Dominion Supplemental Projects

Transmission Expansion Advisory Committee
August 9, 2022

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 Customer Load Request

Need Number: DOM-2022-0049

Process Stage: Need Meeting 08/09/2022

Project Driver: Customer Service

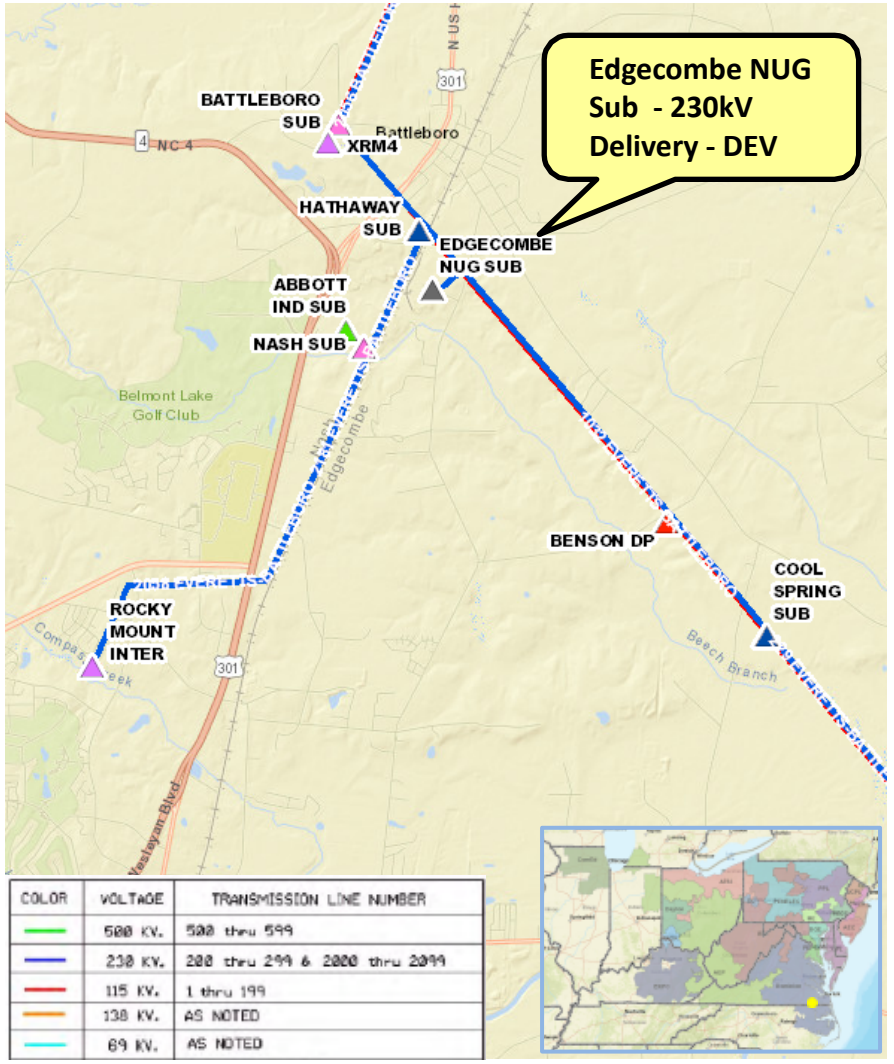
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a delivery point request to serve a crypto mining customer in Battleboro, NC. The total load is less than 100 MW. The customer requests service by December 30, 2022.

Initial In-Service Load	Projected 2027 Load
Winter: 95.0 MW	Summer: 95.0 MW



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-2021-0047
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 06/08/2021
Project Driver: Equipment Material Condition, Performance and Risk

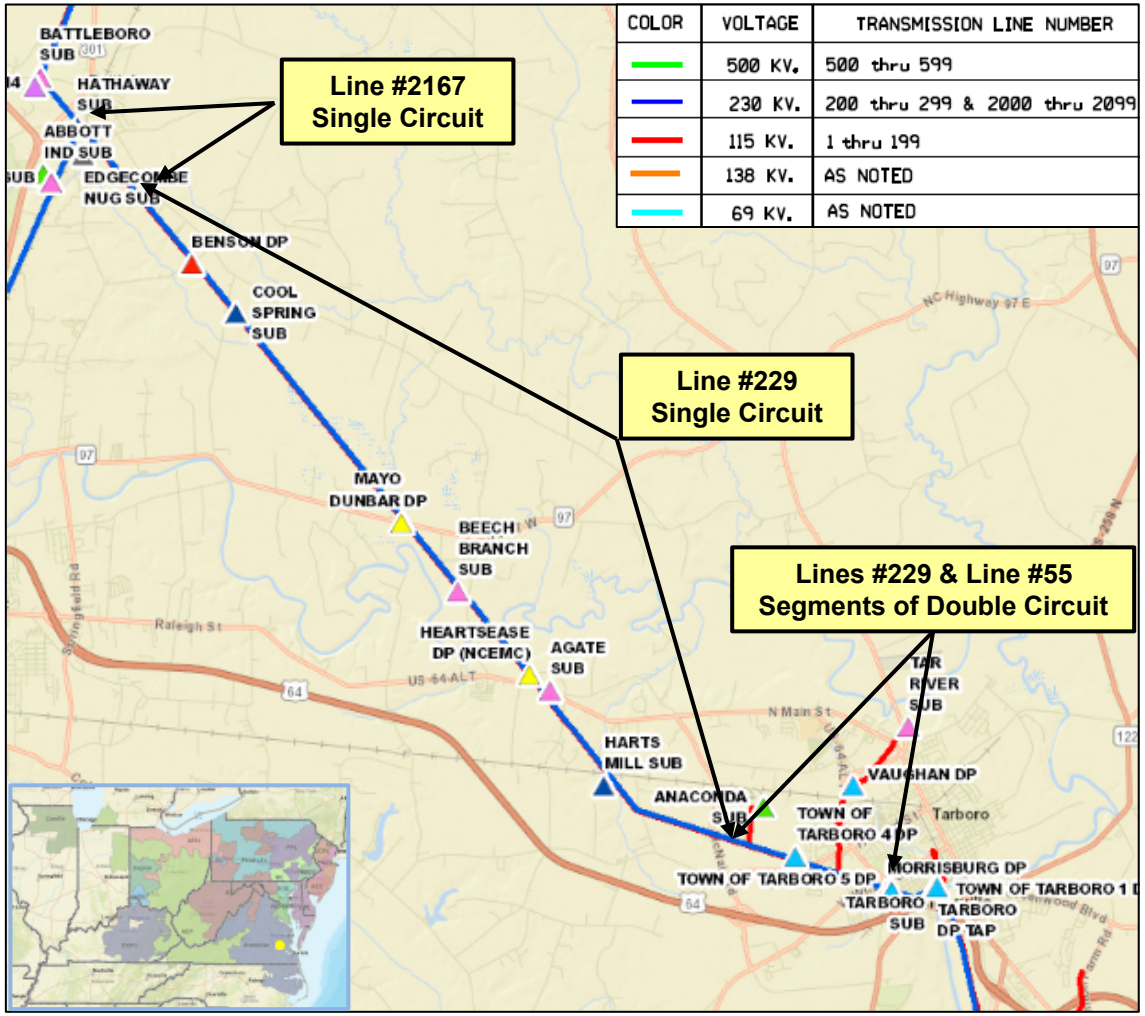
Specific Assumption References:

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 0.73 miles of 230kV Line #2167 (Hathaway to Edgecombe NUG), and 16.9 miles of 230kV Line #229 (Tarboro to Edgecombe NUG) which includes 2.1-mile segments of double circuit with Line #55 (Tarboro to Anaconda) and 0.95 miles single circuit segments of Line #55 based on the Company's End of Life criteria.

- Double-circuit is on steel towers and single-circuit is on 2-pole wood H-frame structures all dating back to 1967. Conductor is ACSR.
- A field-condition assessment indicated woodpecker damage and broken insulators.
- Industry guidelines indicate equipment life for steel structures is 40-60 years, wood structures 35-55 years, conductor and connectors are 40-60 years, and porcelain insulators are 50 years.



Dominion Transmission Zone: Supplemental Line #229, Line #2167 and Line #55 Partial Rebuild

Need Number: DOM-2021-0047

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:
Rebuild entire Line #2167 Edgecombe NUG – Hathaway (approximately 0.73 miles) to current 230kV standards with appropriate structures. The minimum normal summer conductor rating of this line will be 1573 MVA.

Rebuild entire Line #229 Edgecombe NUG – Tarboro (approximately 16.9 miles) to current 230kV standards with appropriate structures. The minimum normal summer conductor rating of the line will be 1573 MVA.

Rebuild approximately 3 miles from Tarboro to Str 55/133 of Line #55 Tarboro – Harts Mill to current 115kV standards with appropriate structures. The minimum normal summer conductor rating of the line will be 393 MVA.
Terminal equipment will be upgraded as necessary.

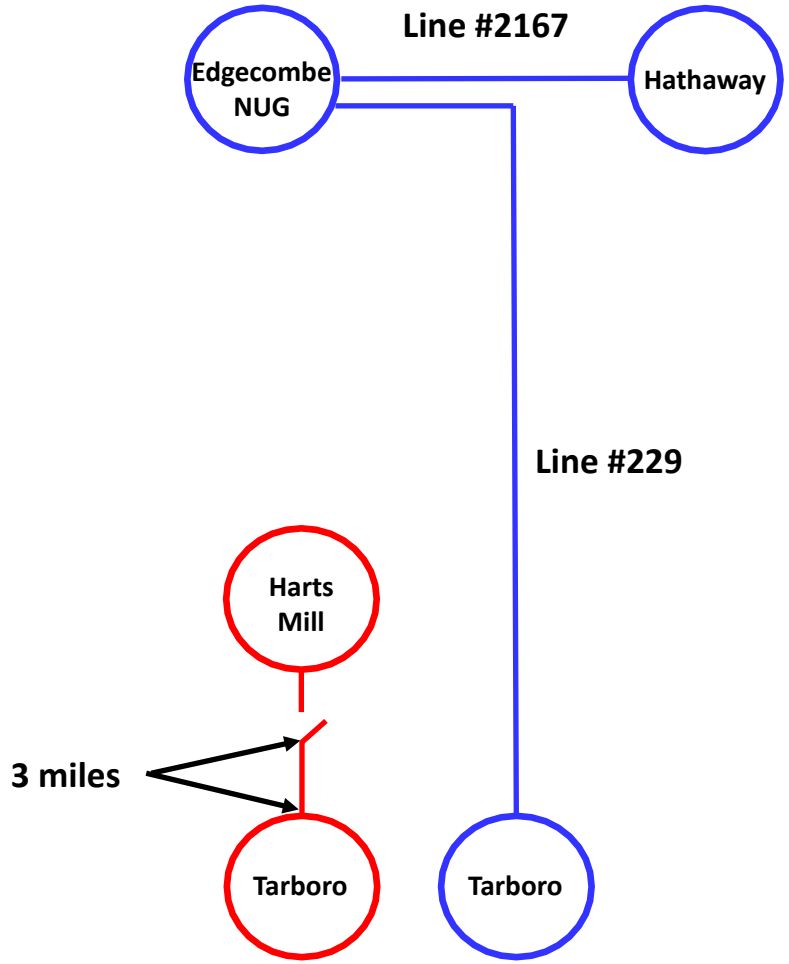
Estimated Project Cost: $ 40M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 12/31/2023

Project Status: Conceptual

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0038
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 07/12/2022
Project Driver: Customer Service

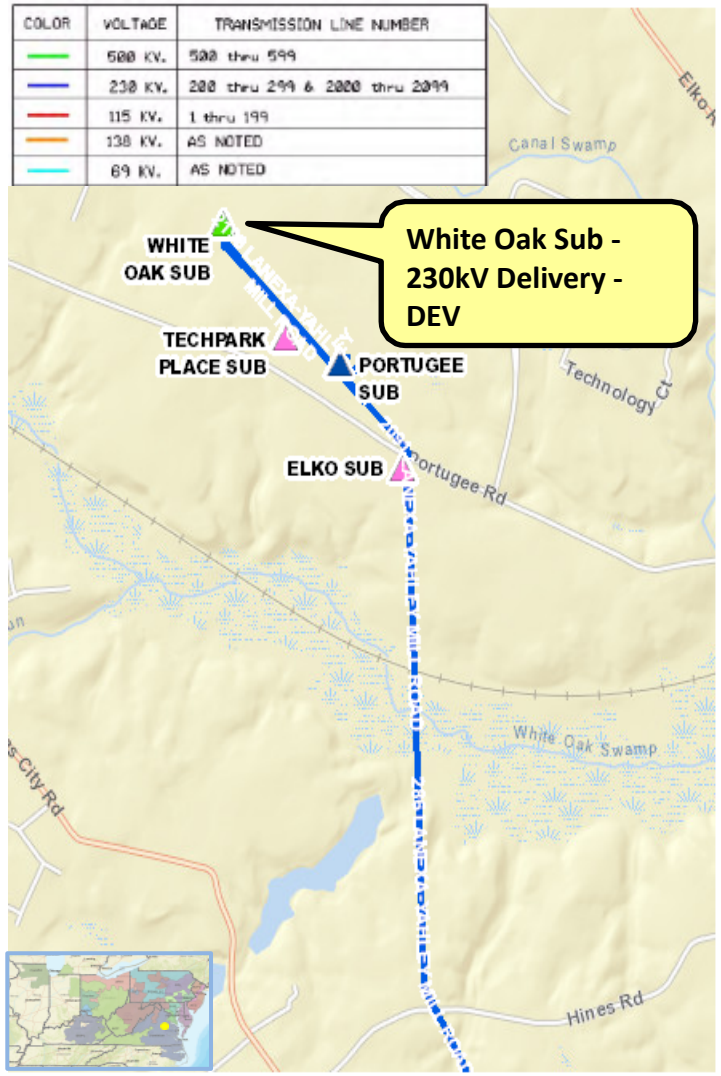
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a delivery point request at White Oak Substation to serve a data center customer in Henrico, VA. The total load is in excess of 100 MW. The customer requests service by March 1, 2023.

Initial Substation Load	Projected 2027 Load
Summer: 43.2 MW	Summer: 146.5 MW



Dominion Transmission Zone: Supplemental White Oak 230kV Delivery - DEV

Need Number: DOM-2022-0038

Process Stage: Solutions Meeting 08/09/2022

Proposed Solution:

To interconnect Customer Load:

- Install equipment and bus work to support the installation of 2-56 MVA distribution transformers.

To Resolve DNH 300 MW N-1-1 Load Drop Violation:

- Cut Line #2075 and extend double circuit 230kV lines into White Oak Substation. Install 2-1200 Amp switches and upgrade bus work and existing equipment at the White Oak Substation. Add 3 additional 230kV breakers to terminate 230kV lines.

Estimated Project Cost: $30 M (Total)

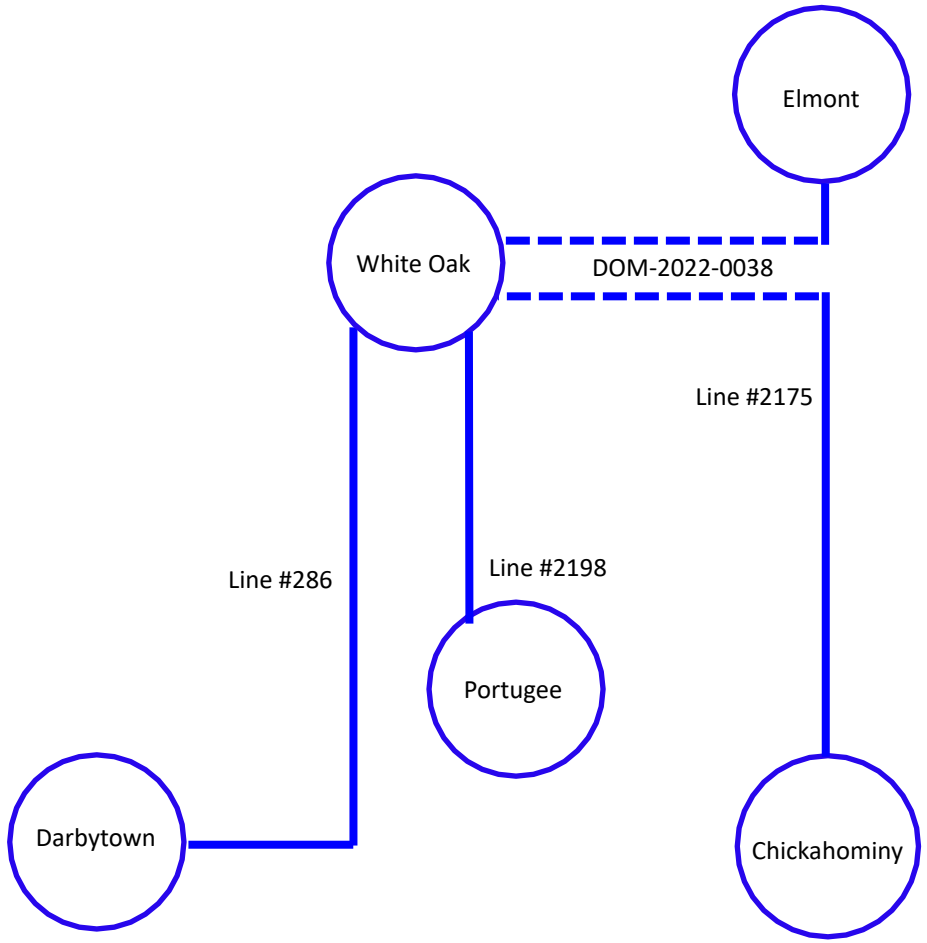
Alternatives Considered:

No feasible alternatives

Projected In-service Date: March 2023 (to connect Distribution TX)
Dec 2025 (to cut line #2075 into White Oak)

Project Status: Engineering

Model: 2025 RTEP



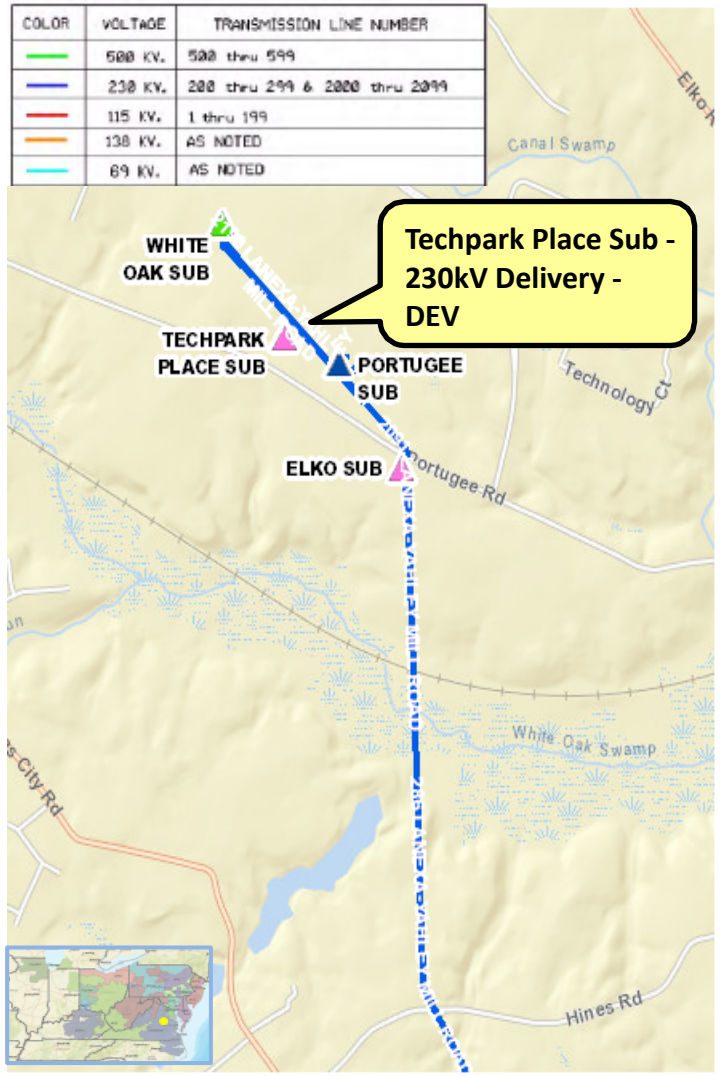
Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0039
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 07/12/2022
Project Driver: Customer Service

Specific Assumption References:
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:
DEV Distribution has submitted a new delivery point request for Techpark Place (TPP) Substation to serve a data center customer in Henrico, VA. The total load is in excess of 100 MW. The customer requests service by January 1, 2024.

Initial Substation Load	Projected 2027 Load
Summer: 96.0 MW	Summer: 283.6 MW



Dominion Transmission Zone: Supplemental Techpark Place 230kV Delivery - DEV

Need Number: DOM-2022-0039

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:
Cut Line #286 (Darbytown-White Oak) and Line #2198 (Portugee-White Oak) and terminate at new TPP Substation in a 6-breaker 230kV ring bus. Include associated equipment (bus, switches, relays, etc.) as required.

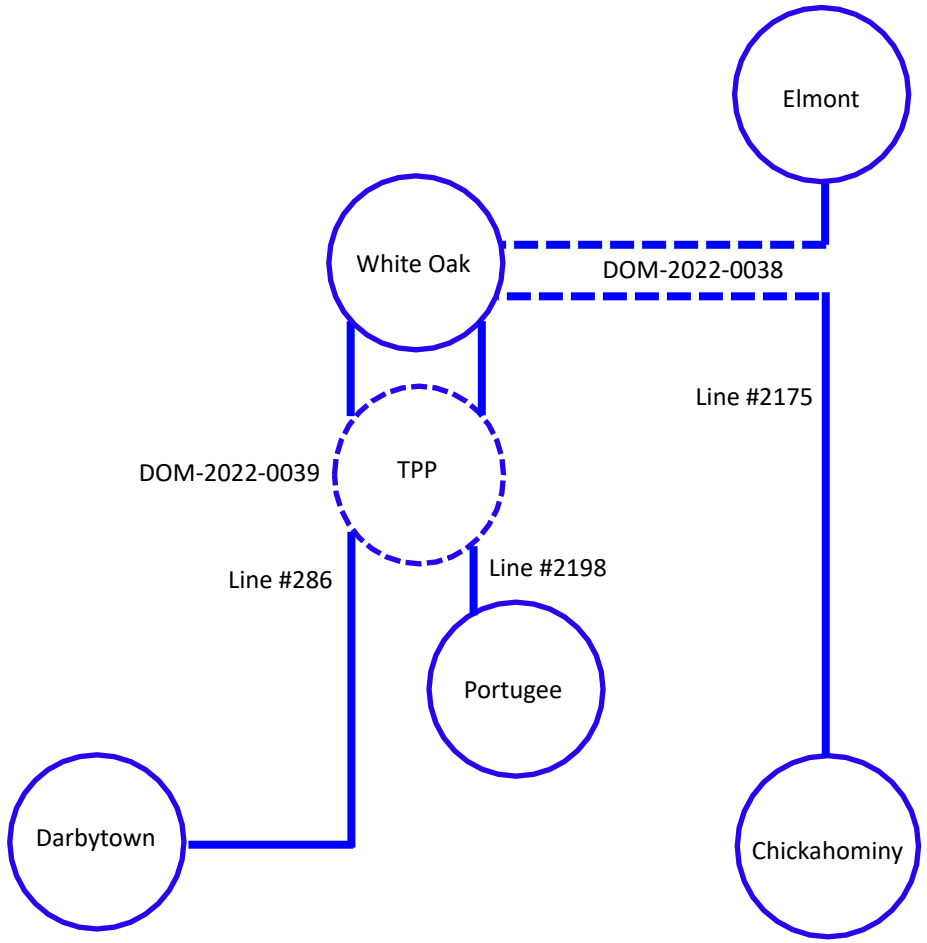
Estimated Project Cost: $25 M (Total)

Alternatives Considered:
No feasible alternatives

Projected In-service Date: Jan 2024

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0010
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 03/08/2022
Project Driver: Customer Service

Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request to add the 4th distribution transformer at Pleasant View Substation in Loudoun County. The new transformer is being driven by continued load growth in the area. Requested in-service date is 07/15/2023.

Initial In-Service Load	Projected 2026 Load
Summer: 22.0 MW	Summer: 55.0 MW

Dominion Transmission Zone: Supplemental Pleasant View - Add 4th TX - DEV

Need Number: DOM-2022-0010

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:

Install a 1200 Amp, 50kAIC circuit switcher and associated equipment (bus, relaying, etc.) to feed the new transformer at Pleasant View .

Estimated Project Cost: $1.0 M

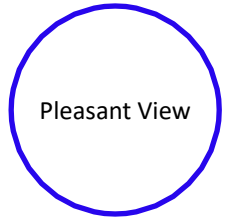
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 07/15/2023.

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0041
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 06/07/2022
Project Driver: Customer Service

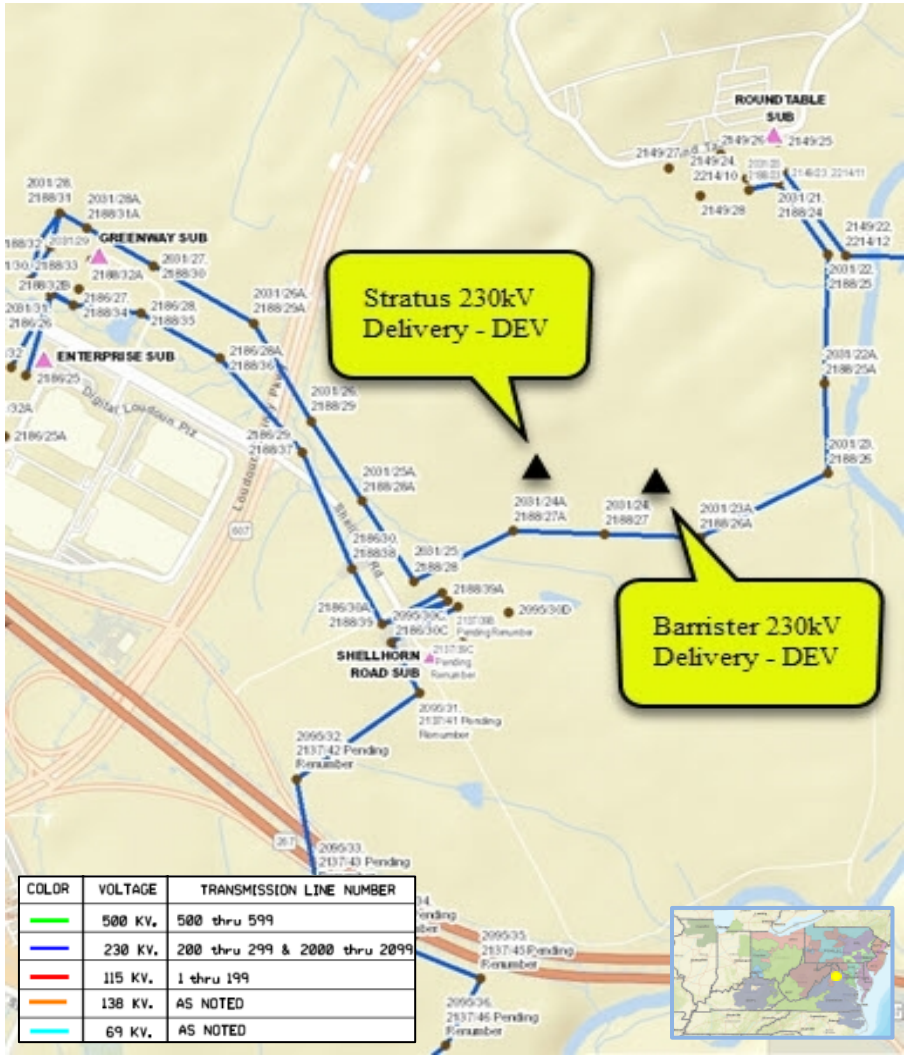
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV has submitted a DP Request for a new substation (Stratus) in Loudoun County with a total load in excess of 100MW. Requested in-service date is 12/31/2024.

Initial In-Service Load	Projected 2027 Load
Summer: 113.0 MW	Summer: 185.0 MW



Dominion Transmission Zone: Supplemental Stratus 230kV Delivery - DEV

Need Number: DOM-2022-0041

Process Stage: Solutions Meeting 08/09/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2188 (Lockridge-Shellhorn) and Line #2031 (Roundtable-Enterprise) into the proposed Stratus Substation. Terminate both ends into a six-breaker ring bus arrangement to create Roundtable-Stratus, Stratus-Shellhorn, Enterprise-Stratus, and Lockridge-Stratus lines.

Need Number DOM-2022-0001 (Barrister 230kV Delivery – DEV) will be adjacent to Stratus Substation.

Estimated Project Cost: $24.0 M (Total)

Stratus Substation - $10.0M

Line Extension - $2.0 M

Stratus Land Purchase - $12.0M

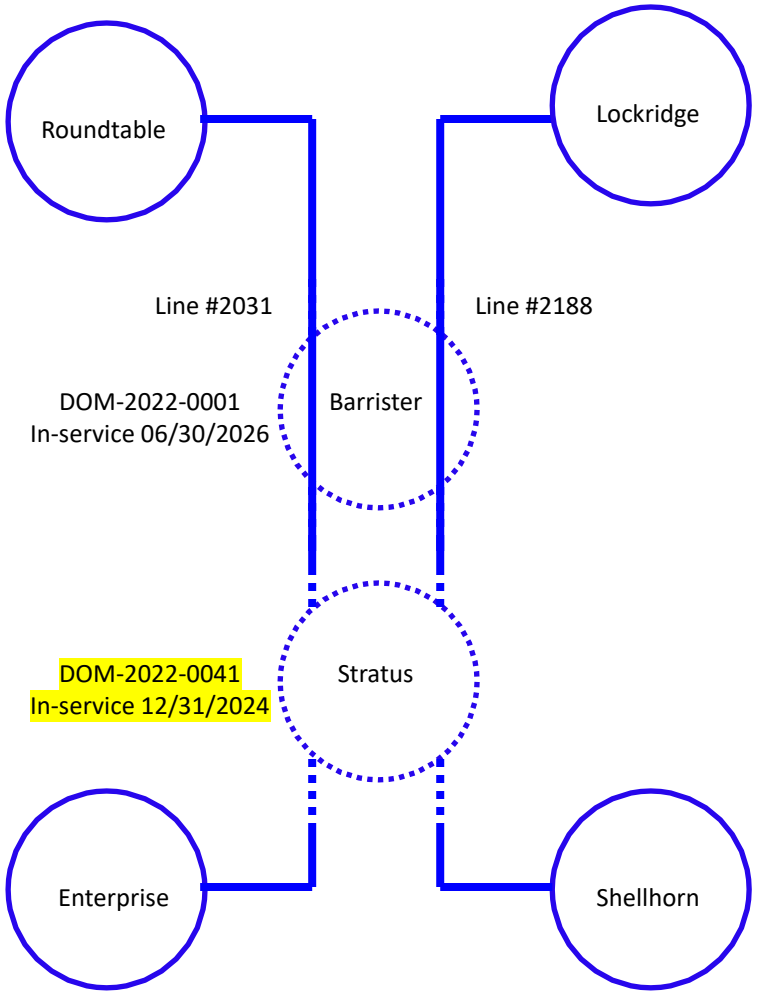
Alternatives Considered:

No feasible alternatives

Projected In-service Date: Customer Service – 12/31/2024

Project Status: Engineering

Model: 2025 RTEP



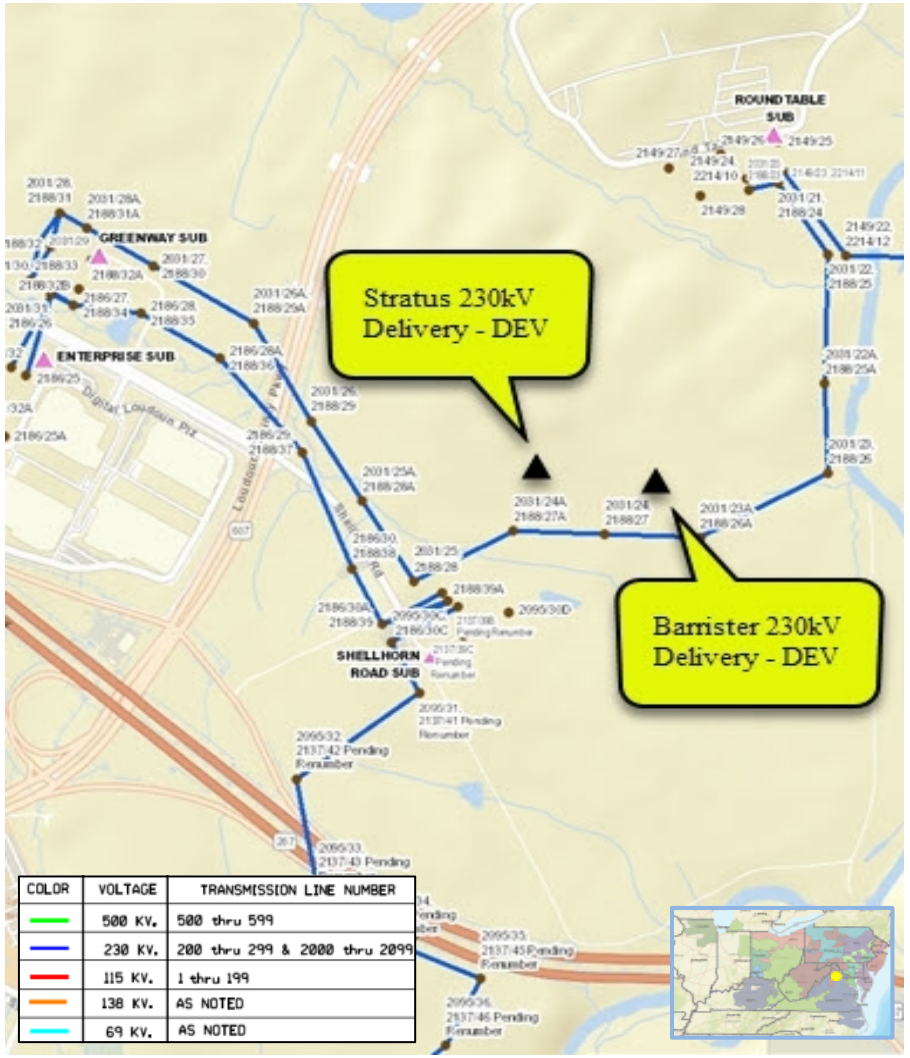
Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0001
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 06/07/2022
Project Driver: Customer Service

Specific Assumption References:
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Barrister) in Loudoun County with a total load in excess of 100MW. Requested in-service date is ~~8/15/2023~~ (6/30/2026).

Initial In-Service Load	Projected 2027 Load
Summer: 2.0 MW	Summer: 147.0 MW



Dominion Transmission Zone: Supplemental Barrister 230kV Delivery - DEV

Need Number: DOM-2022-0001

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line from Roundtable to Stratus and Line from Lockridge to Stratus into the proposed Barrister Substation. Terminate both ends into a six-breaker ring bus arrangement to create Roundtable- Barrister, Lockridge-Barrister lines as well as two Stratus-Barrister lines.

Need Number DOM-2022-0041 (Stratus 230kV Delivery - DEV) is adjacent to Barrister Substation.

Estimated Project Cost: $24.0 M (Total)

Barrister Substation - $10.0M

Line Extension - $2.0 M

Stratus Land Purchase - $12.0M

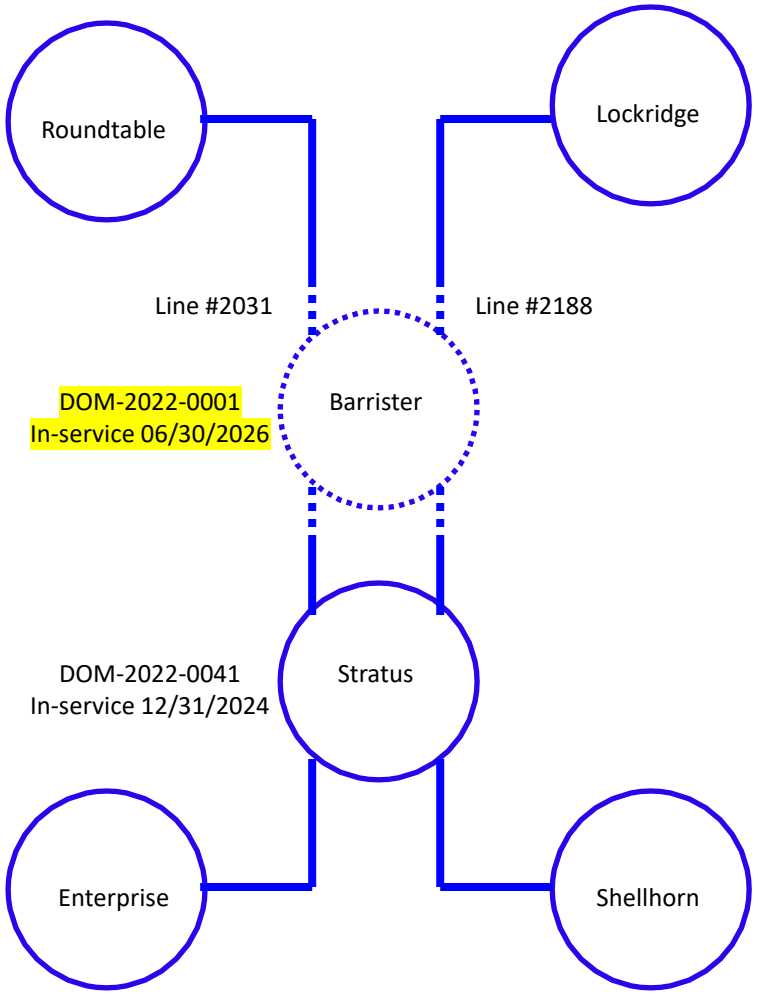
Alternatives Considered:

No feasible alternatives

Projected In-service Date: Customer Service – 6/30/2026

Project Status: Engineering

Model: 2025 RTEP



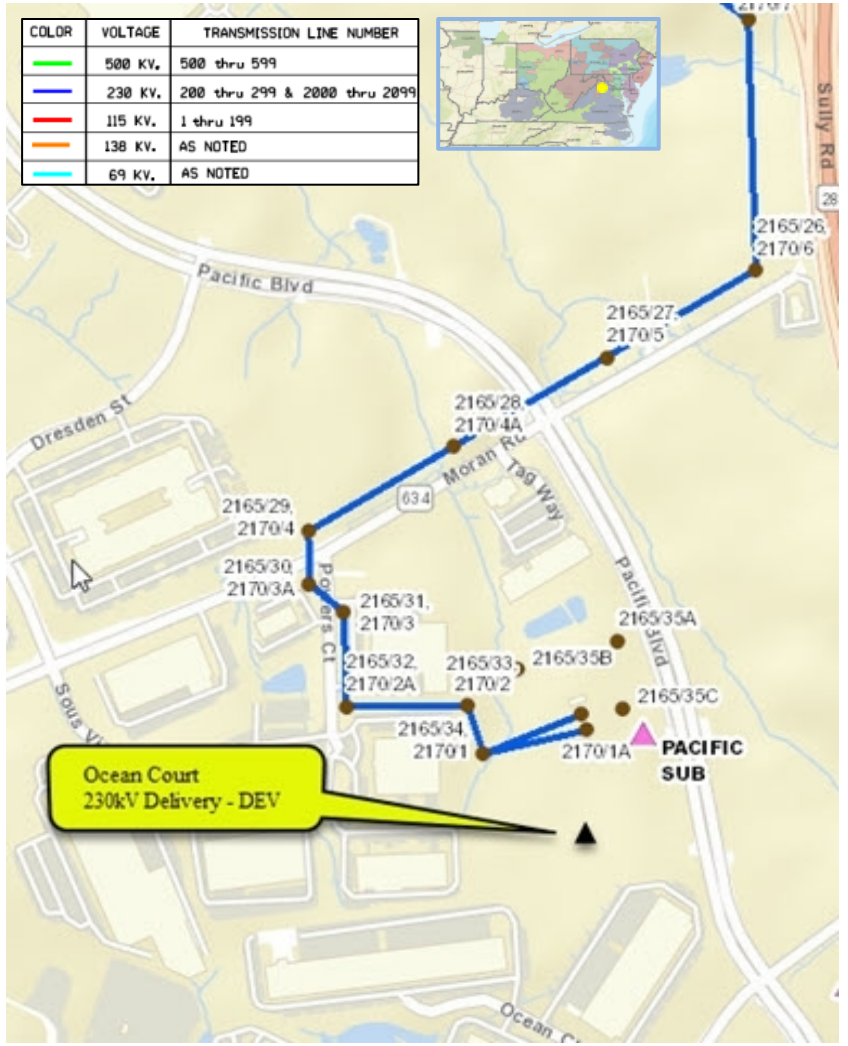
Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0002
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 06/07/2022
Project Driver: Customer Service

Specific Assumption References:
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Ocean Court) in Loudoun County with a total load in excess of 100MW. Requested in-service date is 6/30/2024.

Initial In-Service Load	Projected 2027 Load
Summer: 56.0 MW	Summer: 158.0 MW



Dominion Transmission Zone: Supplemental Ocean Court 230kV Delivery - DEV

Need Number: DOM-2022-0002

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:
Cut and extend Line #2231 (Global Plaza-Pacific) to the proposed Ocean Court Substation. Terminate lines in a four-breaker 230kV ring bus with an ultimate arrangement of six-breaker ring.

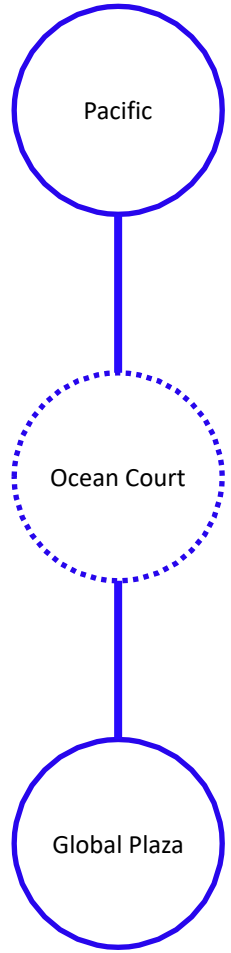
Estimated Project Cost: $10.0 M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 06/30/2024

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0040
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 06/07/2022
Project Driver: Customer Service

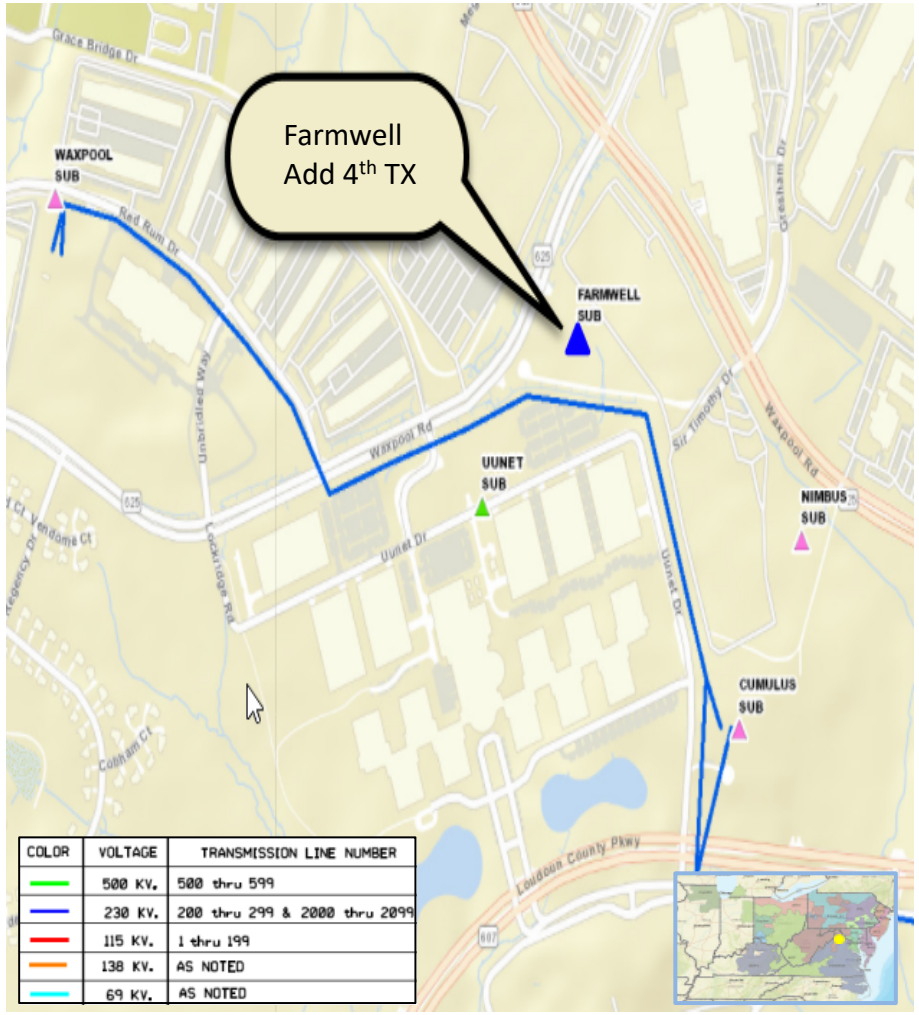
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request to add a 4th distribution transformer at Farmwell Substation in Loudoun County. The new transformer is being driven by continued load growth in the area and contingency loading for loss of one of the existing transformers. Requested in-service date is 08/01/2023.

Initial In-Service Load	Projected 2025 Load
Summer: 185.0 MW	Summer: 292.0 MW



Dominion Transmission Zone: Supplemental Farmwell - Add 4th TX - DEV

Need Number: DOM-2022-0040

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:

Install a 1200 Amp, 50kAIC circuit switcher and associated equipment (bus, relaying, etc.) to feed the new transformer at Farmwell.

Estimated Project Cost: $0.5 M

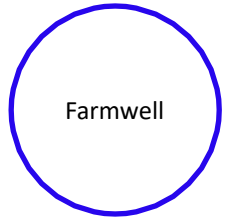
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 08/01/2023

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0044
Process Stage: Solution Meeting 08/09/2022
Previously Presented : Need Meeting 06/07/2022
Project Driver: Customer Service

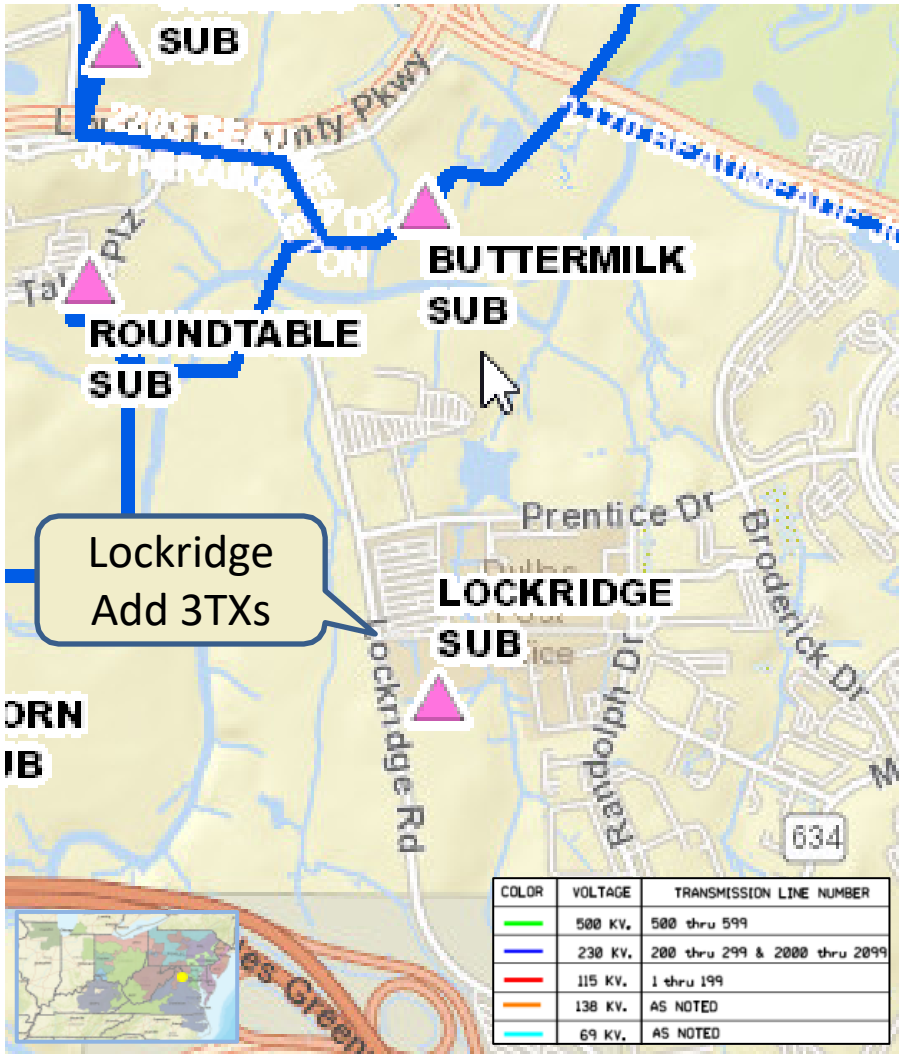
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request to add a three additional distribution transformers at Lockridge Substation in Loudoun County. The new transformers are being driven by continued load growth in the area and contingency loading for loss of one of the existing transformers. Requested in-service date is 01/01/2023.

Initial In-Service Load	Projected 2027 Load
Summer: 214.0 MW	Summer: 288.0 MW



Dominion Transmission Zone: Supplemental Lockridge – Add 3 TX's - DEV

Need Number: DOM-2022-0044

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:
Install three 1200 Amp, 50kAIC circuit switchers and associated equipment (bus, relaying, etc.) to feed the three new transformers at Lockridge.

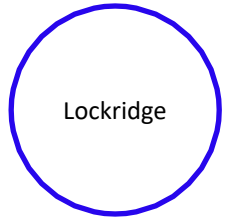
Estimated Project Cost: $1.5 M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 01/01/2023

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0045
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 07/12/2022
Project Driver: Customer Service

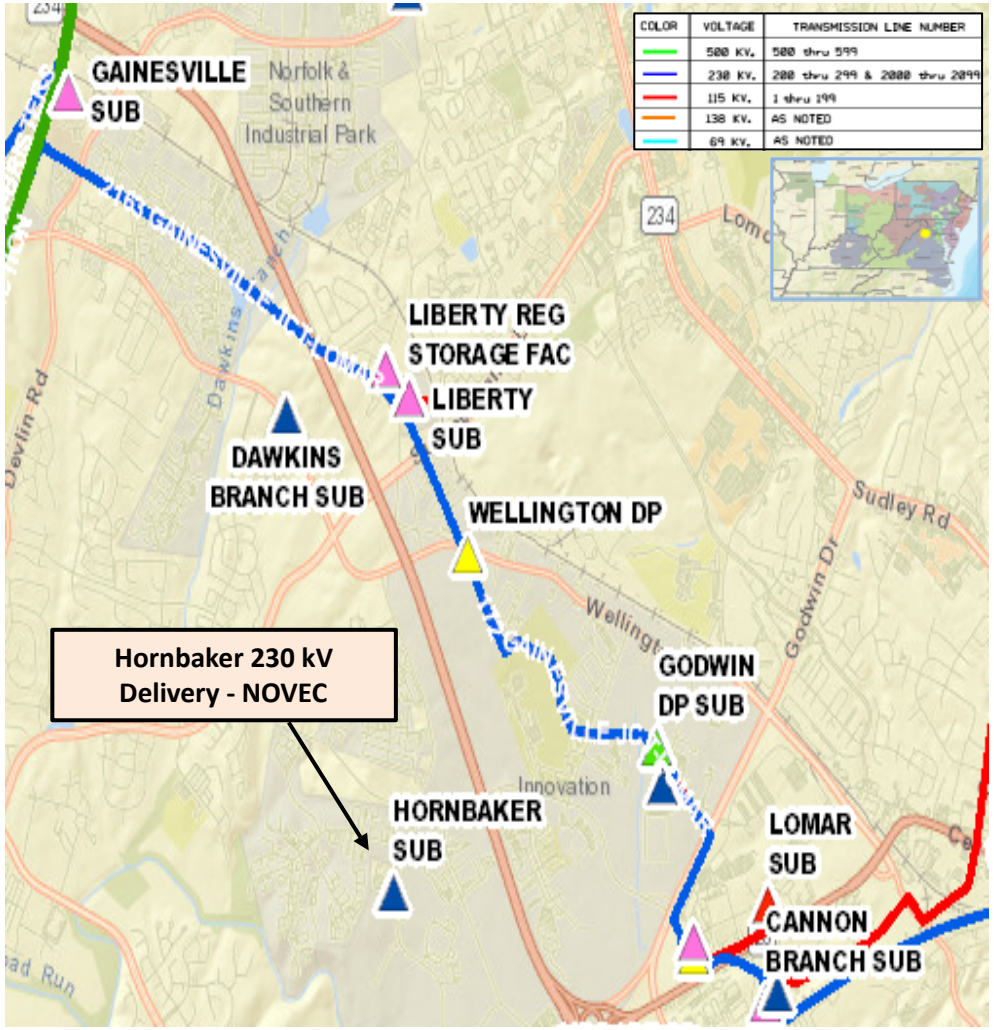
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Hornbaker) to serve a data center complex in Prince William County with a total load in excess of 100 MW. Requested in-service date is 12/30/2025.

Initial In-Service Load	Projected 2027 Load
Winter: 60.0 MW	Winter: 150.0 MW



Dominion Transmission Zone: Supplemental Hornbaker 230kV Delivery - NOVEC

Need Number: DOM-2022-0045

Process Stage: Solutions Meeting 08/09/2022

Proposed Solution:
Interconnect the new substation by cutting and extending Line #2187 (Liberty - Pioneer) to the proposed Hornbaker Substation. Lines to terminate into a 230 kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

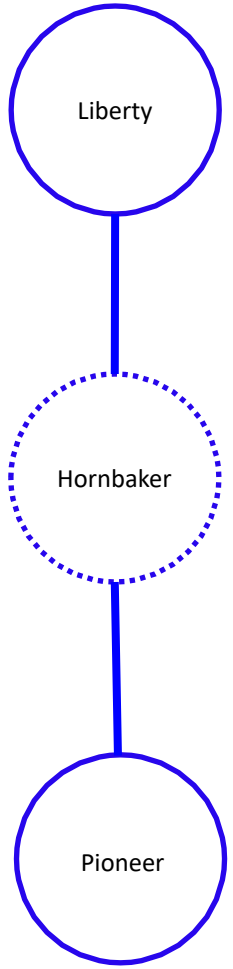
Estimated Project Cost: $45.0M (Total)
Transmission Line Cost: $8.0M
Real Estate Cost: $25.0M
Substation Cost: $12.0M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 12/30/2025

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

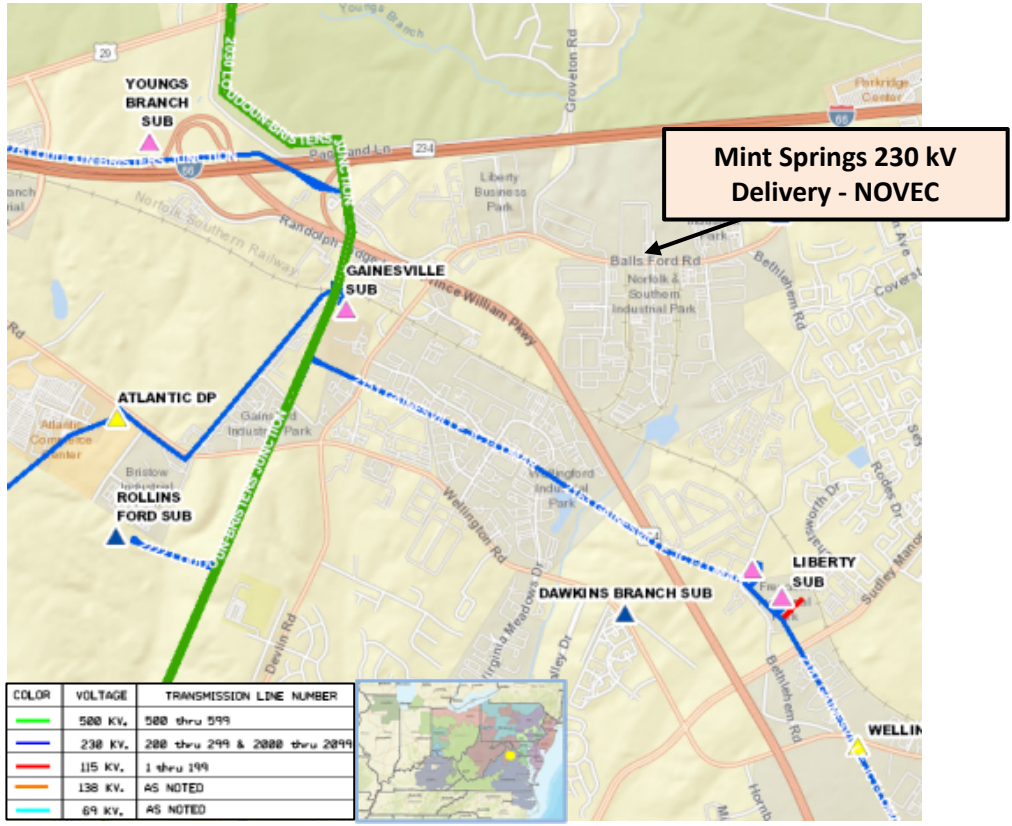
Need Number: DOM-2022-0046
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 07/12/2022
Project Driver: Customer Service

Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Mint Springs) to serve a data center complex in Prince William County with a total load in excess of 100 MW. Requested in-service date is 01/02/2026.



Initial In-Service Load	Projected 2027 Load
Winter: 40.0 MW	Winter: 50.0 MW

Dominion Transmission Zone: Supplemental Mint Springs 230kV Delivery - NOVEC

Need Number: DOM-2022-0046

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:
Interconnect the new substation by cutting and extending Line #2030 (Loudoun - Gainesville) to the proposed Mint Springs Substation. Lines to terminate into a 230 kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

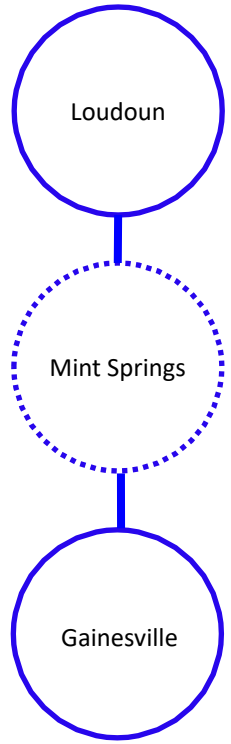
Estimated Project Cost: $16.0 M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 01/02/2026

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0047
Process Stage: Solution Meeting 08/09/2022
Previously Presented: Need Meeting 07/12/2022
Project Driver: Customer Service

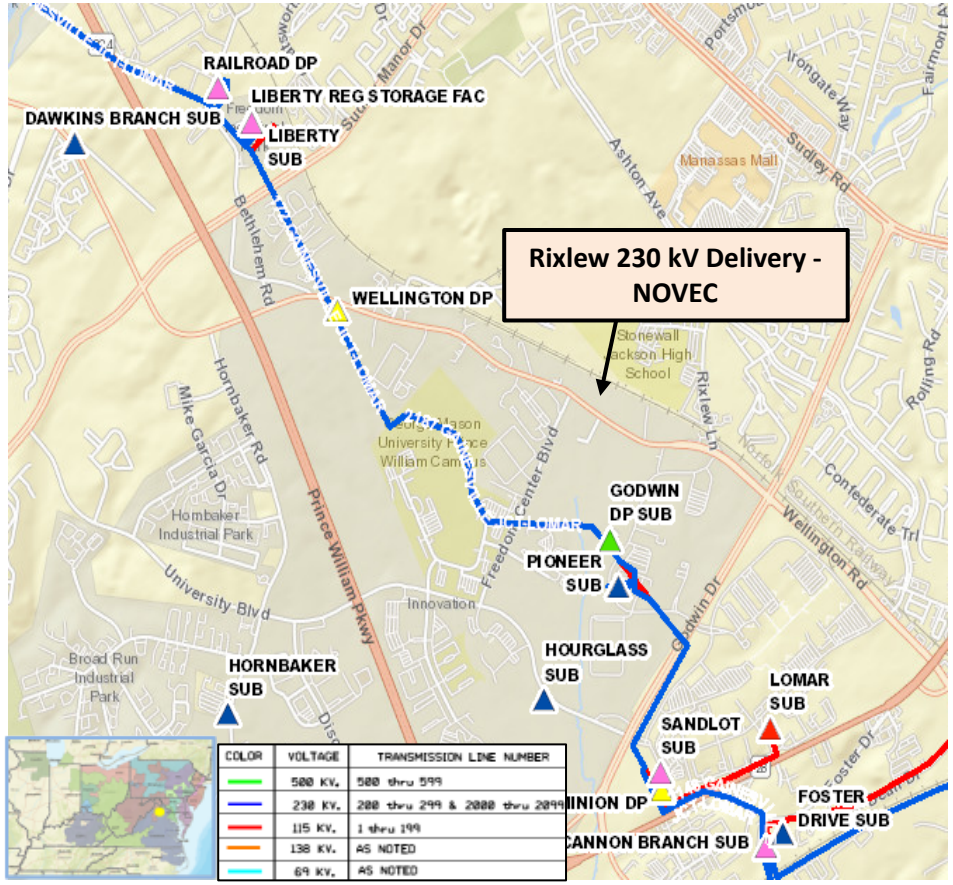
Specific Assumption References:

Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Rixlew) to serve a data center complex in Manassas with a total load in excess of 100 MW. Requested in-service date is 12/31/2024.

Initial In-Service Load	Projected 2027 Load
Winter: 40.5 MW	Winter: 103.0 MW



Dominion Transmission Zone: Supplemental Rixlew 230kV Delivery - NOVEC

Need Number: DOM-2022-0047

Process Stage: Solution Meeting 08/09/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2228 (Liberty - Pioneer) to the proposed Rixlew Substation. Lines to terminate into a 230 kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

Estimated Project Cost: $10.0 M

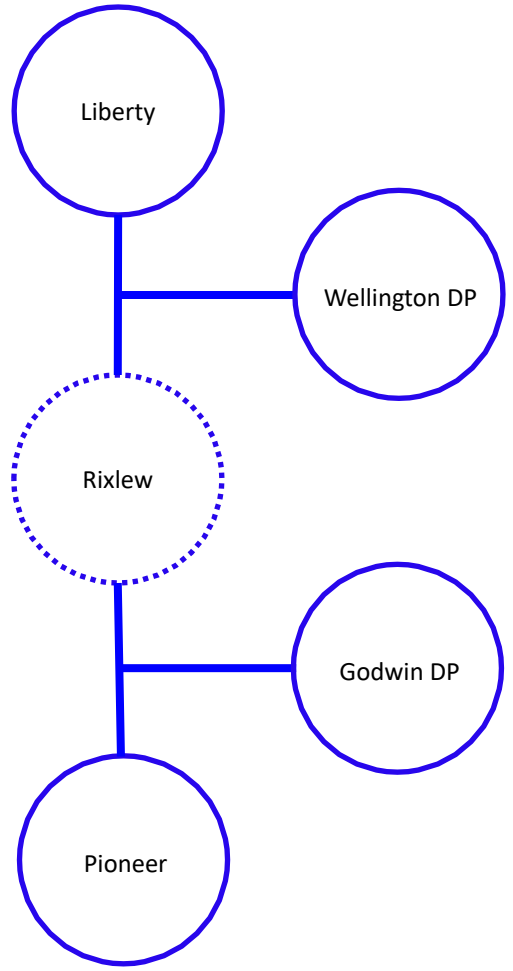
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 12/31/2024

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Do No Harm Analysis

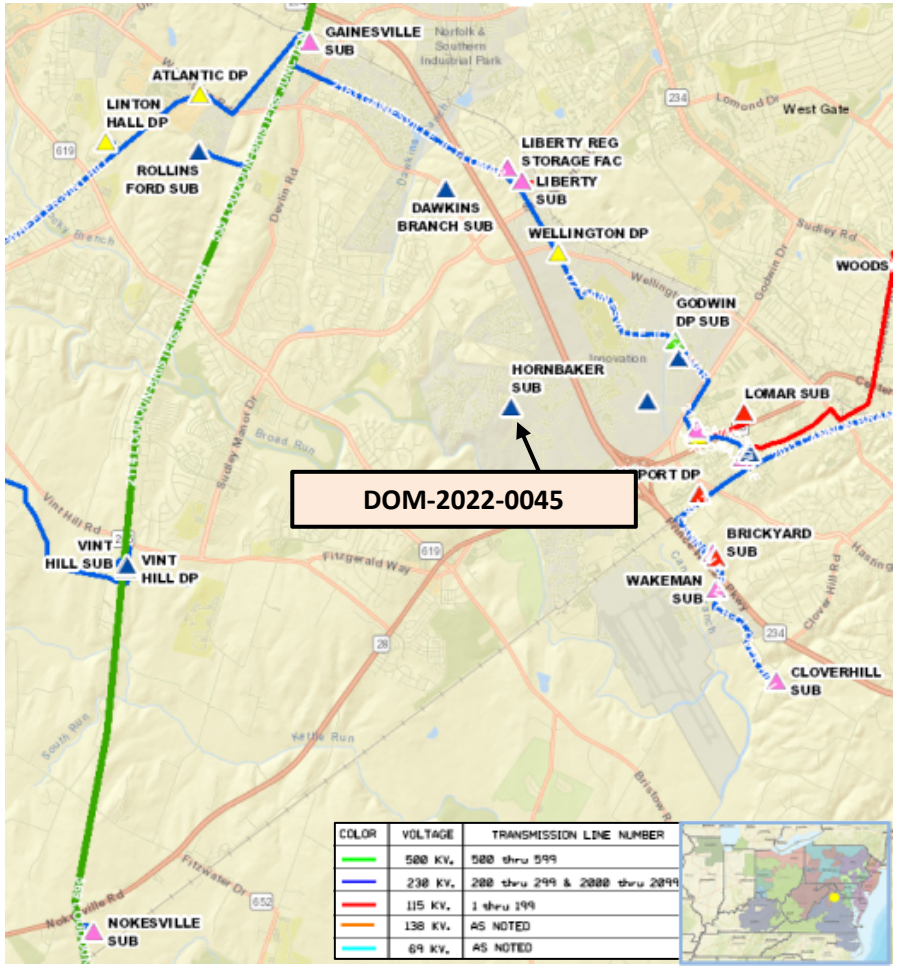
Need Number: DOM-2022-0045-DNH
Process Stage: Solutions Meeting 08/09/2022
Project Driver: Do No Harm Analysis

Specific Assumption References:
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:
N-1-1 thermal violations were identified on the following separate facilities in the 2022 Do-No-Harm analysis:

- Line #2163 (Dawkins Branch to Vint Hill)
  - Contingency Scenario: DVP_P:1-2: LN 2151 and DVP_P:1-2: LN 2011
- Line #2151 (Railroad to Gainesville)
  - Contingency Scenario: DVP_P:1-2: LN 2163 and DVP_P:1-2: LN 2011
- Line #2101 (Vint Hill to Nokesville Segment)
  - Contingency Scenarios: DVP_P:1-2: LN 2151 and DVP_P:1-2: LN 2011
- Line #2011 (Clifton to Brickyard Segment)
  - Contingency Scenario: DVP_P:1-2: LN 2151 and DVP_P:1-2: LN 2163

The violations are caused by previously presented Supplemental Project DOM-2021-0045 in the Dominion Zone.



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2022-0045-DNH

Process Stage: Solutions Meeting 08/09/2022

Proposed Solution:

- Construct one new 230 kV transmission line for approximately 7.5 miles from Hornbaker to Nokesville Substation with a minimum summer normal conductor rating of 1573 MVA. New right-of-way and expansion of existing right-of-way will be required.
- Install a 230 kV ring bus and associated 230 kV equipment (breakers, switches, leads) at the existing Nokesville Substation.
- Re-configure the existing terminations of line #2101 (Bristers – Vint Hill) into Nokesville Substation to accommodate the new 230 kV line.

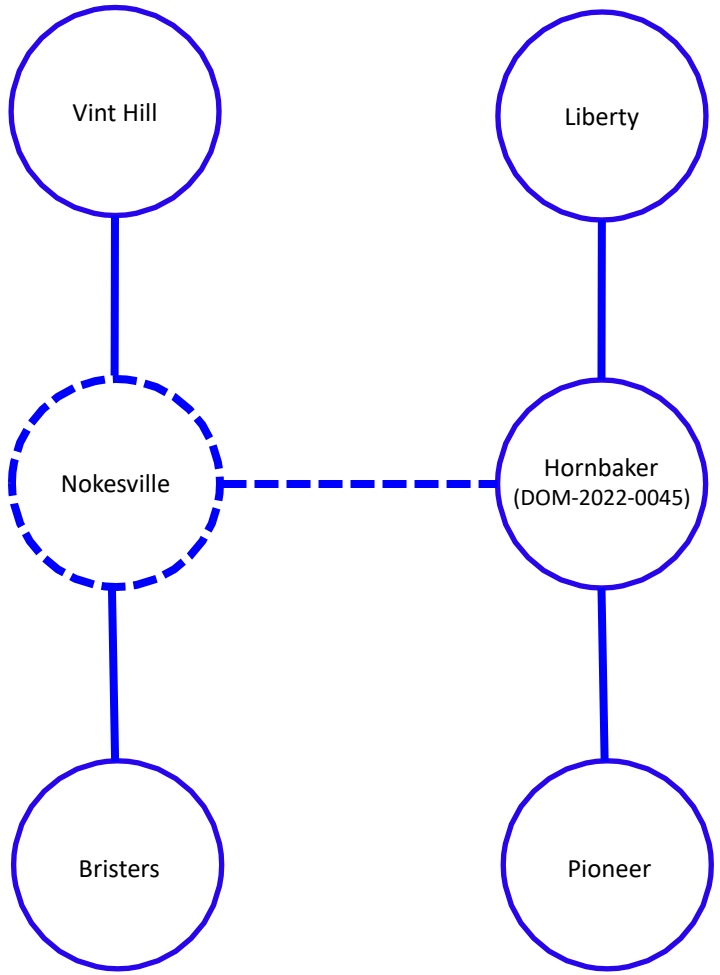
Estimated Project Cost: $139.0M (Total)
Transmission Line Cost: $45.0M
Real Estate Cost: $82.5M
Substation Cost: $11.5M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 12/31/2027

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

07/29/2022 – V1 – Original version posted to pjm.com