

Dominion Supplemental Projects

Transmission Expansion Advisory
Committee
November 06, 2024

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-2024-0075

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

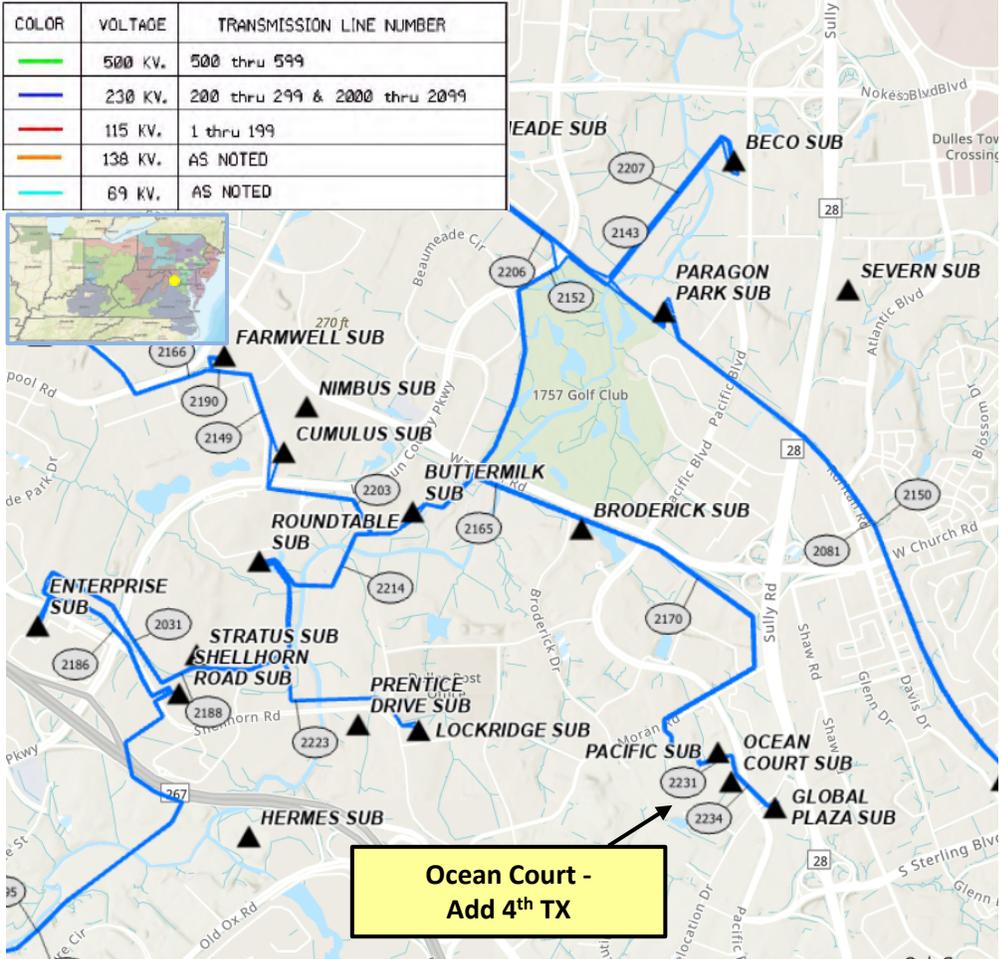
Specific Assumption References:

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 Ocean Court substation in Loudoun County. The new transformer is being driven by load growth in the area. Requested in-service date is 10/1/2028.

Initial In-Service Load	Projected 2029 Load
Summer: 246 MW Winter: 226 MW	Summer: 300 MW Winter: 299 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0076

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

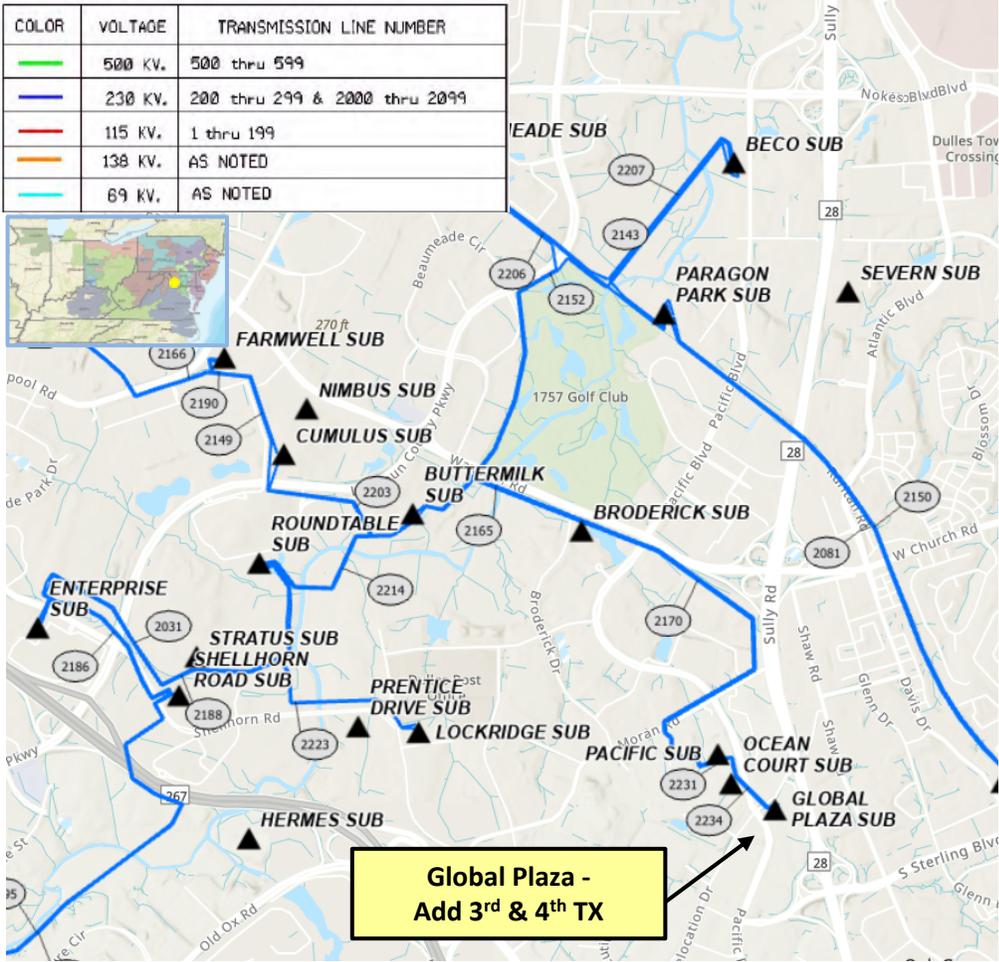
Specific Assumption References:

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 3rd and 4th distribution transformer at Global Plaza substation in Loudoun County. The new transformers are being driven by load growth in the area. Requested in-service date is 1/1/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 240 MW Winter: 200 MW	Summer: 295 MW Winter: 295 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0077

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

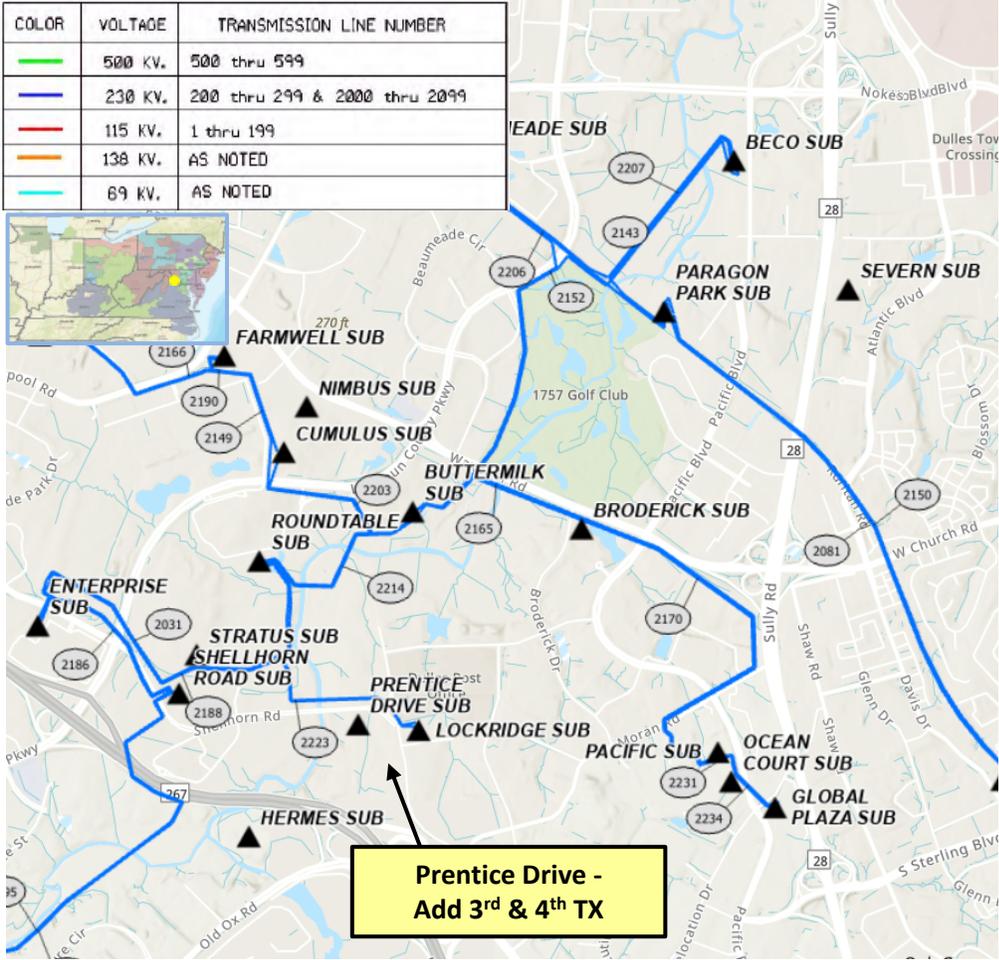
Specific Assumption References:

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 3rd and 4th distribution transformer at Prentice Drive substation in Loudoun County. The new transformers are being driven by load growth in the area. Requested in-service date is 2/28/2026.

Initial In-Service Load	Projected 2029 Load
Summer: 48 MW Winter: 0 MW	Summer: 247.2 MW Winter: 205.1 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0078

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

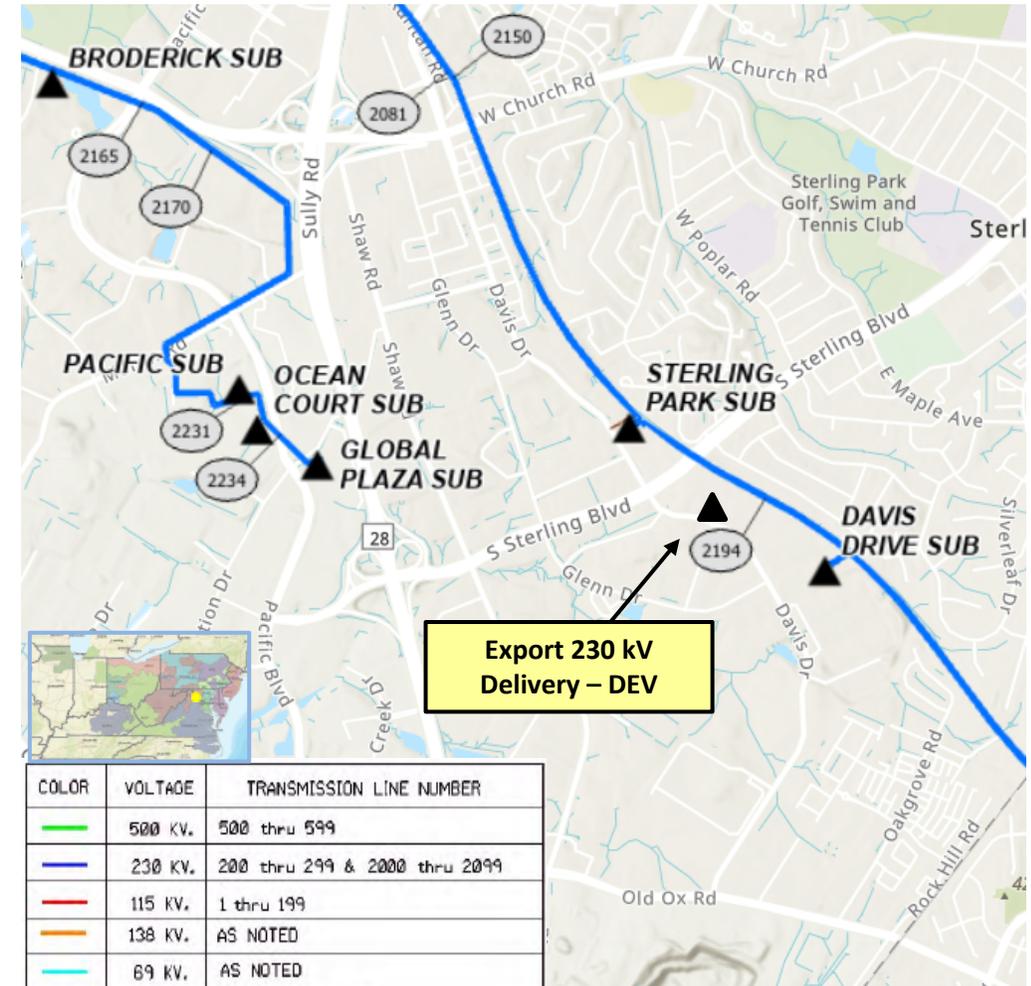
Specific Assumption References:

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 (Export) to serve a data center complex in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 1/1/2028.

Initial In-Service Load	Projected 2029 Load
Summer: 28 MW Winter: 4 MW	Summer: 99 MW Winter: 63 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0079

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

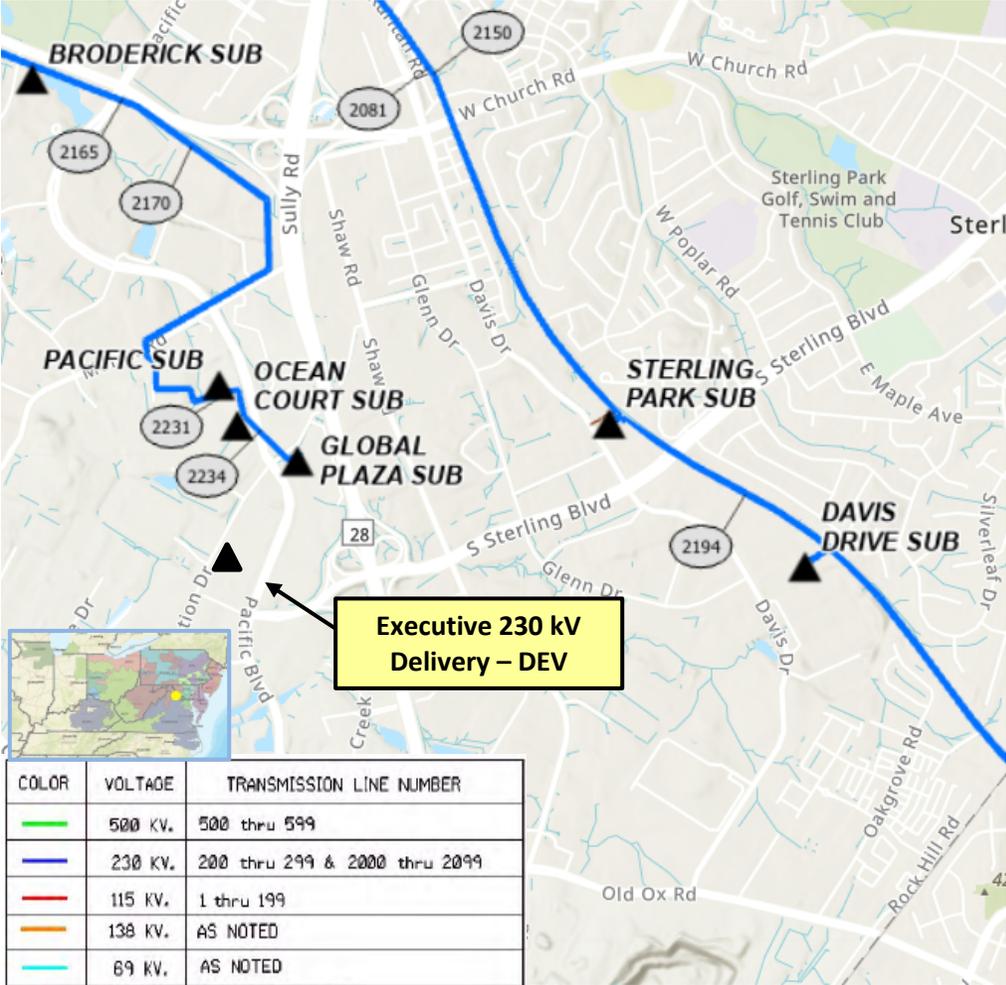
Specific Assumption References:

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 (Executive) to serve a data center complex in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 2/1/2028.

Initial In-Service Load	Projected 2029 Load
Summer: 50 MW Winter: 15 MW	Summer: 100 MW Winter: 72 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0080

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

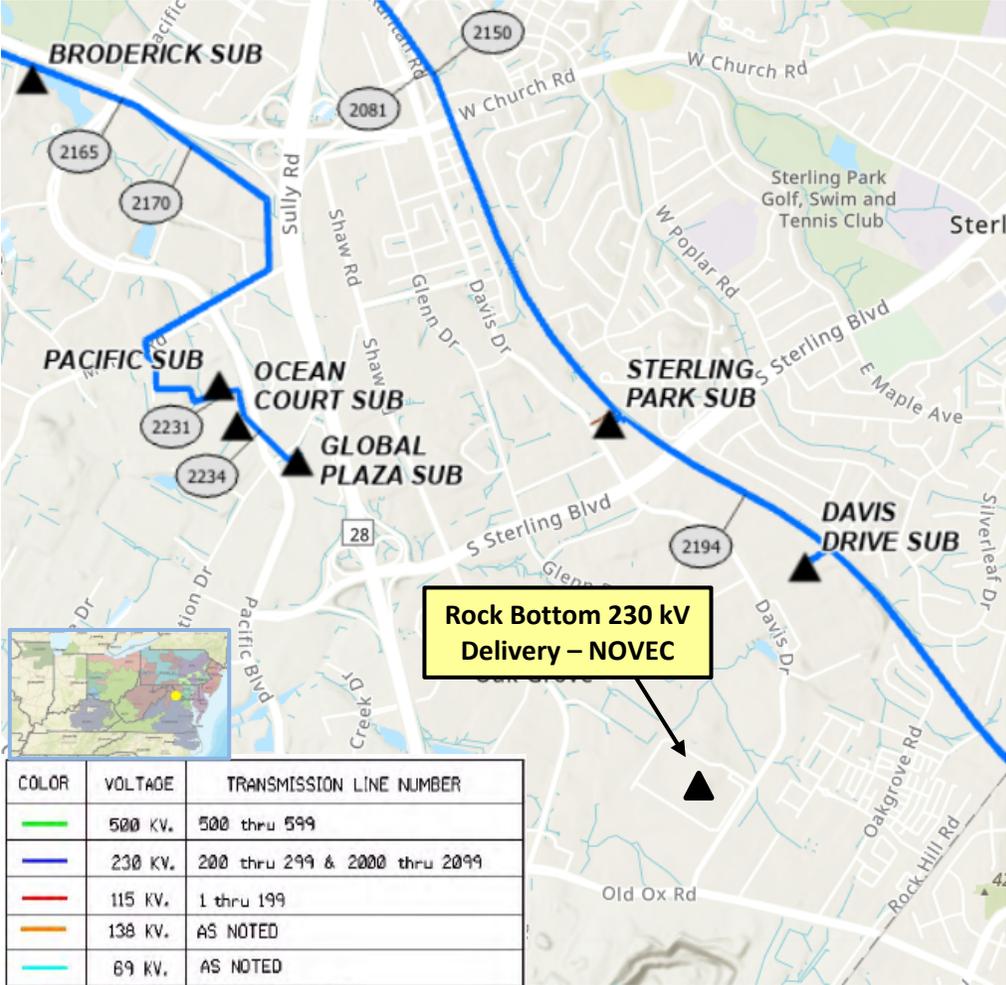
Specific Assumption References:

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 (Rock Bottom) to serve a data center complex in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 3/31/2029.

Initial In-Service Load	Projected 2029 Load
Summer: 32.8 MW Winter: 0 MW	Summer: 32.8 MW Winter: 0 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0081

Process Stage: Need Meeting 11/06/2024

Project Driver: Customer Service

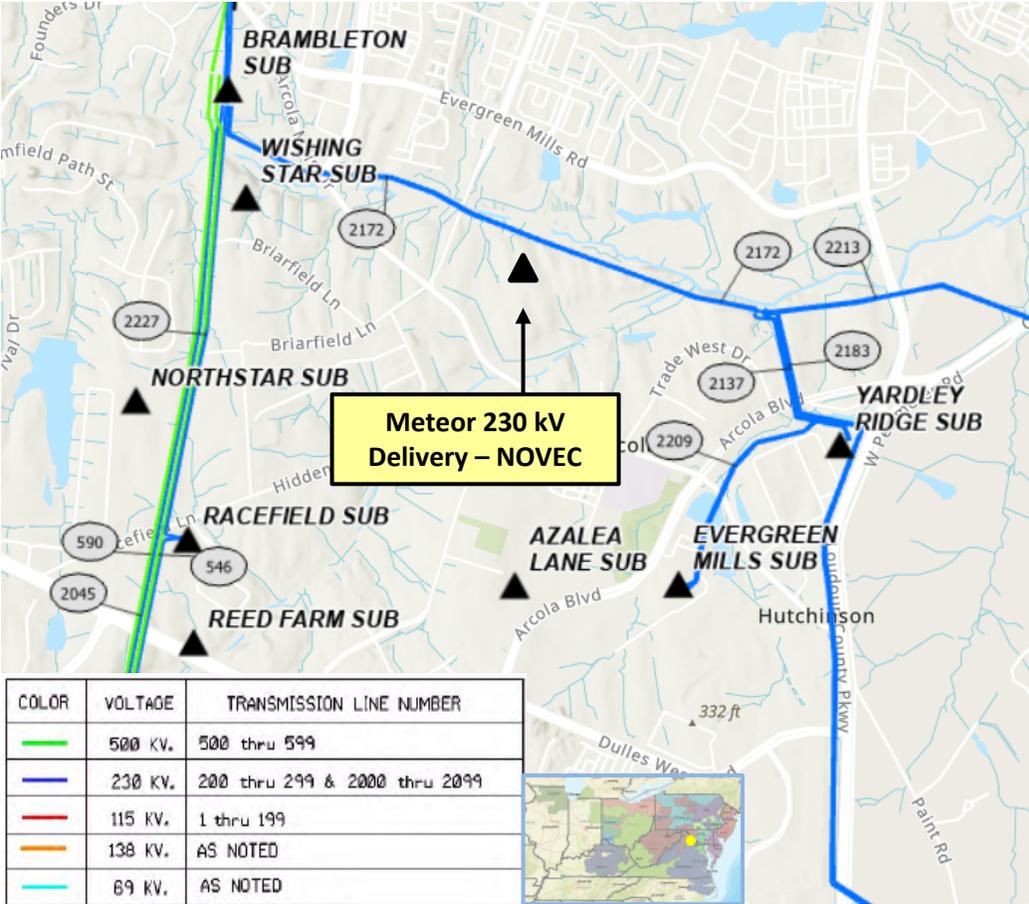
Specific Assumption References:

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 (Meteor) to serve a data center complex in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 1/1/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 12 MW Winter: 1.34 MW	Summer: 239 MW Winter: 219 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0082

Process Stage: Need Meeting 11/6/2024

Project Driver: Customer Service

Specific Assumption References:

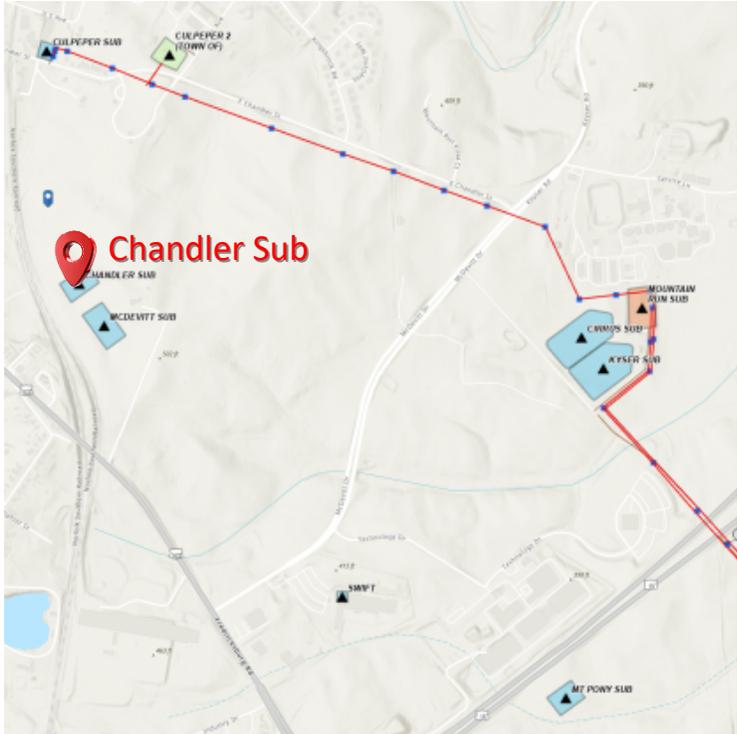
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

DEV distribution has submitted a DP request for a new 230 kV delivery point (Chandler Sub) to serve a data center customer in Culpeper County with a total load in excess of 100 MW. Requested in-service date is 10/15/2027.



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
Green	500 KV.	500 thru 599
Blue	230 KV.	200 thru 299 & 2000 thru 2099
Red	115 KV.	1 thru 199
Orange	138 KV.	AS NOTED
Cyan	69 KV.	AS NOTED



Initial In-Service Load	Projected 2029 Load
Summer: 32 MW Winter: 10 MW	Summer: 112 MW Winter: 66 MW

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0083

Process Stage: Need Meeting 11/6/2024

Project Driver: Customer Service

Specific Assumption References:

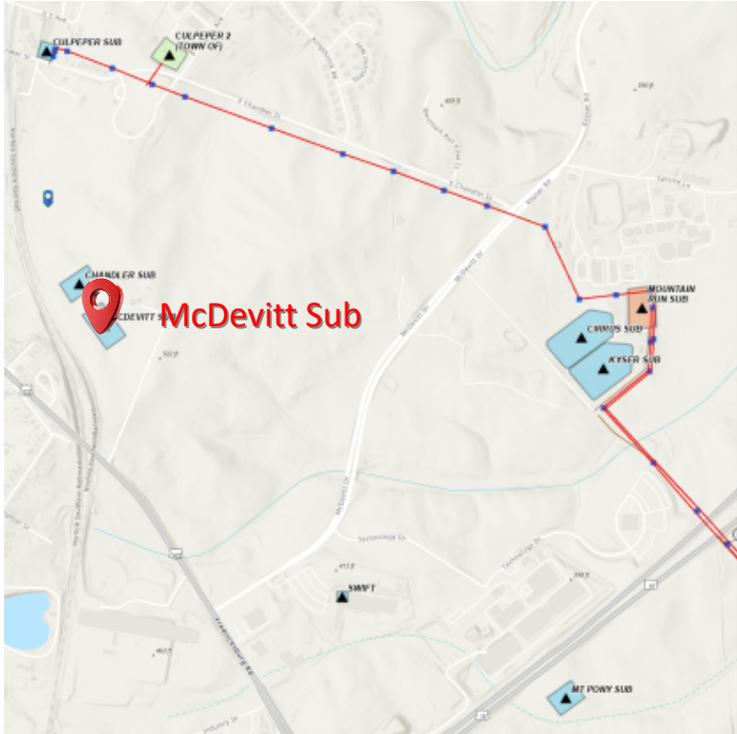
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.

Problem Statement:

DEV distribution has submitted a DP request for a new 230 kV delivery point (McDevitt Sub) to serve a data center customer in Culpeper County with a total load in excess of 100 MW. Requested in-service date is 10/15/2027.



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
Green	500 KV.	500 thru 599
Blue	230 KV.	200 thru 299 & 2000 thru 2099
Red	115 KV.	1 thru 199
Orange	138 KV.	AS NOTED
Cyan	69 KV.	AS NOTED



Initial In-Service Load	Projected 2029 Load
Summer: 34 MW Winter: 10 MW	Summer: 118 MW Winter: 70 MW

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0084

Process Stage: Need Meeting 11/6/2024

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 230 kV delivery point (Mt. Pony Sub) to serve a data center customer in Culpeper County with a total load in excess of 100 MW. Requested in-service date is 01/01/2027.



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
Green	500 KV.	500 thru 599
Blue	230 KV.	200 thru 299 & 2000 thru 2099
Red	115 KV.	1 thru 199
Orange	138 KV.	AS NOTED
Cyan	69 KV.	AS NOTED



Initial In-Service Load	Projected 2029 Load
Summer: 32 MW Winter: 8 MW	Summer: 160 MW Winter: 140 MW

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0085

Process Stage: Need Meeting 11/6/2024

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 230 kV delivery point (Palomino Sub) to serve a data center customer in Culpeper County with a total load in excess of 100 MW. Requested in-service date is 07/01/2028.



COLOR	VOLTAGE	TRANSMISSION LINE NUMBER
Green	500 KV.	500 thru 599
Blue	230 KV.	200 thru 299 & 2000 thru 2099
Red	115 KV.	1 thru 199
Orange	138 KV.	AS NOTED
Cyan	69 KV.	AS NOTED



Initial In-Service Load	Projected 2029 Load
Summer: 42 MW Winter: 0 MW	Summer: 120 MW Winter: 54 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-2020-0043- **UPDATE**

Process Stage: Solutions Meeting 11/06/2024

Previously Presented: Solutions Meeting 12/01/2020

Project Driver: Customer Service

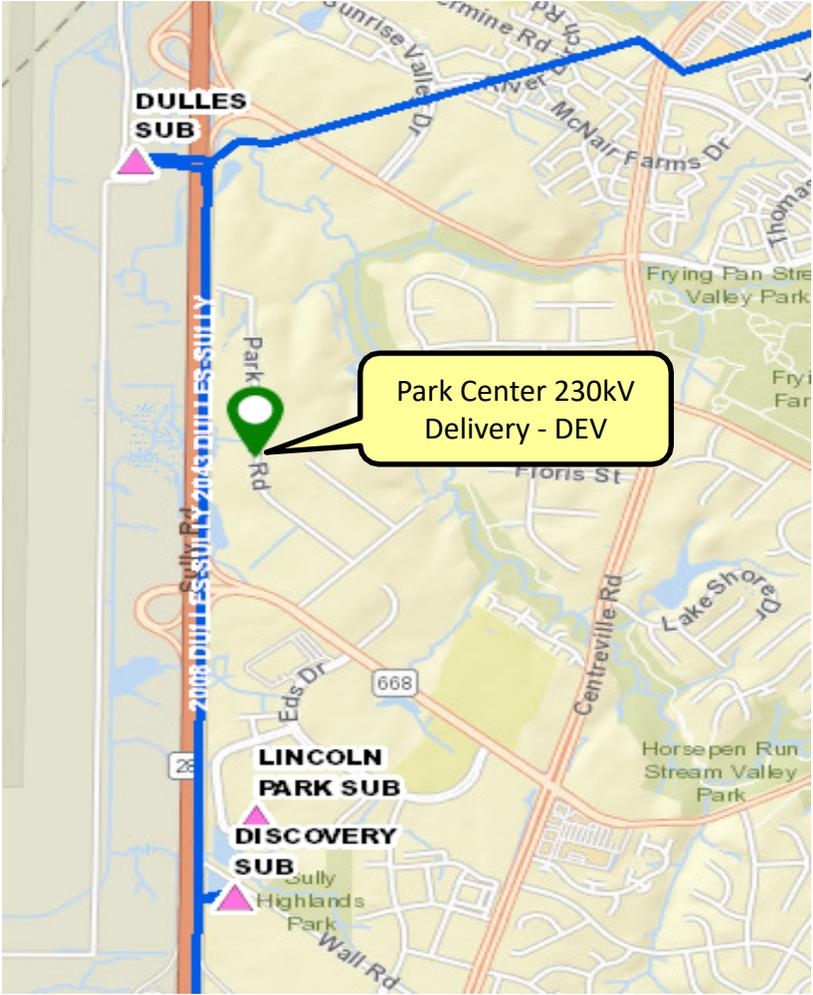
Specific Assumption References:

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 **revised** DP Request for a new substation (Park Center) to accommodate a new datacenter campus in Fairfax County with a total load in excess of 100MW. Requested **revised** in-service date is 11/21/2025.

Initial In-Service Load	Projected 2029 Load
Summer: 29.0 MW (UPDATED) Winter: 29.0 MW	Summer: 41.0 MW (UPDATED) Winter: 29.0 MW



Dominion Transmission Zone: Supplemental Park Center 230kV Delivery - DEV

Need Number: DOM-2020-0043- **UPDATE**

Process Stage: Solutions Meeting 11/06/2024

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2043 (Reston-Lincoln Park) and Line #2242 (Dulles-Lincoln Park) to the proposed Park Center Substation. Lines to terminate in a six-breaker ring arrangement.

Estimated Project Cost: \$27.0 M (UPDATED)

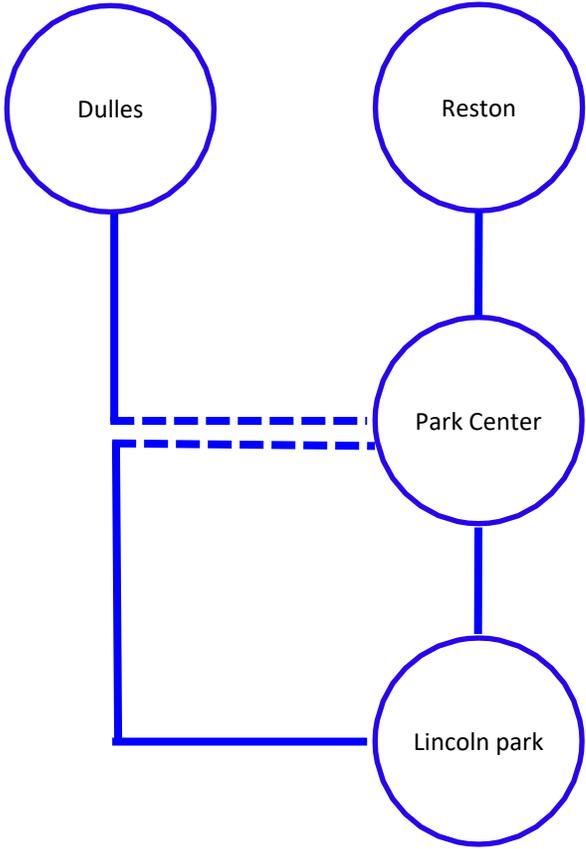
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 11/21/2025 (UPDATED)

Project Status: Engineering

Model: 2029 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2023-0004

Process Stage: Solutions Meeting 11/06/2024

Previously Presented: Need Meeting 01/10/2023

Project Driver: Customer Service

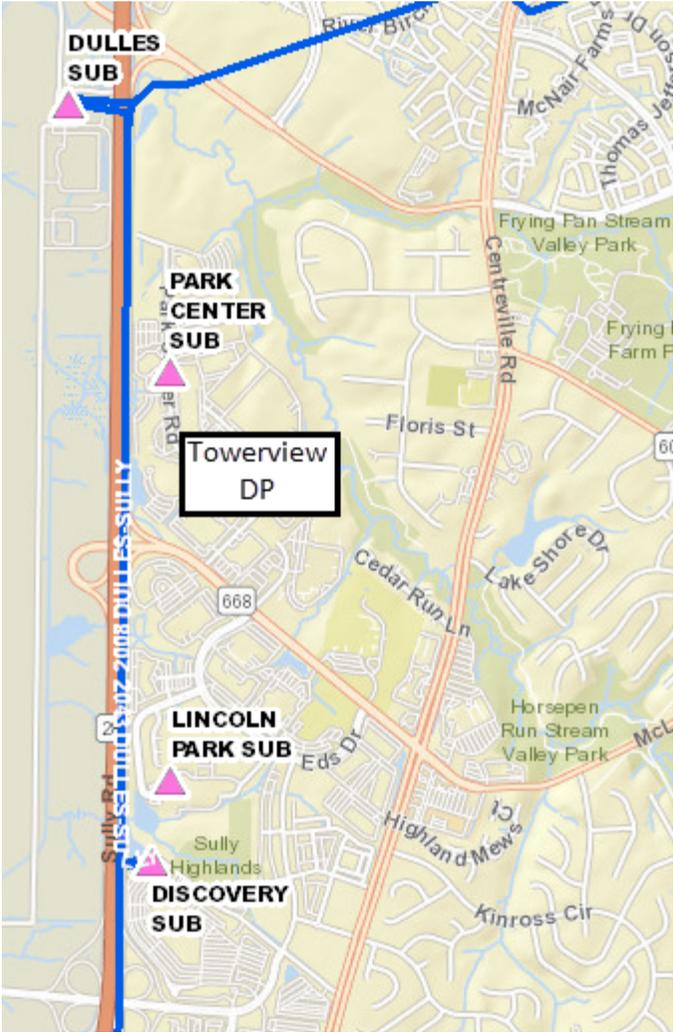
Specific Assumption References:

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 (Towerview) in Fairfax County with a total load in excess of 100MW. Requested in-service date is 11/30/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 56.0 MW Winter: 0.0 MW	Summer: 300.0 MW Winter: 300.0 MW



Dominion Transmission Zone: Supplemental Towerview 230kV Delivery - DEV

Need Number: DOM-2023-0004

Process Stage: Solutions Meeting 11/06/2024

Proposed Solution:

Interconnect the new substation by cutting and extending Line #2043 (Reston - Park Center) to the proposed Towerview Substation. Terminate both ends into a four-breaker ring arrangement to create a Towerview - Reston line and a Park Center - Towerview line. The customer will be paying excess facility cost for GIS substation.

Estimated Project Cost: \$13.0 M

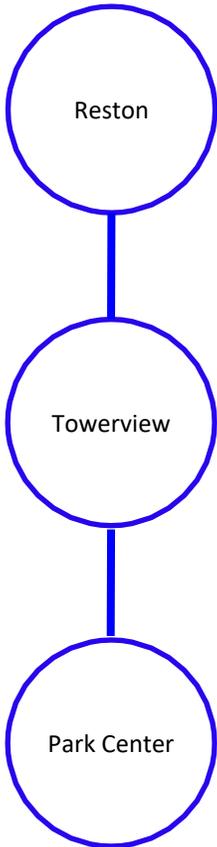
Alternatives Considered:

No feasible alternatives

Projected In-service Date: 11/30/2027

Project Status: Engineering

Model: 2029 RTEP



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2022-0058

Process Stage: Cancellation Meeting 11/06/2024, Initial TEAC Meeting 12/06/2022

Project Driver: Operational Flexibility and Efficiency

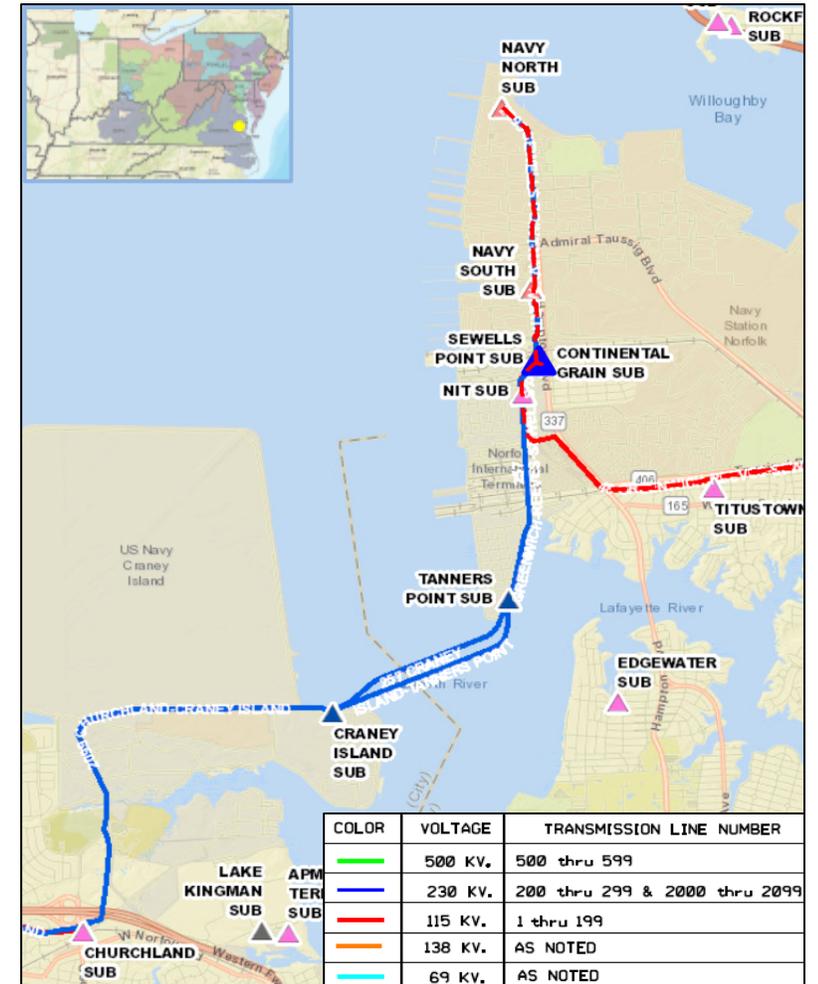
Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion’s Planning Assumptions presented in December 2021.

Problem Statement:

Sewell’s Point, Navy North, and Navy South 230kV buses serving customer load are identified with low voltage issues due to a Tower contingency that involves loss of Line #257 and Line #2099 (Churchland to Sewell’s Point).

Project Need is being addressed by DOM-2023-0006-DNH



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2023-0006

Process Stage: Solutions Meeting 11/06/2024 – DNH Update

Previously Presented: Solutions Meeting 05/09/2023

Project Driver: Customer Service

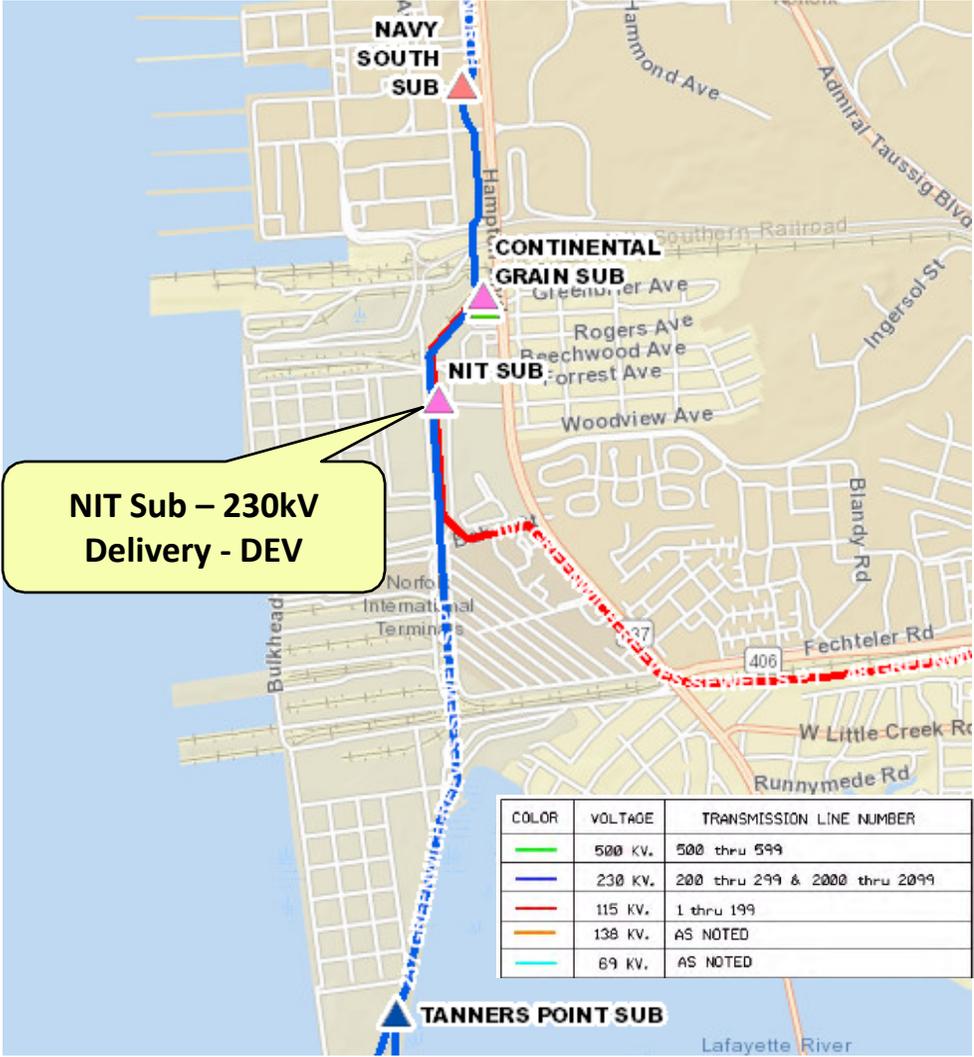
Specific Assumption References:

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 for a new substation (NIT) in Norfolk, VA with a total load less than 100MW. The customer requests service by June 1, 2025.

Initial In-Service Load	Projected 2028 Load
Summer: 49.3 MW	Summer: 49.3 MW



Dominion Transmission Zone: Supplemental NIT Substation 230kV Delivery - DEV

Need Number: DOM-2023-0006

Process Stage: Solutions Meeting 11/6/2024

Proposed Solution:

Tap Line #257 (Sewells Point - Churchland) near structure 257/56,2099/56 and extend a single circuit 230kV tap to NIT substation.

Estimated Project Cost: \$5.7 M (Total)

Transmission Line \$4.5M

230kV Substation \$1.2M

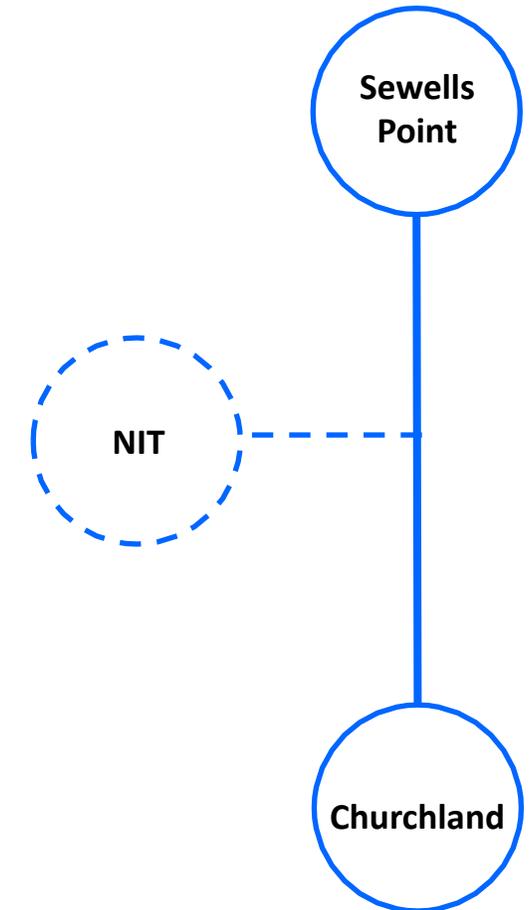
Alternatives Considered:

No feasible alternatives

Projected In-service Date: ~~6/01/2025~~ 12/31/2024

Project Status: Engineering Construction

Model: 2027 RTEP



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2023-0006-DNH

Process Stage: Solutions Meeting 05/09/2023

Project Driver: Do No Harm Analysis

Specific Assumption References:

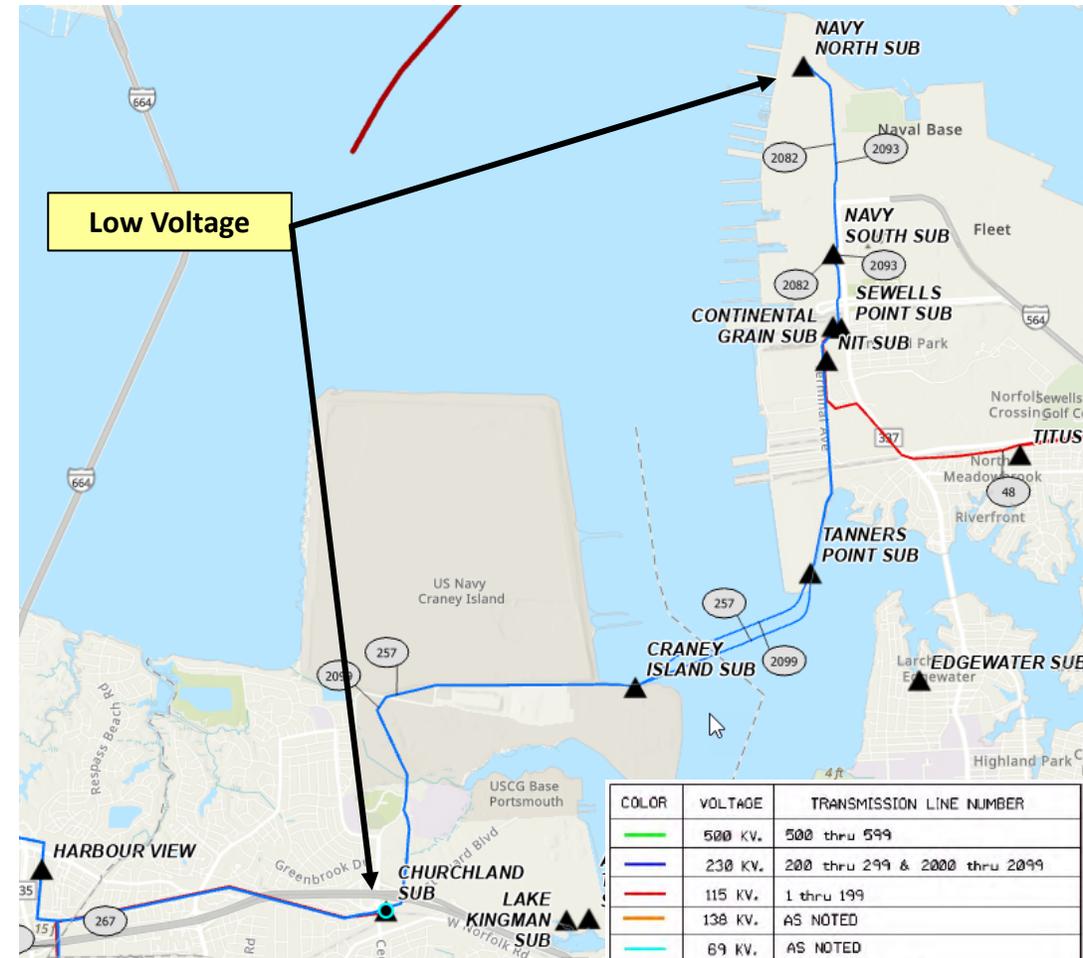
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

PJM has identified low voltage conditions less than 0.90pu on the 230kV busses in the Churchland–Craney Island–NIT–Navy North/South area for the following contingencies:

- N-1 Tower Line - Line #267 Churchland – Yadkin & Line #226 Churchland – Surry
- N-1-1 Line #267 Churchland – Yadkin & Line #226 Churchland – Surry

These violations were caused by Supplemental Project DOM-2023-0006 in the Dominion Zone.



Need Number: DOM-2023-0006-DNH

Process Stage: Solutions Meeting 11/6/2024

Proposed Solution:

Install 230kV 50 MVAR capacitor bank and breaker at Navy North substation.

Interim solution for summer 2025: Use distribution capacitor banks at Navy North and South for voltage support. Lock the transformer taps at Sewells Point substation for an N-1-1 event after N-1 for voltage support.

Estimated Project Cost: \$3 M (Total – substation only)

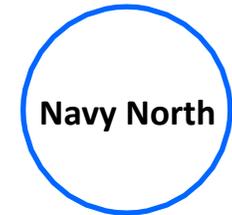
Alternatives Considered:

Not enough space to install a 230kV capacitor bank at NIT substation. Installing the 230kV capacitor bank at Navy North does not require substation expansion. No other alternatives.

Projected In-service Date: 3/31/2026

Project Status: Engineering

Model: 2028 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0041

Process Stage: Solution Meeting 11/06/2024

Previously Presented: Need Meeting 08/06/2024

Project Driver: Customer Service

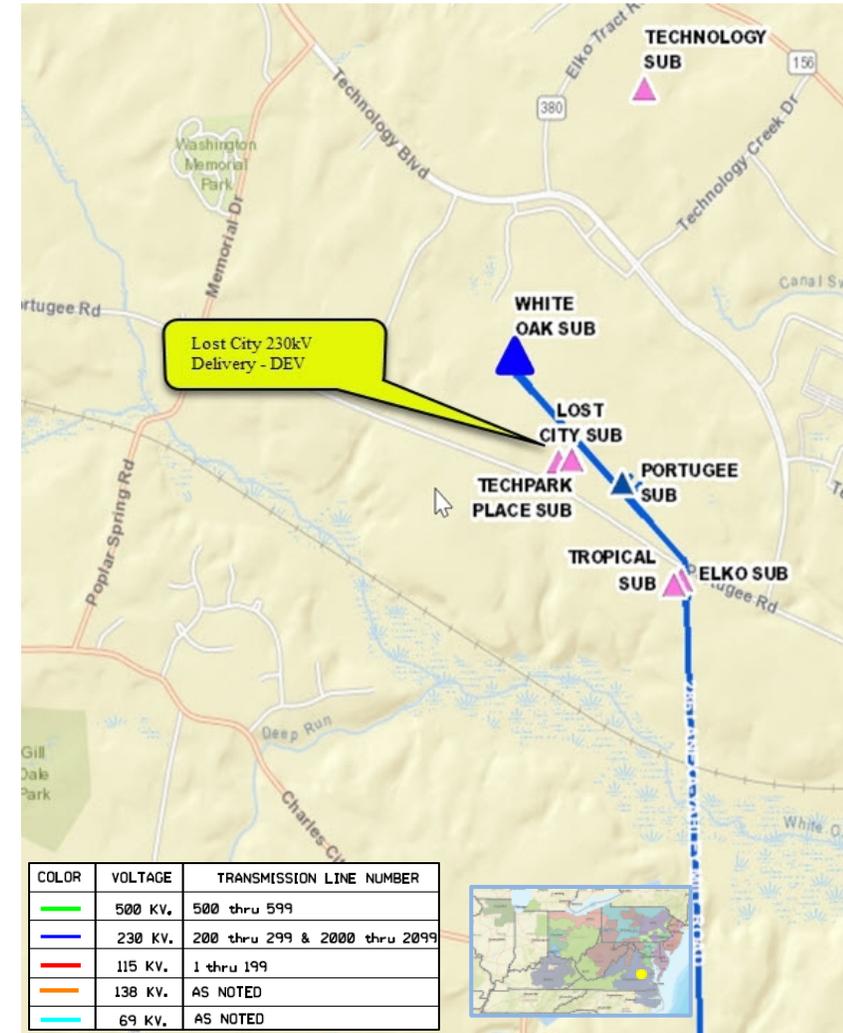
Specific Assumption References:

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 new 230/34.5kV 112MVA transformer at future Lost City Substation in Henrico County. The additional transformer is being driven by increased customer load. The total station load will be over 100MW. The requested in-service date is June 2026.

Initial In-Service Load	Projected 2029 Load
Summer: 150.0 MW Winter: 120.0 MW	Summer: 187.0 MW Winter: 169.0 MW



Dominion Transmission Zone: Supplemental Lost City 230kV Delivery - DEV

Need Number: DOM-2024-0041

Process Stage: Solution Meeting 11/06/2024

Project Driver: Customer Service

Proposed Solution:

Install a 230kV circuit switcher, high side switch, and any associated transmission equipment and bus work needed for new transformer.

Estimated Project Cost: \$0.5M

Alternatives Considered: None, additional transformer is being installed at an existing substation.

Projected In-service Date: 06/01/2026

Project Status: Engineering

Model: 2029 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

10/28/2024– V1 – Original version posted to pjm.com

10/28/2024– V2 – Updated cost estimate provided for DOM-2024-0041

11/04/2024– V3 – Edited order of the slides based on feedback from Dominion