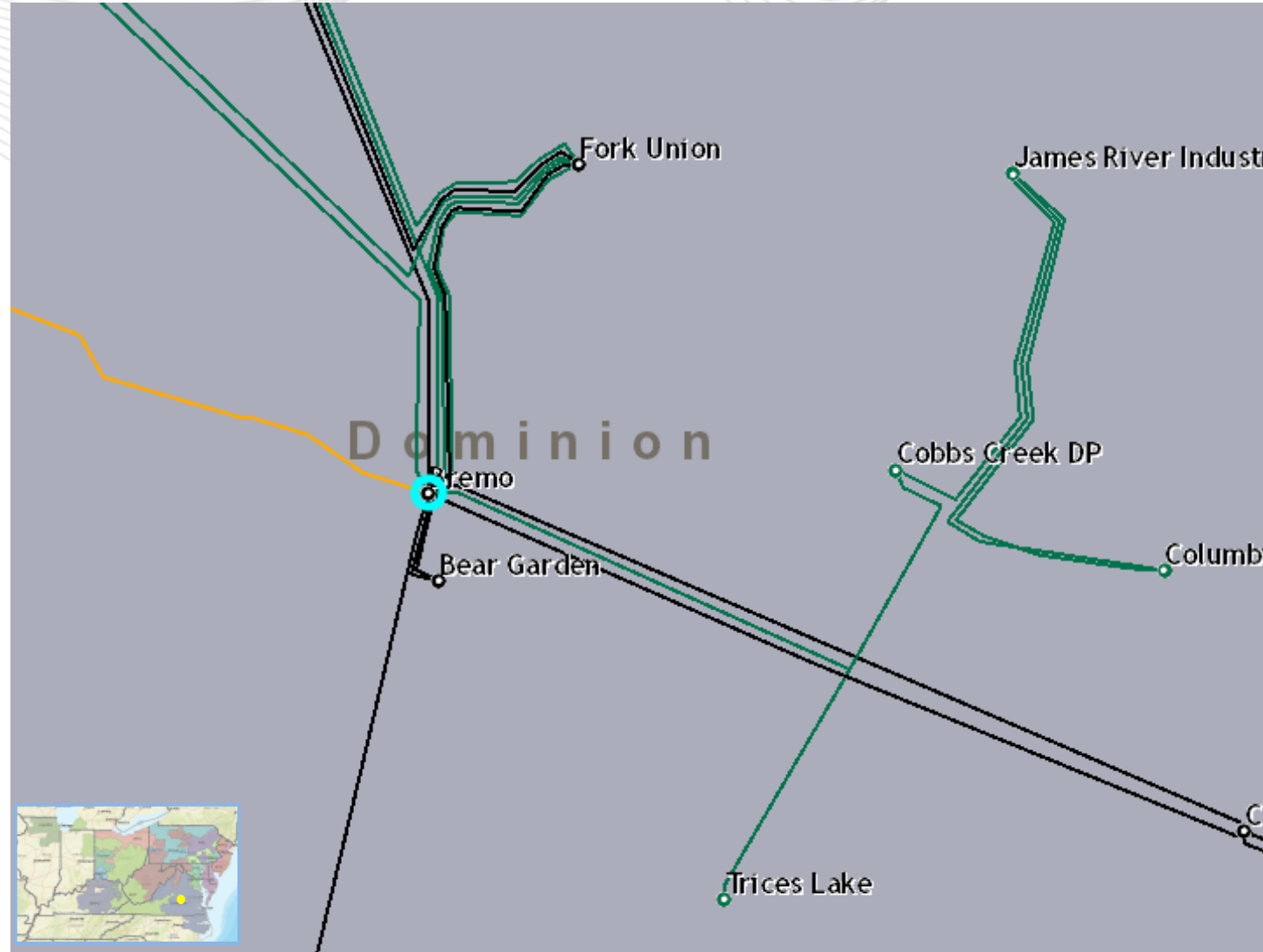
Problem Statement:

2022W2-N1-LLT1 & 2022W2-GD-LL1

In the 2027 RTEP Light Load case, The 230/115kV Bremono transformer is overloaded for a single contingency in the N-1 & Generator Deliverability tests.

Existing Facility Rating:

Facility	SN/SE/WN/WE (MVA)
230/115kV Bremono Transformer	262.9/286.8/320.3/337





Dominion Transmission Zone: Baseline 230/115kV Bremono Transformer Overload

As part of the 2022 RTEP Window #2, the projects listed in the table below are proposed to address the following violations: 2022W2-N1-LLT1 & 2022W2-GD-LL1.

Proposal ID	Proposing Entity	Upgrade Description	Upgrade Cost (\$M)
473	Dominion	Disconnect 230kV line #2111 Bear Garden – Bremono at the Bremono terminal and extend line approximately 1.6 miles to Fork Union. Wreck and rebuild 230kV Line #2193 Bremono – Fork Union as a double circuit. Line #2111 extension will share double circuit structures with Line #2193.	10.09
873	Dominion	Retire Bremono substation. Relocate 6 transmission lines and 2 transformers to Fork Union substation. Add a 2 nd 224 MVA 230/115kV transformer at Fork Union.	35.17



Dominion Transmission Zone: Baseline 230/115kV Bremono Transformer Overload

Proposed Solution: Proposal #2022_2-473⁽¹⁾

- Wreck and rebuild 230kV Line #2193 Bremono – Fork Union to achieve a summer rating of 1573 MVA using double circuit structures.
- Disconnect 230kV Line #2111 Bear Garden – Bremono at the Bremono terminal.
- Extend Line #2111 approximately 1.6 miles to Fork Union. The extension will share the double circuit structures with Line #2193.
- Terminate Line #2111 at Fork Union to create a Bear Garden – Fork Union 230kV line.
- Update relays and settings on Line #2111 at Bear Garden.

Total Estimated Cost: \$10.09M

Required IS Date: 11/1/2027

Projected IS Date: 11/1/2027

(1) Note:

- There is not enough space at Bremono substation to add another transformer.
- This proposal considers future relocation of the remaining lines from Bremono substation to Fork Union substation for its eventual retirement. However, selection of this proposal may not offer sufficient headroom if assumptions change.



Dominion Transmission Zone: Baseline Evergreen Mills - 300MW Load Drop Violation

Process Stage: First Read

Criteria: 300MW Load Loss

Assumption Reference: 2027 RTEP assumption

Model Used for Analysis: 2027 RTEP Summer & Winter cases

Proposal Window Exclusion: None

Problem Statement:

2022W2-N2-SLD1, 2022W2-N2-SLD2, 2022W2-N2-WLD1, 2022W2-N2-WLD2

In the 2027 RTEP Summer & Winter cases, a 300 MW load loss occurs under an N-1-1 scenario.





Dominion Transmission Zone: Baseline Evergreen Mills - 300MW Load Drop Violation

As part of the 2022 RTEP Window #2, the projects listed in the table below are proposed to address the following violations:
2022W2-N2-SLD1, 2022W2-N2-SLD2, 2022W2-N2-WLD1 & 2022W2-N2-WLD2

Proposal ID	Proposing Entity	Upgrade Description	Upgrade Cost (\$M)
648	Dominion	Cut existing 230kV Line #2183 (Brambleton - Poland Road) and extend double circuit 230kV lines creating new Line #2210 (Brambleton - Evergreen Mills) and Line #2183 (Evergreen Mills - Poland Road)	7.71

Proposed Solution: Proposal #2022_2-648

- Cut existing 230kV line #2183 and extend from Poland Road substation to Evergreen Mills substation. Approximately 0.59 miles of new line will be built from the cut-in to the Evergreen Mills substation.
- Cut and extend the existing 230kV line #2183 creating a new line #2210 from Brambleton substation to be terminated at Evergreen Mills substation. Approximately 0.59 miles of new line will be built from the cut-in to the Evergreen Mills substation.

Total Estimated Cost: \$7.71M

Required IS Date: 6/1/2027

Projected IS Date: 6/1/2027

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Reliability Analysis Update



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1	Feb 3 rd 2023	<ul style="list-style-type: none">• Original slides posted

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