

Dominion Supplemental Projects

Transmission Expansion Advisory
Committee
February 9, 2021

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-2021-0009

Process Stage: Need Meeting 02/09/2021

Project Driver: Customer Service

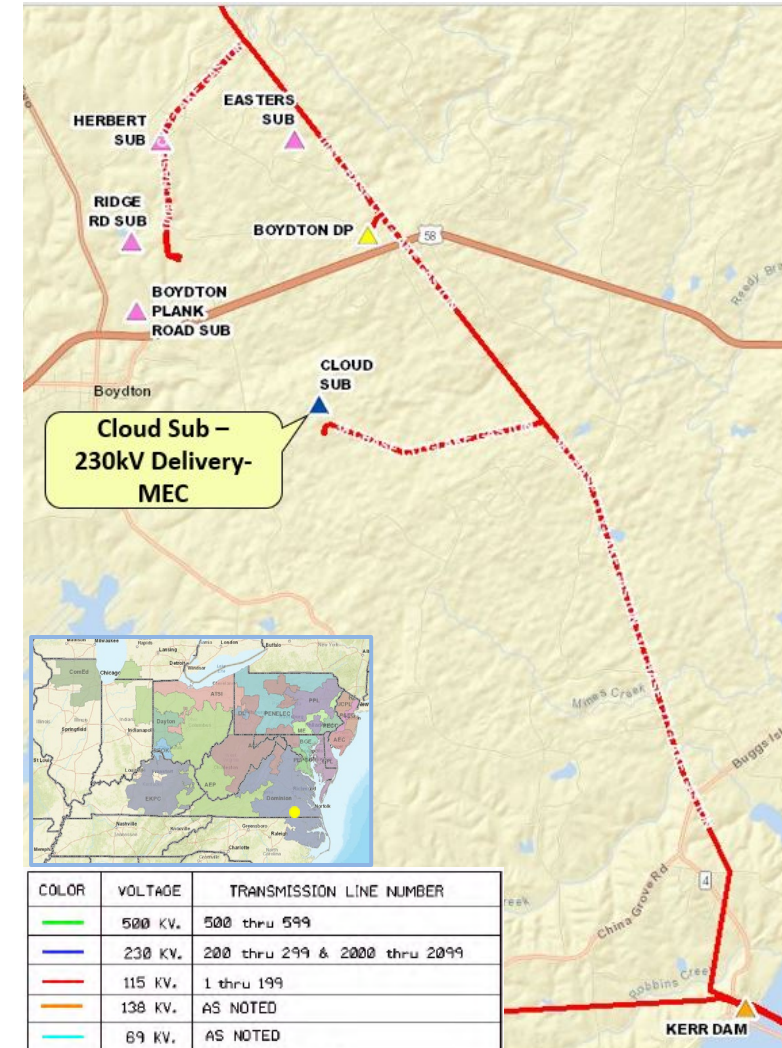
Specific Assumption References:

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

Problem Statement:

ODEC has submitted a request with an updated load projection on behalf of Mecklenburg Electric Coop (MEC) for a delivery point (Cloud Sub - Coleman Creek DP) at Boydton, VA, to support a datacenter campus with a total load in excess of 100 MW. The customer requests service by June 1, 2024.

Initial In-Service Load	Projected 2026 Load
Summer: 91.0 MW	Summer: 156.0 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2021-0010

Process Stage: Need Meeting 02/09/2021

Project Driver: Customer Service

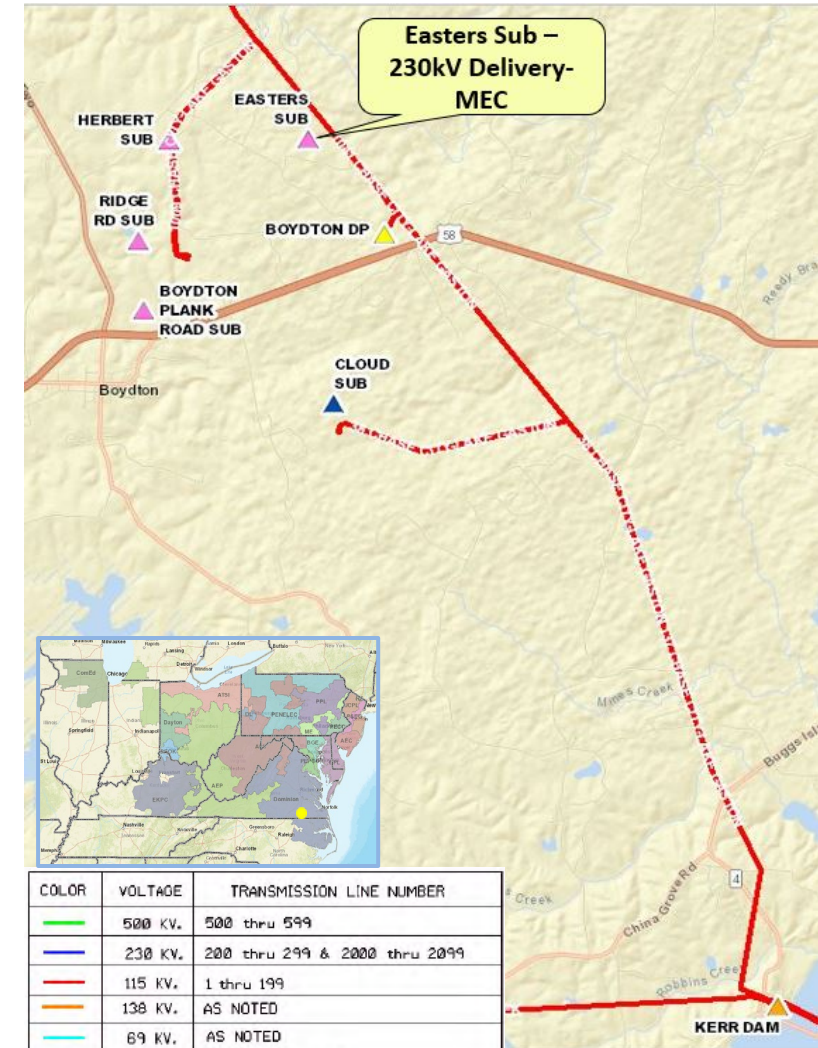
Specific Assumption References:

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

Problem Statement:

ODEC has submitted a request on behalf of Mecklenburg Electric Coop (MEC) for a new delivery point (Easters Sub – Timber DP) at Boydton, VA, to support a new datacenter campus with a total load in excess of 100 MW. The customer requests service by November 1, 2021.

Initial In-Service Load	Projected 2026 Load
Winter: 12.0 MW	Summer: 123.0 MW



Dominion Transmission Zone: Supplemental Customer Load Request

Need Number: DOM-2021-0012

Process Stage: Need Meeting 02/09/2021

Project Driver: Customer Service

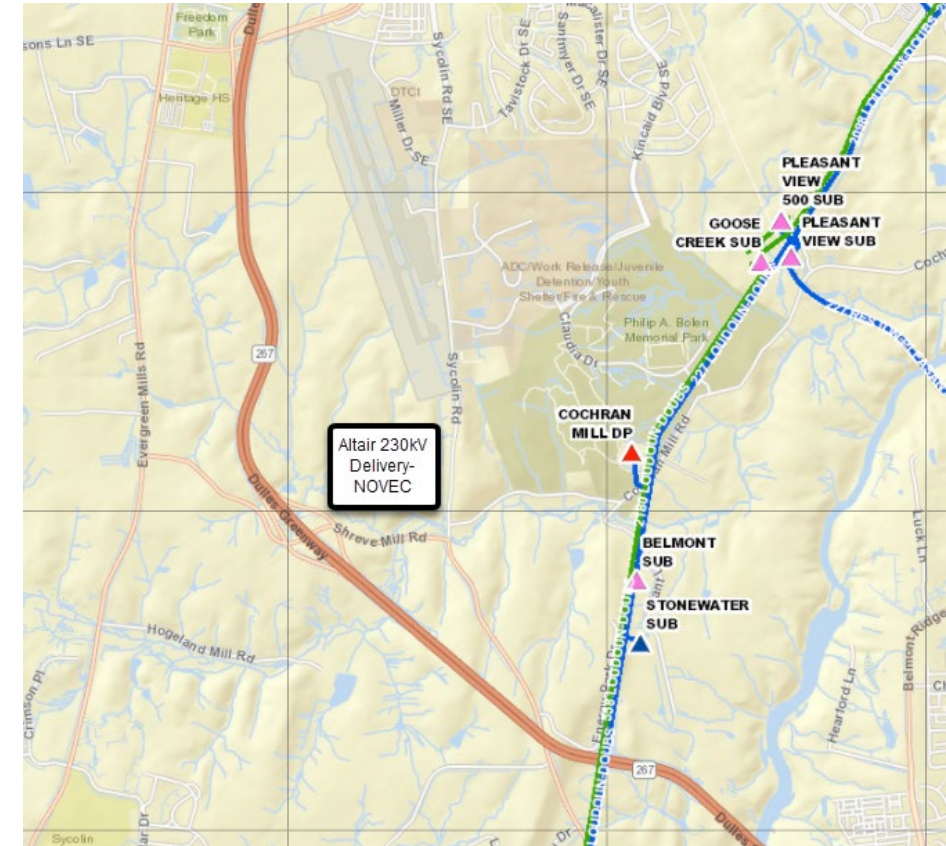
Specific Assumption References:

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 (Altair) to serve a data center complex in Loudoun County with a total projected load in excess of 100MW. Requested in-service date is 09/01/2024.

Initial In-Service Load	Projected 2026 Load
Summer: 80.0 MW	Summer: 107.0 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 Service

Need Number: DOM-2020-0045

Process Stage: Solution Meeting 02/09/2021

Previously Presented: Need Meeting 12/01/2020

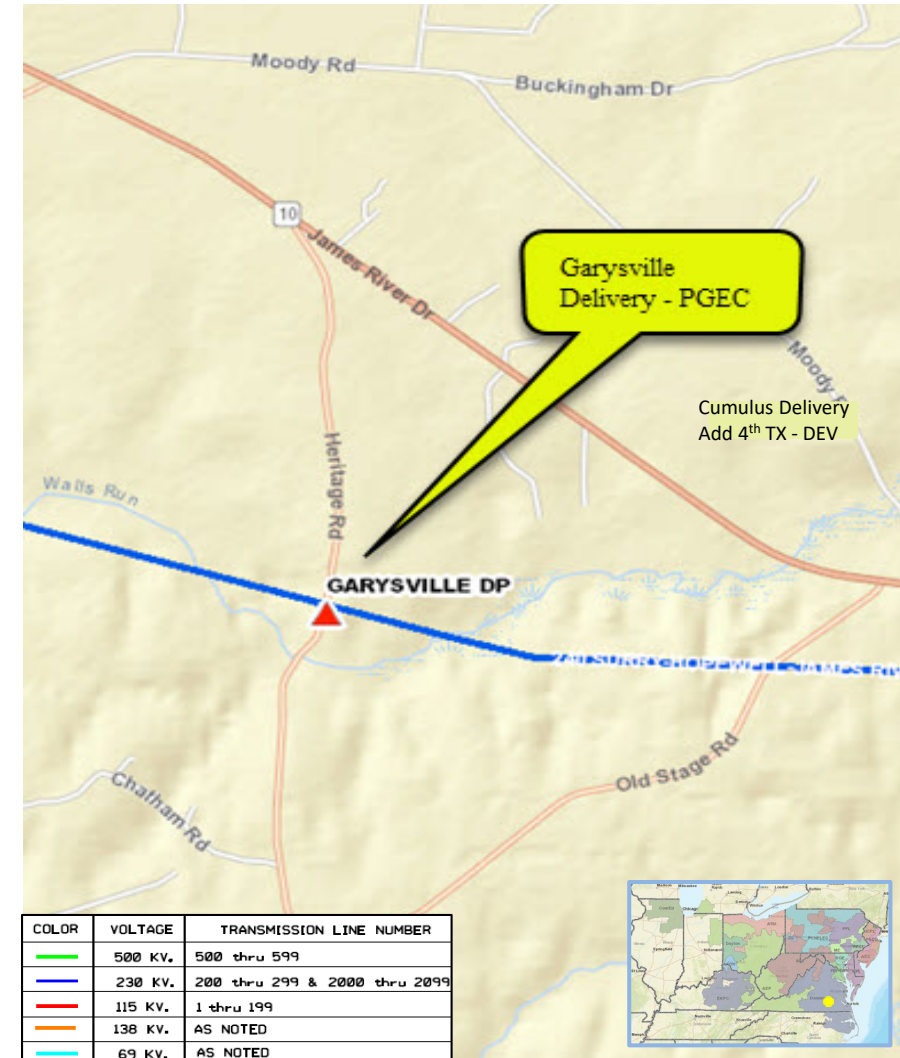
Project Driver: Customer Service

Specific Assumption References:

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

Problem Statement:

ODEC (on behalf of Prince George Electric Cooperative – PGEC) has submitted a DP Request to convert existing Garysville DP, in Prince George County, from a distribution sourced delivery to a transmission sourced delivery due to poor supplier reliability. Requested in-service date is 12/01/2022.



Initial In-Service Load	Projected 2026 Load
Winter: 11.3 MW	Winter: 11.8 MW

Dominion Transmission Zone: Supplemental Garysville 230kV Delivery - PGEC

Need Number: DOM-2020-0045

Process Stage: Solutions Meeting 02/09/2021

Proposed Solution:

Create a tee-tap on 230kV Line #240 (Hopewell-Surry) at tower 196 by installing double-circuit H-frame switch structures on both sides at mid-span and remove tower 196. Replace towers 195 and 197 (suspension towers) with double-deadend steel pole structures to accommodate phase roll. Install terminal structure and H-frame switch structure for the tap span. Other ancillary work as needed.

Estimated Project Cost: \$3.0 M

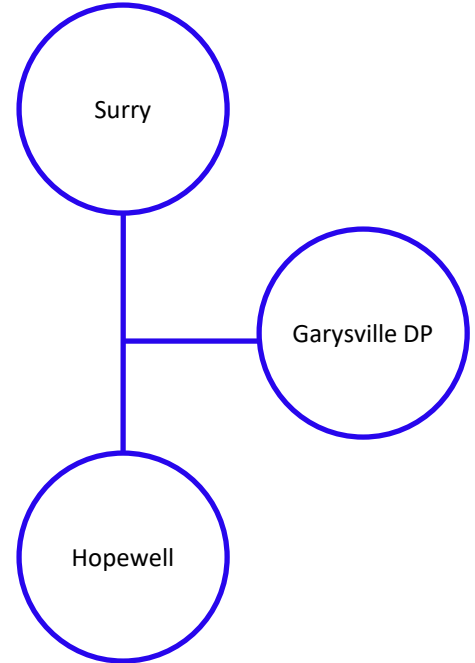
Alternatives Considered:

Construct a 34.5kV distribution loop by reconductoring and/or converting 5.8 miles of overhead line and installing an automation scheme. Estimated Cost: \$4.2 M

Projected In-service Date: 12/01/2022

Project Status: Conceptual

Model: 2026 RTEP



Dominion Transmission Zone: Supplemental Customer Service

Need Number: DOM-2021-0002

Process Stage: Solution Meeting 02/09/2021

Previously Presented: Need Meeting 01/06/2021

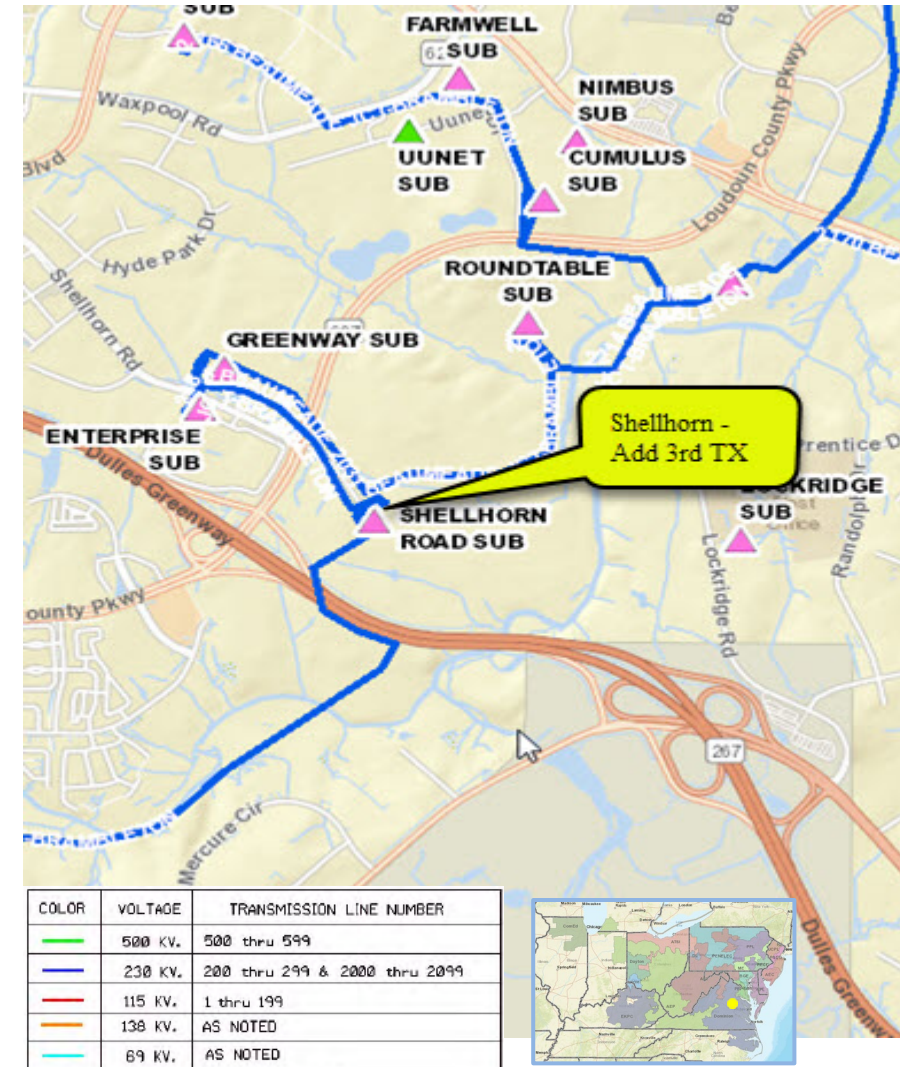
Project Driver: Customer Service

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 transformer at Shellhorn Substation in Loudoun County. The new transformer is required to accommodate continued load growth in the area and support contingency loading for loss of one of the existing transformers. Requested in-service date is 04/15/2022.



Initial In-Service Load	Projected 2026 Load
Summer: 133.0 MW	Summer: 201.5 MW

Dominion Transmission Zone: Supplemental Shellhorn 230kV Delivery – Add 3rd TX - DEV

Need Number: DOM-2021-0002

Process Stage: Solutions Meeting 02/09/2021

Proposed Solution:

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

Estimated Project Cost: \$0.5 M

Alternatives Considered:

None

Projected In-service Date: 04/15/2022

Project Status: Engineering

Model: 2026 RTEP



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2020-0021 DNH

Meeting Date: 02/09/2021

Process Stage: Solution Meeting 02/09/2021

Supplemental Project Driver: Do No Harm Analysis

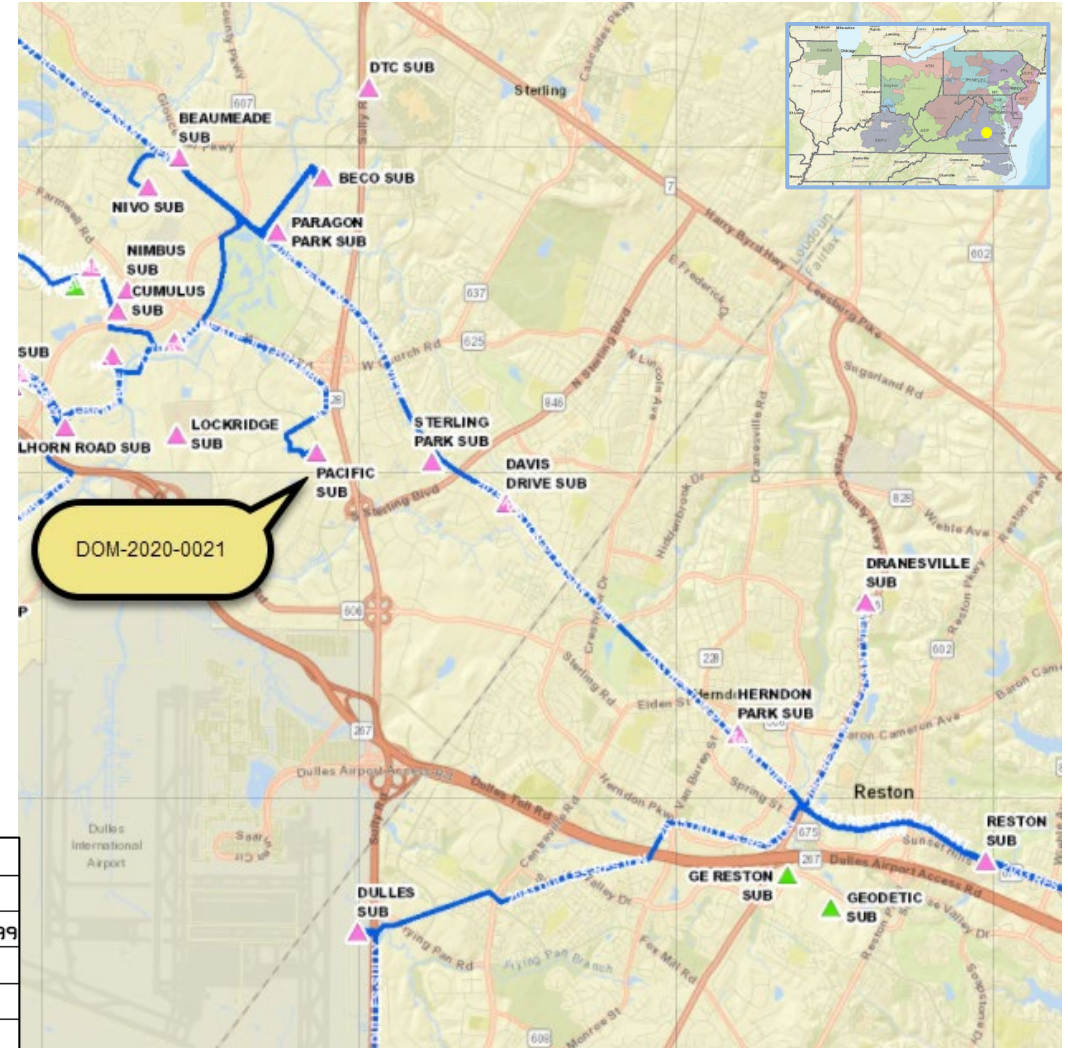
Specific Assumption Reference:

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

Problem Statement:

PJM has identified a 300MW N-1-1 Load Drop violation for the loss of 230kV Line #2170 (Buttermilk to Pacific) and 230kV Line #2165 (BECO to Pacific) during the 2020 Do-No-Harm analysis.

The violation was caused by Supplemental Project DOM-2020-0021 in the Dominion Zone.



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

Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2020-0021 DNH

Meeting Date: 02/09/2021

Process Stage: Solution Meeting 02/09/2021

Proposed Solution :

Cut 230kV Line #2015 (Dulles-Reston) and extend a new 230kV double-circuit line approx. 3.5 miles to Global Plaza Substation, creating 230kV Line #2015 (Dulles to Global Plaza) and 230kV Line #9225 (Global Plaza to Reston).

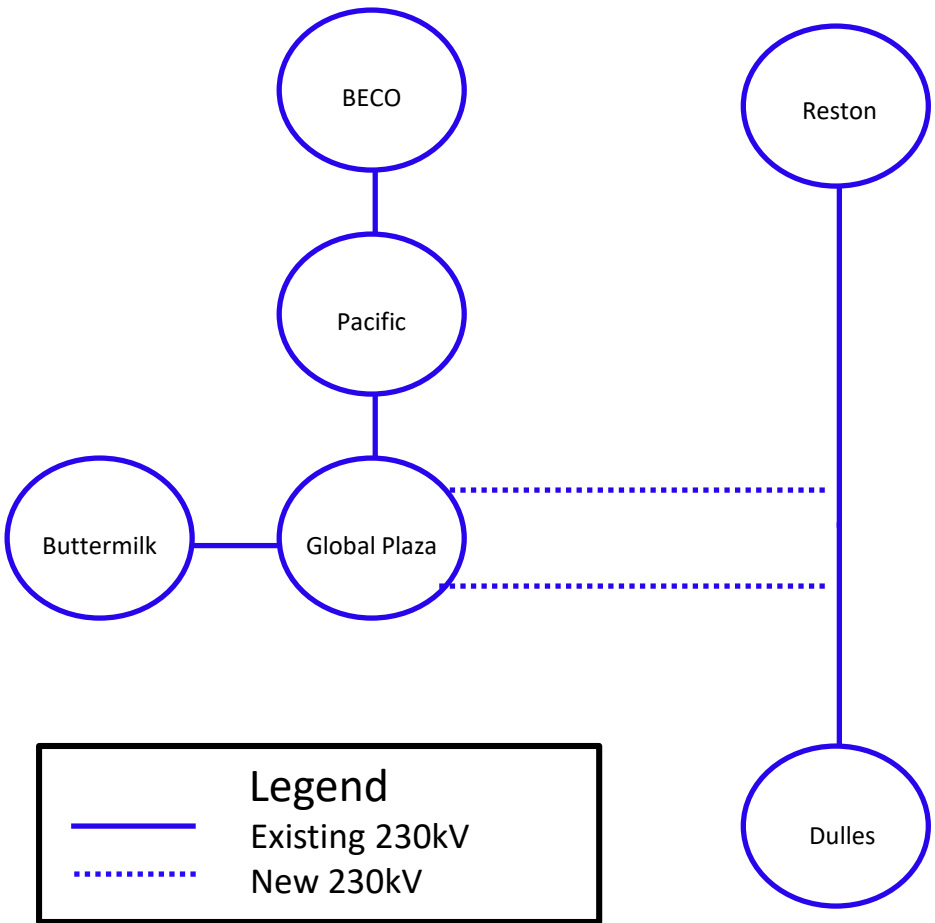
TO Alternatives Considered :

No feasible alternatives

- Estimated Cost:** \$44M (Total)
- Transmission Line \$39M
 - Substation \$ 5M

Projected In-service Date: 12/31/2025

Project Status: Conceptual



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2020-0003 DNH

Meeting Date: 02/09/2021

Process Stage: Solution Meeting 02/09/2021

Supplemental Project Driver: Do No Harm Analysis

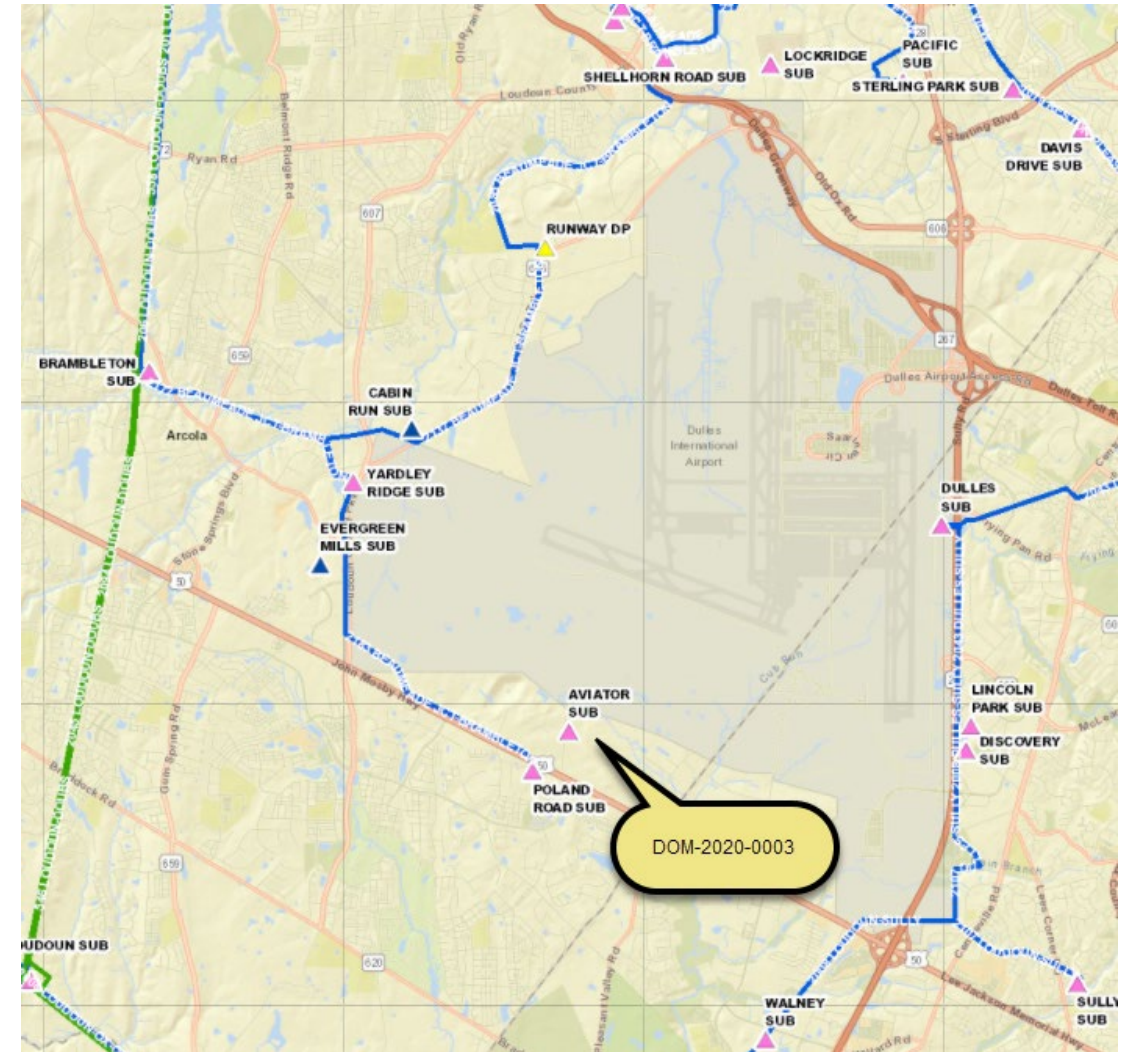
Specific Assumption Reference:

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

Problem Statement:

PJM has identified a 300MW N-1-1 Load Drop violation for the loss of Line #9192 (Shellhorn to Sojourner) and Line #2183 (Evergreen Mills to Poland Road) during the 2020 Do-No-Harm analysis.

The violation was caused by Supplemental Project DOM-2020-0003 in the Dominion Zone.



Dominion Transmission Zone: Supplemental Do No Harm Analysis

Need Number: DOM-2020-0003 DNH

Meeting Date: 02/09/2021

Process Stage: Solution Meeting 02/09/2021

Proposed Solution :

- Build a new substation (Takeoff) by cutting Line #2008 (Lincoln Park-Loudoun) and Line #265 (Bull Run-Sully). Terminate all lines in a 230kV breaker-and-a-half arrangement at Takeoff Substation.
- Extend a new 230kV double-circuit line approx. 3 miles from Aviator to Takeoff.
- Reconductor three 230kV lines using standard high-capacity conductors.
 - Line segment between Loudoun and Takeoff (approx. 2.21 miles),
 - Line segment between Lincoln Park and Takeoff (approx. 2.63 miles), and
 - Line segment between Sully and Takeoff (approx. 1.16 miles).
- Replace one 230kV breaker at Brambleton (SC102) and three 69kV breakers at Davis Substation (178T186, 18622, T342) with higher interrupting capabilities.

TO Alternatives Considered :

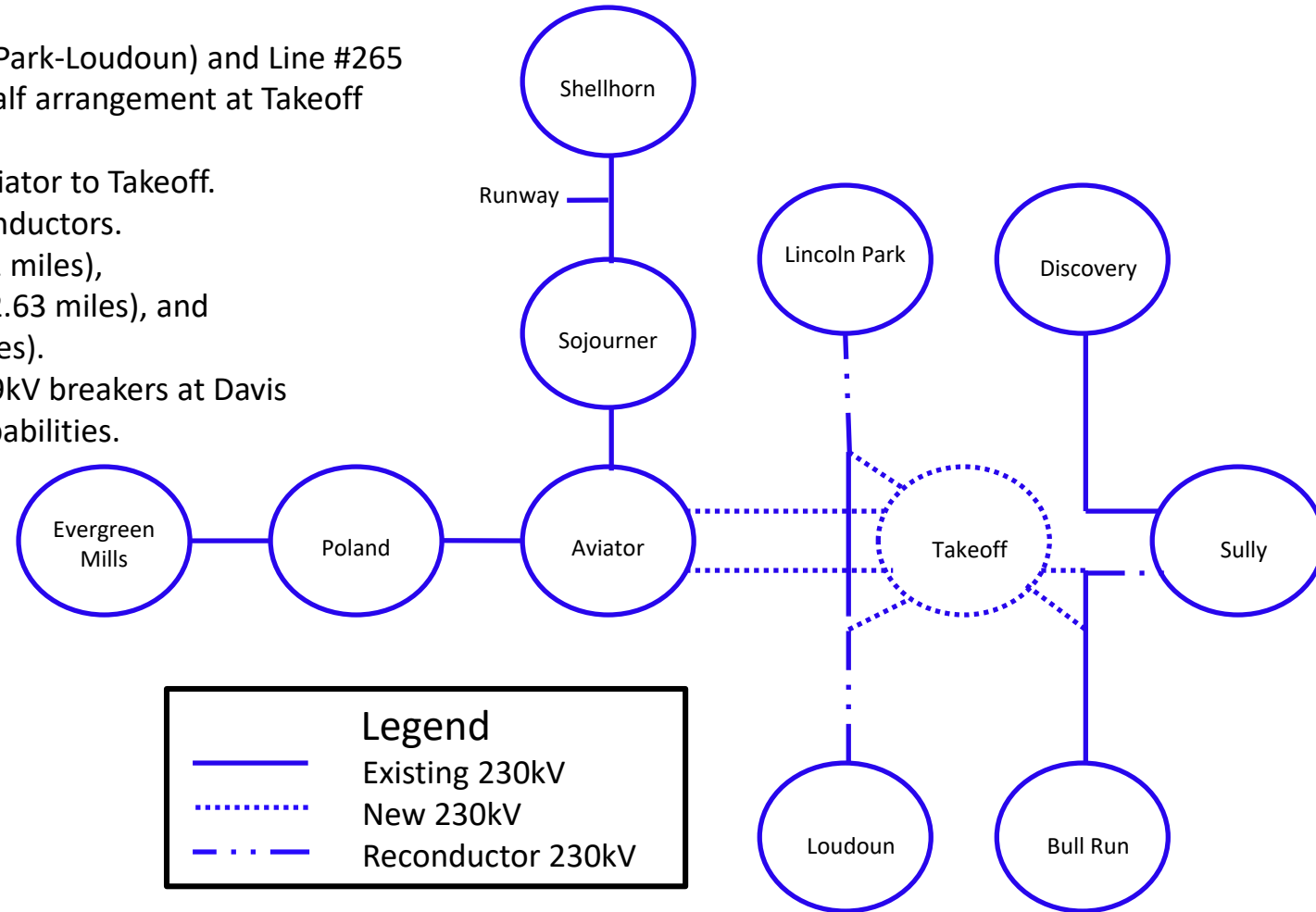
No feasible alternatives

Estimated Cost: \$74.9M (Total)

- Transmission Line \$36M
- Substation \$28M
- Reconductor \$ 9M
- Breakers (Brambleton) \$0.7M
- Breakers (Pentagon) \$1.2M

Projected In-service Date: 12/31/2025

Project Status: Conceptual



Legend	
	Existing 230kV
	New 230kV
	Reconductor 230kV

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

1/29/2021 – V1 – Original version posted to pjm.com.

2/08/2021 – V2 – Updated version.