



# Sub Regional RTEP Committee PJM South

January 14, 2021

# Second Review

## Baseline Reliability Projects



# Dominion Transmission Zone: Baseline Harrisonburg Area

**Process Stage:** Recommended Solution

**Criteria:** FERC 715 (TO Criteria)

**Assumption Reference:** 2025 RTEP assumption

**Model Used for Analysis:** 2025 RTEP Winter case

**Proposal Window Exclusion:** Below 200 kV

**Problem Statement:**

DOM-VM17, DOM-VD37, DOM-VD38

Voltage magnitude and drop violations around the Harrisonburg area. The loss of 230/115kV transformer #5 and the cap bank at Harrisonburg results in a low voltage violation of 0.896pu and a voltage drop of more than 10% around Harrisonburg.

**Recommended Solution:**

Install a second 115kV 33.67MVar cap bank at Harrisonburg substation along with a 115kV breaker. **(b3262)**

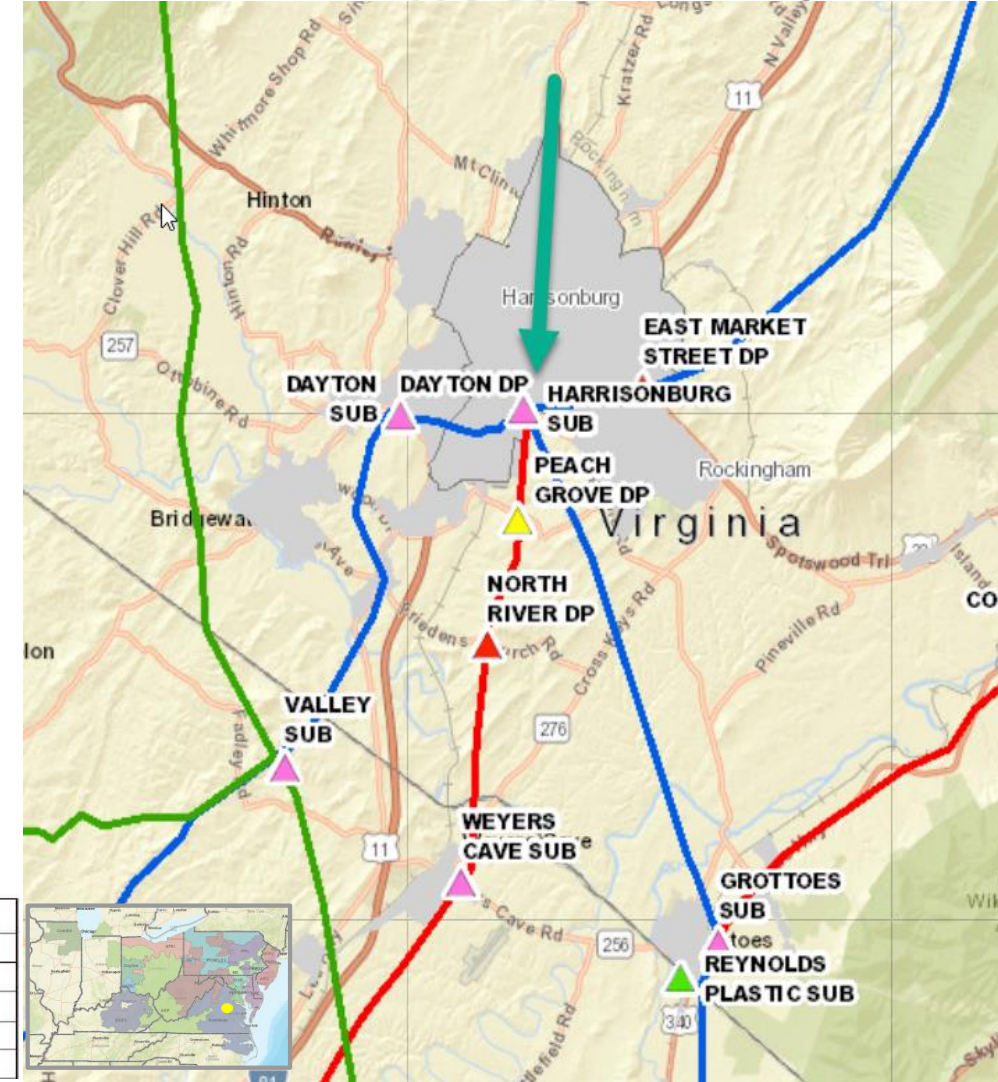
**Estimated Cost:** \$1.25 M

- Substation work for conversion: \$ 1.25 M

**Required In-Service:** 12/1/2025

**Projected In-Service:** 12/1/2025

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	89 KV.	AS NOTED







# Dominion Transmission Zone: Baseline James River DP Area

**Process Stage:** Recommended Solution

**Criteria:** N-1-1 (Winter Voltage Drop), FERC 715 (TO Criteria)

**Assumption Reference:** 2025 RTEP assumption

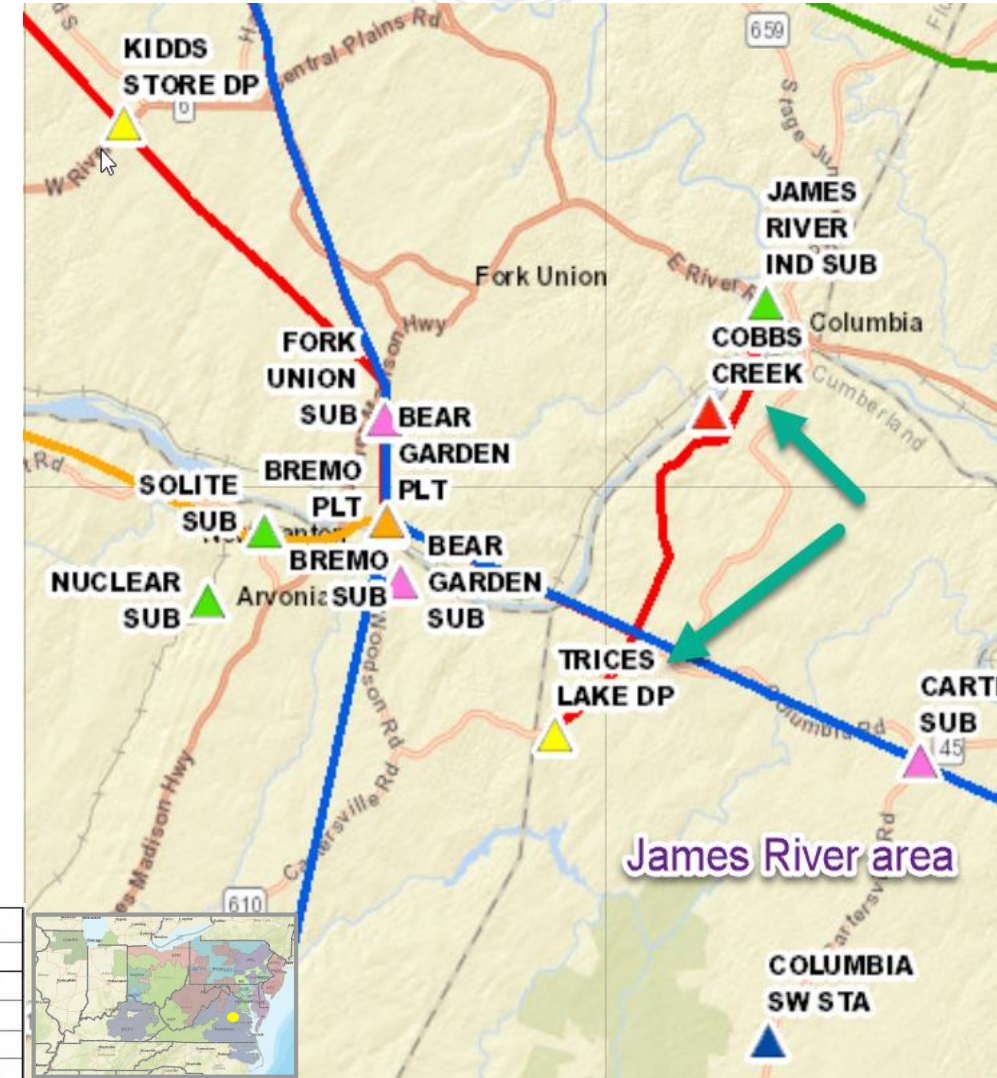
**Model Used for Analysis:** 2025 RTEP Winter case

**Proposal Window Exclusion:** Below 200 kV

**Problem Statement:**

N2-WWD61 to N2-WWD71, DOM-VM1 to DOM-VM16, DOM-VD21 to DOM-VD36

Voltage magnitude and drop violations around the James River area. The loss of 230/115kV transformer #9 at Bremo along with either 115kV Line #1030 or transformer #1 at Fork Union results in low voltage below 0.85 per unit and voltage drop of more than 10% around James River.



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# Dominion Transmission Zone: Baseline James River DP Area

## Recommended Solution:

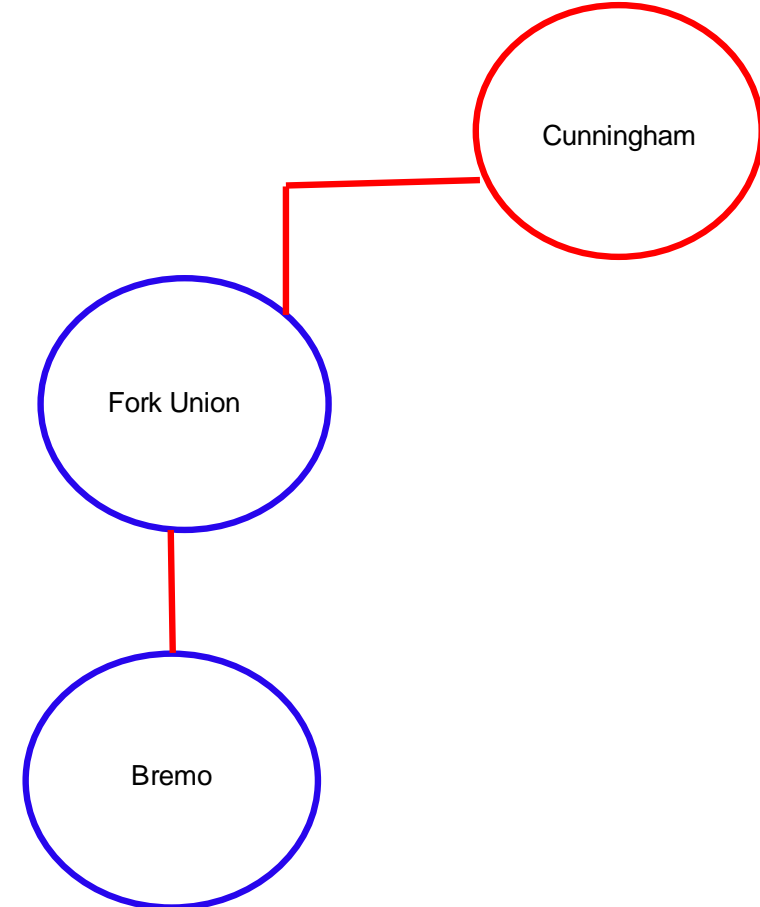
Cut existing 115kV Line #5 between Bremo and Cunningham substations and loop in and out of Fork Union substation. At Fork Union substation, replace the single structure backbone to a double structure backbone and install two new 115kV breakers to terminate the two lines. (b3263)

## Estimated Cost: \$2.5 M

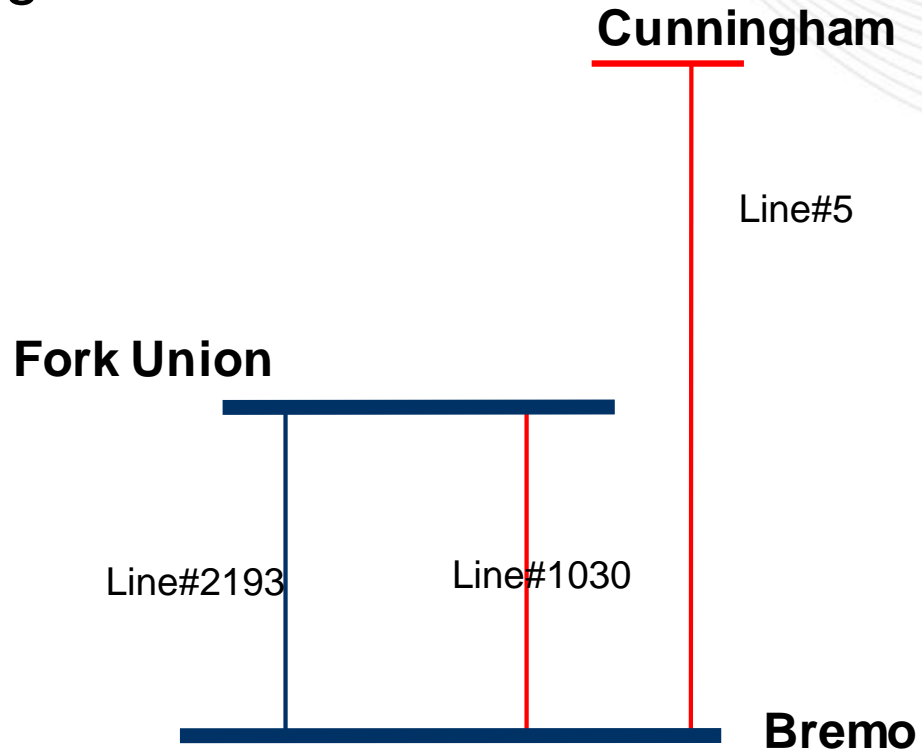
- Transmission work for conversion: \$ 1 M
- Substation work for conversion: \$ 1.5 M

Required In-Service: 12/1/2025

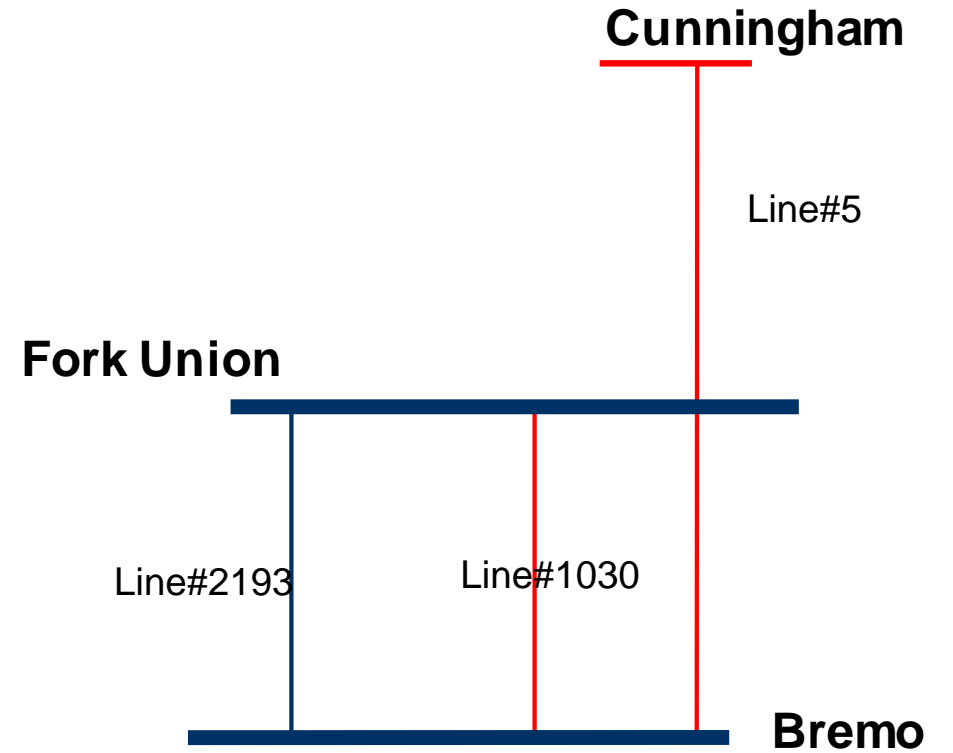
Projected In-Service: 12/1/2025



## Existing Oneline



## Proposed Oneline







# Dominion Transmission Zone: Baseline 115kV Line#117 Dooms to Dupont-Waynesboro

**Process Stage:** Recommended Solution

**Criteria:** FERC 715 (TO Criteria) C2.7 Network transmission lines - Taps > 4

**Assumption Reference:** 2025 RTEP assumption

**Model Used for Analysis:** 2025 RTEP Summer + Winter cases

**Proposal Window Exclusion:** Below 200 kV

**Problem Statement:**

DOM-02

Currently there are 5 taps on 115kV Line#117 (Dooms to Dupont-Waynesboro)

**Recommended Solution:**

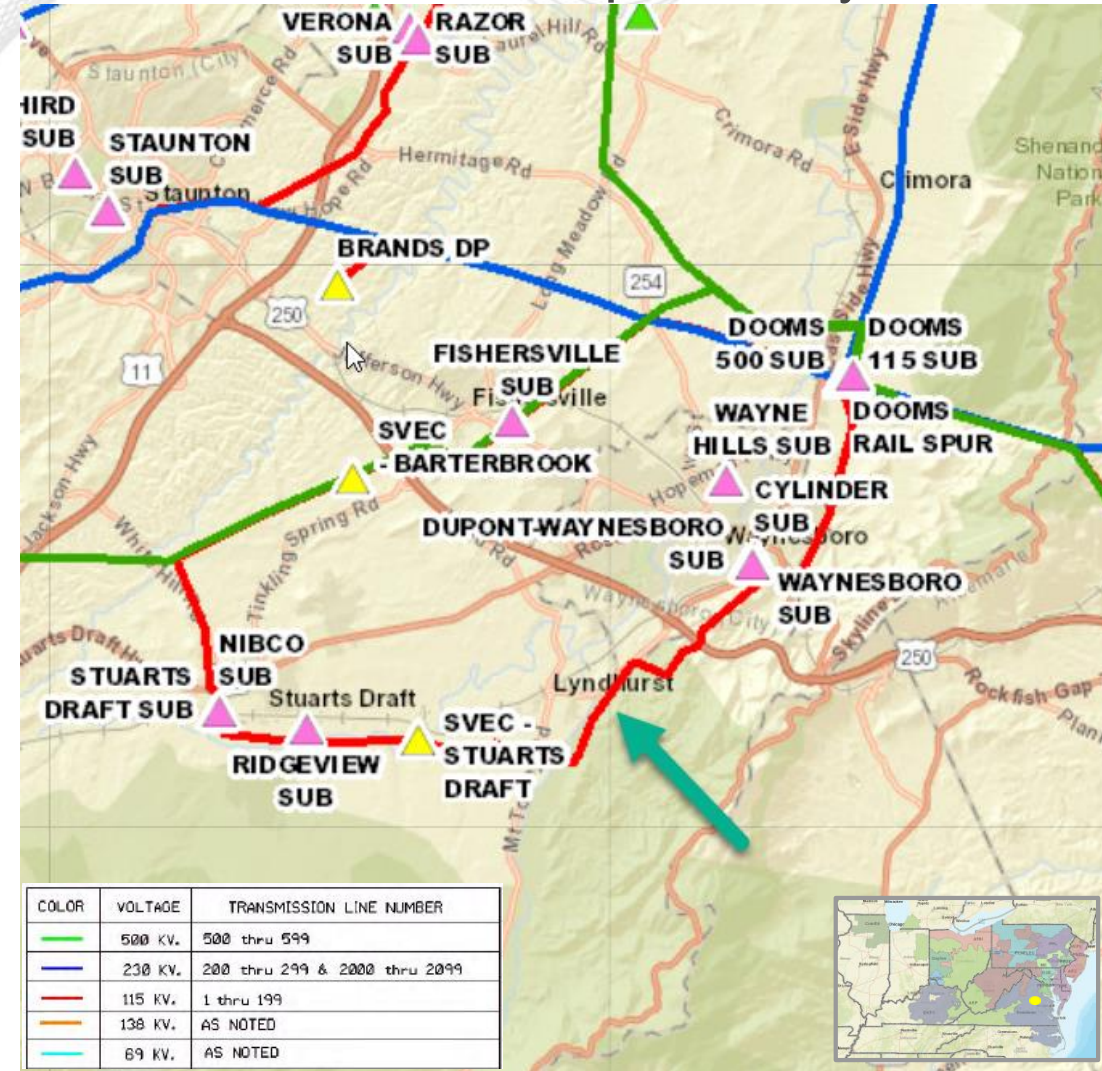
Install a breaker at Stuarts Draft station and section Line#117 into two 115kV lines. (b3264)

**Estimated Cost:** \$5 M

- Transmission work for conversion: \$ 2 M
- Substation work for conversion: \$ 3 M

**Required In-Service:** 6/1/2025

**Projected In-Service:** 12/31/2021







# Dominion Transmission Zone: Baseline Midway and Red Hill Area

**Process Stage:** Recommended Solution

**Criteria:** FERC 715 (TO Criteria)

**Assumption Reference:** 2025 RTEP assumption

**Model Used for Analysis:** 2025 RTEP Winter case

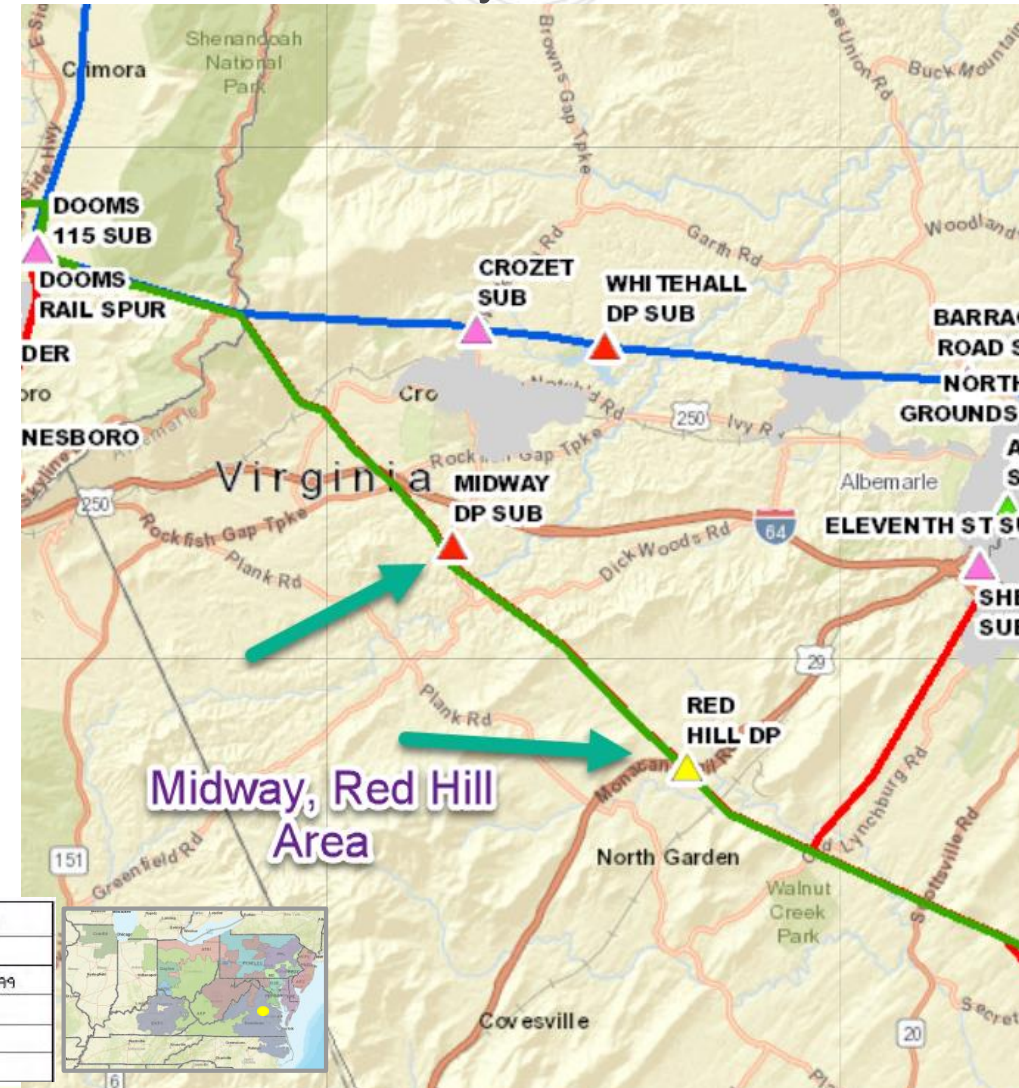
**Proposal Window Exclusion:** Below 200 kV

**Problem Statement:**

DOM-VD1 to DOM-VD20

Various voltage drop violations around the Midway - Red Hill area. Any one of the following contingencies will result in a voltage drop of more than 10% in the Midway - Red Hill area.

- Dooms 115kV Bus 2 outage
- Breaker failure on any one of the following breakers at Dooms: 10242, 16042, 16043, 16044, 16045, L542-2 and L842-2



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	89 KV.	AS NOTED

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# Dominion Transmission Zone: Baseline Midway and Red Hill Area

## Recommended Solution:

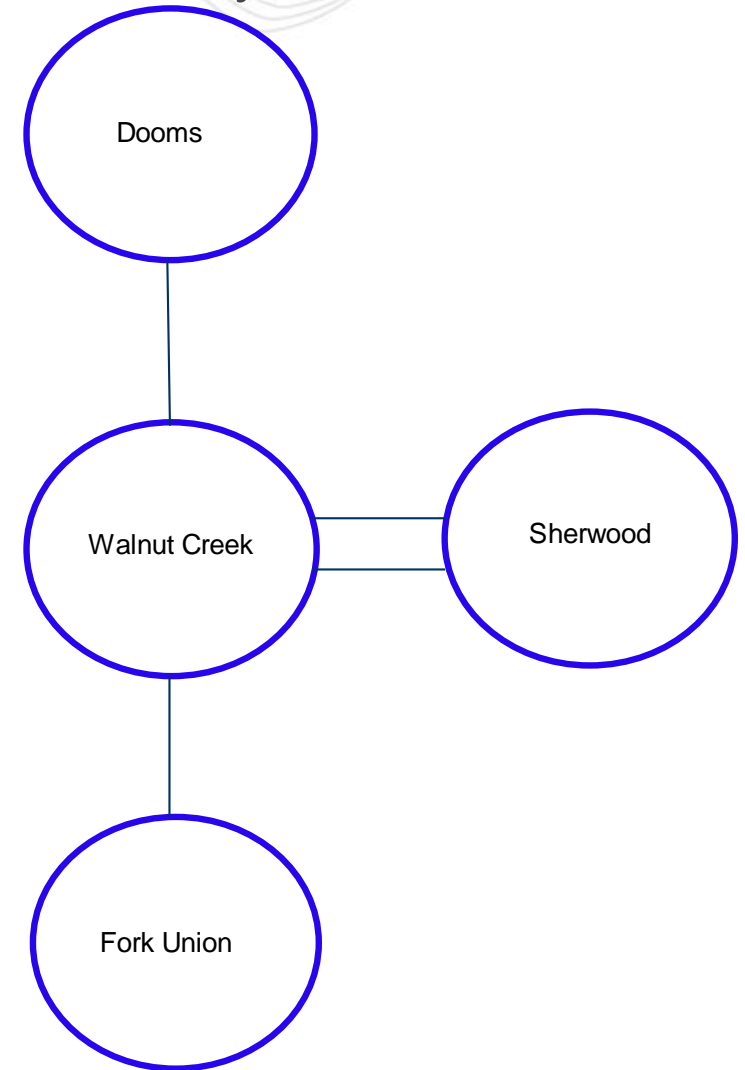
Build a 230kV switching station called Walnut Creek and operate it at 115kV voltage level at the junction where both 115kV lines #91 and #39 start to share the structure with. The station arrangement will be a new 4-115kV breaker ring bus station with an additional 115kV 33.67MVar cap bank and 115kV line #91 and 115kV line #39 will loop in and out of the new station. **(b3268)**

## Estimated Cost: \$12 M

- Transmission work for conversion: \$ 3 M
- Substation work for conversion: \$ 9 M

Required In-Service: 12/1/2025

Projected In-Service: 12/1/2025



# Questions?





## Revision History

01/07/2021 – V1 – Original version posted to [pjm.com](http://pjm.com)