

Dominion Supplemental Projects

Transmission Expansion Advisory
Committee
August 6, 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-2024-0040

Process Stage: Need Meeting 08/06/2024

Project Driver: Customer Service

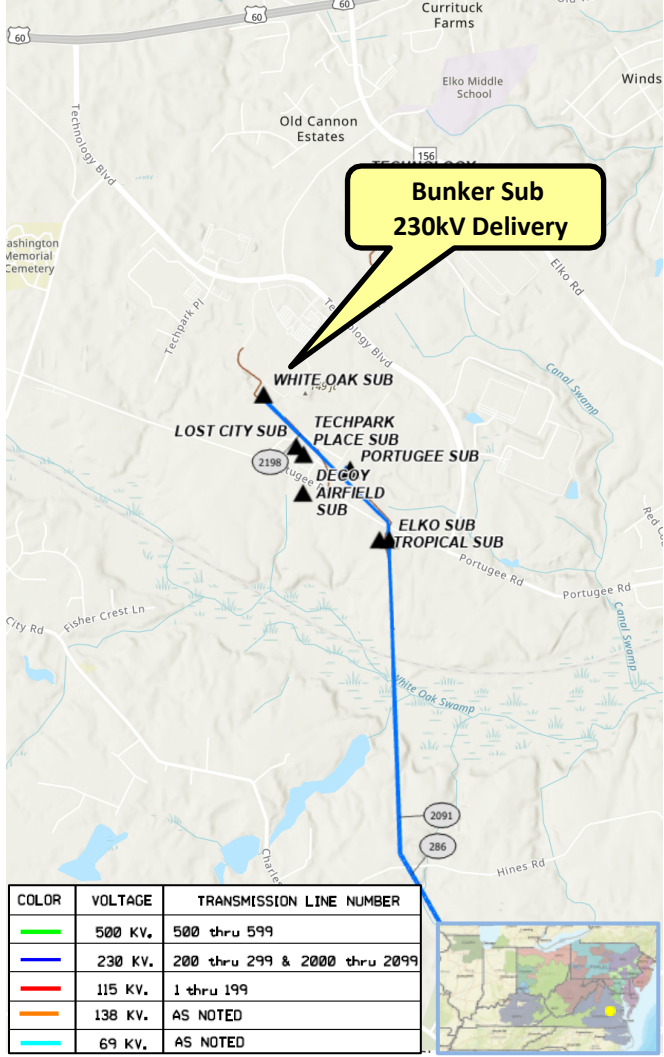
Specific Assumption References:

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 for a new substation (Bunker) to serve a data center in Henrico County with a total load in excess of 100 MW. The requested in-service date is 12/13/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 28.0 MW Winter: 8.0 MW	Summer: 108.0 MW Winter: 60.0 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0041

Process Stage: Need Meeting 08/06/2024

Project Driver: Customer Service

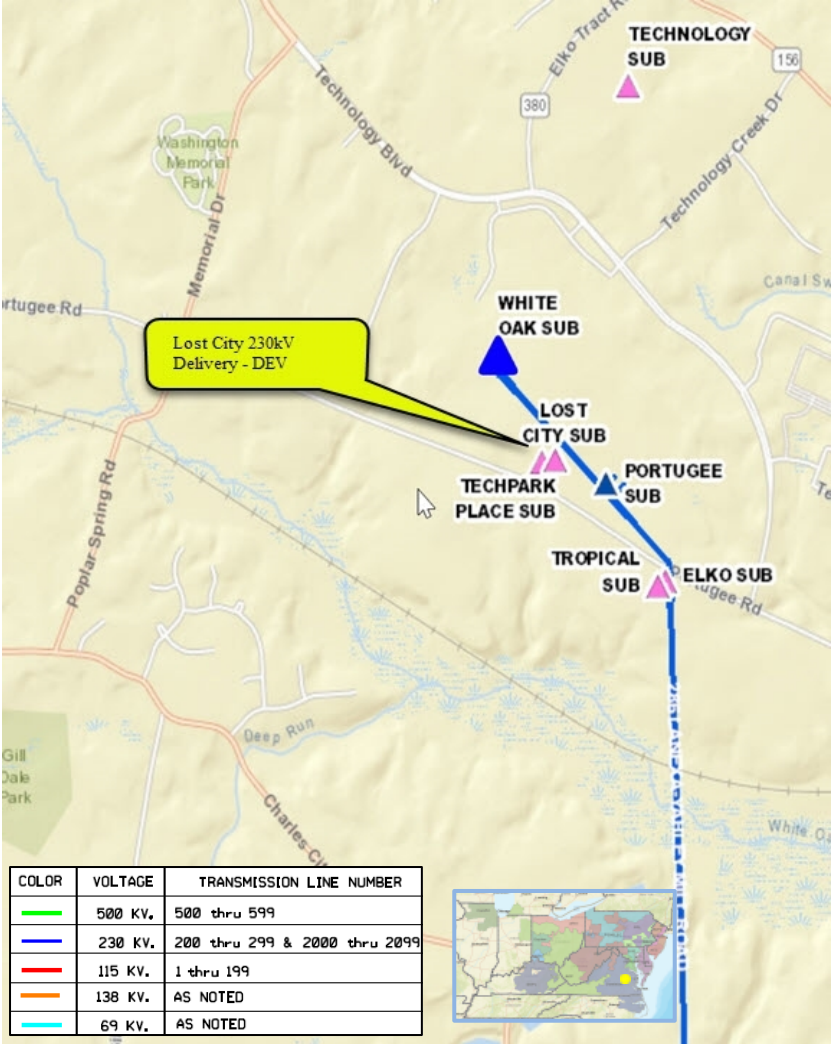
Specific Assumption References:

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 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 Customer Load Request

Need Number: DOM-2024-0052

Process Stage: Need Meeting 08/06/2024

Project Driver: Customer Service

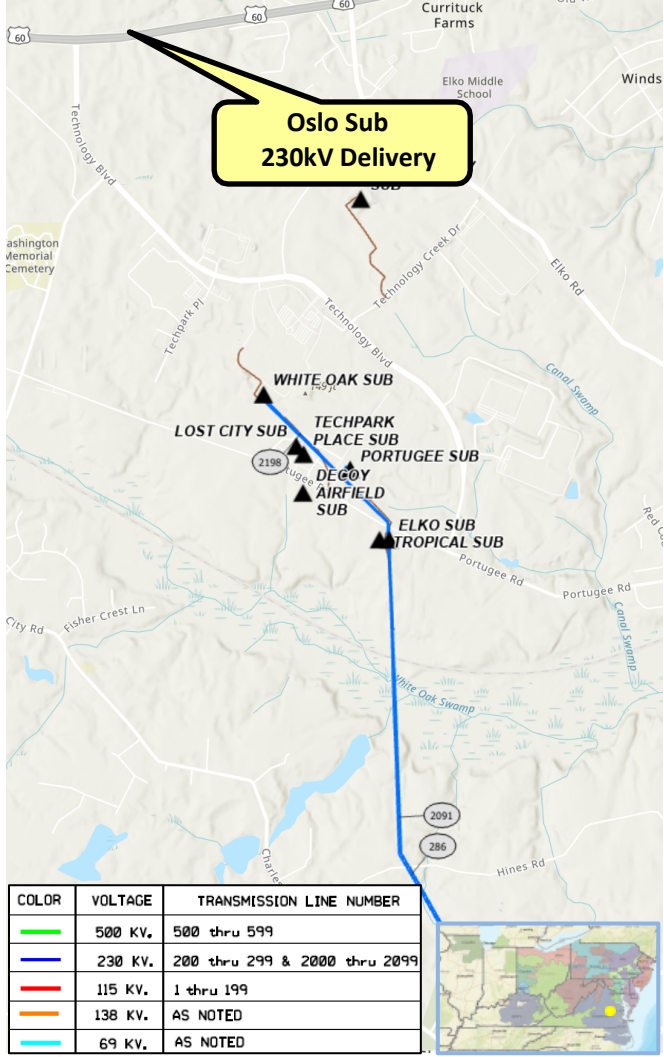
Specific Assumption References:

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 for a new substation (Oslo) to serve a data center in Henrico County with a total load in excess of 100 MW. The requested in-service date is 12/31/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 62.0 MW Winter: 0.0 MW	Summer: 218.0 MW Winter: 140.0 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0053

Process Stage: Need Meeting 08/06/2024

Project Driver: Customer Service

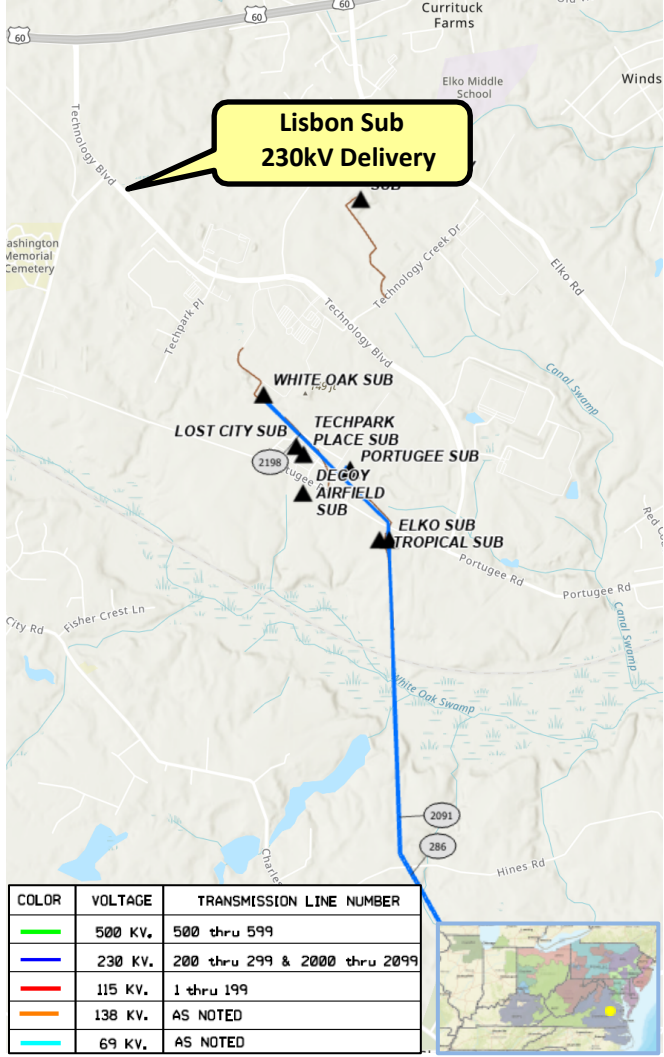
Specific Assumption References:

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 for a new substation (Lisbon) to serve a data center in Henrico County with a total load in excess of 100 MW. The requested in-service date is 12/31/2027.

Initial In-Service Load	Projected 2029 Load
Summer: 80.0 MW Winter: 0.0 MW	Summer: 224.0 MW Winter: 158.0 MW



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2024-0051

Process Stage: Need Meeting 08/06/2024

Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

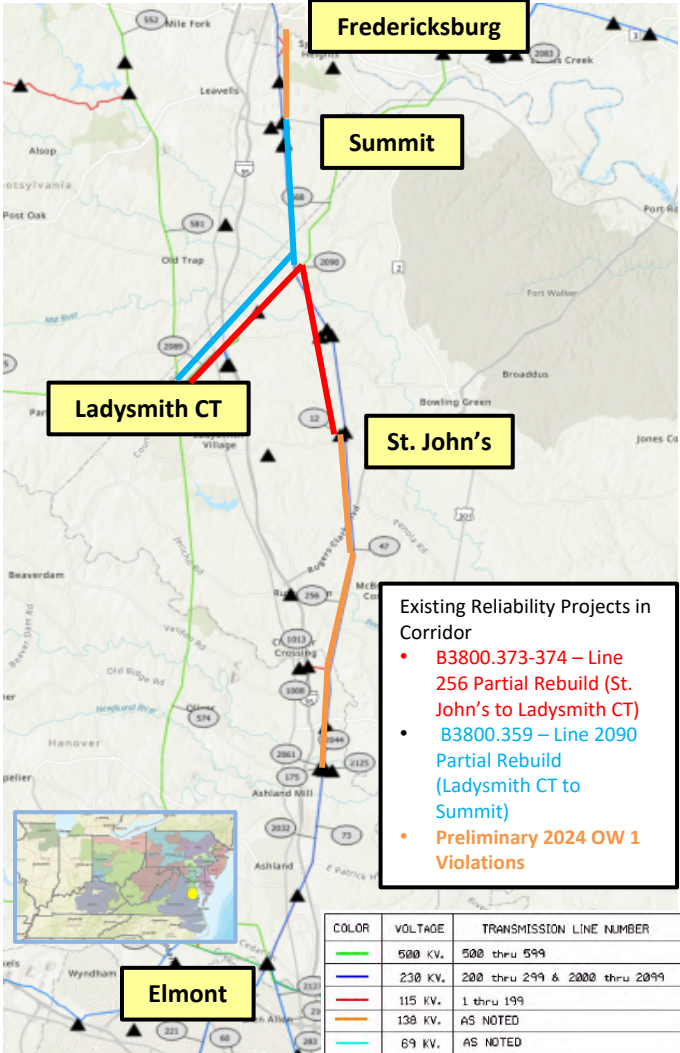
See details on Operational Flexibility and Efficiency in Dominion’s Planning Assumptions presented in December 2023.

Problem Statement (page 1 of 2):

The Elmont to Fredericksburg corridor and points north have experienced significant growth, resulting in existing projects to address reliability violations on portions of Lines #256 (Ladysmith CT-Four Rivers) and #2090 (Ladysmith CT-Fredericksburg) as shown on the map. Further, it is anticipated that near-term End-of-Life upgrade projects, coupled with future reliability upgrades will impact most of the remaining corridor.

Additionally, Delivery Point Requests for nine new substations to serve data center load in the Elmont to Fredericksburg corridor have been submitted, as well as ten new substations to serve data center load in the Elmont to Chickahominy corridor. These are in various stages of evaluation/development. Load projections for the DP’s currently indicate over 4900 MW of new load by year 2029, growing to over 6,800 MW by year 2032.

There is currently only one 230kV transmission source in the corridor from Elmont to Fredericksburg, along with one 115kV source that was recently rebuilt. Without diverse transmission sources to serve the new substations, it is anticipated that initial facility interconnections with the one 230kV transmission line will have to be reworked as additional transmission lines are required in the corridor to address new reliability violations.



Need Number: DOM-2024-0051

Process Stage: Need Meeting 08/06/2024

Project Driver: Operational Flexibility and Efficiency

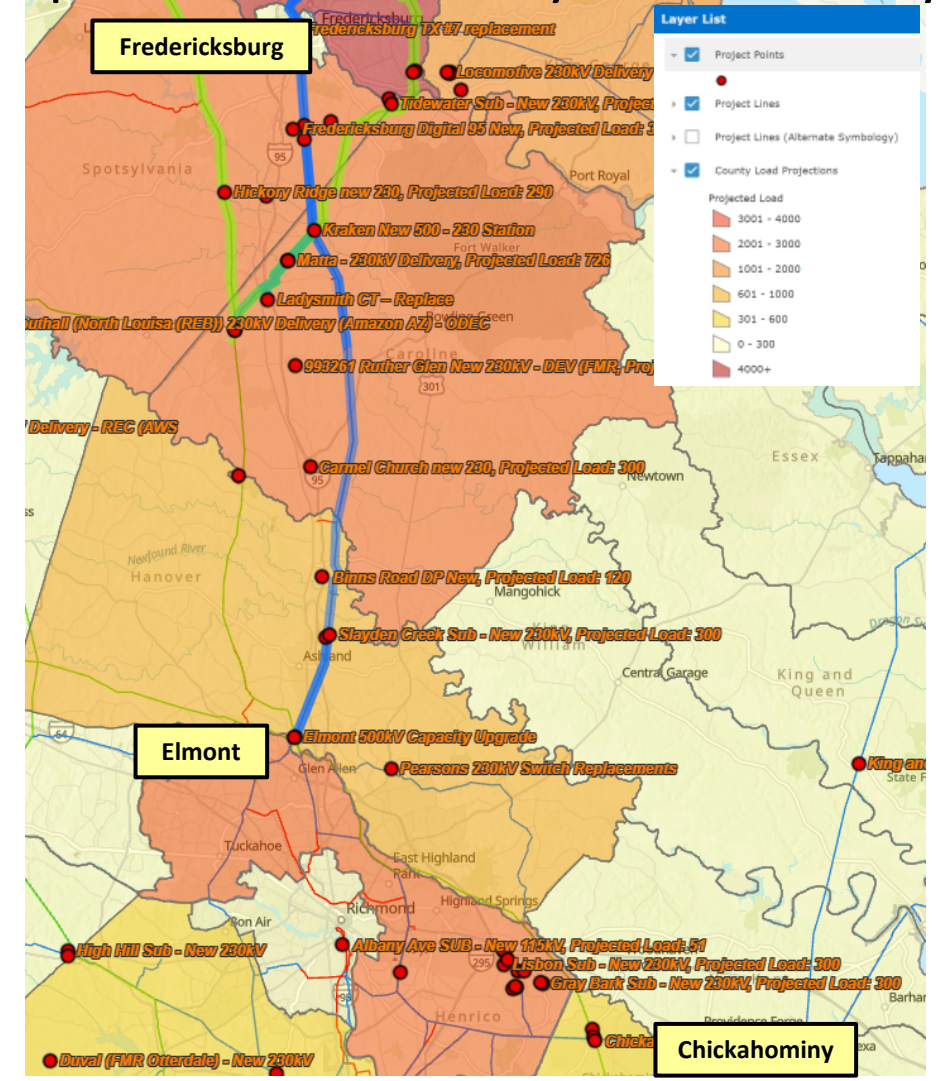
Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion’s Planning Assumptions presented in December 2023.

Problem Statement (page 2 of 2):

99#	Project name	Initial Connect Date	Statu	MW	
				2029	2032
ELMONT TO FREDERICKSBURG					
993260	Tributary (Fmr - River View & LC Reidhill S	6/1/2025	DP	108	108
993185	New Post Sub	7/1/2025	DP	462	462
993217	Lee's Hill Sub (Hunter Ridge)	10/1/2025	DP	600	800
993272	Slayden Creek Sub	1/1/2026	DP	45	83
993261	Ruther Glen Sub (FMR Ladysmith)	3/2/2026	DP	338	548
993244	Carmel Church Sub	12/31/2026	DP	187	299
993092	Matta (FMR Thornburg Orrock Sub)	3/1/2027	DP	225	462
993273	Falling Creek Sub	1/1/2028	DP	92	210
993374	Babylon Sub	6/1/2028	DP	180	900
ELMONT TO CHICKAHOMINY					
993330	Thicket Sub	10/1/2027	DP	255	300
993329	Gray Bark Sub	7/1/2027	DP	300	300
993328	Saltwood Sub	7/1/2027	DP	300	300
993281	Bunker Sub	11/1/2027	DP	300	300
993390	Stockholm Sub	4/30/2027	DP	240	300
993391	Letterkenny Sub	7/30/2027	DP	240	300
993423	Oslo Sub	10/30/2028	DP	218	300
993424	Lisbon Sub	4/30/2028	DP	224	300
993364	Summerfield Sub	4/1/2028	DP	300	300
993365	Winterfield Sub	7/1/2028	DP	300	300
Total				4914	6872

Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency



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-2024-0005

Process Stage: Need Meeting 02/06/2024

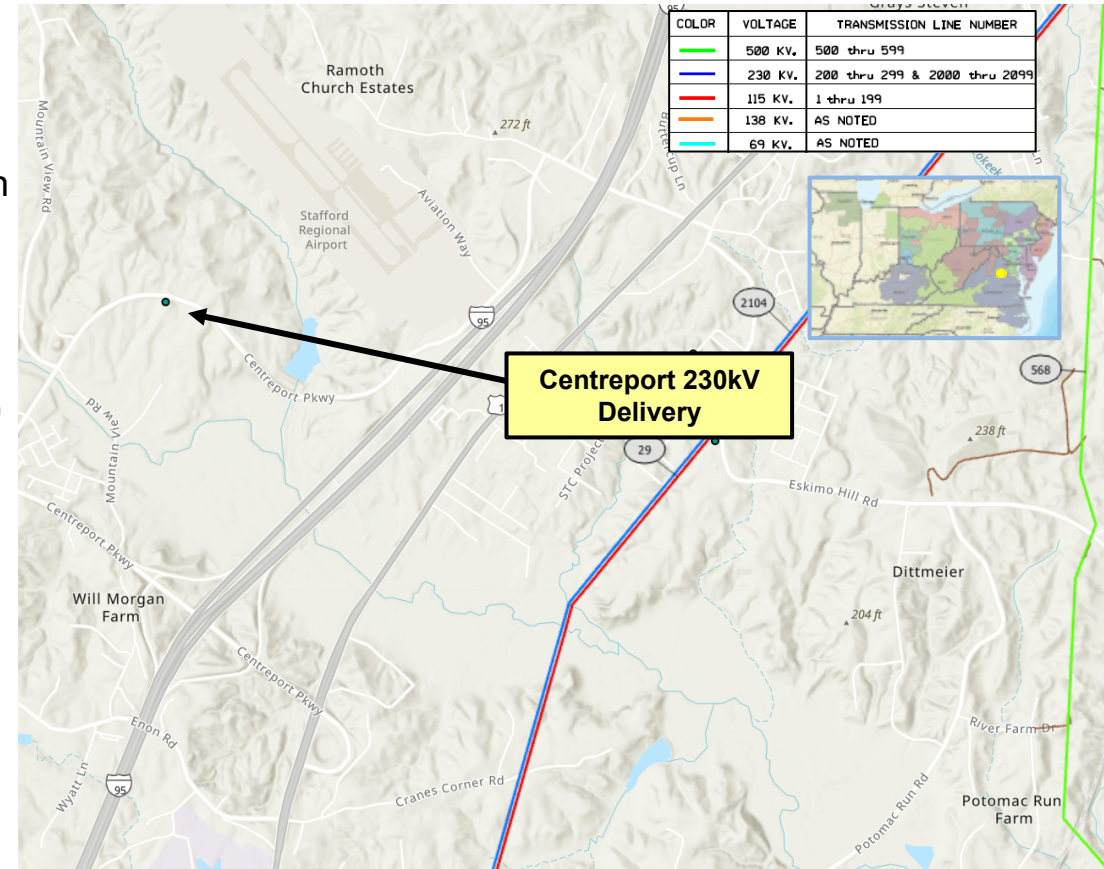
Project Driver: Customer Service

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 has submitted a DP request for a new 230 kV delivery point (Centreport) to serve a data center customer in Stafford VA with a total load in excess of 100 MW. Requested in-service date is 07/01/2027.



Initial In-Service Load	Projected 2029 Load
Summer: 4 MW Winter: 0 MW	Summer: 136 MW Winter: 88 MW

Dominion Transmission Zone: Supplemental Centreport 230kV Delivery - DEV

Need Number: DOM-2024-0005

Process Stage: Solutions Meeting 08/06/2024

Proposed Solution:

- Construct Centreport 230 kV switching station with 4-breaker ring bus configuration.
- Cut Line #2104 (Spartan – Cranes Corner) and extend double-circuit 230kV lines for approx. 2.5 miles to Centreport Switching Station.

Estimated Project Cost: \$30.0 M (Total)

Transmission Line	\$12M
230kV Substation	\$18M

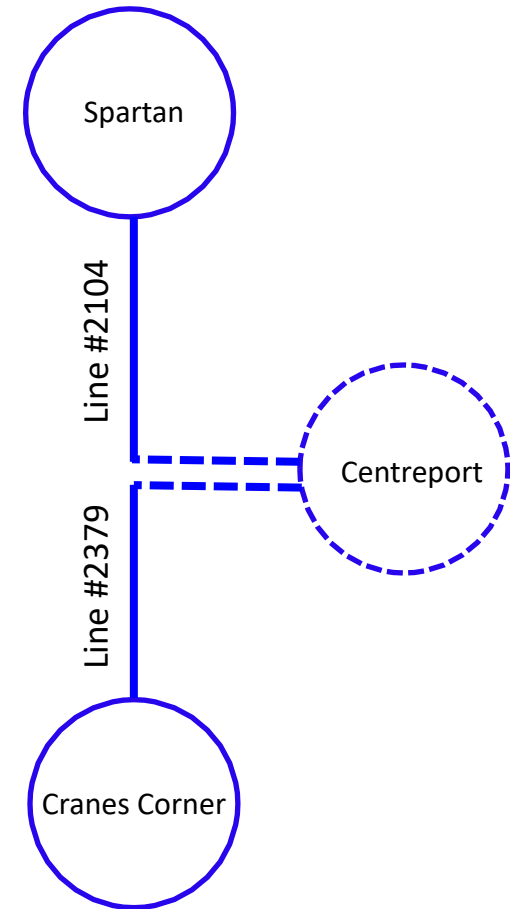
Alternatives Considered:

None. Project will cut a 230kV line in the closest transmission corridor.

Projected In-service Date: 07/01/2027

Project Status: Conceptual

Model: 2029 RTEP



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2024-0035

Process Stage: Solution Meeting 08/06/2024

Previously Presented: Need Meeting 04/30/2024

Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion’s Planning Assumptions presented in December 2023.

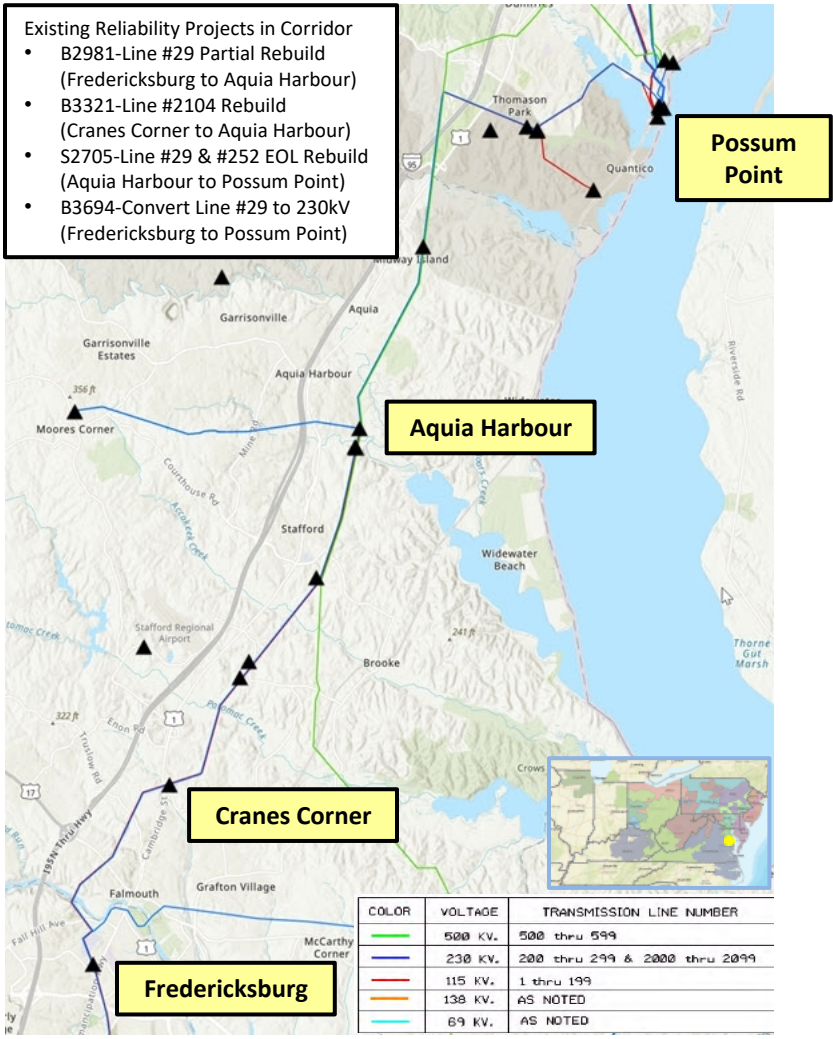
Problem Statement:

Multiple projects have been developed to address reliability violations in the Fredericksburg to Possum Point corridor, resulting in a majority of the corridor being rebuilt over the next 3-4 years so that two, 230kV transmission lines will be available to support existing network flows and to interconnect new customer load.

Delivery Point (DP) Requests for thirteen new substations to serve data center load in the corridor have been submitted by DEV Distribution and are in various stages of evaluation/development. Load projections for the DP’s currently indicate over 1700 MW of new load by year 2029, growing to over 3000 MW by year 2032.

Additionally, in the corridor south of Fredericksburg Substation, DP Requests for fourteen new substations have been received with projected loads exceeding 2000 MW by year 2029 and 3000 MW by year 2032.

Without diverse transmission sources to serve the new substations, it is anticipated that initial facility interconnections with the two, 230kV transmission lines will have to be reworked as additional transmission lines are required in the corridor to address new reliability violations. This is expected to result in customer interconnection delays, increased outage durations, and increased overall cost.



Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2024-0035

Process Stage: Solution Meeting 08/06/2024

Previously Presented: Need Meeting 04/30/2024

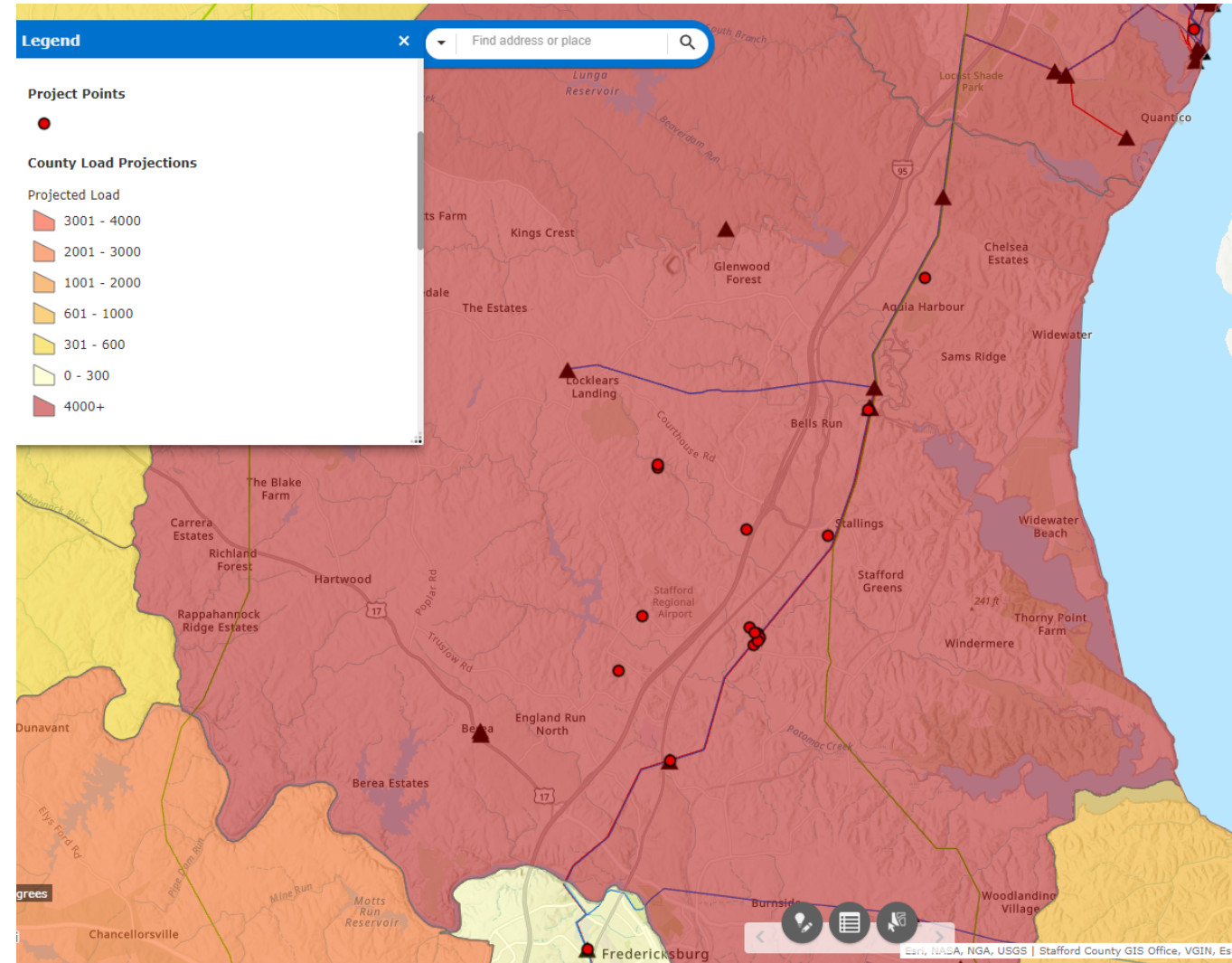
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion's Planning Assumptions presented in December 2023.

Problem Statement (continued):

	A	B	E	G	R	X
5	Need Presented 04/30/2024 TEAC					
6	Need Previously Presented				MW	MW
7	DOM#	Project Name	Connect	Type	2029	2032
8	2023-18	Spartan Sub	5/2/2025	DP	110	110
9	2023-35	Caboose Sub	6/1/2026	DP	84	140
10	n/a	Widewater Sub	1/1/2027	EO	0	77
11	2024-28	Shady Hill	4/4/2027	DP	175	175
12	2024-05	Centreport Sub	7/1/2027	DP	136	136
13	2023-56	Alto Sub	7/1/2027	DP	213	213
14	2024-06	Woodcutters Sub	1/1/2028	DP	250	1000
15	2024-07	Surveyors	1/1/2028	DP	300	300
16	2024-29	Soprano Sub	4/1/2028	DP	116	255
17	2023-34	Freight Sub	8/5/2028	DP	40	140
18	2024-08	Baritone Sub	10/1/2028	DP	32	183
19	2024-34	Opera Sub	10/1/2029	DP	0	242
20	n/a	Classical Sub	7/1/2030	EO	0	155
21	2023-24	Locomotive Sub	11/4/2031	DP	116	255
22	n/a	Tenor Sub	7/1/2032	EO	0	6
23	2024-30	Mountain View Sub	4/1/2026	DP	181	181
24						
25				TOTAL	1753	3568



Dominion Transmission Zone: Supplemental Fredericksburg to Possum Corridor – Add 3rd and 4th 230kV Lines

Need Number: DOM-2024-0035

Process Stage: Solutions Meeting 08/06/2024

Proposed Solution:

- Construct Allman Switching Station north of existing Fredericksburg Substation, to accommodate ten, 230kV line terminals (six north, four south) in five strings of a breaker-and-a-half arrangement. GIS equipment will be utilized due to limited space.
- Rebuild Line #2157 approx. 4.5 miles, Allman to Cranes Corner, with double-circuit structures and a minimum summer conductor rating of 1573 MVA.
- Rebuild Line #2083 approx. 0.7 miles, Allman to Hospital Jct, with double-circuit structures and a minimum summer conductor rating of 1573 MVA.
- Expand Cranes Corner Sub to accommodate a new backbone for line re-alignment.
- Construct a 2nd 230kV double-circuit pole line approx. 12 miles, Aquia Harbour to Possum Point. Approximately 41 lattice structures (~7.1 miles) of adjacent 500kV Line #568 will be replaced with monopole structures to accommodate the new 230kV double-circuit structures in the corridor.
- Install two additional 230kV lines in the corridor, with a minimum summer rating of 1573 MVA, by utilizing the vacant arm positions on the double-circuit structures that will be created by rebuilding the existing single-circuit structures from Fredericksburg to Aquia Harbour and the new double-circuit structures from Aquia Harbour to Possum Point.
- Reconfigure the 230kV terminals at Possum Point to accommodate the two new line terminations.

Estimated Project Cost: \$180.0M (\$120.0M T-Line; \$60.0M Substation)

Alternatives Considered:

The intent of this project is to facilitate the orderly expansion of Dominion’s transmission system by introducing new 230kV sources into the Fredericksburg to Possum Point corridor that will support the projected load growth and maximize the use of existing right-of-way. No alternatives outside of the existing corridor were developed.

Projected In-service Date: 06/01/2029

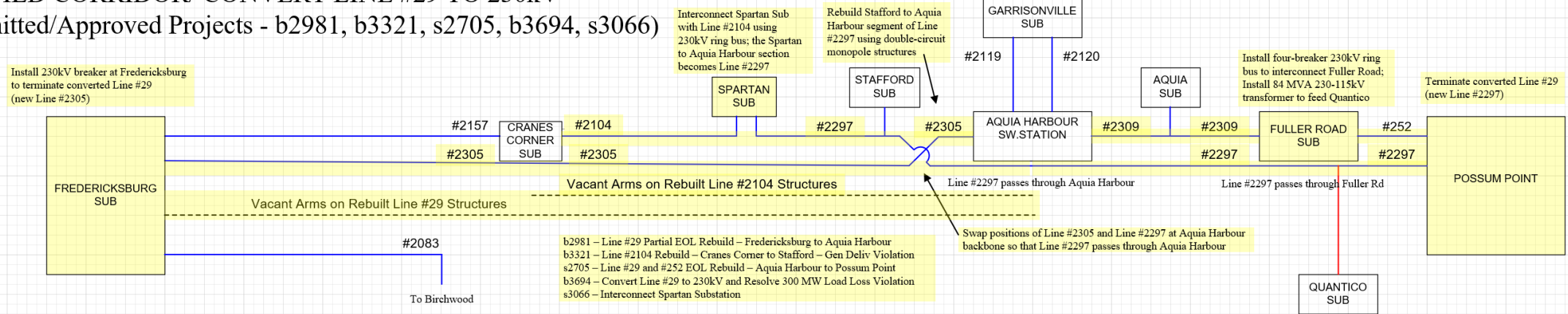
Project Status: Conceptual

Model: 2029 RTEP

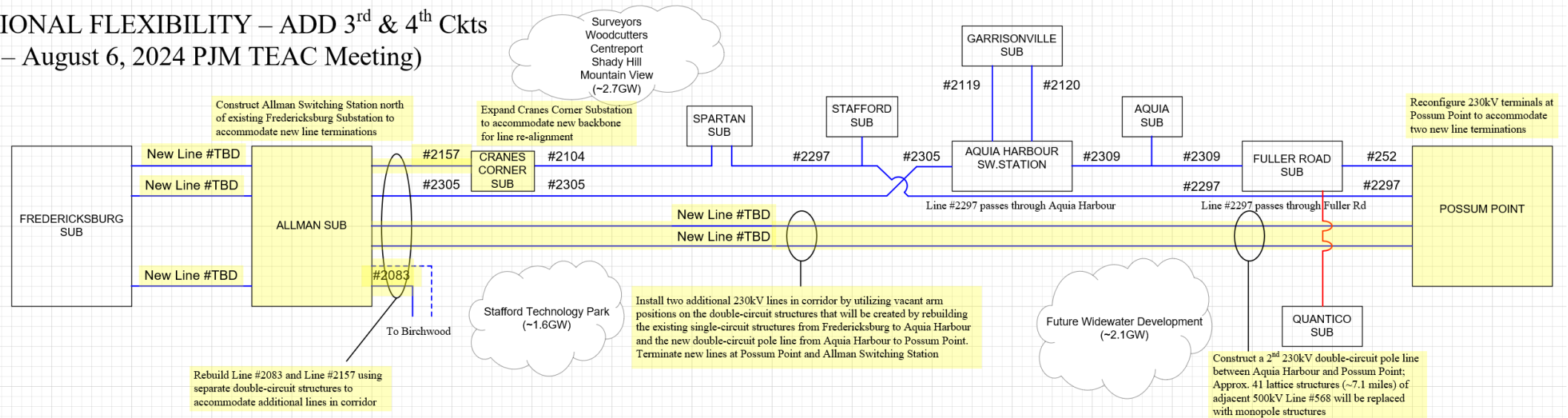
Bubble Diagrams
on Next Page

Dominion Transmission Zone: Supplemental Fredericksburg to Possum Corridor – Add 3rd and 4th 230kV Lines

REBUILD CORRIDOR/ CONVERT LINE #29 TO 230kV (Submitted/Approved Projects - b2981, b3321, s2705, b3694, s3066)



OPERATIONAL FLEXIBILITY – ADD 3rd & 4th Ckts (Solution – August 6, 2024 PJM TEAC Meeting)



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

07/26/2024– V1 – Original version posted to pjm.com