SRRTEP Committee Southern
Dominion Supplemental Projects

June 15, 2021

Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0036

Process Stage: Need Meeting 06/15/2021

Project Driver: Equipment Material Condition, Performance and Risk

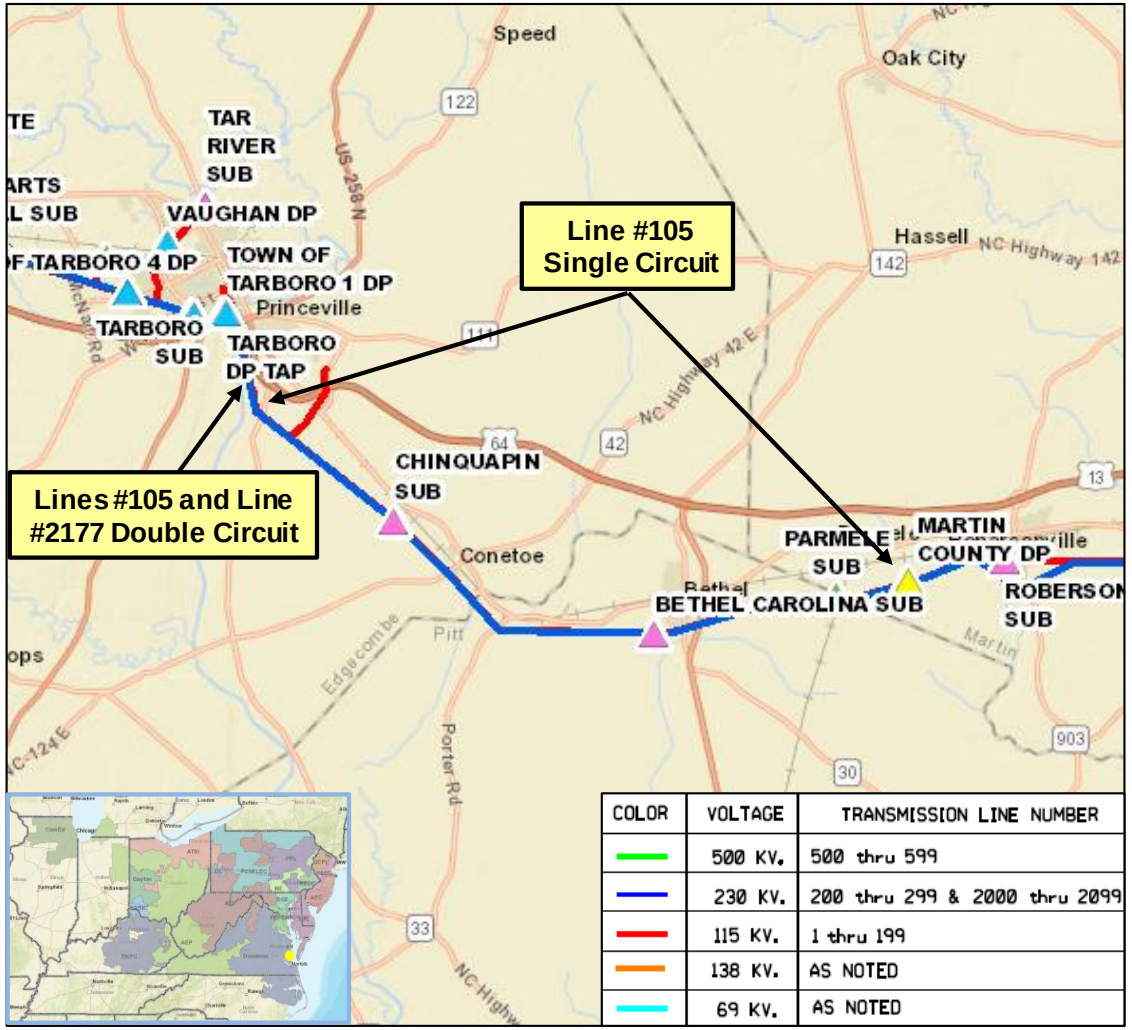
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified a need to replace approximately 15.7 miles of 115kV Line #105 (Tarboro to Parmele) which includes the double circuit segment with 230kV Line #2177 (Tarboro to Chinquapin) based on the Company's End of Life criteria.

- Double circuit is on COR-TEN® towers built in 1967. Single circuit is on wood pole structures dating back to 1963. Conductor is 2/0 Copper.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.



Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0037

Process Stage: Need Meeting 06/15/2021

Project Driver: Equipment Material Condition, Performance and Risk

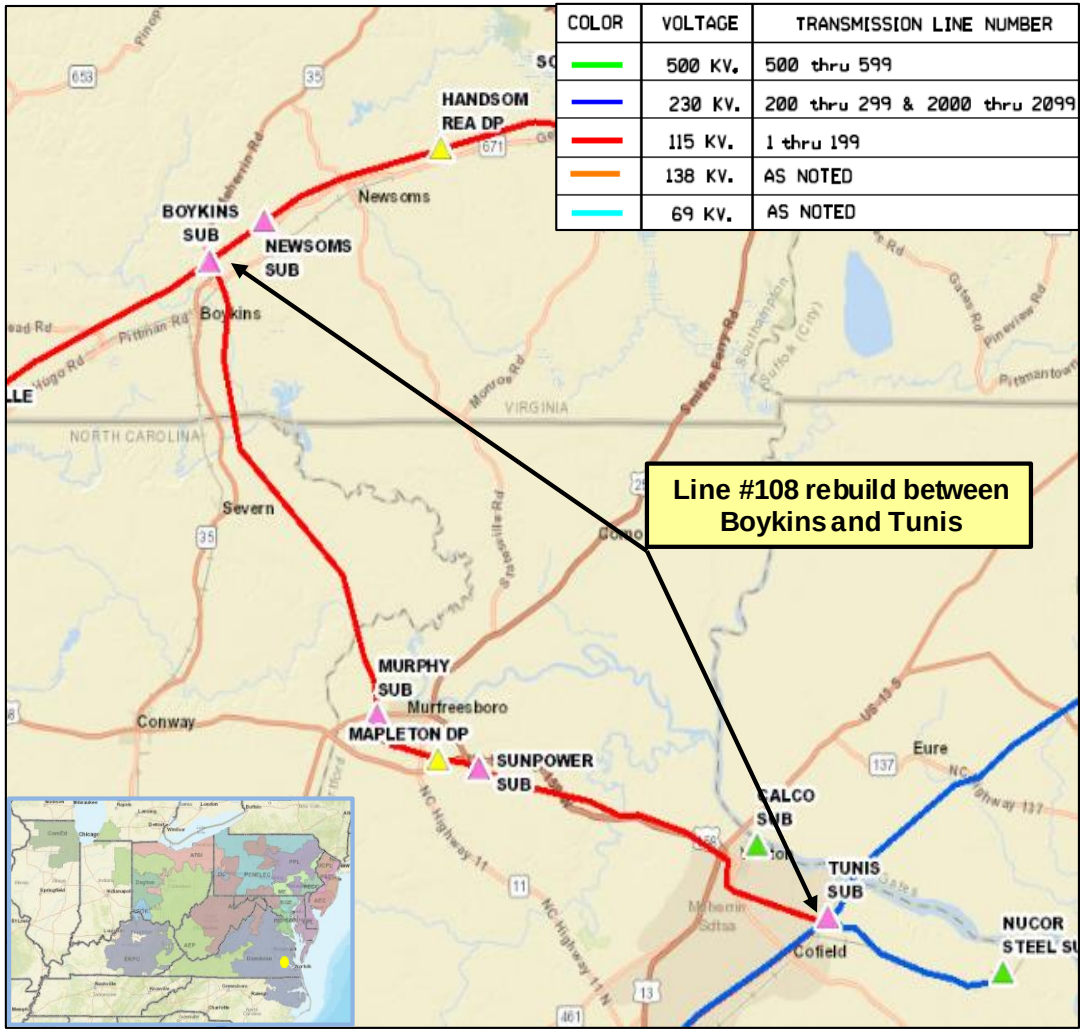
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified a need to replace approximately 26.5 miles of 115kV Line #108 (Boykins to Tunis) based on the Company's End of Life criteria.

- Line #108 was constructed on wood pole structures in 1967.
- A field-condition assessment indicated damage to several poles from woodpeckers, rotting and cracking.
- 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.



Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0050

Process Stage: Need Meeting 06/15/2021

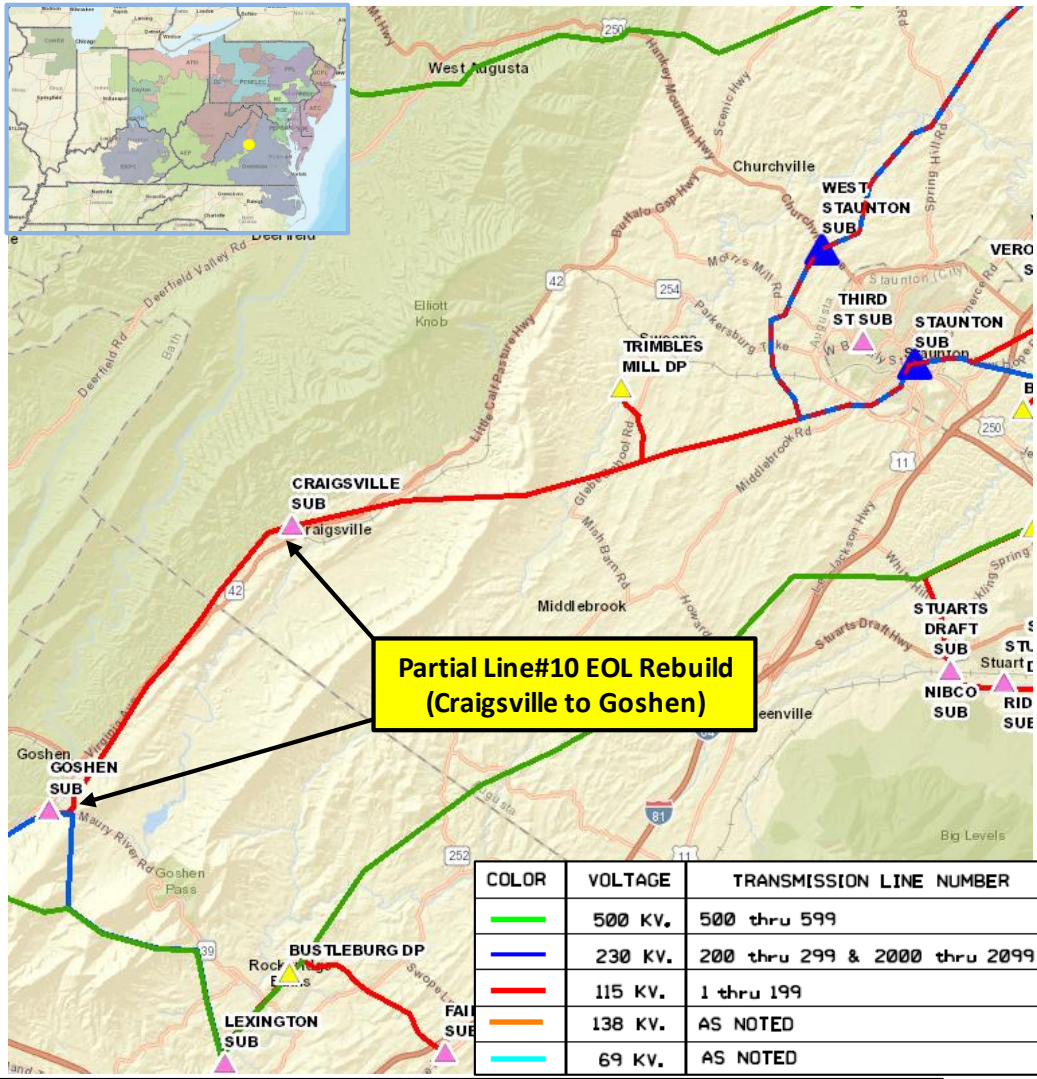
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified a need to replace approx. 11 miles of 115kV Line #10 from Craigsville to Goshen based on the Company's End of Life criteria.

- The segment of Line #10 from Craigsville to Goshen was constructed in 1925 consisting of Blaw Knox towers, ACSR conductor and 3/8" static wire.
- Blaw Knox towers are known for ground line corrosion and potential U-Bolt connection issues.
- Field inspection indicates a number of structures have damage.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures is 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.



Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0042

Process Stage: Solution Meeting 06/15/2021

Process Stage: Need Meeting 05/20/2021

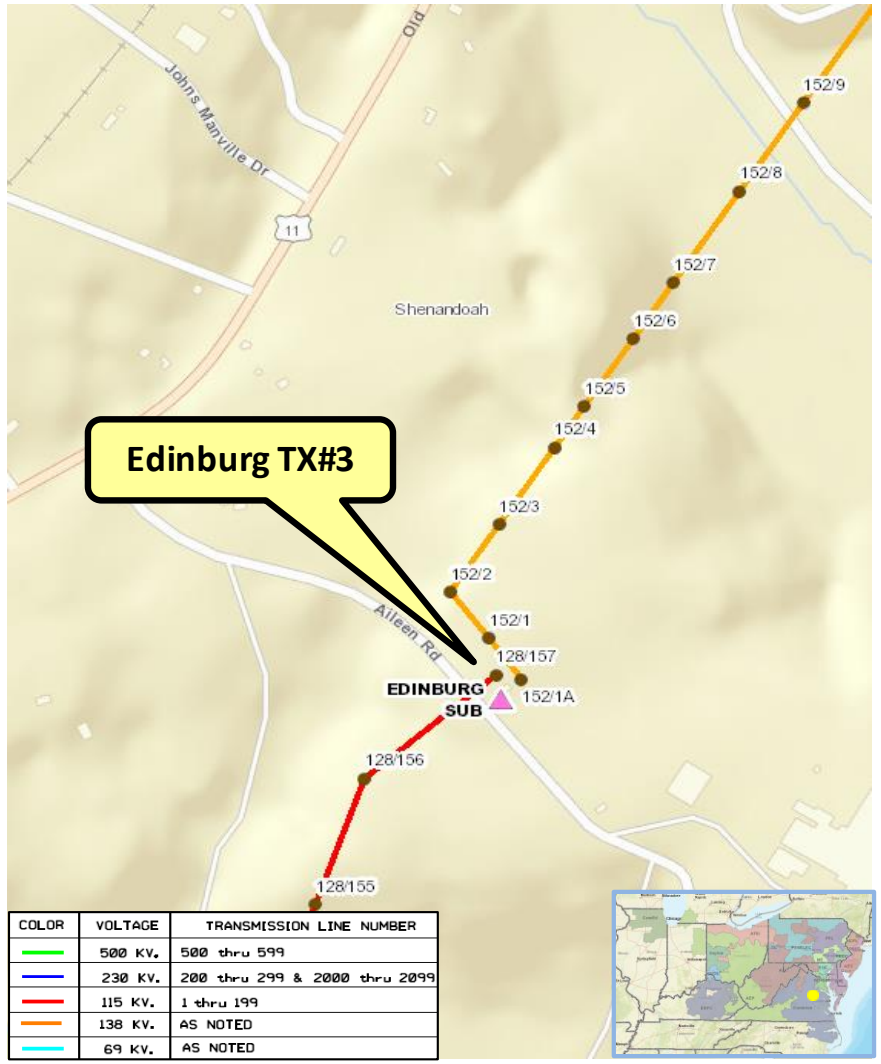
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Edinburg TX#3 is a 112 MVA, 138/115/13.2 kV transformer bank that was manufactured in 1986. This transformer bank has been identified for replacement based on the results of Dominion's transformer health assessment (THA) process. Detailed drivers include:

- Age (>30 years old).
- Reduced BIL ratings (2 levels below standard).
- Tertiary winding design not meeting current MVA requirement for loading.
- Degraded porcelain type bushings.
- Oil DGA indicates high CO and CO2 levels; potential break down of dielectric paper insulation on main current carrying conductors inside the transformer.
- Transformer paint is not in good shape.
- THA score less than 80.



Dominion Transmission Zone: Supplemental
Replace Edinburg TX#3 - DEV

Need Number: DOM-2021-0042

Process Stage: Solutions Meeting 06/15/2021

Proposed Solution:
Replace Edinburg TX#3 with a new three-phase, 138/115/13.2 kV, 112 MVA unit.
Include other ancillary equipment (arresters, switches, relays, etc.) as needed.

Estimated Project Cost: $3 M

Alternatives Considered:
None

Projected In-service Date: 12/31/2022

Project Status: Engineering

Model: 2026 RTEP

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0021

Process Stage: Solutions Meeting 06/15/2021

Previously Presented: Need Meeting 05/20/2021

Project Driver: Equipment Material Condition, Performance and Risk

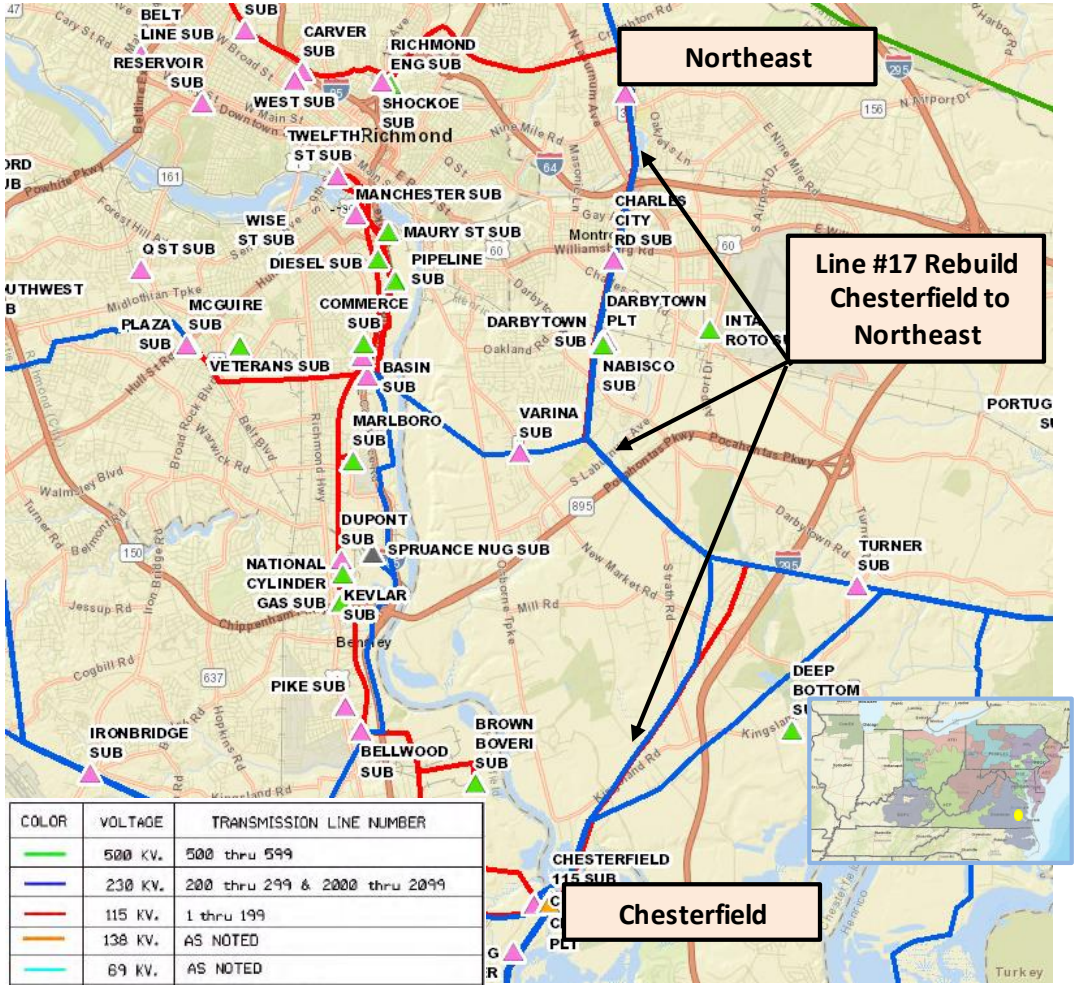
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified the need to replace the entire 14.0 miles of 115kV Line#17 (Chesterfield to Northeast) based on the Company's end of life criteria.

- Line #17 is built mostly on wood H-frame structures installed between 1941 and 1972. The line has ACSR conductor and 3/8 inch static steel.
- Several structures have been replaced and assets/structures continue to experience deterioration.
- 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.



Dominion Transmission Zone: Supplemental
EOL Rebuild 115kV Line #17 – Chesterfield to Northeast

Need Number: DOM-2021-0021

Process Stage: Solutions Meeting 06/15/2021

Proposed Solution:

Rebuild all wood H-frame structures and reconductor the entire 14.0 miles with current 115 kV standards construction practices. Upgrade terminal equipment as needed.

Estimated Project cost:

$18.2 M

Alternative Considered:

Allow the line to fail in place. This option is not acceptable because the line serves as critical outlets for Chesterfield Power Plant.

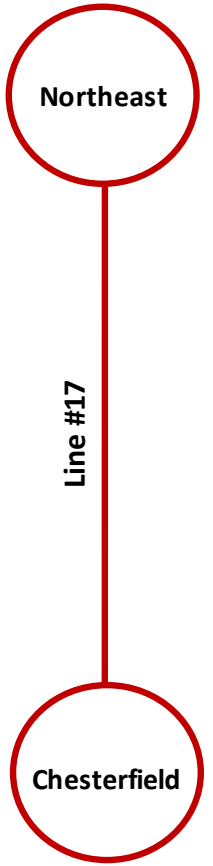
Projected In-service Date:

12/31/2022

Project Status:

Conceptual

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0022

Process Stage: Solutions Meeting 06/15/2021
Previously Presented: Need Meeting 05/20/2021

Project Driver: Equipment Material Condition, Performance and Risk

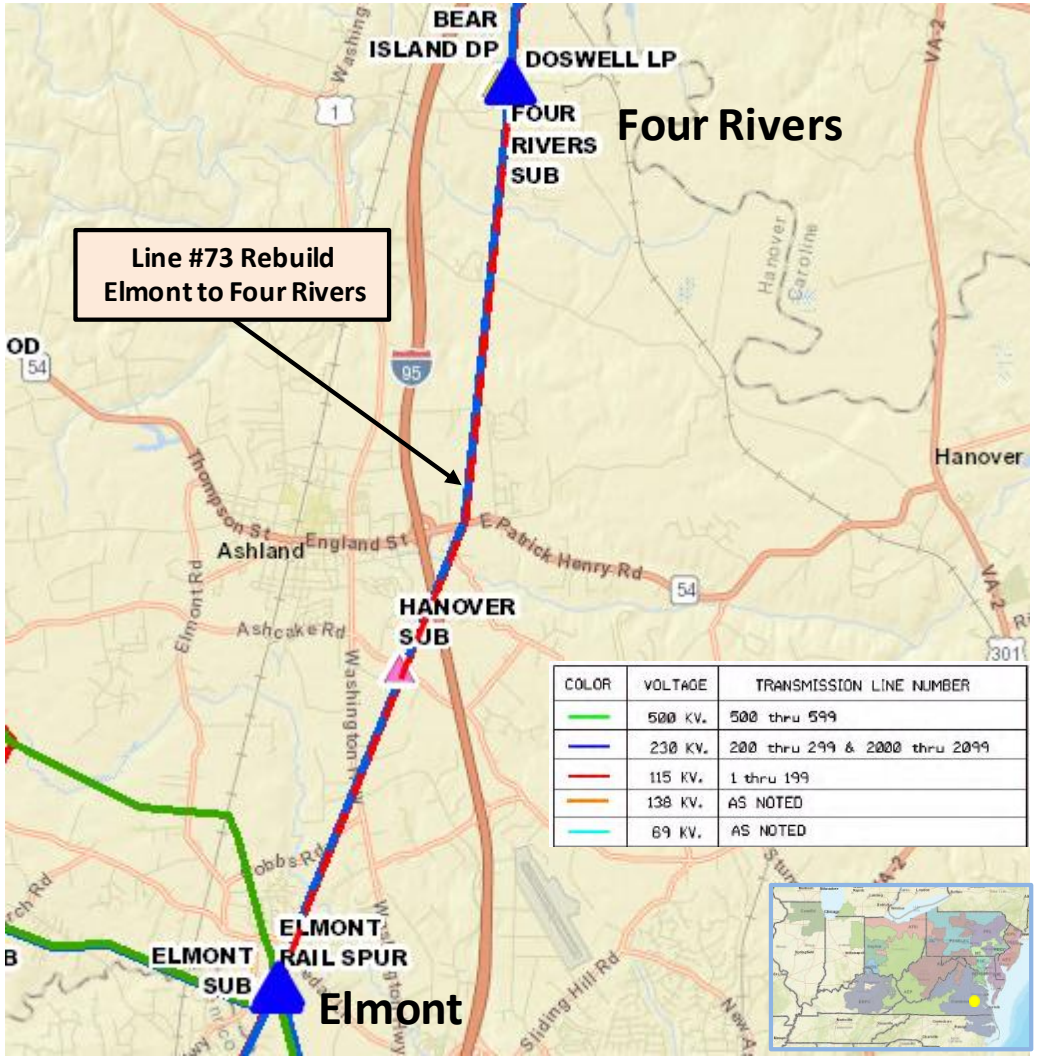
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified the need to replace the entire 9 miles of 115kV Line #73 (Elmont to Four Rivers) based on the Company's End of Life Criteria.

- Line #73 was constructed on primarily wood H-frame structures built in 1956 (65 service years). The line has ACSR conductor and 3/8 inch static steel.
- A number of structures have either been repaired or replaced and assets/structures continue to experience deterioration.
- 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.



Dominion Transmission Zone: Supplemental
EOL Rebuild 115kV Lines #73 – Elmont to Four Rivers

Need Number: DOM-2021-0022

Process Stage: Solutions Meeting 06/15/2021

Proposed Solution:
Rebuild the entire 9.0 miles with current 115 kV standards construction practices. Upgrade terminal equipment as needed.

Estimated Project Cost:
$11.7 M

Alternative Considered:
Allow the line to fail in place. This option is not acceptable because the loss of Line #73 will lead to a radial feed from St. John Substation to Four Rivers Substation. The total MW*mile on the radial line is 787 MW*mile in the 2025 RTEP winter case, which violates the company's 700 MW*mile planning criterion.

Projected In-service Date:
12/31/2022

Project Status:
Conceptual

Model: 2025 RTEP

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2021-0023

Process Stage: Solutions Meeting 06/15/2021
Previously Presented: Need Meeting 05/20/2021

Project Driver: Equipment Material Condition, Performance and Risk

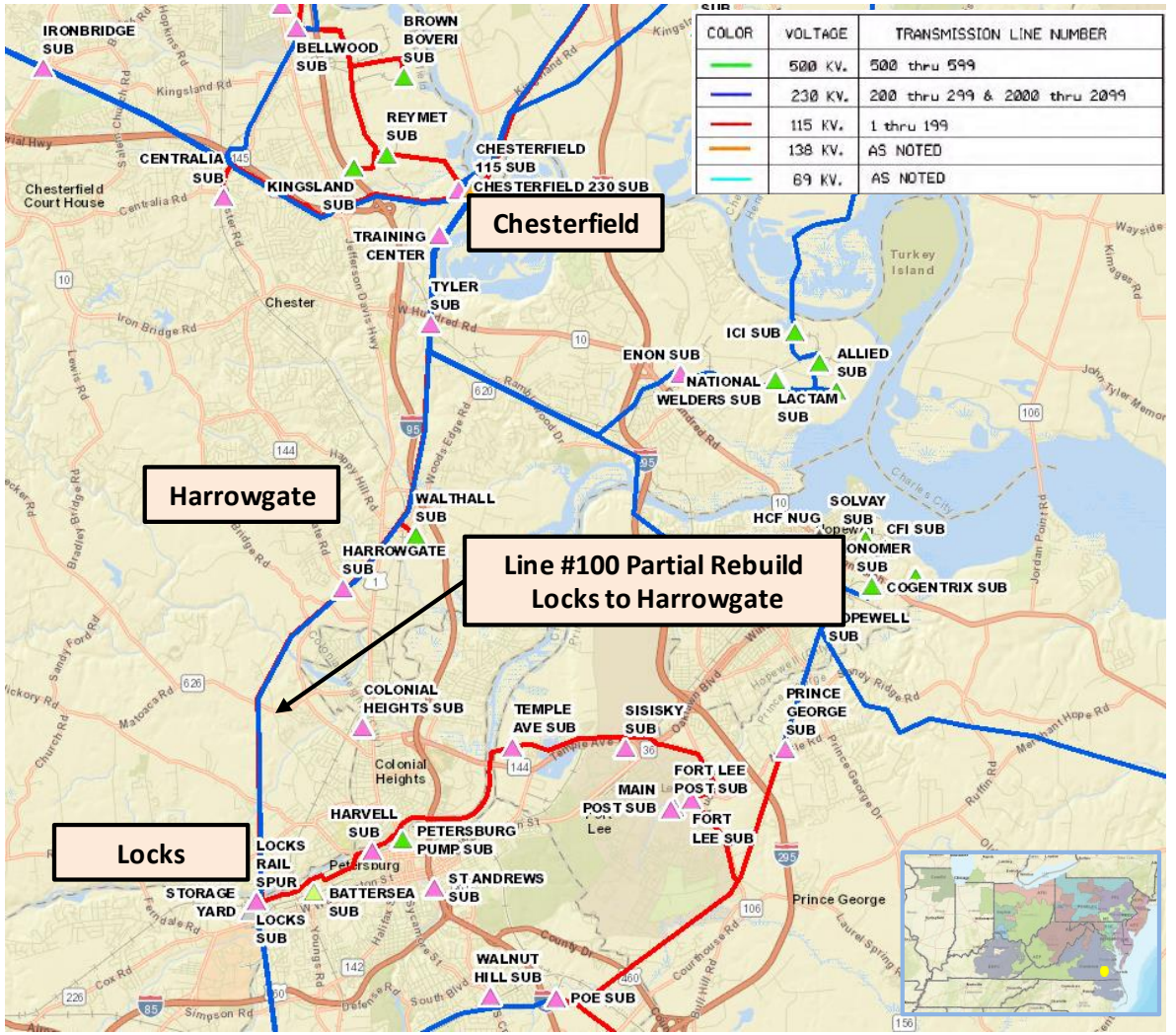
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2020.

Problem Statement:

Dominion Energy has identified the need to replace approximately 5.3 miles of 115kV Line #100 (Locks – Chesterfield) between Locks and Harrowgate Substations.

- Transmission structures between Locks and Harrowgate are wood H-frame structures built in 1952 (69 service years). The line has ACSR conductor and 3/8 inch static steel.
- 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.



Dominion Transmission Zone: Supplemental
Partial EOL Rebuild 115kV Line #100 – Locks to Harrowgate

Need Number: DOM-2021-0023

Process Stage: Solutions Meeting 06/15/2021

Proposed Solution:

Rebuild all wood H-frame structures from Locks to Harrowgate and reconductor the 5.4 miles with current 115 kV standards construction practices. Upgrade terminal equipment as needed.

Estimated Project Cost:

$6.9 M

Alternative Considered:

Allow the line to fail in place. This option is not acceptable because the line serves as critical outlets for Chesterfield Power Plant. In addition, the line serves 33 MW load at Walthall and 19 MW load at Harrowgate.

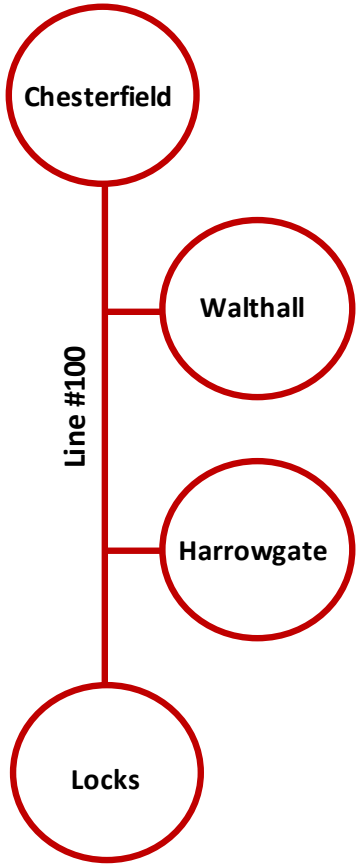
Projected In-service Date:

12/31/2022

Project Status:

Conceptual

Model: 2025 RTEP



Appendix

High level M-3 Meeting Schedule

Assumptions

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

6/4/2021 – V1 – Original version posted to pjm.com

6/14/2021 – V2 – Updated one-line diagrams to red for Lines 17, 30 and 100. Added alternative to DOM-2021-0023