

Dominion Supplemental Projects

Transmission Expansion Advisory
Committee
July 12, 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-2022-0038

Process Stage: Need Meeting 07/12/2022

Project Driver: Customer Service

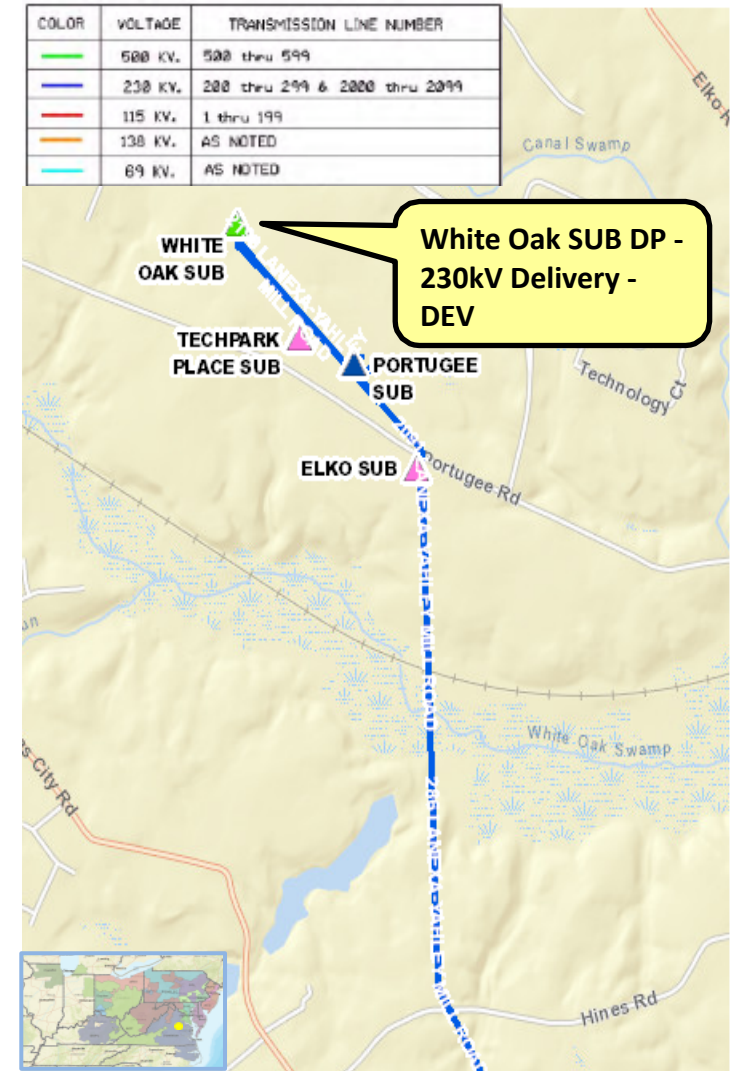
Specific Assumption References:

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 SUB to serve a data center customer in Henrico County with a total load 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 Customer Load Request

Need Number: DOM-2022-0039

Process Stage: Need Meeting 07/12/2022

Project Driver: Customer Service

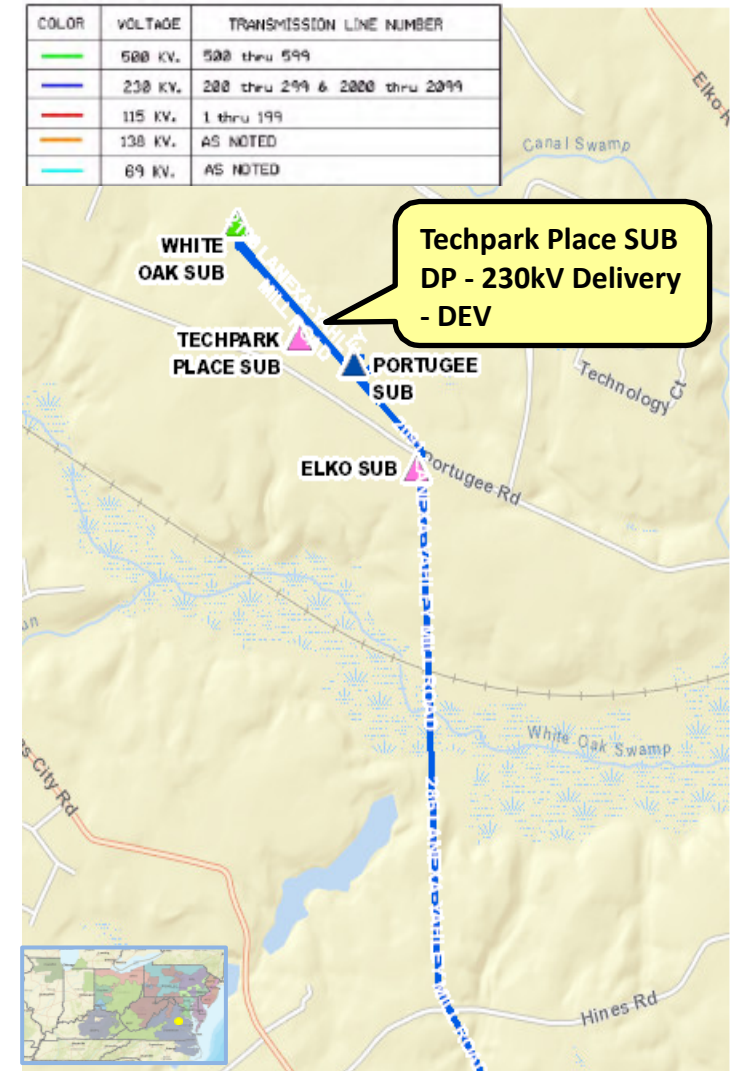
Specific Assumption References:

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 SUB to serve data center customer in Henrico County with a total load 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 Customer Load Request

Need Number: DOM-2022-0045

Process Stage: Need Meeting 07/12/2022

Project Driver: Customer Service

Specific Assumption References:

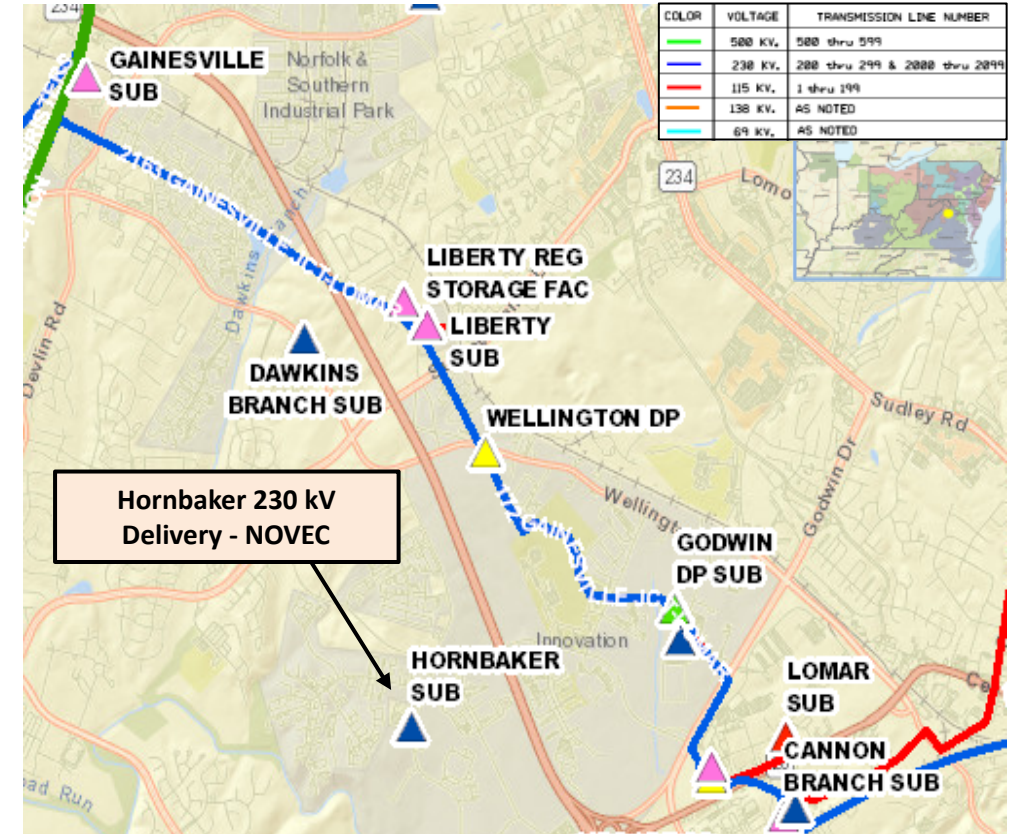
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

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 Customer Load Request

Need Number: DOM-2022-0046

Process Stage: Need Meeting 07/12/2022

Project Driver: Customer Service

Specific Assumption References:

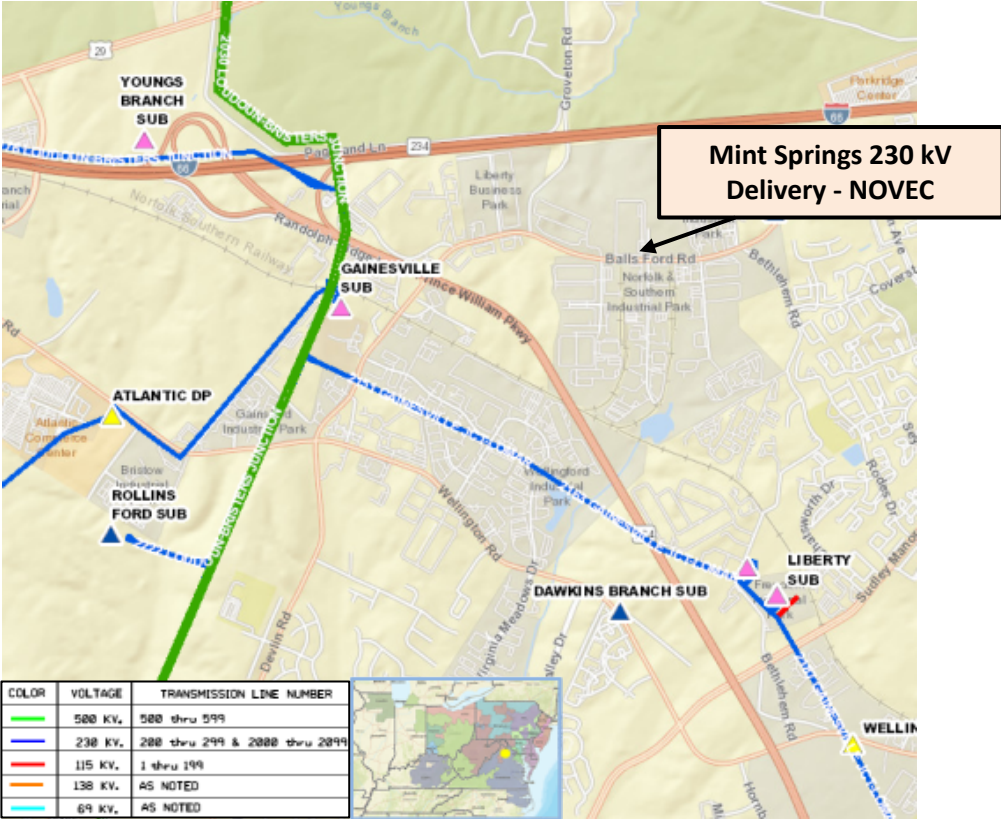
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

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 Customer Load Request

Need Number: DOM-2022-0047

Process Stage: Need Meeting 07/12/2022

Project Driver: Customer Service

Specific Assumption References:

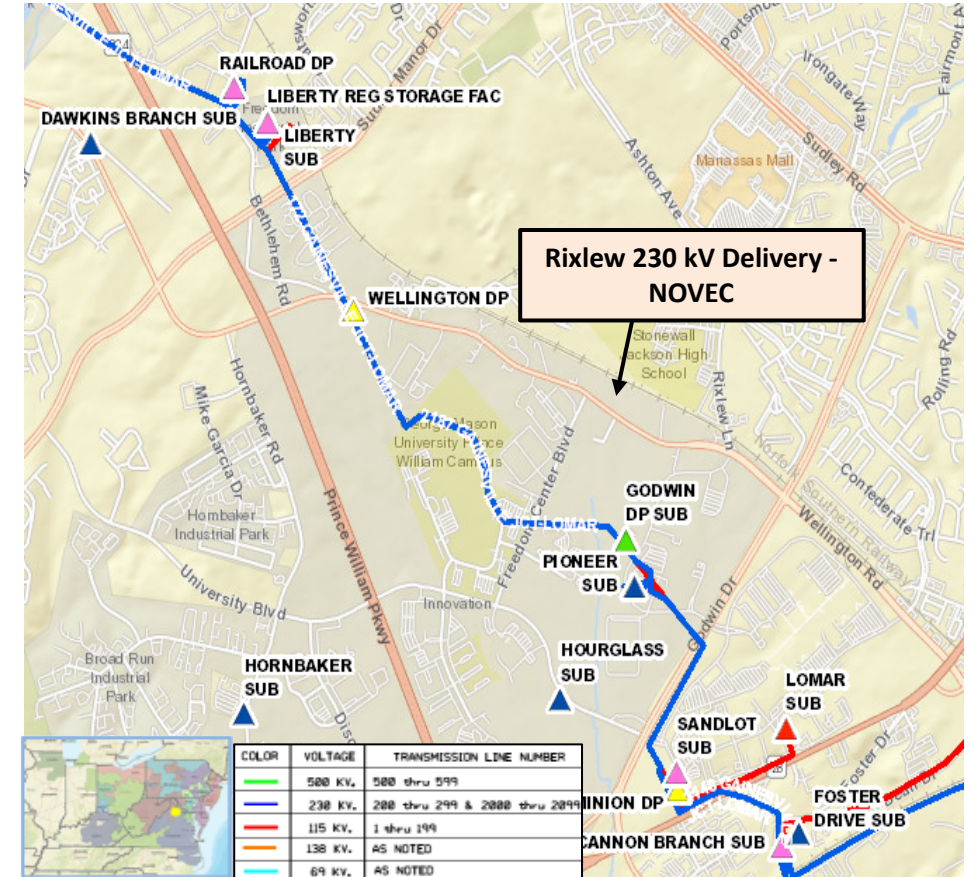
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

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



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 Customer Load Request

Need Number: DOM-2022-0017

Process Stage: Solutions Meeting 07/12/2022

Previous Stage: Need Meeting 06/07/2022

Project Driver: Customer Service

Specific Assumption References:

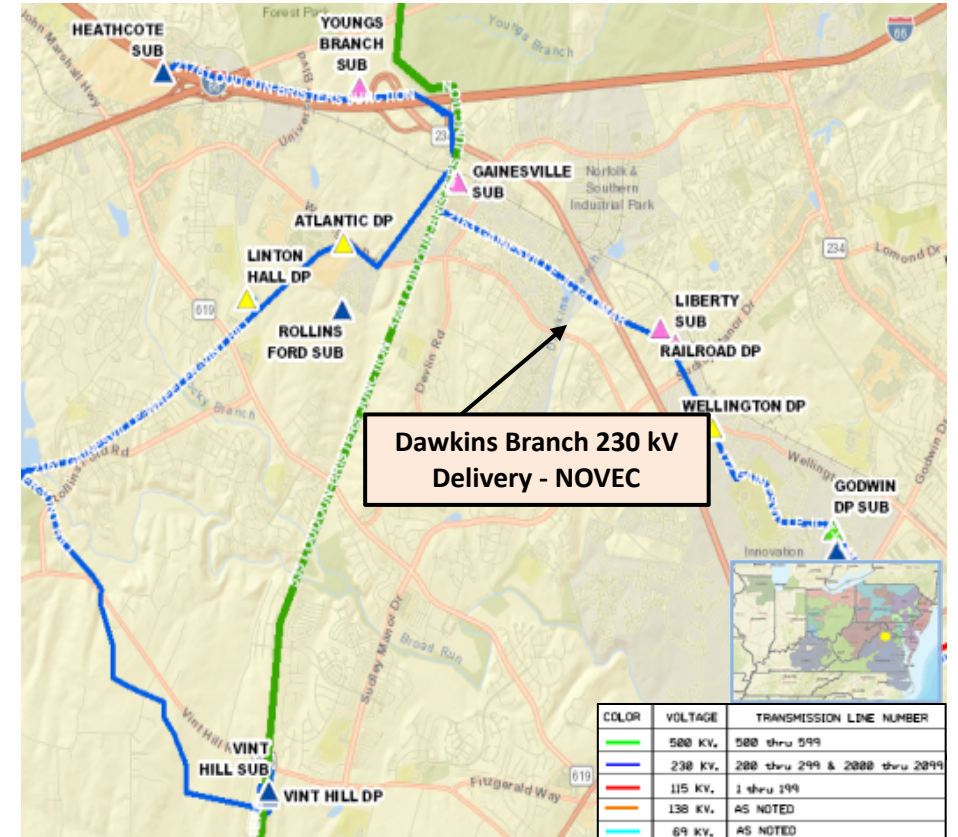
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Dawkins Branch) to serve a data center complex in Prince William County with a total load in excess of 100 MW.

Requested in-service date is 07/01/2023.

Initial In-Service Load	Projected 2027 Load
Summer: 10.0 MW	Summer: 73.0 MW



Dominion Transmission Zone: Supplemental Dawkins Branch 230kV Delivery - NOVEC

Need Number: DOM-2022-0017

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2163 (Vint Hill - Liberty) to the proposed Dawkins Branch Substation. Terminate both ends into a four-breaker ring arrangement to create a Vint Hill – Dawkins Branch line and a Dawkins Branch - Liberty line.

Estimated Project Cost: \$16.0 M

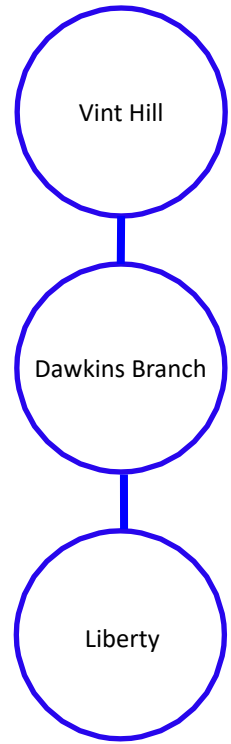
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 07/01/2023

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0019

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 06/07/2022

Project Driver: Customer Service

Specific Assumption References:

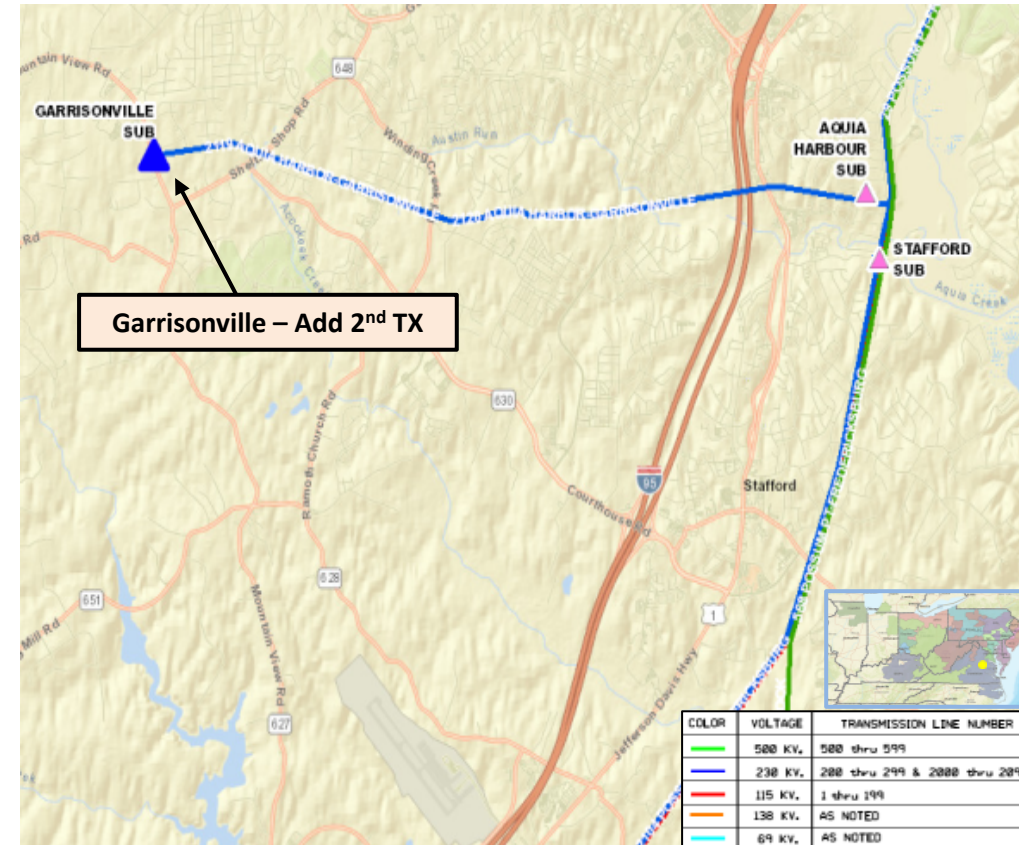
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request to add a 2nd distribution transformer at Garrisonville Substation in Stafford County. The new transformer is being driven by significant area load growth.

Requested in-service date is 12/31/2023.

Initial In-Service Load	Projected 2027 Load
Winter: 68.5 MW	Winter: 74.4 MW



Dominion Transmission Zone: Supplemental Garrisonville - Add 2nd TX - DEV

Need Number: DOM-2022-0019

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

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

Estimated Project Cost: \$0.75 M

Alternatives Considered:

No feasible alternatives

Projected In-service Date: 12/31/2023

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0020

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 06/07/2022

Project Driver: Customer Service

Specific Assumption References:

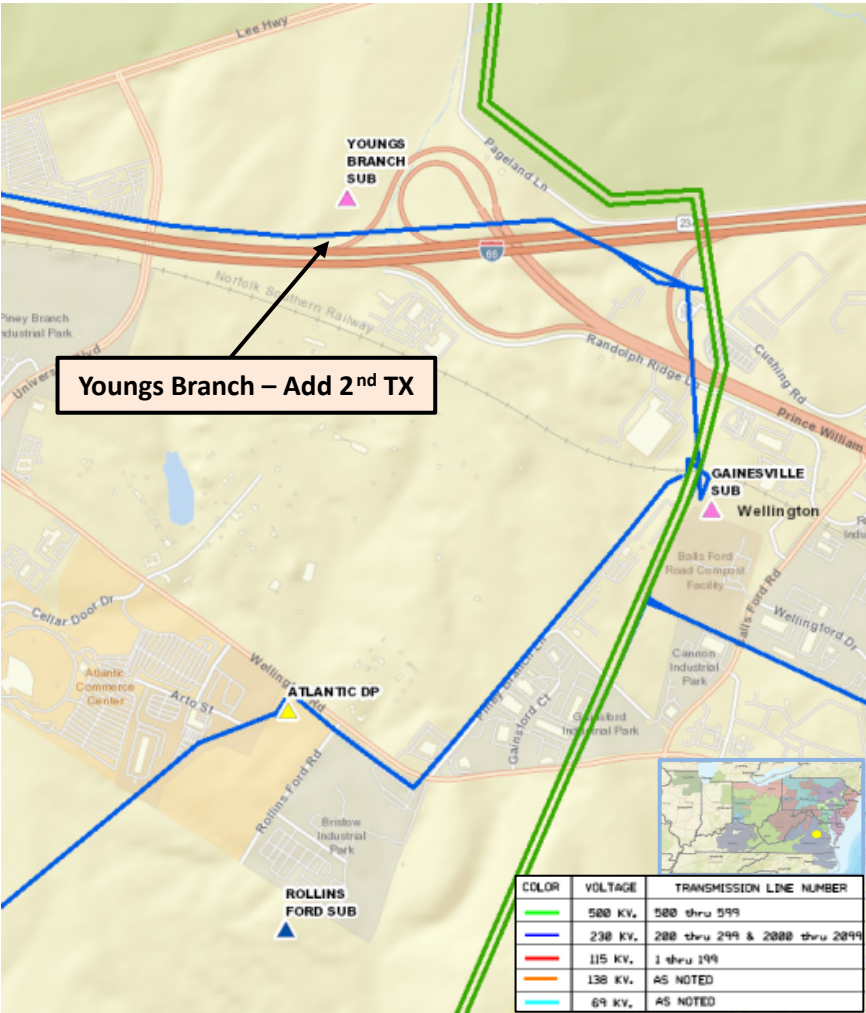
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

DEV Distribution has submitted a DP Request to add a 2nd distribution transformer at Youngs Branch Substation in Prince William County. The new transformer is being driven by datacenter load growth.

Requested in-service date is 10/15/2023.

Initial In-Service Load	Projected 2027 Load
Winter: 19.8 MW	Winter: 124.5 MW



Dominion Transmission Zone: Supplemental Youngs Branch - Add 2nd TX - DEV

Need Number: DOM-2022-0020

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

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

Estimated Project Cost: \$0.75 M

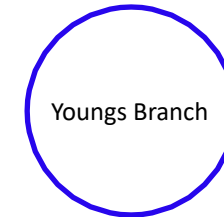
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 10/15/2023

Project Status: Engineering

Model: 2025 RTEP



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

Need Number: DOM-2020-0036

Process Stage: Solutions Meeting 07/12/2022 - **UPDATE**

Previously Presented: Solutions Meeting 11/04/2020

Project Driver: Equipment Material Condition, Performance and Risk

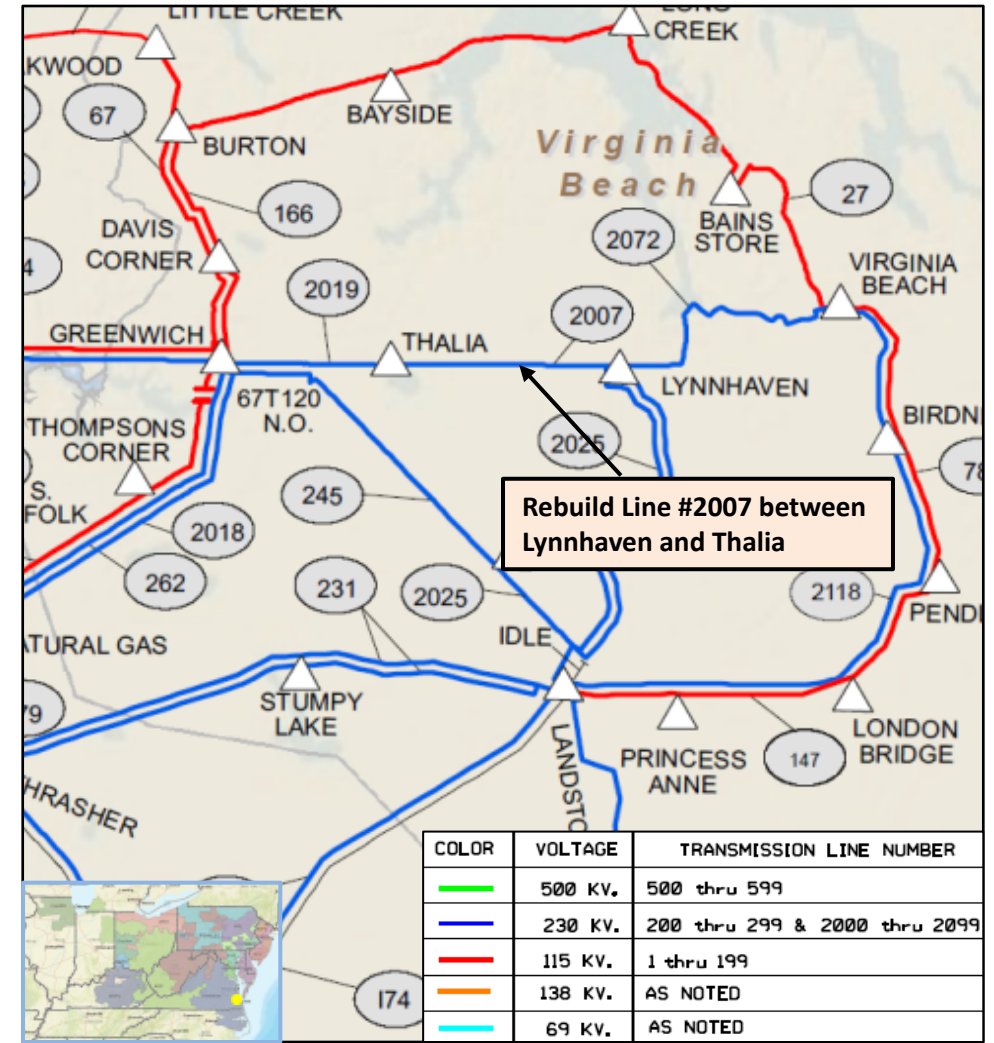
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion’s Planning Assumptions presented in December 2019 and updated in June 2020.

Problem Statement:

Dominion Energy has identified a need to replace 60 concrete structures of Line #2007 (Lynnhaven – Thalia) based on the Company’s End of Life criteria.

- The 3.37 miles long line was constructed on concrete structures in 1970. These structures have developed significant structural concerns as they age.
- Every pole is experiencing hairline cracking at a minimum, and many of the poles have more advanced cracking that has exposed some of the interior reinforcing bars and cables.
- The cracks allow for significant water infiltration which can accelerate the deterioration of the concrete and cause rusting of the steel reinforcing components.
- The Line #2007 provides service to Thalia substation with approximately 134 MW of tapped load.
- **Dominion Energy acquired rights to use the existing right-of-way corridor containing Line #2007 which are nearing expiration.**



Dominion Transmission Zone: Supplemental Line #2007 End-of-Life Rebuild – Lynnhaven to Thalia

Need Number: DOM-2020-0036

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Solutions Meeting 11/04/2020

Proposed Solution:

Rebuild the 3.37 miles long Line #2007 between Lynnhaven and Thalia to current 230kV standards. The normal summer rating of the line conductor will be ~~1047~~ 1573 MVA. **Dominion Energy to pursue with the City of Virginia Beach extending the rights for use of the existing Line #2007 corridor.**

Estimated Project Cost: ~~\$7.0~~ \$28.7 M

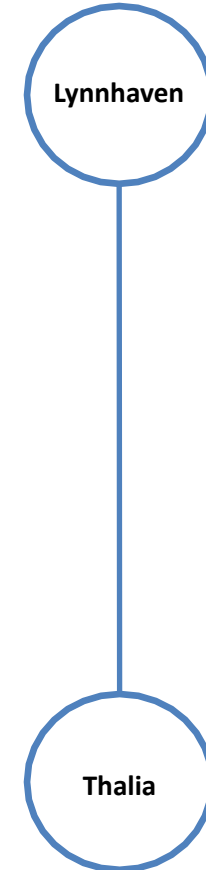
Alternatives Considered:

No feasible alternatives

Project Target In-service Date: 12/31/2025

Project Status: Conceptual

Model: 2025 RTEP



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

Need Number: DOM-2020-0037

Process Stage: Solutions Meeting 07/12/2022 - **UPDATE**

Previously Presented: Solutions Meeting 11/04/2020

Project Driver: Equipment Material Condition, Performance and Risk

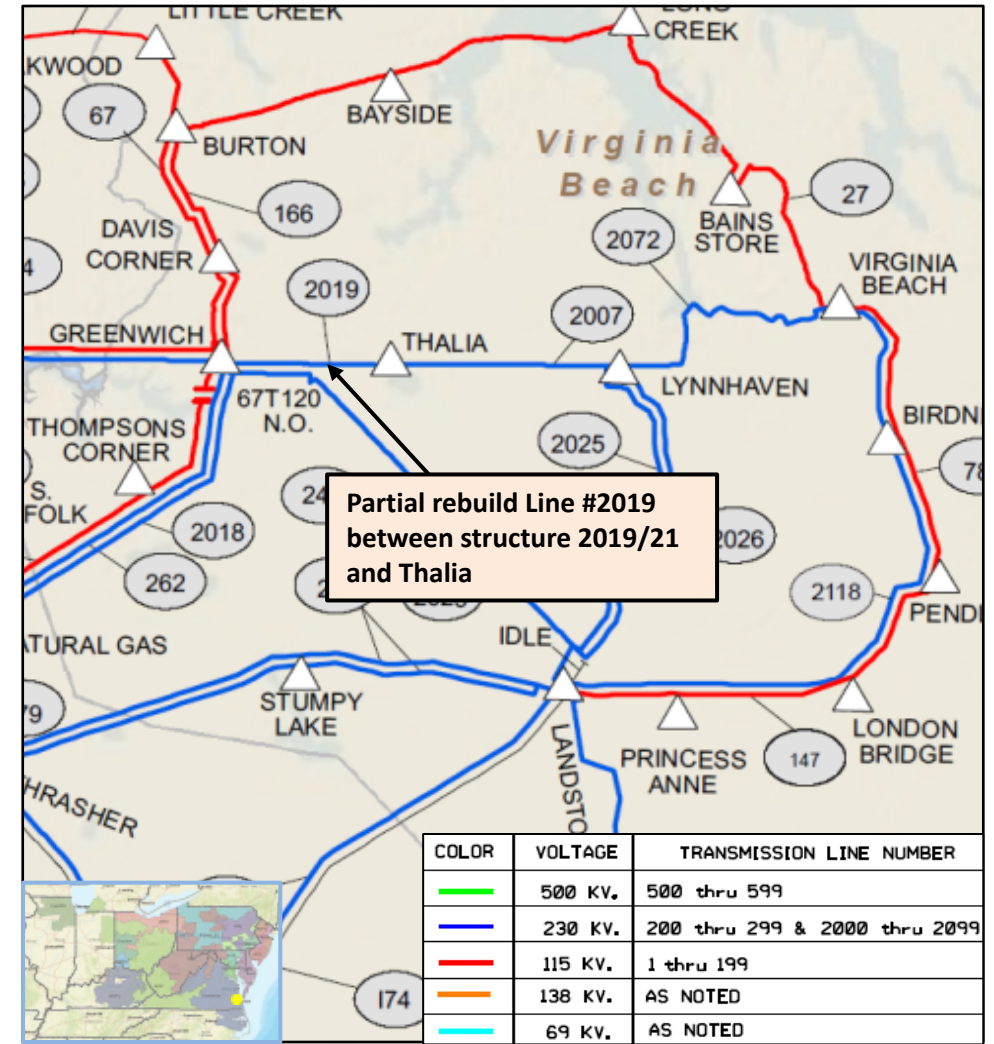
Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion’s Planning Assumptions presented in December 2019 and updated in June 2020.

Problem Statement:

Dominion Energy has identified a need to replace 20 concrete structures (Structure 2019/21 – Thalia segment) of Line #2019 (Greenwich – Thalia) based on the Company’s End of Life criteria.

- The 1.17 miles segment of Line #2019 was constructed on concrete structures in 1970. These structures have developed significant structural concerns as they age.
- Every pole is experiencing hairline cracking at a minimum, and many of the poles have more advanced cracking that has exposed some of the interior reinforcing bars and cables.
- The cracks allow for significant water infiltration which can accelerate the deterioration of the concrete and cause rusting of the steel reinforcing components.
- The Line #2019 provides service to Thalia substation with approximately 134 MW of tapped load.
- **Dominion Energy acquired rights to use the existing right-of-way corridor containing Line #2019 which are nearing expiration.**



Dominion Transmission Zone: Supplemental Line #2019 End-of-Life Partial Rebuild – Thalia to Greenwich

Need Number: DOM-2020-0037

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Solutions Meeting 11/04/2020

Proposed Solution:

Rebuild approximately 1.17 miles of Line #2019 between Thalia and Structure 2019/21 to current 230kV standards. The normal summer rating of the line segment will be ~~1047~~ 1573 MVA. **Dominion Energy to pursue with the City of Virginia Beach extending the rights for use of the existing Line #2019 corridor.**

Estimated Project Cost: ~~\$3.0~~ \$14.3 M

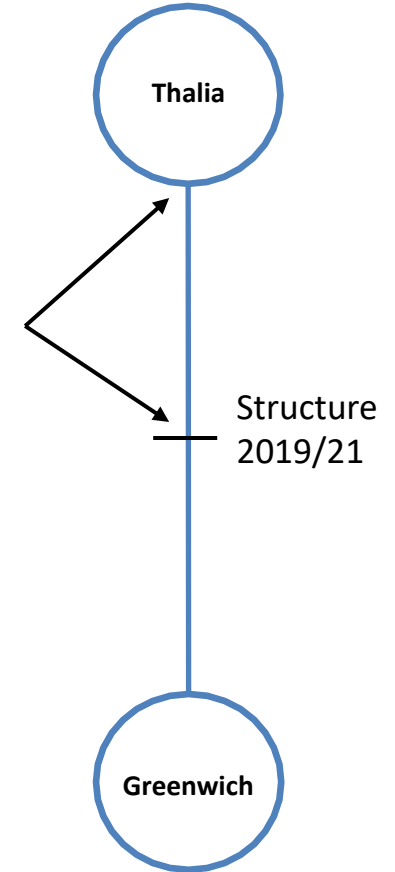
Alternatives Considered:

No feasible alternatives

Project Target In-service Date: ~~12/15/2025~~ 12/31/2025

Project Status: Conceptual

Model: 2025 RTEP



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

Need Number: DOM-2021-0046

Process Stage: Solution Meeting 7/12/2022

Previously Presented: Need Meeting 06/08/2021

Project Driver: Equipment Material Condition, Performance and Risk

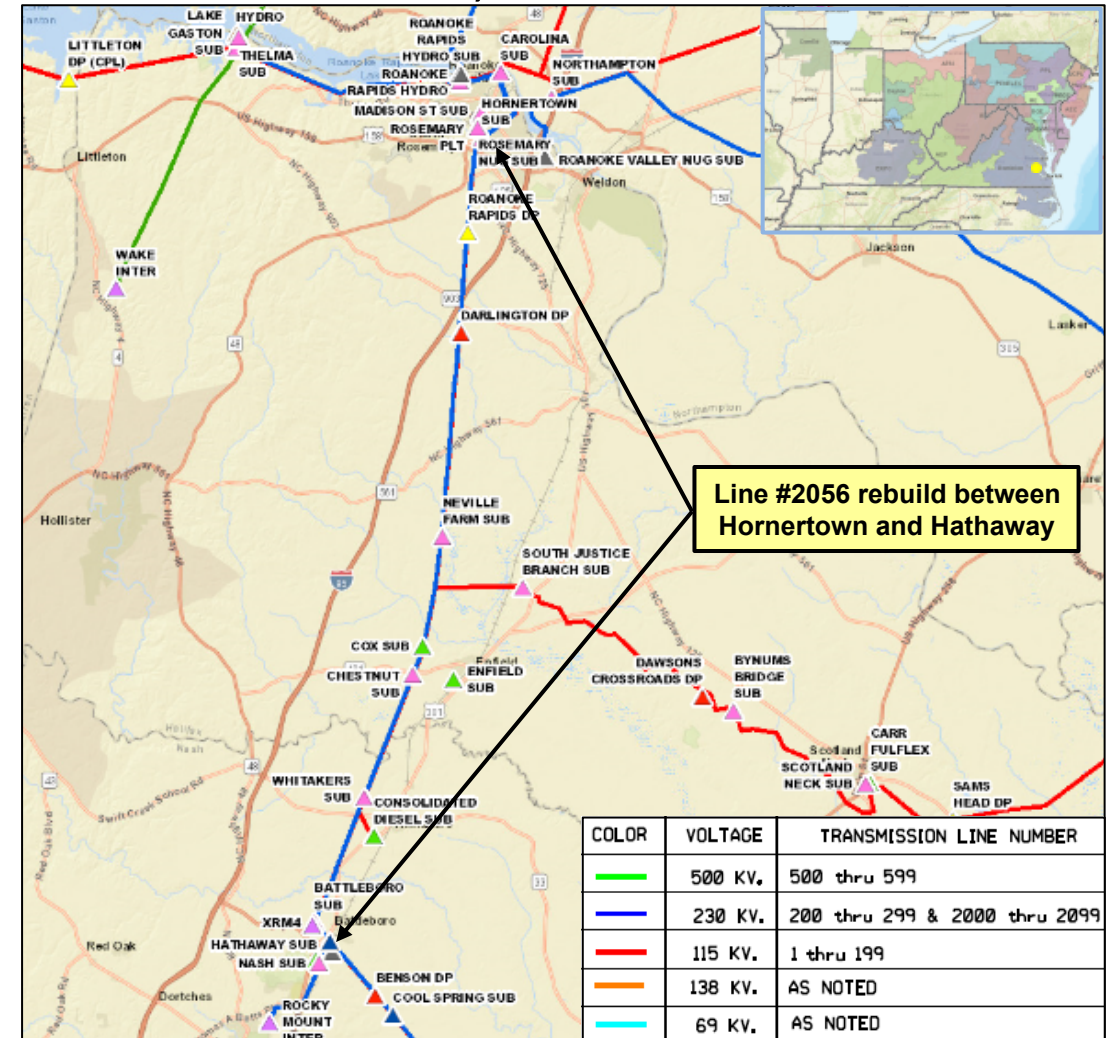
Specific Assumption References:

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 28.9 miles of 230kV Line #2056 (Hornertown to Hathaway) based on the Company's End of Life criteria.

- Line #2056 was constructed on steel and wood pole structures in 1967. Conductor is ACSR.
- A field-condition assessment indicated woodpecker damage to several poles and broken insulators in numerous locations.
- 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 EOL Rebuild 230kV Line #2056 – Hornertown to Hathaway

Need Number: DOM-2021-0046

Process Stage: Solution Meeting 07/12/2022

Proposed Solution:

Rebuild approximately 28.9 miles of Line #2056 Hornertown to Hathaway with current 230kV standard construction practices. The new conductor will have a minimum normal summer rating of 1573 MVA. Terminal equipment will be upgraded as needed.

Estimated Project cost:

\$49.1 M

Alternative Considered:

No feasible alternatives

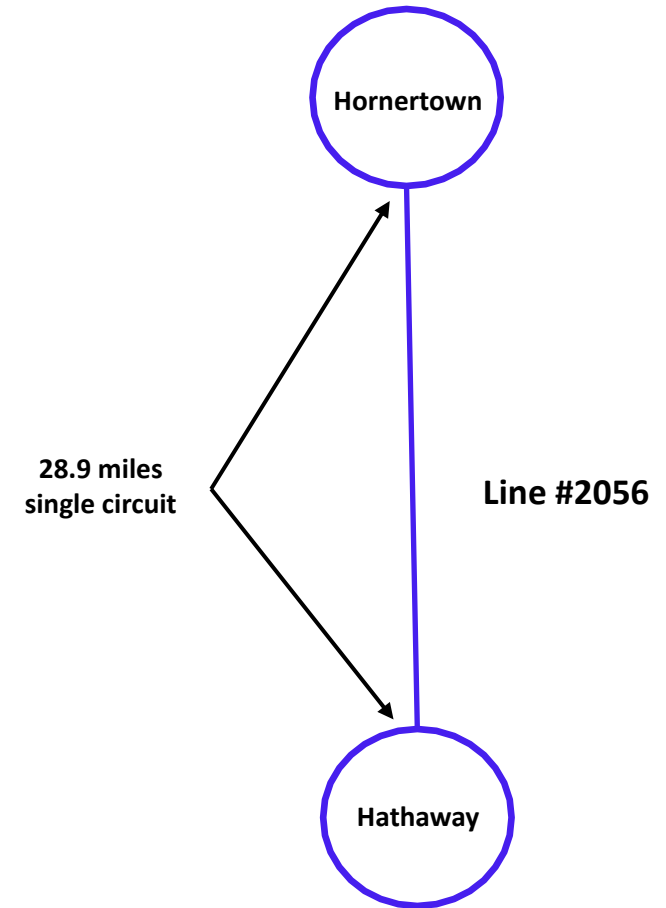
Projected In-service Date:

12/31/2026

Project Status:

Conceptual

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0028

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 05/10/2022

Project Driver: Customer Service

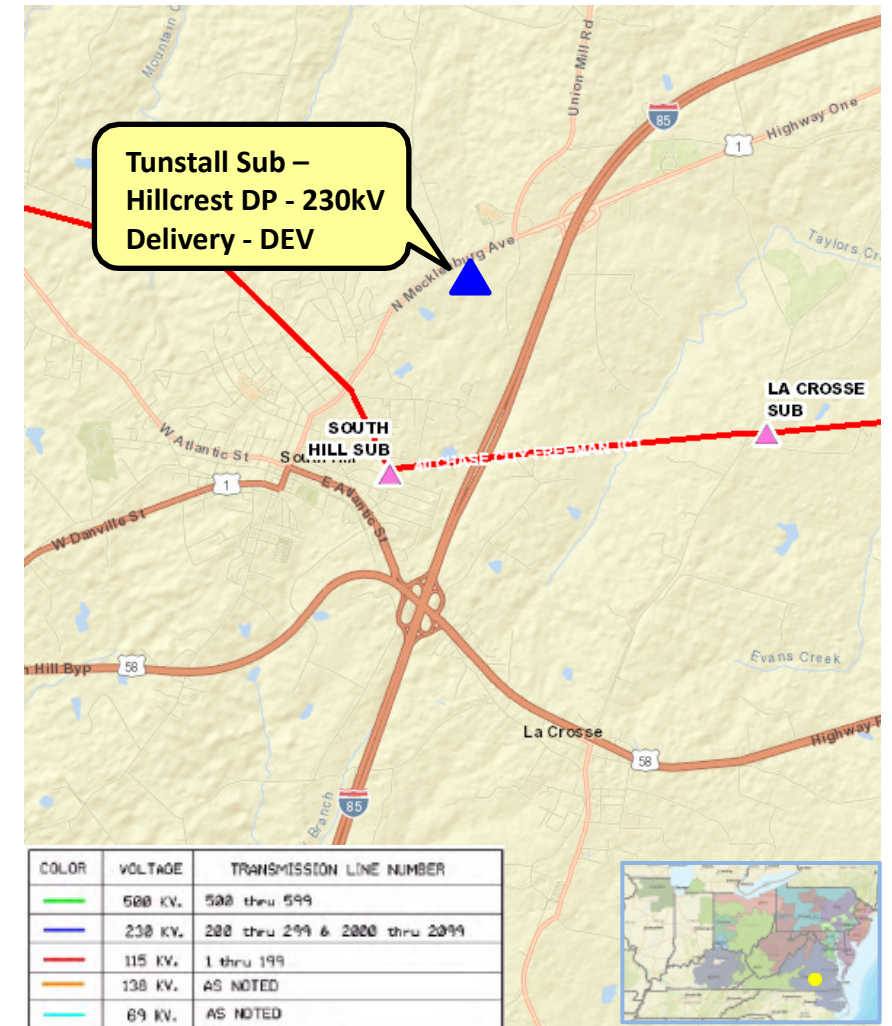
Specific Assumption References:

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 (Hillcrest DP) for a new delivery point to serve a data center customer in South Hill, VA. The total load is in excess of 100 MW. The customer requests service by August 1, 2025.

Initial In-Service Load	Projected 2027 Load
Summer: 41.0 MW	Summer: 77.0 MW



Dominion Transmission Zone: Supplemental Tunstall 230kV Delivery - DEV

Need Number: DOM-2022-0028

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

- Obtain land and build a new 500/230kV Unity switching station near the intersection of Line #593 (Finneywood-Rawlings) and Route 138.
- Cut and terminate Line #593 into Unity 500/230kV switching station. In the new Unity switching station, install two 840 MVA 500/230kV transformers, a 230kV ring bus with 6 breakers and a 500kV ring bus with 6 breakers.
- Construct Tunstall 230kV substation with four rows of 230kV breaker and half bus to terminate four 230kV lines.
- Construct two new 230kV single circuit transmission lines for approximately 11 miles from Unity Sub to Tunstall Substation.
- New right-of-way will be needed for both transmission lines. New conductor to have a minimum summer normal rating of 1573 MVA.

Estimated Project Cost: \$140.0 M (Total)

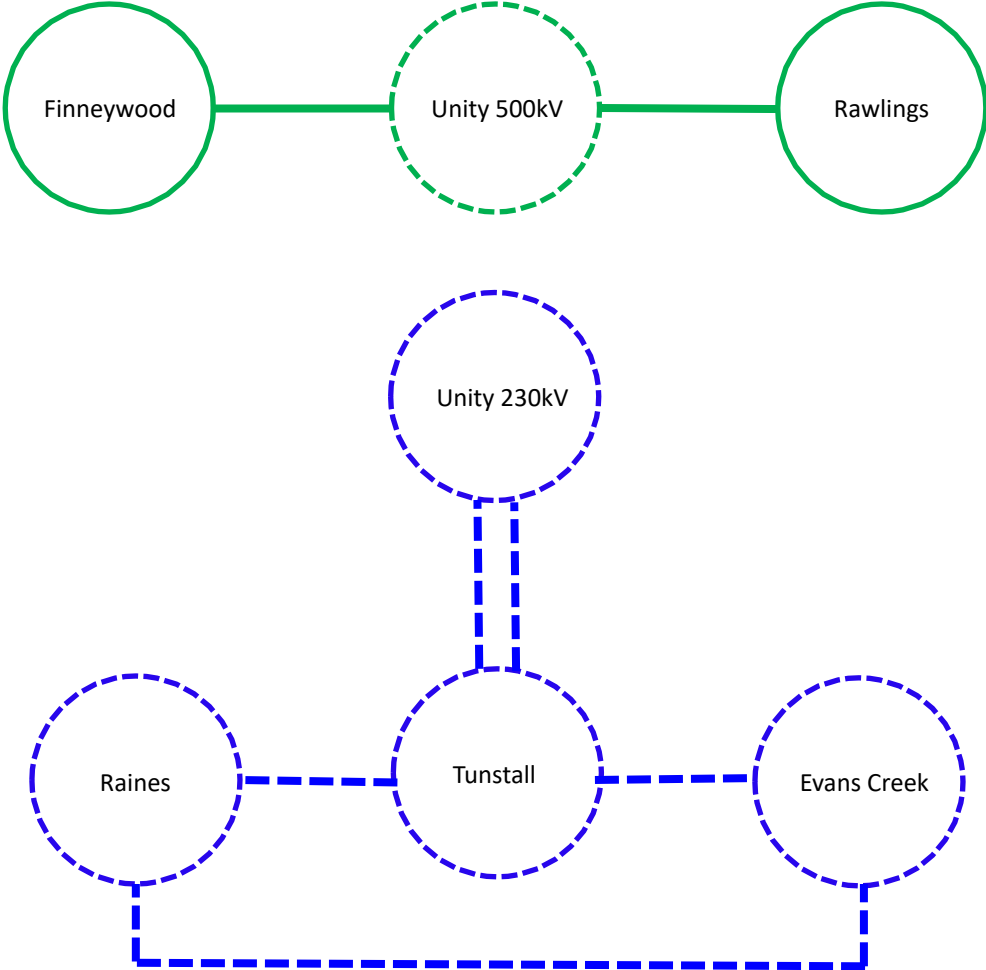
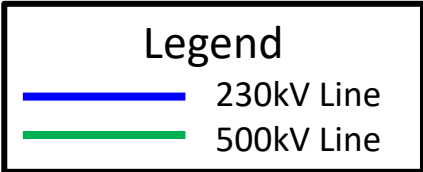
Transmission Line	\$40M
500kV Substation	\$80M
230kV Substation	\$20M

Alternatives Considered:

No feasible alternatives

Projected In-service Date: 08/01/2025

Project Status: Engineering



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0027

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 05/10/2022

Project Driver: Customer Service

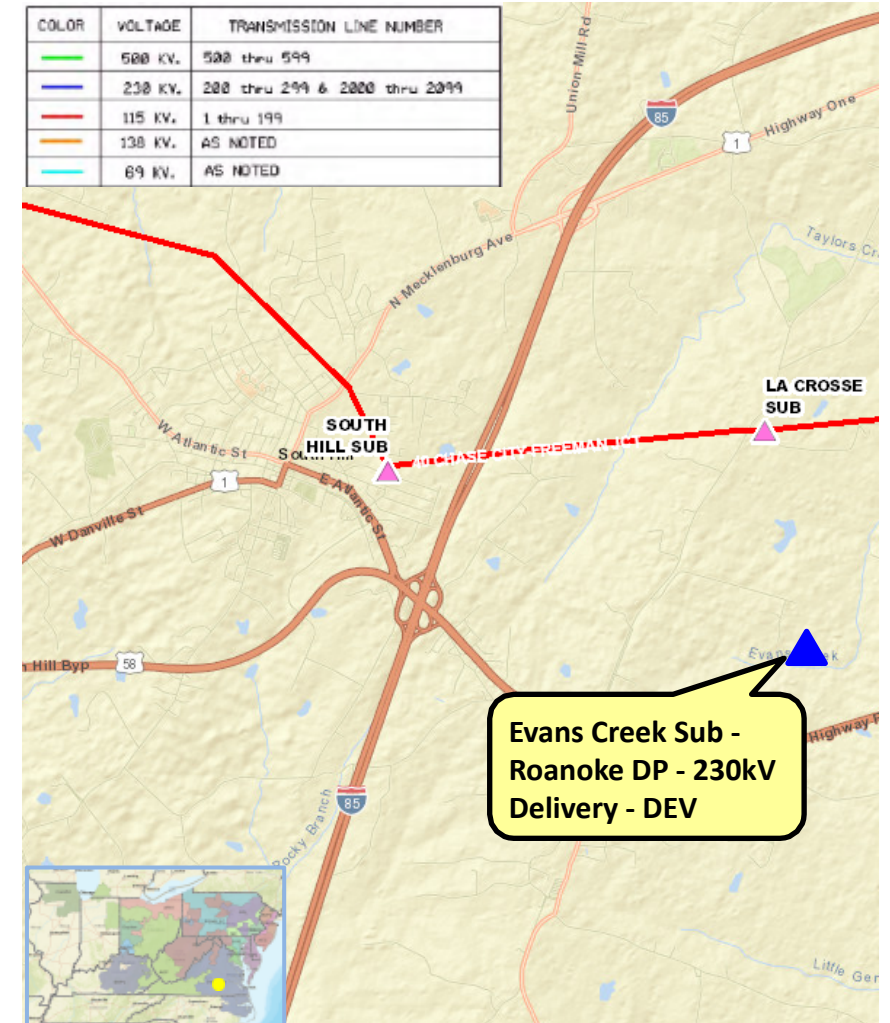
Specific Assumption References:

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 (Roanoke DP) for a new delivery point to serve a data center customer in La Crosse, VA. The total load is in excess of 100 MW. The customer requests service by August 1, 2025.

Initial In-Service Load	Projected 2027 Load
Summer: 50.0 MW	Summer: 126.0 MW



Dominion Transmission Zone: Supplemental Evans Creek 230kV Delivery - DEV

Need Number: DOM-2022-0027

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Construct Evans Creek 230kV substation with four breaker 230kV breaker ring bus to terminate two 230kV lines. Construct one new 230kV transmission line for approximately 5 miles from Tunstall Sub to Evans Creek Substation. Construct one new 230kV transmission line for approximately 3 miles from Raines Sub to Evans Creek Substation. New right-of-way will be needed for both transmission lines. New conductor to have a minimum summer normal rating of 1573 MVA.

Estimated Project Cost: \$30.0 M (Total)

Transmission Line	\$15M
230kV Substation	\$15M

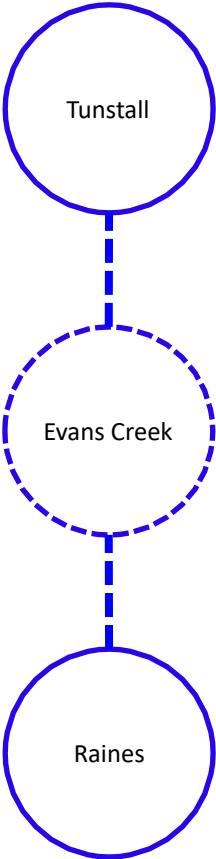
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 08/01/2025

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0029

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 05/10/2022

Project Driver: Customer Service

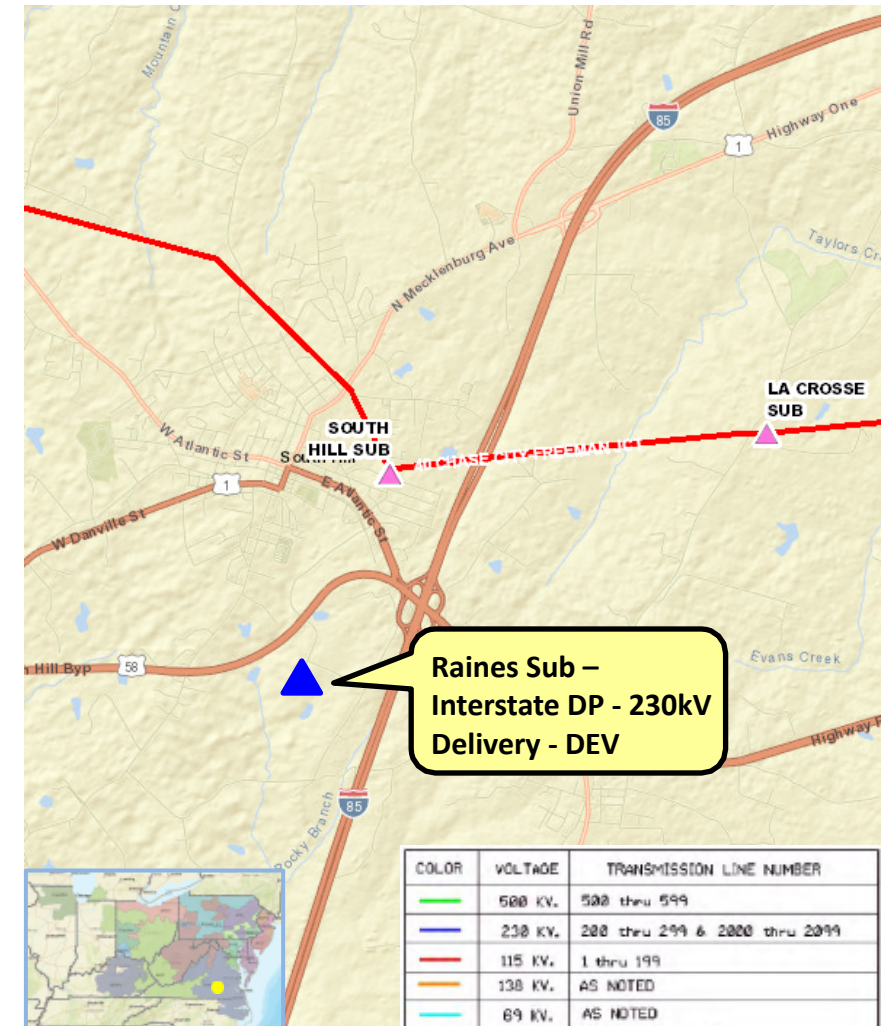
Specific Assumption References:

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 (Interstate DP) for a new delivery point to serve a data center customer in La Crosse, VA. The total load is less than 100 MW. The customer requests service by August 1, 2025.

Initial In-Service Load	Projected 2027 Load
Summer: 8.0 MW	Summer: 37.0 MW



Dominion Transmission Zone: Supplemental Raines 230kV Delivery - DEV

Need Number: DOM-2022-0029

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Construct Raines 230kV substation with four breaker 230kV breaker ring bus to terminate two 230kV lines. Construct one new 230kV transmission line for approximately 8 miles from Tunstall Sub to Raines Substation. New right-of-way will be needed for the transmission line. New conductor to have a minimum summer normal rating of 1573 MVA. Due to the total load requested less than 100 MW, the data center customer will be required to pay excess facilities for all equipment required for the ring bus configuration above a T-tap.

Estimated Project Cost: \$20.0 M (Total)

Transmission Line	\$15M
230kV Substation	\$5M

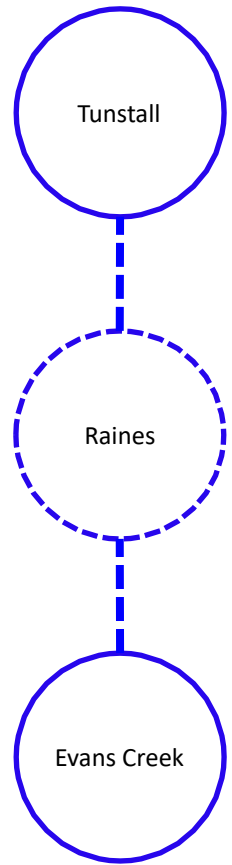
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 08/01/2025

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0035

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 06/07/2022

Project Driver: Customer Service

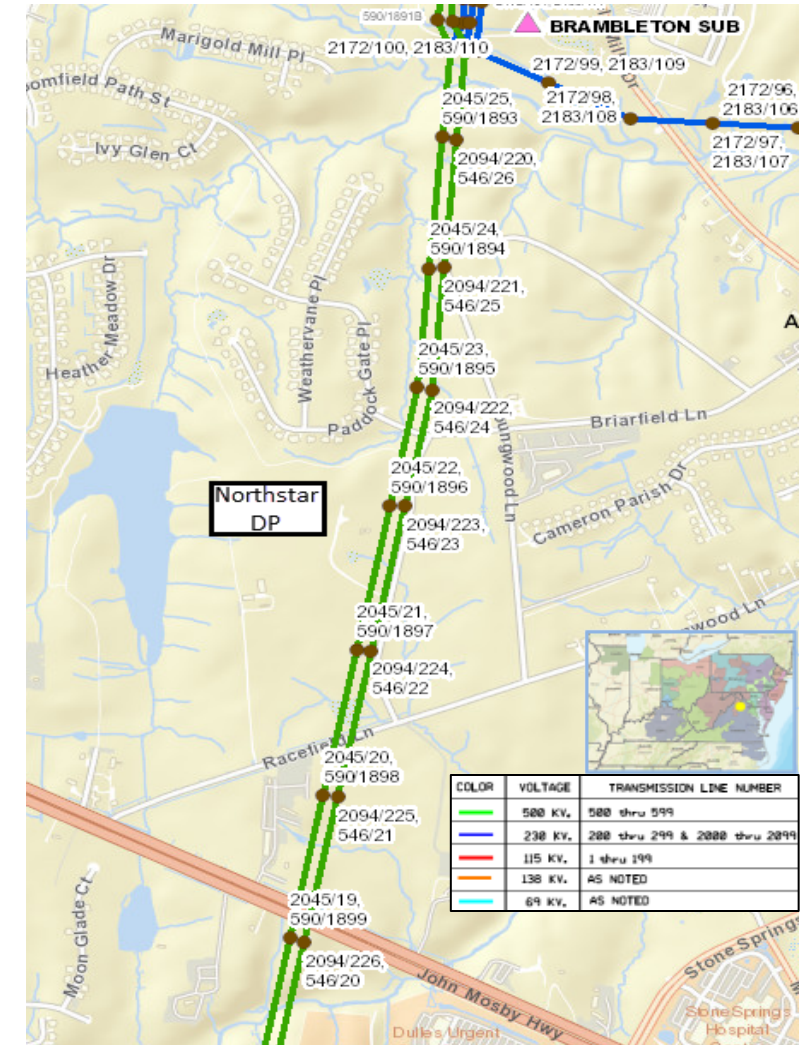
Specific Assumption References:

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

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Northstar) in Loudoun County with a total load in excess of 100MW. Requested in-service date is 01/01/2025.

Initial In-Service Load	Projected 2027 Load
Summer: 60.0 MW	Summer: 124.0 MW



Dominion Transmission Zone: Supplemental Northstar 230kV Delivery - DEV

Need Number: DOM-2022-0035

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2045 (Brambleton-Loudoun) to the proposed Northstar Substation. Lines to terminate in a 230kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

Estimated Project Cost: \$10.0 M

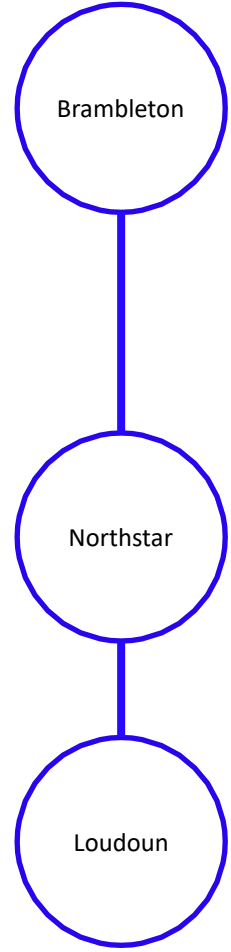
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 01/1/2025

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0036

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 06/07/2022

Project Driver: Customer Service

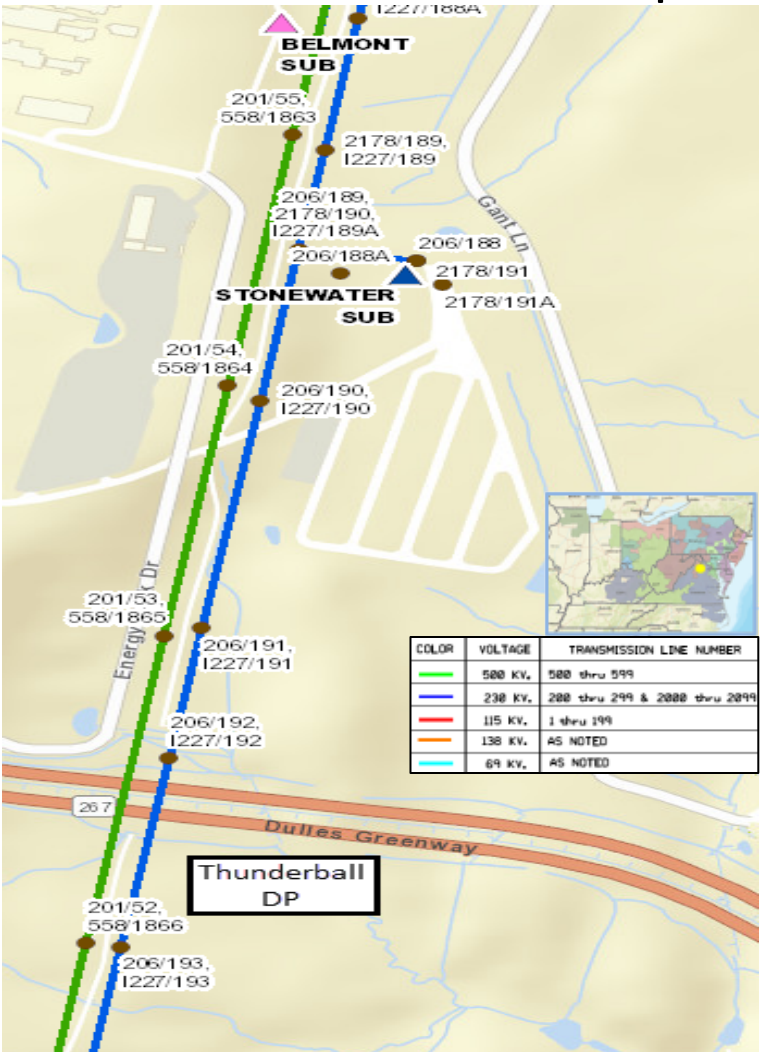
Specific Assumption References:

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

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Thunderball) in Loudoun County with a total load in excess of 100MW. Requested in-service date is 11/02/2024.

Initial In-Service Load	Projected 2027 Load
Summer: 20.0 MW	Summer: 60.0 MW



Dominion Transmission Zone: Supplemental Thunderball 230kV Delivery - DEV

Need Number: DOM-2022-0036

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #206 (Stonewater-Brambleton) to the proposed Thunderball Substation. Lines to terminate in a 230kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

Estimated Project Cost: \$10.0 M

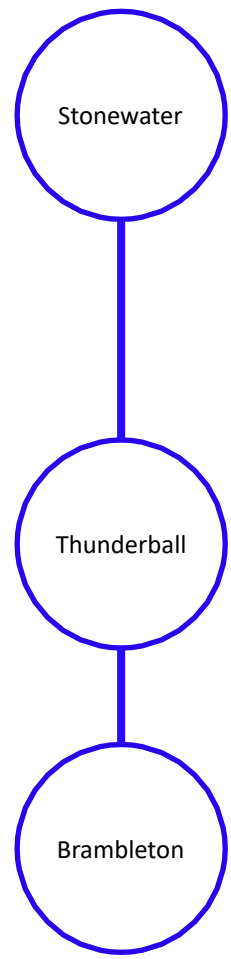
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 11/02/2024

Project Status: Engineering

Model: 2025 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2022-0037

Process Stage: Solutions Meeting 07/12/2022

Previously Presented: Need Meeting 06/07/2022

Project Driver: Customer Service

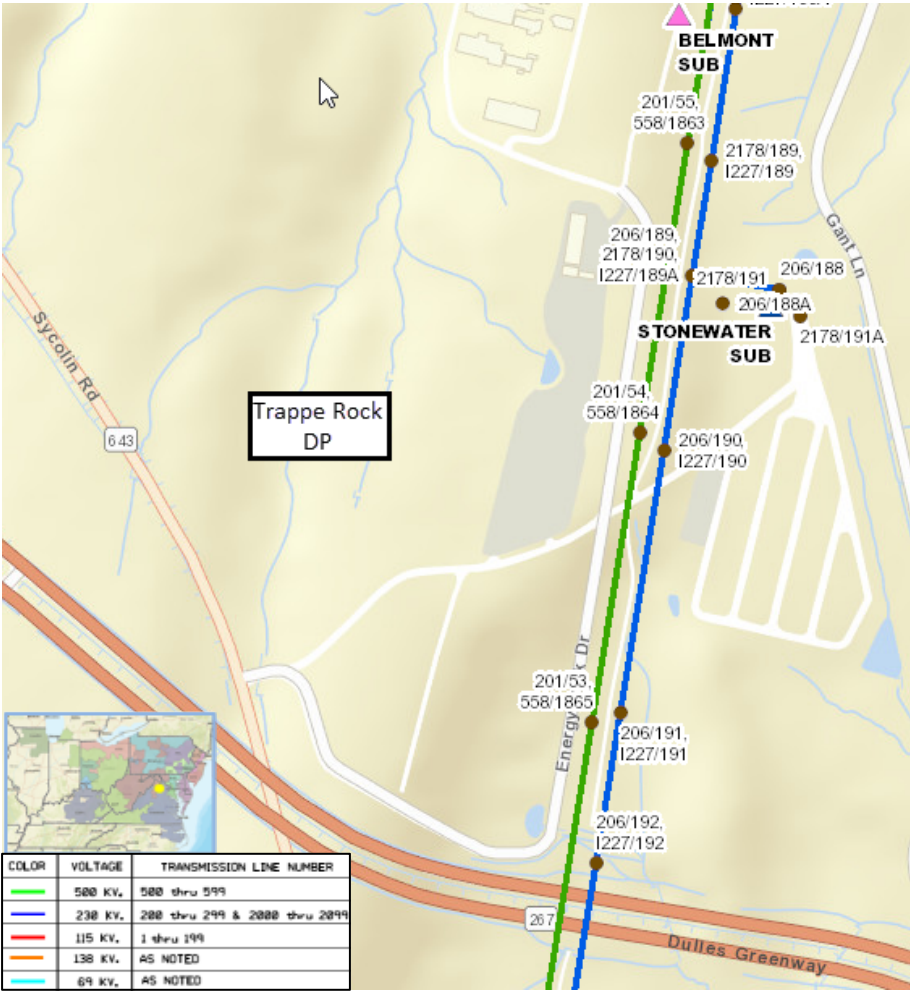
Specific Assumption References:

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

Problem Statement:

NOVEC has submitted a DP Request for a new substation (Trappe Rock) in Loudoun County with a total load in excess of 100MW. Requested in-service date is 9/02/2024.

Initial In-Service Load	Projected 2027 Load
Summer: 10.0 MW	Summer: 90.0 MW



Dominion Transmission Zone: Supplemental Trappe Rock 230kV Delivery - DEV

Need Number: DOM-2022-0035

Process Stage: Solutions Meeting 07/12/2022

Proposed Solution:

Interconnect the new substation by cutting and extending Line #201 (Belmont-Altair) to the proposed Thunderball Substation. Lines to terminate in a 230kV four-breaker ring arrangement with an ultimate arrangement of a six-breaker ring.

Estimated Project Cost: \$10.0 M

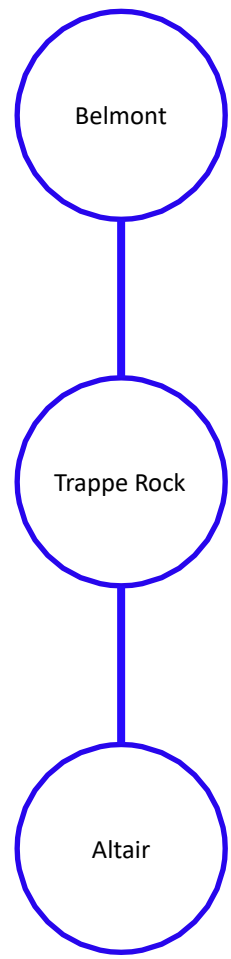
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 09/02/2024

Project Status: Engineering

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

07/01/2022 – V1 – Original version posted to pjm.com