Dominion Supplemental Projects

Transmission Expansion Advisory Committee
May 06, 2025

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-2025-0020

Process Stage: Need Meeting 05/06/2025

Project Driver: Customer Service

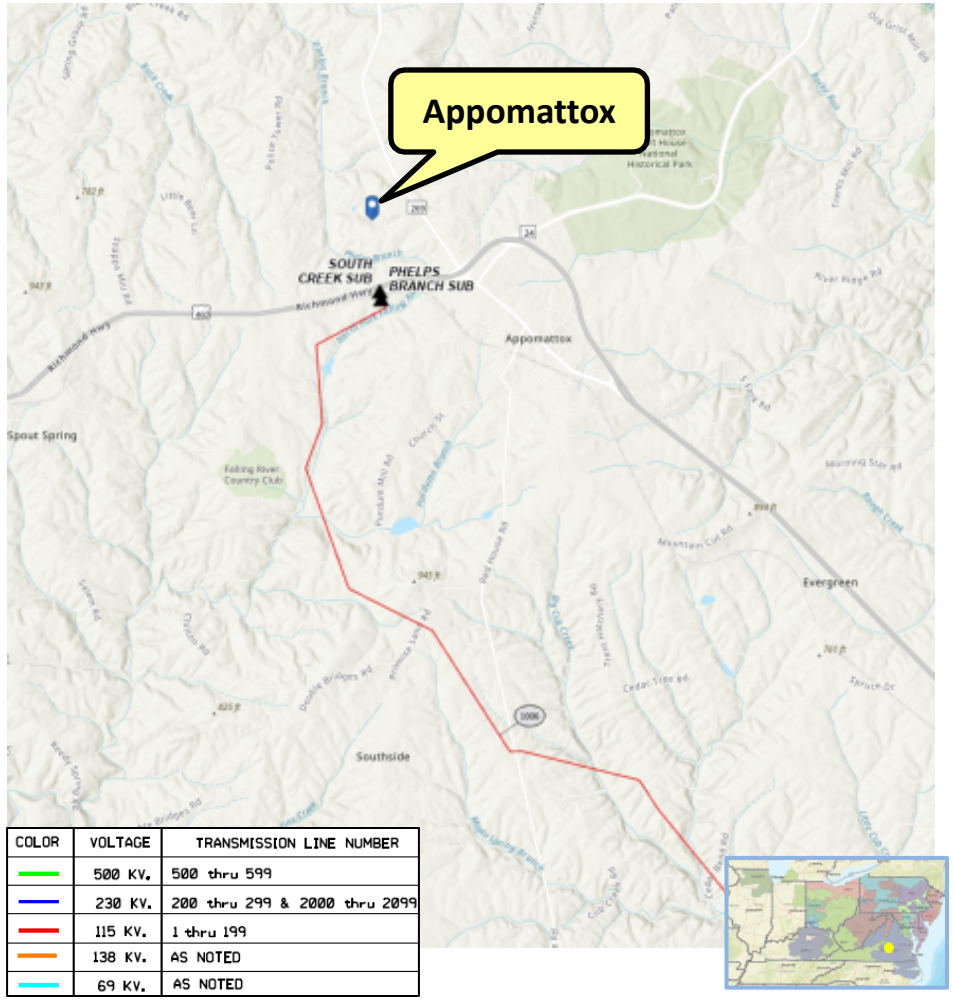
Specific Assumption References:

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

Problem Statement:

Central Virginia Electric Cooperative (CVEC) has submitted a delivery point request for a new delivery point to serve a 300 MW data center customer in Appomattox, VA. The site is located north of Dominion's South Creek 115kV substation. Driver for the project is area data center load growth. Customer has requested service delivery up to 50MW via existing 115kV facilities in 18 to 24 months. The ultimate data center load will be 300 MW in May 2029.

Initial In-Service Load	Projected 2030 Load
Summer: 50 MW Winter: 50 MW	Summer: 300 MW Winter: 300 MW

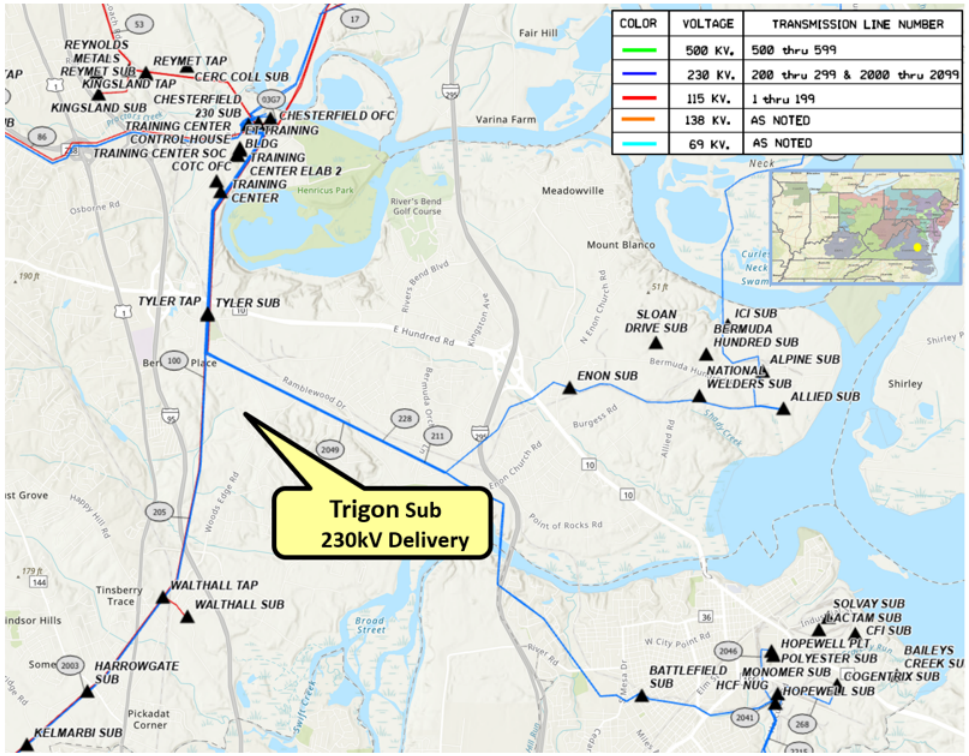


Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2024-0044
Process Stage: Need Meeting 05/06/2025
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 (Trigon) to serve a data center in Chesterfield County with a total load in excess of 100 MW. The requested in-service date is 12/1/2030.



Initial In-Service Load	Projected 2030 Load
Summer: 0 MW Winter: 10 MW	Summer: 90 MW Winter: 110 MW

Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2025-0023

Process Stage: Need Meeting 05/06/2025

Project Driver: Customer Service

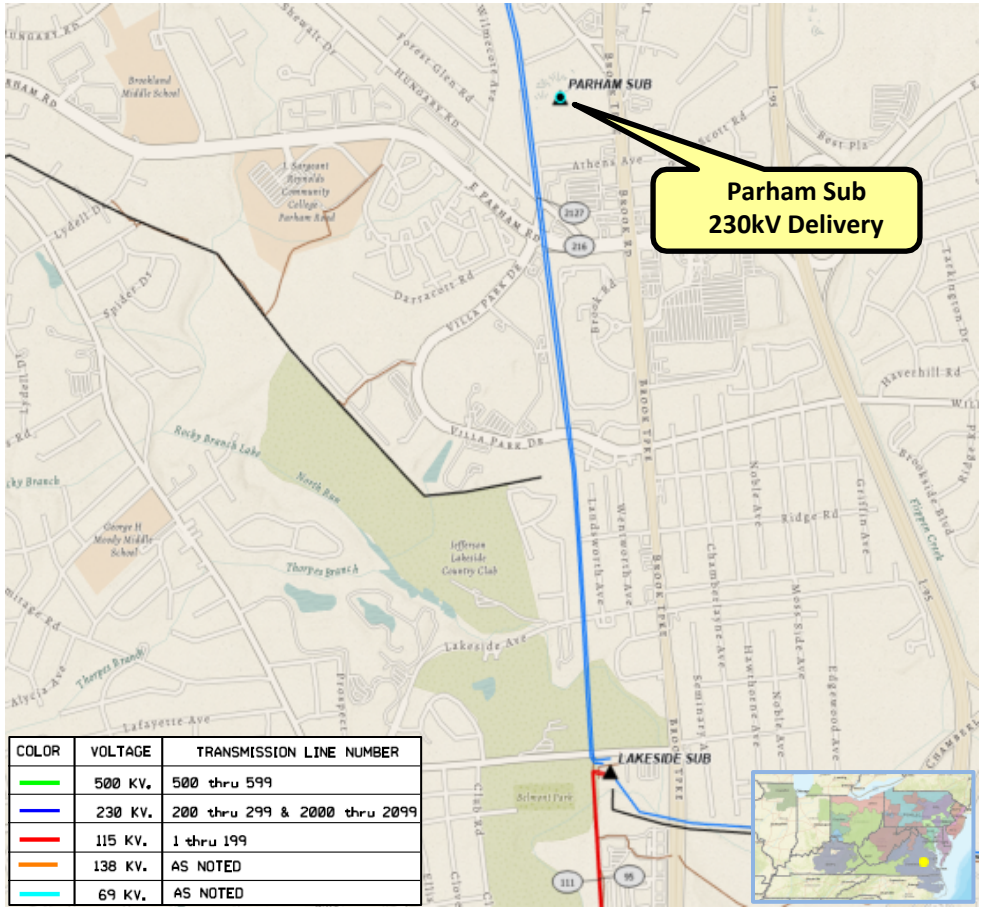
Specific Assumption References:

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 Parham Substation to serve Economic Development in Hanover County, VA. The site is located near Interstate 95 and Parham Rd interchange. The total load for the full build-out is 78MW, with the requested in-service date for 5/15/2026.

Initial In-Service Load	Projected 2030 Load
Summer: 43.4 MW Winter: 31.7 MW	Summer: 57 MW Winter: 45 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 Do No Harm Analysis

Need Number: DOM-2024-0018, 0019, 0020, 0040 - DNH
Process Stage: Solutions Meeting 05/06/2025 – Do No Harm
Previously Presented Solutions – 06/04/2024 and 12/03/2024
Supplemental Project Driver: Do No Harm Analysis

Specific Assumption Reference:

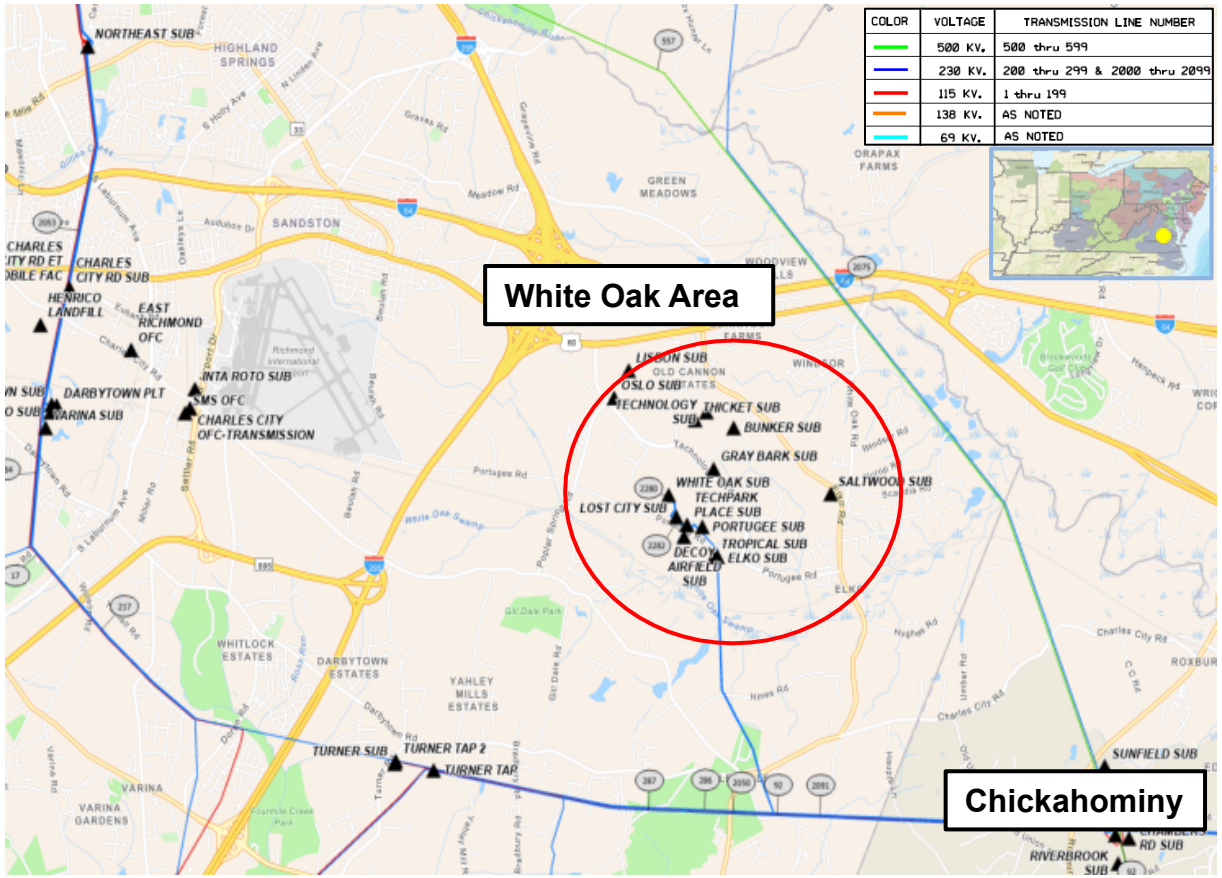
Customer load request will be evaluated per Dominion's Facility Interconnections Requirements Document & Dominion's Transmission Planning Criteria.

Problem Statement:

Dominion has identified, and PJM verified, multiple violations in the general White Oak area due to the associated supplemental projects via the 2025 Do-No-Harm analysis through January 1, 2025.

Thermal overloads identified:

- Line 286 from Techpark Place to Darbytown under N-1-1
- Line 2050 from Chickahominy to future Bermuda Hundred under N-1
- Line 2075 from Chickahominy to future Thicket under Gen Deliv
- Line 2091 from Chickahominy to Elko under Gen Deliv



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2024-0018, 0019, 0020, 0040 - DNH

Process Stage: Solutions Meeting 05/06/2025

Proposed Solutions:

- The majority of Line #286 structures date back to the 1940s and 70s. Rebuild approximately 13.7 miles of existing 230kV Line #286 between Techpark Place and Darbytown. The majority of Line #286 shares structures with other lines, so rebuild with double circuit structures using a higher capacity conductor and associated substation equipment to achieve a minimum normal summer rating of 1573 MVA.
- Approved supplemental project DOM-2022-0038-DNH (s3030.2) will cut and loop existing 230kV Line #2075 (Chickahominy – Elmont) in and out of White Oak substation. Reconductor approximately 6.5 miles of existing 230kV Line #2075 from the cut in location back to Chickahominy substation using a higher ampacity conductor and associated substation equipment to achieve a minimum normal summer rating of 1573 MVA.
- Reconductor approximately 6.75 miles of existing 230kV Line #2091 (Chickahominy – Elko) using a higher capacity conductor and associated substation equipment to achieve a minimum normal summer rating of 1573 MVA.
- Reconductor approximately 13.5 miles of existing 230kV Line #2050 (Chickahominy – Bermuda Hundred) using a higher capacity conductor and associated substation equipment to achieve a minimum normal summer rating of 1573 MVA.

Alternatives Considered:

None - all work will be done on lines in existing ROW.

Estimated cost:

Line 286 – $54.8M

Line 2075 – $19.5M

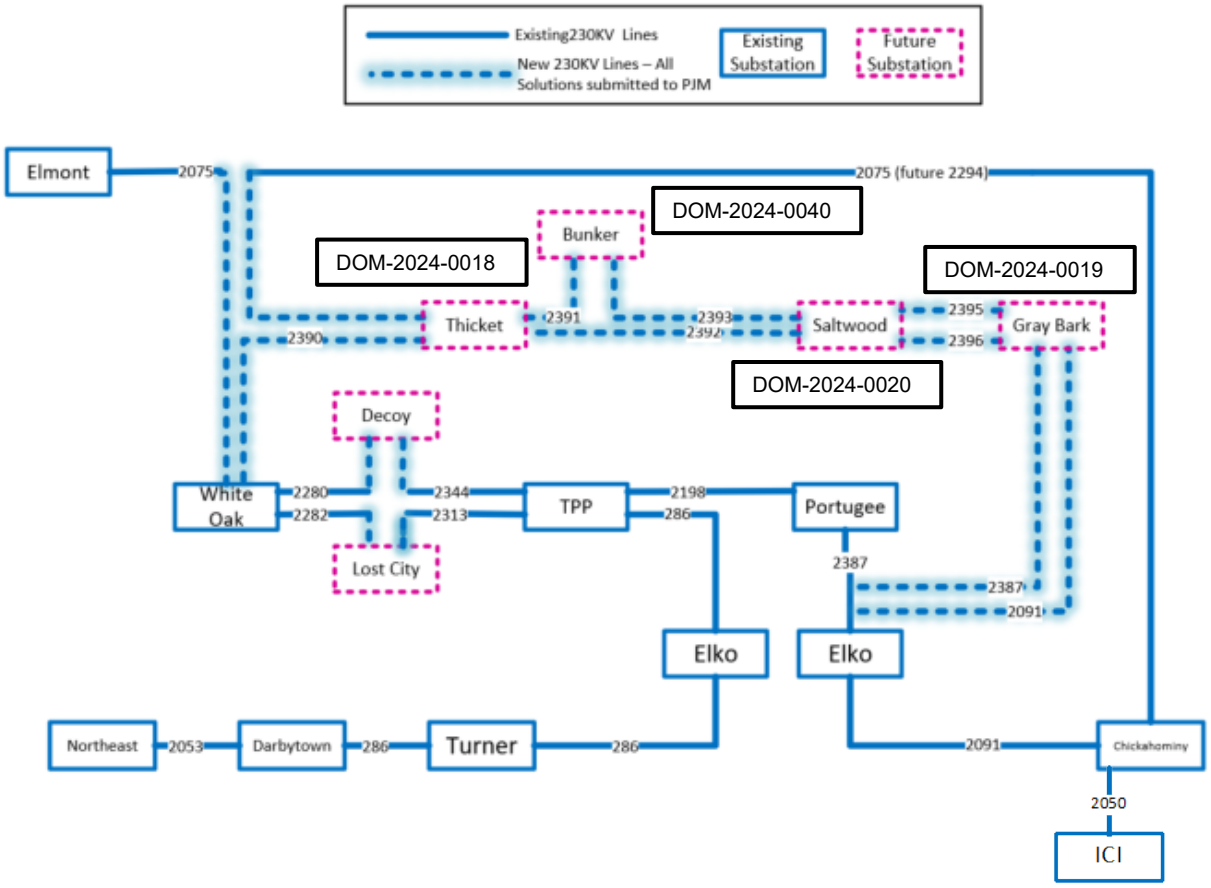
Line 2091 – $20.25

Line 2050 – $40.5M

Projected In-service Date: 12/01/2030

Project Status: Conceptual

Model: 2029 RTEP



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2024-0023 - DNH

Process Stage: Do No Harm Solution Meeting 05/06/2025

Previously Presented: Solution Meeting 12/03/2024

Project Driver: Do No Harm Analysis – Meadowville

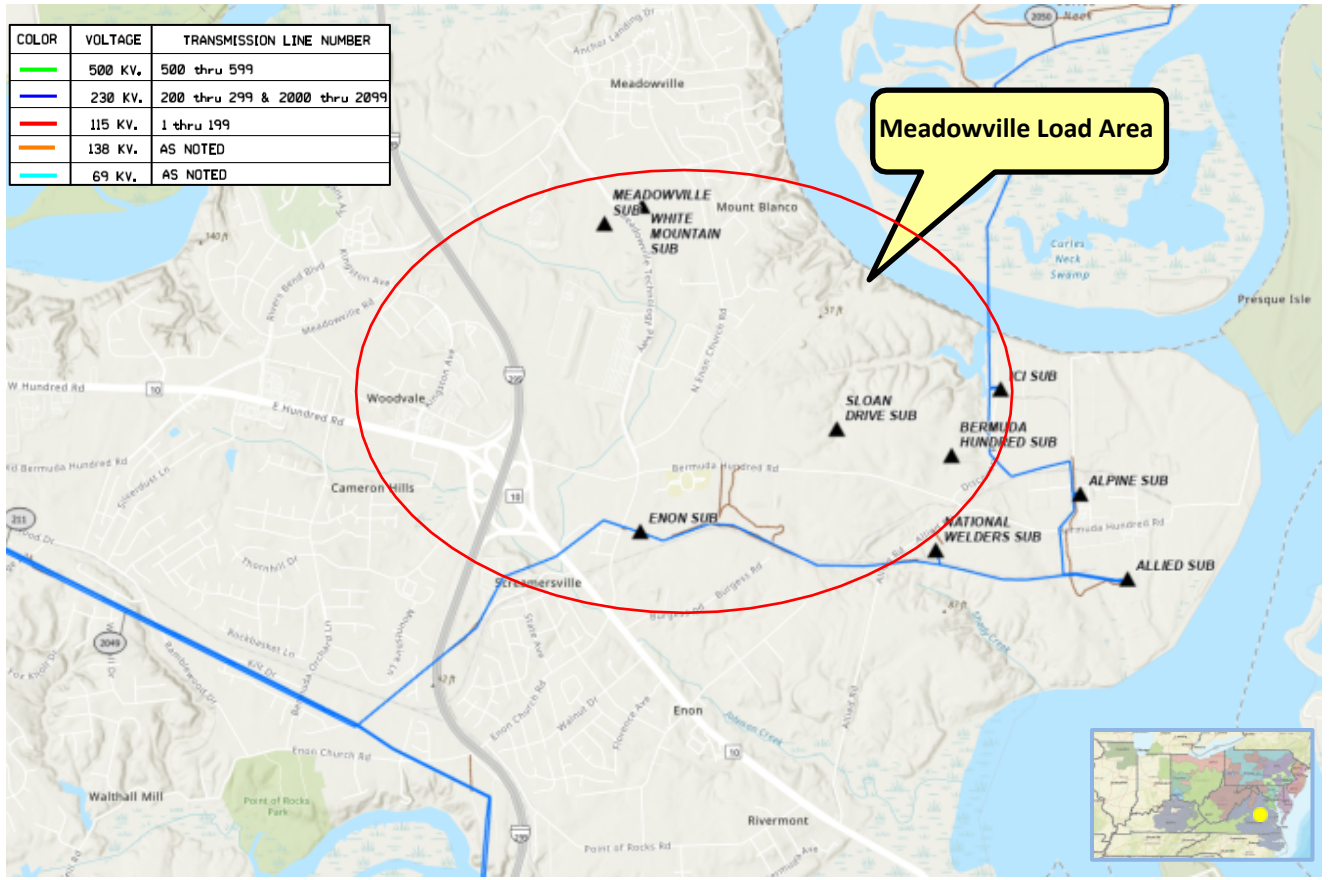
Specific Assumption References:

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

Problem Statement:

Dominion has identified, and PJM verified, several overloads in the general "Meadowville Load Area" with the addition of Meadowville substation.

Initial In-Service Load	Projected 2029 Load
Summer 80MW	Summer 300MW
Winter 80MW	Winter 300MW



Thermal violations identified:

- Line 211 and 228 from future Sycamore Springs substation to Hopewell substation under Gen Deliv.
- Line 238 from Carson substation to Clubhouse substation under Gen Deliv.

Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2024-0023 - DNH
Process Stage: Solution Meeting 05/06/2025
Project Driver: Do No Harm – Meadowville

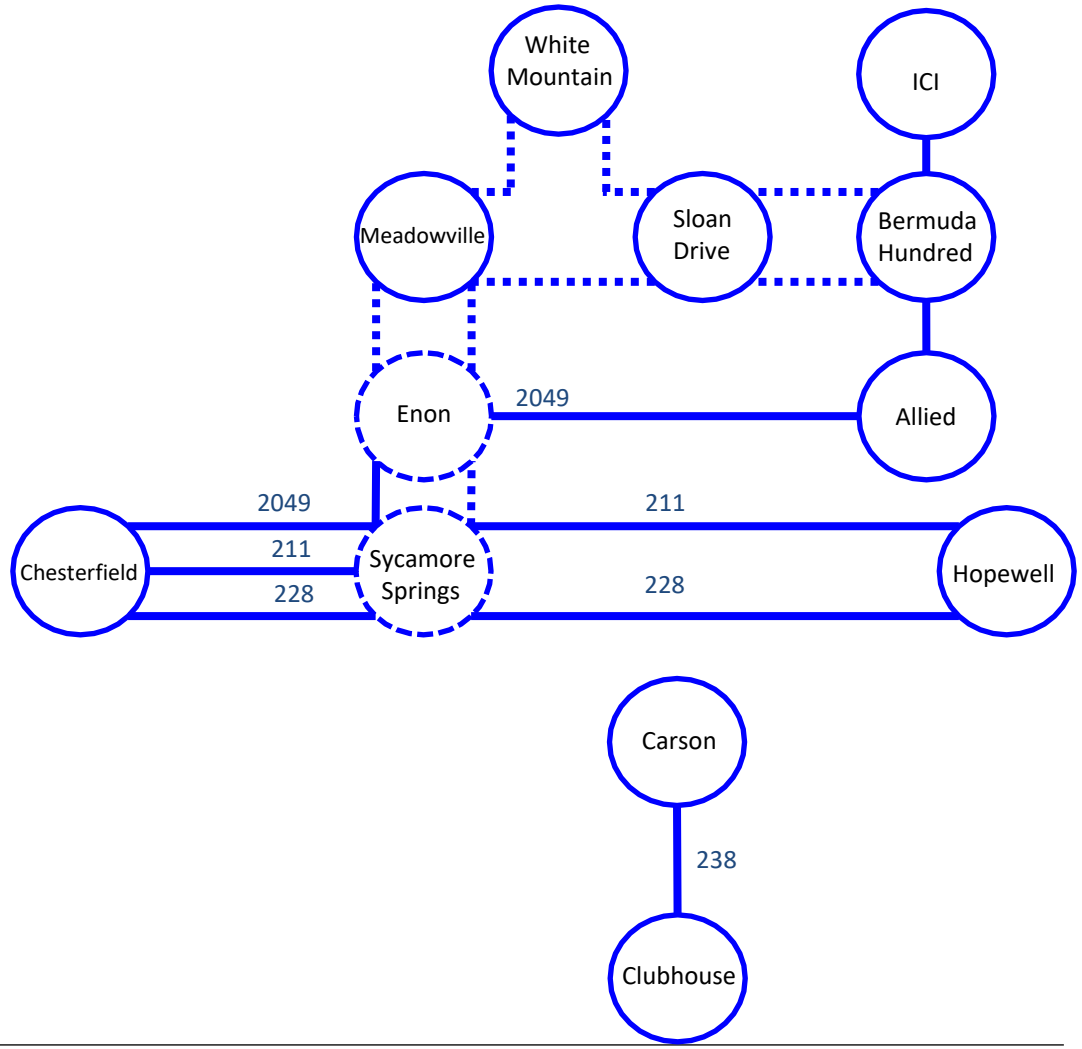
Proposed Solution:

- Reconductor 5.5 miles of existing Lines 211 and 228 from future Sycamore Springs substation to existing Hopewell substation with new 230kV conductor to bring the normal summer rating to 1573 MVA.
- Rebuild 28 miles of existing Line 238 from existing Carson substation to Clubhouse substation with new double circuit structures and string one 230kV conductor to bring the normal summer rating to 1573 MVA.

Estimated Project Cost:
Lines 211 and 228: $33M
Line 238: $112M

Alternatives Considered:
None – Lines are existing

Projected In-service Date: Q4 2030
Project Status: Conceptual
Model: 2029 RTEP



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: ~~DOM-2024-0052~~ DOM-2024-0054
Process Stage: Solution Meeting 05/06/2025
Previously Presented: Need Meeting 07/09/2024
Project Driver: Customer Service

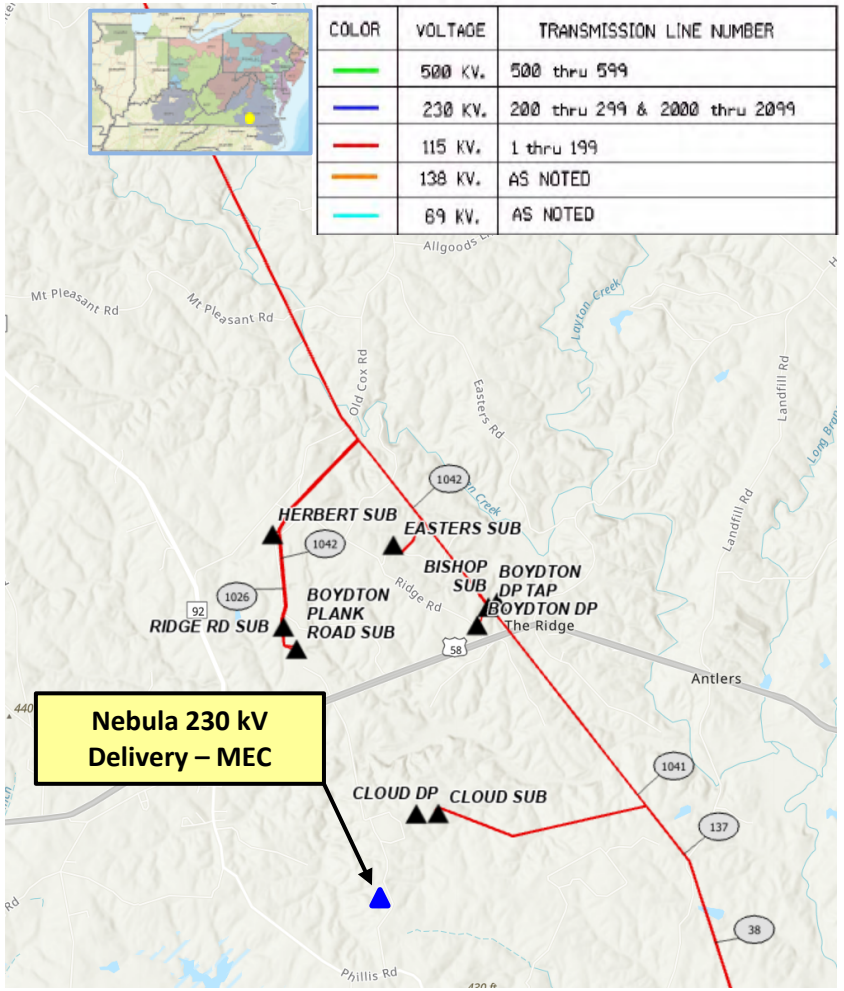
Specific Assumption References:

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

Problem Statement:

ODEC on behalf of Mecklenburg Electric Coop (MEC) has submitted a DP request for a new 230 kV delivery point (Nebula Sub) to serve a data center customer in Mecklenburg County with a total load in excess of 100 MW. Requested in-service date is ~~12/01/2028~~ 11/01/2028.

Initial In-Service Load	Projected 2029 Load
Summer: 0 MW Winter: 12 MW	Summer: 12 MW Winter: 26 MW



Dominion Transmission Zone: Supplemental Nebula 230kV Delivery - MEC

Need Number: DOM-2024-0054

Process Stage: Solutions Meeting 05/06/2025

Proposed Solution:

- A new 230kV line from Cloud to Raines was selected in the PJM 2024 Window 1 and assigned baseline numbers b4000.331, 332 and 333
- Cut, re-route approximately 0.9 mile and loop the future 230kV line #2399 (Cloud to Raines) in and out of the proposed Nebula switching station.
- Line #2399 and Line #2402 to terminate into a 230kV breaker and a half configuration with fourteen 230kV, 4000 amp breakers. Ten of these breakers will be paid for by the Customer (cost not included here).
- Monopole double circuit construction with an idle line for future use
- Conductor rated 1573 MVA summer

Estimated Project Cost: $48.6M

Transmission Line: $29.4M (re-route line and additional right-of-way)

230kV Substation: $19.2M (Excess facilities will be paid by Customer not included here)

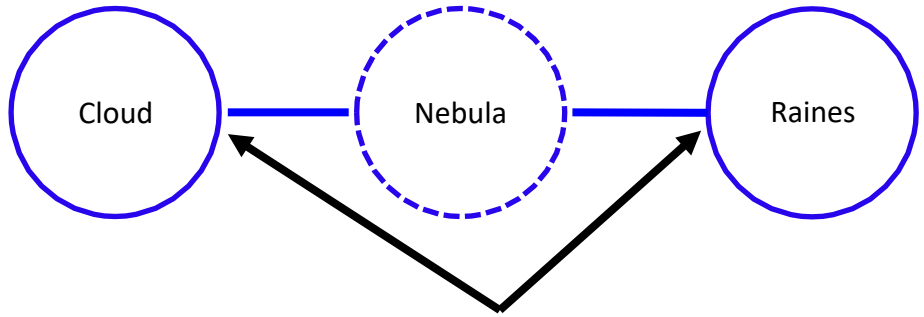
Alternatives Considered:

None, new substation located near Cloud switching station and on customer property.

Projected In-service Date: 11/01/2028

Project Status: Engineering

Model: 2029 RTEP



2024W1-Regional Cluster Preferred Solution : 2024-W1-24 build a new 230kV line from Raines to Cloud

Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2024-0063-DNH
Process Stage: Solutions Meeting 05/06/2025
Project Driver: Do No Harm Analysis

Specific Assumption References:

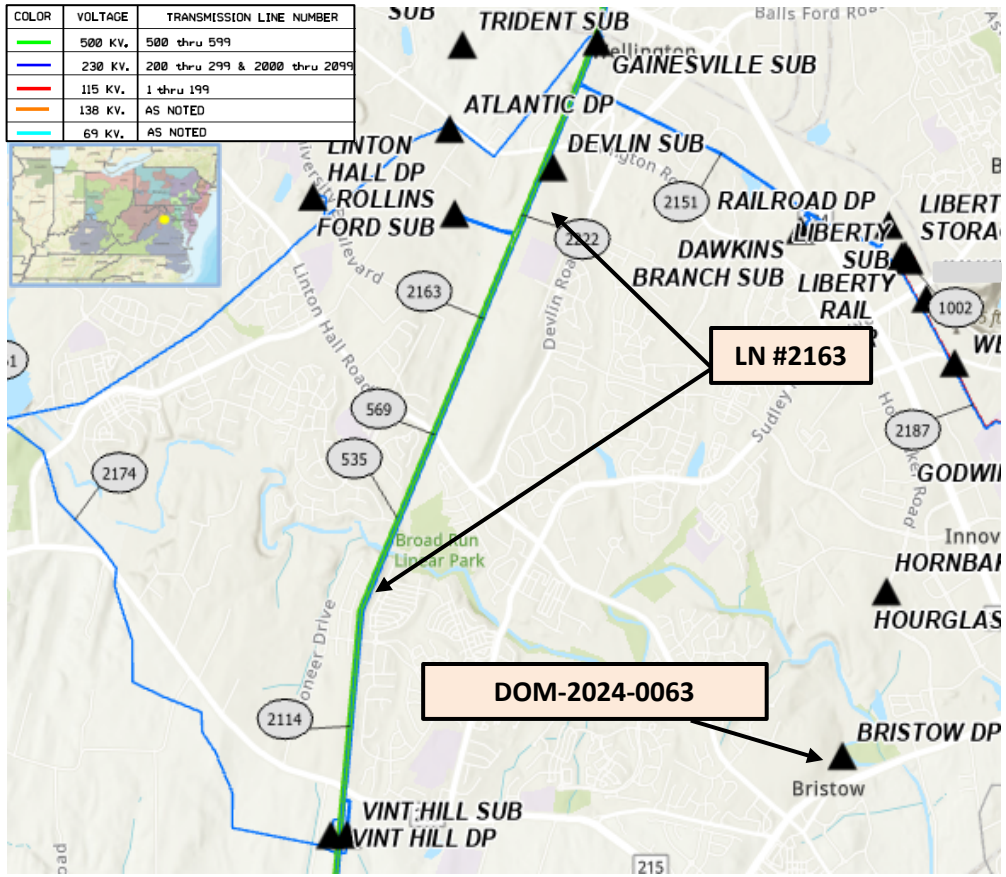
Customer load request will be evaluated per Dominion's Facility Interconnection Requirements Document and Dominion's Transmission Planning Criteria.

Problem Statement:

PJM has identified multiple N-1-1 thermal loading violations on the following monitored facility in the 2025 Do-No-Harm analysis:

- Line #2163 (Vint Hill to Devlin 230 kV)
  - N-1-1 Contingency Scenarios:
    - L/O DVP_P:1-2: LN 2352 (Vint Hill – Rollins Ford 230 kV) and DVP_P:1-2: LN 2101 (Vint Hill - Nokesville 230 kV)
    - L/O DVP_P:1-2: LN 2352 (Vint Hill – Rollins Ford 230 kV) and DVP_P:1-2: LN 2174 (Vint Hill - Wheeler 230 kV)
    - L/O DVP_P:1-2: LN 2222 (Gainesville – Rollins Ford 230 kV) and DVP_P:1-2: LN 2101 (Vint Hill - Nokesville 230 kV)
    - L/O DVP_P:1-2: LN 2151 (Gainesville – Railroad 230 kV) and DVP_P:1-2: LN 2101 (Vint Hill - Nokesville 230 kV)
    - L/O DVP_P:1-2: LN 2011 (Clifton – Brickyard 230 kV) and DVP_P:1-2: LN 2101 (Vint Hill - Nokesville 230 kV)

The violations are caused by previously presented Supplemental Project DOM-2024-0063 in the Dominion Zone.



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2024-0063-DNH

Process Stage: Solutions Meeting 05/06/2025

Proposed Solution:

- String (1) 230 kV transmission line on shared tower structures for approximately 7.0 miles from Devlin to Vint Hill Substation with a minimum summer normal conductor rating of 1572 MVA.
- The 230 kV circuit will be installed along the existing Line #2161/#2346 corridor between Gainesville and Wheeler, and the existing Line #2174 corridor between Wheeler and Vint Hill on the empty side of the double-circuit tower structures constructed under b4000.304 -.310 (ISD 6/1/2029).
- Acquisition of approximately 0.25 miles of Right-of-Way will be required from Devlin to the existing Line #2161/#2346 corridor.
- Install 230 kV GIS breakers and associated equipment (ie. switches, leads) at both Devlin and Vint Hill Substations to accommodate the termination of the lines.

Estimated Project Cost: $24.0M (Total)

Transmission Line Cost: $5.0M

Substation Cost: $12.0M

Real Estate Cost: $7.0M

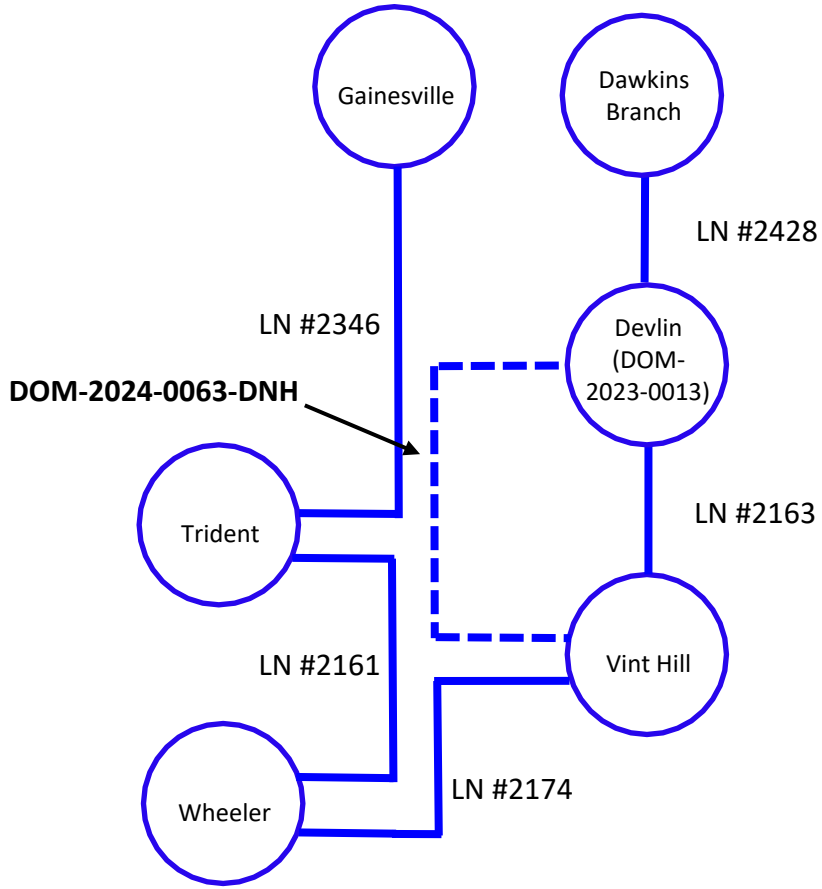
Alternatives Considered:

- No feasible alternatives.
  - The conductor for Line #2163 is already fully uprated (1572 MVA SUM Normal). Alternative corridors between Devlin and Vint Hill are spatially constrained, requiring the expansion of existing ROW, or acquisition of new ROW along the entire path between Vint Hill and Devlin (approx. 4.0 miles).

Projected In-service Date: 06/01/2029

Project Status: Conceptual

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

04/25/2025 – V1 – Original version posted to pjm.com

05/01/2025 – V2 – Edits made to slides 9 & 10 for DOM-2024-0023-DNH