

Dominion Supplemental Projects

Transmission Expansion Advisory
Committee
April 07, 2026

Needs

Dominion Transmission Zone: Supplemental Operational Flexibility and Efficiency

Need Number: DOM-2025-0100

Process Stage: Need Meeting 04/07/2026

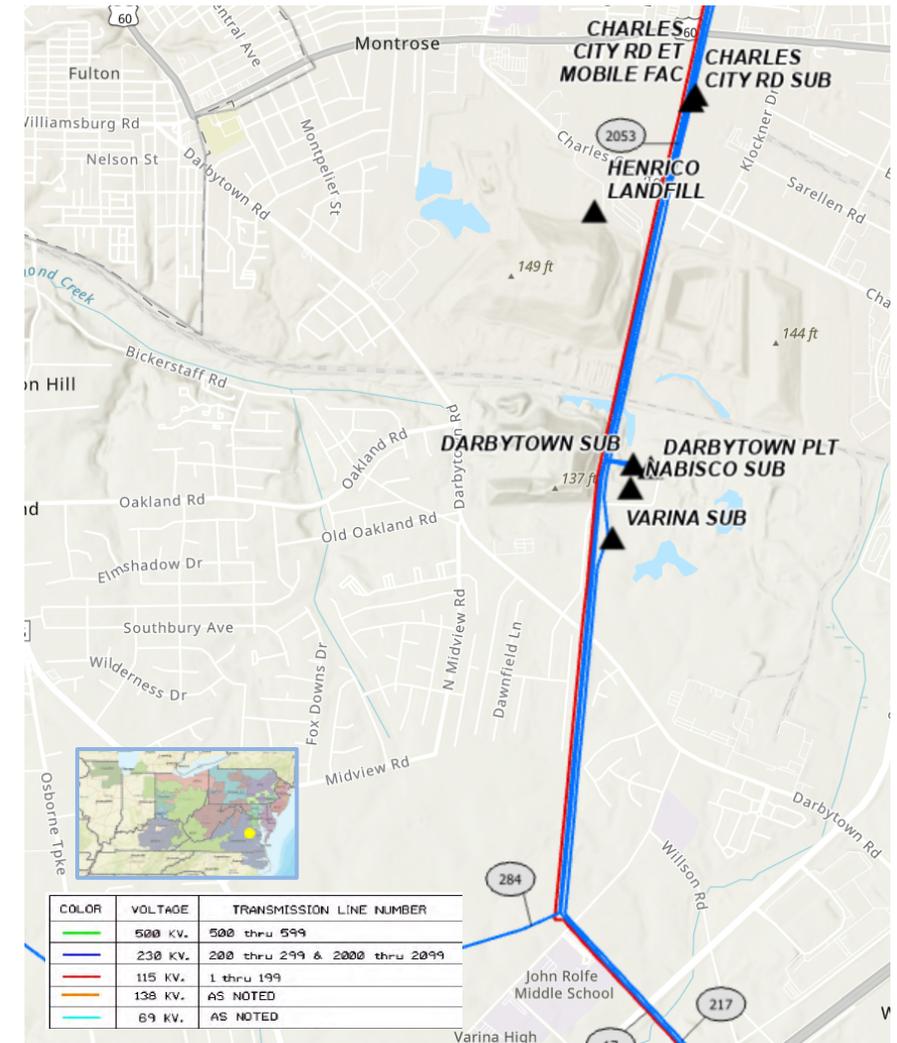
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

See details on Operational Flexibility and Efficiency in Dominion’s Planning Assumptions presented in December 2025.

Problem Statement:

Darbytown Substation has two 230 kV buses with two generators connected to each bus. These buses are connected into a 230kV four breaker ring also connecting Lines 286 (Darbytown –Techpark Place) and 2053 (Darbytown-Northeast). There are no interruption devices between the GSUs and the buses. A trip of one GSU on a bus will cause the trip of the other GSU on the bus. A transmission solution is needed to correct this issue and improve grid reliability.



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2026-0015

Process Stage: Need Meeting 04/07/2026

Project Driver: Customer Service

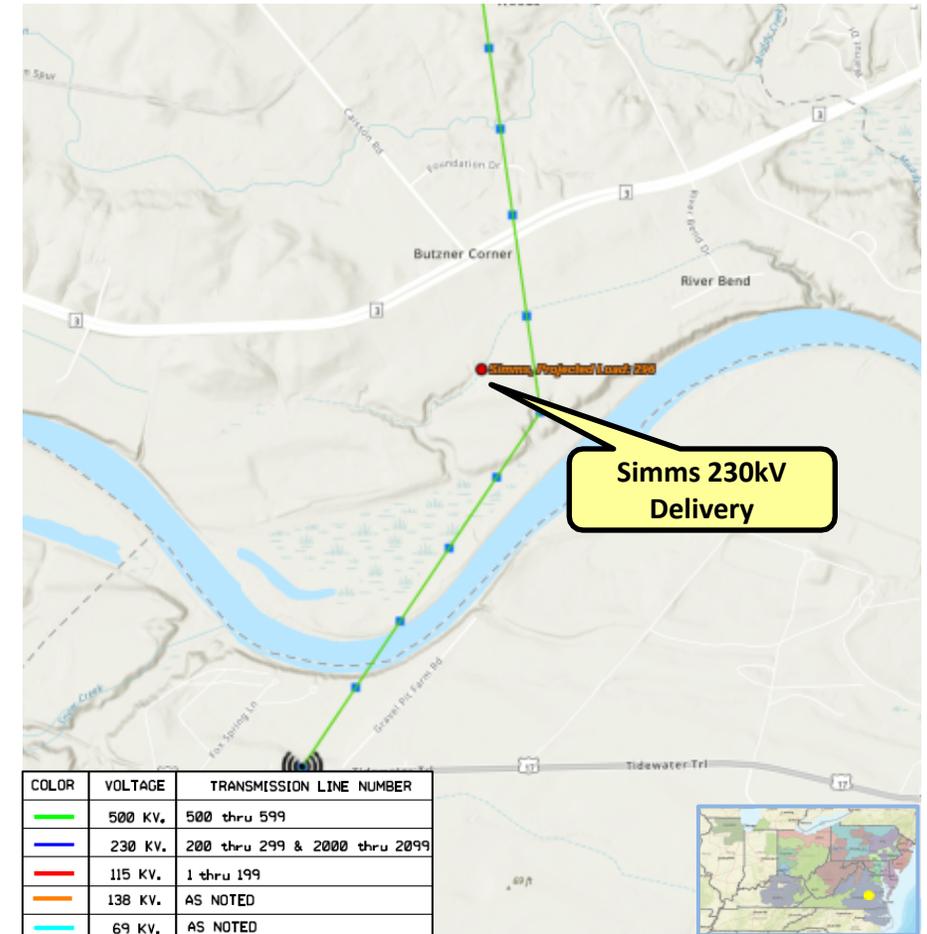
Specific Assumption References:

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

Problem Statement:

ODEC on behalf of NNEC has submitted a DP Request for a new substation (Simms) to serve a data center campus in Kings George County, VA with a total expected capacity of 296MW.

Requested in-service date is 12/01/2029.



Need Number: DOM-2026-0016

Process Stage: Need Meeting 04/07/2026

Project Driver: Equipment Material Condition, Performance Risk

Specific Assumption References: See details on Equipment Material Condition, Performance and Risk in Dominion’s Planning Assumptions presented in December 2025.

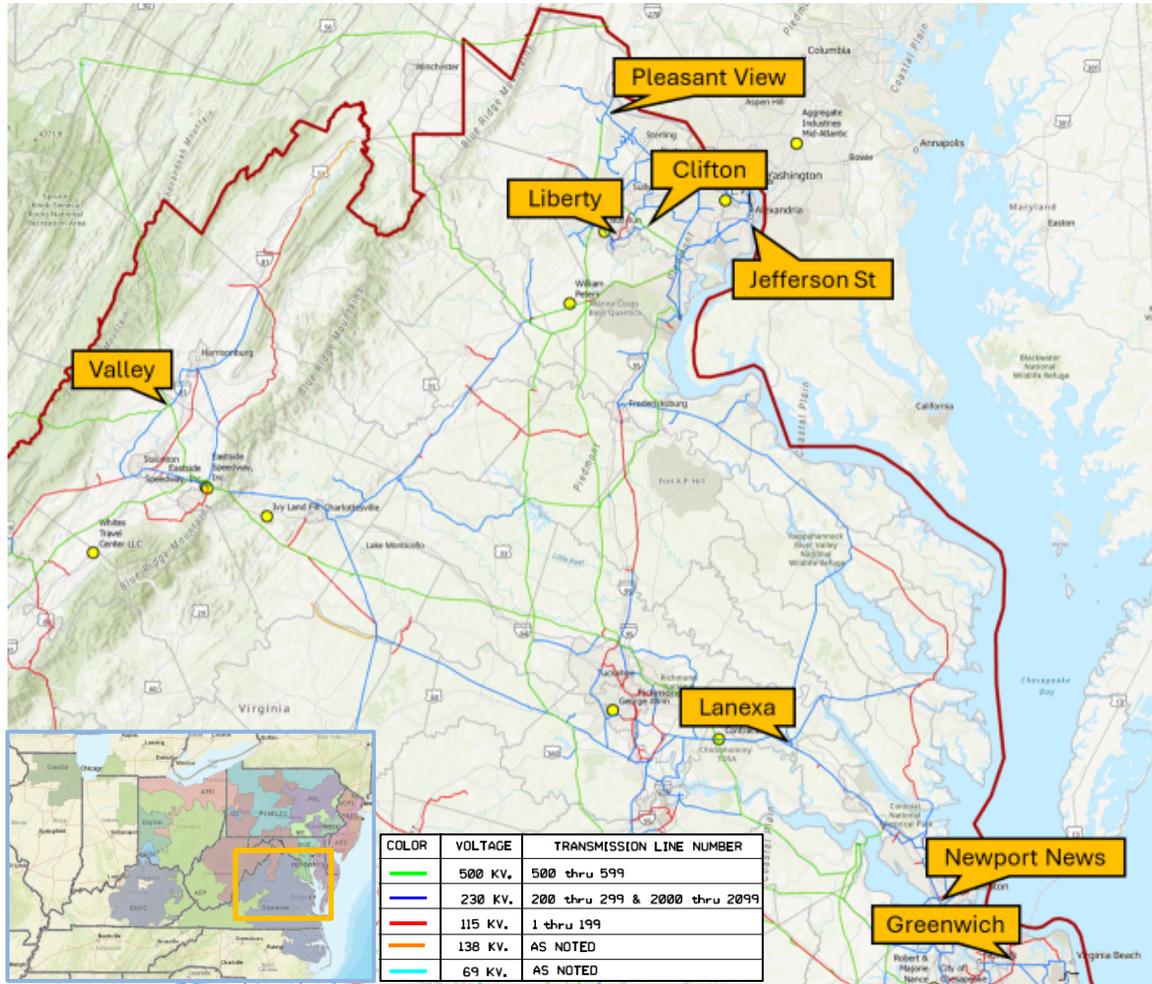
Problem Statement:

Multiple cap banks have been identified needing replacement within Dominion’s transmission system. Field assessments indicate these cap banks are approaching the end of useful service life. These will need to be replaced to avoid future equipment failures which would lead to voltage violations and potential cascading outage scenarios.

Useful lifespan for shunt capacitor banks is generally considered to be 20-25 years in a typical application; however, this is greatly affected by the local network and in-service conditions. The integrity of the dielectric media in high voltage capacitor banks can be degraded over time by factors such as increased duty (time in service and number of on/off cycles), overvoltage transients (110%+ of rated), increasing magnitude of inrush currents, harmonics, etc., all of which we are experiencing. Over time, the accumulated effect of these phenomenon leads to increased stress and accelerated aging of the insulating material inside of a capacitor can, leading to dielectric breakdown and ultimately protection lockouts. Due to the increasing load in Dominion Energy territory, the need for reliable capacitive compensation is more necessary than ever. For this reason, we find it prudent to replace the proposed banks based on a combination of age, expected duty, and effect of an outage on grid reliability.

The 230 kV cap banks needing replacement between 2027 and 2028 are located at Pleasant View, Greenwich, Liberty, Clifton, Lanexa, Jefferson Street, Valley and Newport News substations.

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance Risk



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

Need Number: DOM-2025-0086

Process Stage: Need Meeting 04/07/2026

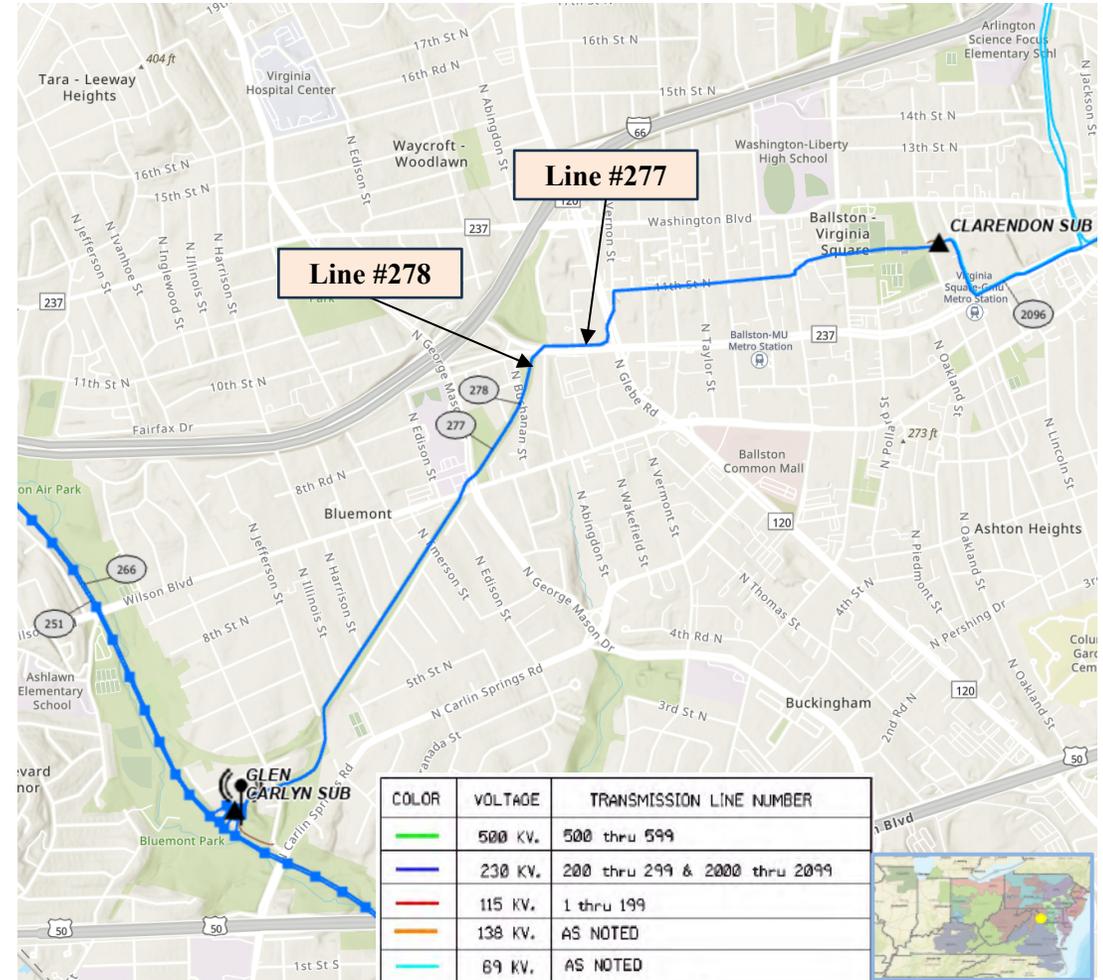
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2025.

Problem Statement: Dominion Energy (DEV) has identified the need to replace approximately 1.95 miles each of Underground (UG) Lines #277 and #278 (both from Clarendon and Glen Carlyn) to new 230kV standards based on the Company's End of Life Criteria.

- The existing cable system consists of 1750 kcmil segmented copper HPFF (High-Pressure Fluid-Filled) conductors with 0.760 mils of paper insulation, rated for a maximum operating temperature of 85°C. These underground facilities have been in service for over 40 years, exceeding the typical industry life expectancy for HPFF systems.
- Recent testing of the DF-100 dielectric fluid has also shown it to be non-optimal, indicating degradation of the fluid's insulating properties.
- Multiple through-fault events have occurred, impacting substation equipment and adjacent distribution circuits. These events have contributed to the accelerated aging of the paper-insulated cable.
- Lines #277 and #278 provide service to Clarendon and Glen Carlyn Substations. These lines service a combined load of 90 MW.
- Given the age of the system, the condition of the insulating fluid, and the cumulative stress from fault events, the need for replacement of the existing HPFF system is well justified. This replacement project will ensure continued reliability, improve system performance, and support future load growth in the region.



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

Need Number: DOM-2025-0088

Process Stage: Need Meeting 04/07/2026

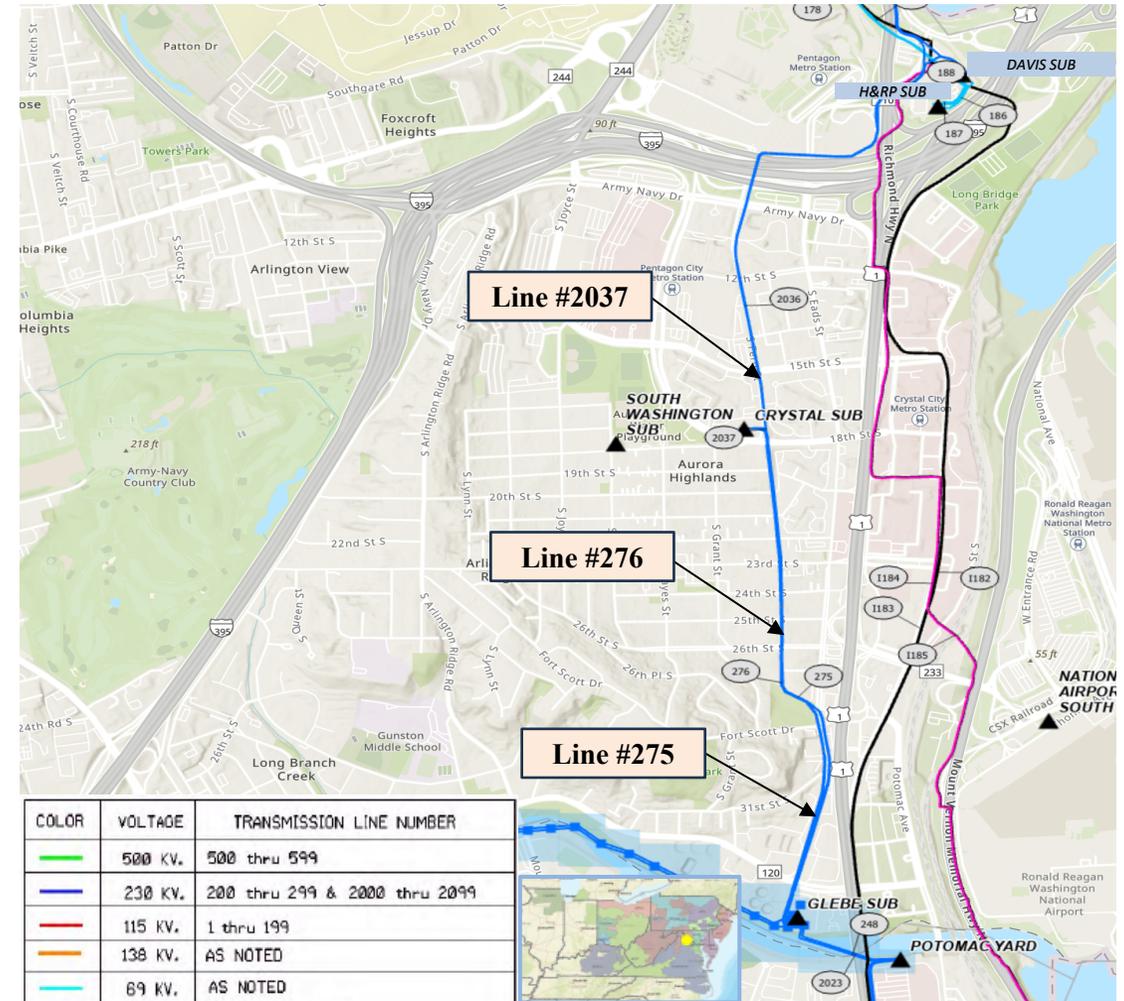
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:

See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2025.

Problem Statement: Dominion Energy (DEV) has identified the need to replace approximately 1.23 miles of underground transmission lines #275 and #276 (Glebe - Crystal), as well as 2.37 miles of underground transmission line #2037 (Glebe - Davis), located within the same corridor. This replacement effort is being undertaken in accordance with the new 230 kV standards and the Company's End-of-Life criteria.

- The existing cable systems consist of 1750 kcmil segmented copper HPFF (High-Pressure Fluid-Filled) conductors with 0.745 mils of paper insulation, rated for a maximum operating temperature of 85°C. These facilities have been in service for over 50 years, significantly exceeding the typical industry life expectancy for HPFF systems.
- Recent testing of the DF-100 dielectric fluid has revealed non-optimal performance, indicating degradation of the fluid's insulating properties.
- Multiple through-fault events have occurred, impacting equipment at Crystal Substation and associated distribution circuits. These events have contributed to the accelerated aging of the paper-insulated cable.
- Lines #275, #276 and #2037 provide service to Glebe, Crystal and Davis Substations. These lines service a combined load of 120 MW.
- Given the age of the system, the condition of the insulating fluid, and the cumulative stress from fault events, the need for replacement of the existing HPFF system is well justified. This replacement project will ensure continued reliability, improve system performance, and support future load growth in the region.



Solutions

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2023-0031

Process Stage: Solution Meeting 04/07/2026

Previously Presented: Need Meeting 05/09/2023

Project Driver: Customer Service

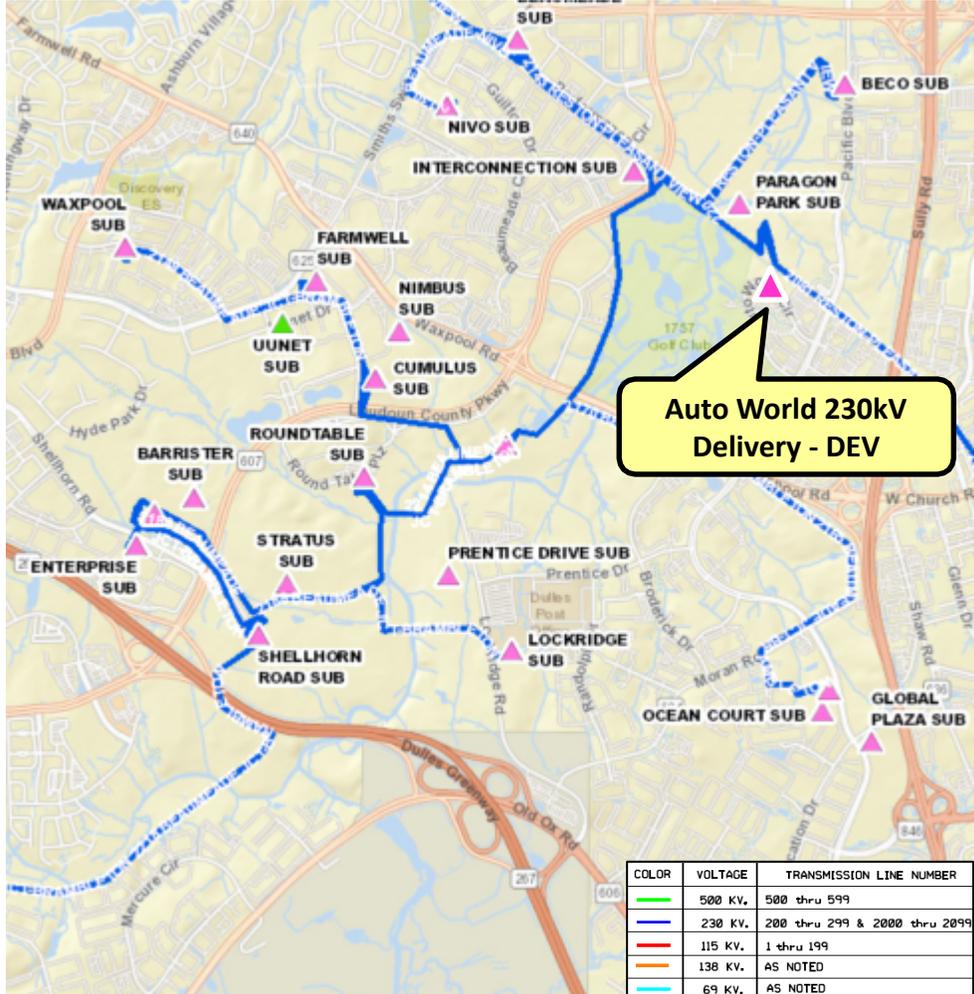
Specific Assumption References:

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 DP Request for a new substation (Auto World) to serve a data center campus in Loudoun County with a total load in excess of 100 MW. Requested in-service date is ~~06/15/2026~~ 12/17/2027.

Initial In-Service Load	Projected 2030 Load
Summer: 26.0 MW Winter: 0.0 MW	Summer: 282.6 MW Winter: 78.1 MW



Dominion Transmission Zone: Supplemental Auto World 230kV Delivery - DEV

Need Number: DOM-2023-0031

Process Stage: Solution Meeting 04/07/2026

Project Driver: Customer Service

Proposed Solution:

Interconnect the new substation by cutting and extending Lines #2081 and #2150 (Paragon Park – Golden – Sterling Park) into the proposed Auto World 230kV Substation. The lines will terminate in a 230kV GIS six-breaker ring arrangement.

Estimated Project Cost: \$31.8 M (Total)

Transmission Line: \$8.3 M

230kV Substation: \$23.5 M (Excess facilities for the GIS station will be paid by the customer not included here)

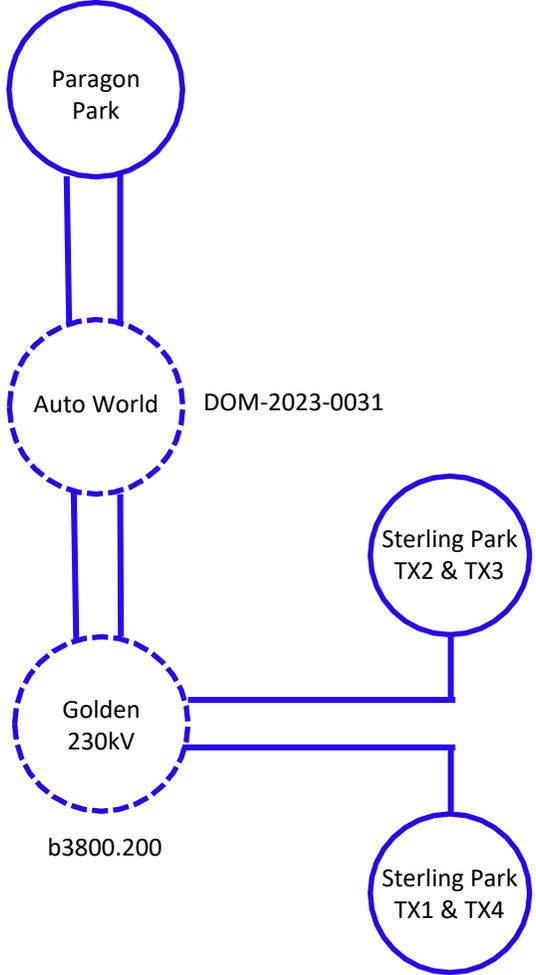
Alternatives Considered:

No feasible alternatives. Lines #2081 and #2150 are the closest source to the proposed site.

Projected In-service Date: 12/17/2027

Project Status: Conceptual

Model: 2030 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0016

Process Stage: Solutions Meeting 04/07/2026

Previously Presented: Need Meeting 04/02/2024

Project Driver: Customer Service

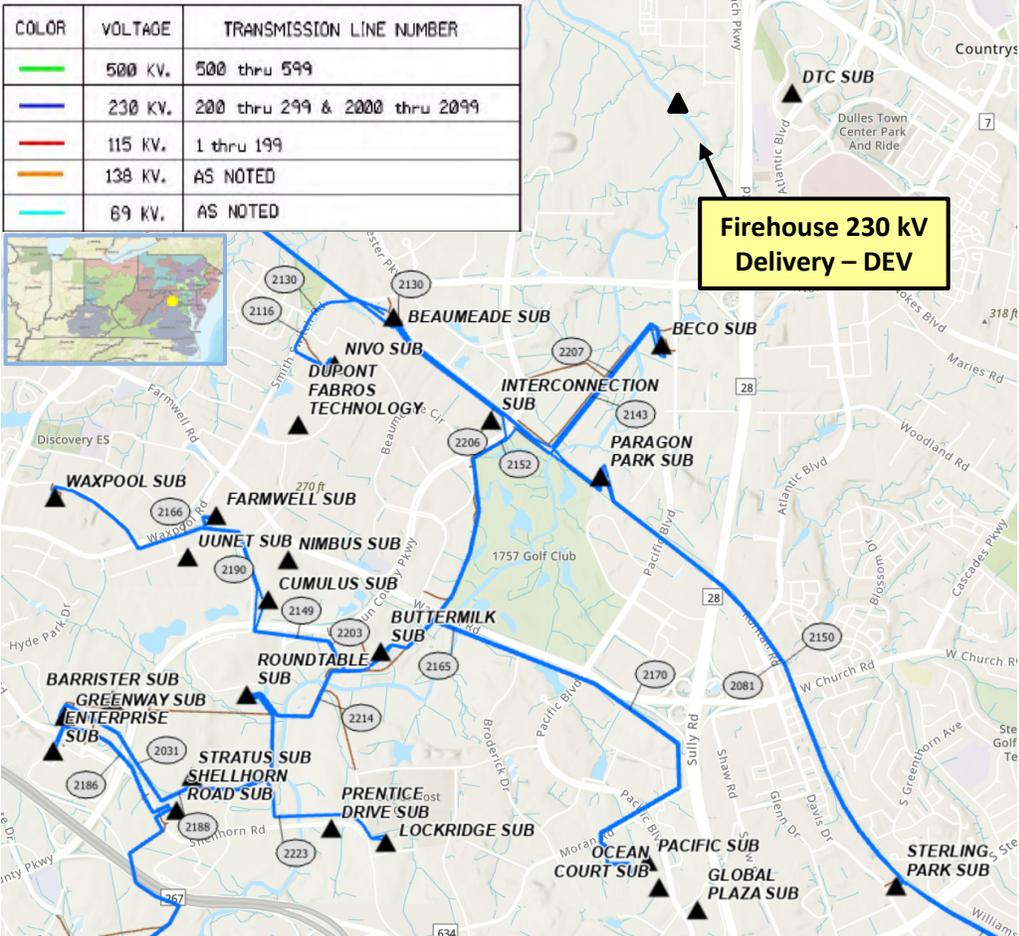
Specific Assumption References:

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 (Firehouse) to serve a data center complex in Loudoun County with a total load in excess of 100 MW. Requested in-service date is ~~01/31/2028~~ 12/31/2030.

Initial In-Service Load	Projected 2030 Load
Summer: 209 MW Winter: 160 MW	Summer: 234 MW Winter: 234 MW



Dominion Transmission Zone: Supplemental Firehouse 230kV Delivery - DEV

Need Number: DOM-2024-0016

Process Stage: Solutions Meeting 04/07/2026

Project Driver: Customer Service

Proposed Solution:

- Construct new Firehouse Substation to accommodate a 230kV ring bus with an ultimate configuration of four (4) breakers, with all breakers initially installed.
- Cut and extend existing Line #2207 (Paragon - Beco) and terminate into the new substation.

Estimated Project Cost: \$64.3 M

Transmission Line: \$23.6 M

230kV Substation: \$40.7 M

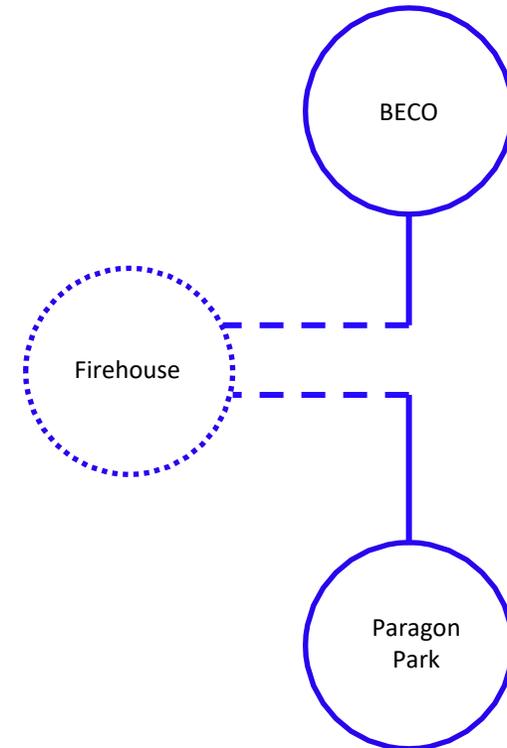
Alternatives Considered:

No feasible alternative.

Projected In-service Date: 12/31/2030

Project Status: Engineering

Model: 2030 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

03/26/2026 – V1 – Original version posted to pjm.com