Ox 500-230kV Two(2) Transformer Replacements

General Information

Proposing entity name	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Company proposal ID	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
PJM Proposal ID	319
Project title	Ox 500-230kV Two(2) Transformer Replacements
Project description	Proposal 99-2945-2 provides for the replacement of OX 500-230kV 280MVA Transformer Banks #1 and #2 with new 500-230kV 440 MVA transformer banks and associated lowside equipment. The addition of the replaced 500-230kV transformers at OX creates a generation deliverability flowgate that will be addressed as part of this Proposal. Flowgate of Line 2036 (Glebe to Radnor Heights) requires the installation of a new breaker-and-half row at Ox Substation to allow for Line #237 (Braddock-Possum Point) to be cut and terminated at OX substation. Additionally, Ox Breaker (201342) is overdutied based on the previous work in this Proposal and will need to upgraded to a 63kA breaker.
Email	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Project in-service date	06/2026
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Project Components

1. Ox Substation 500-230 kV Transformers #1 and #2 Replacement and Substati...

2. Cut and Loop Line 237 into Ox Substation

3. Braddock Substation Relay Resets and Field Work

4. Possum Point 230kV Substation Relay Resets and Field Work

Substation Upgrade Component

Component title	Ox Substation 500-230 kV Transformers #1 and #2 Replacement and Substation Expansion
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Ox
Substation zone	351
Substation upgrade scope	This proposal provides for the replacement of the 280MVA transformer banks #1 and #2 with new 500/230kV, 480 MVA individual units. The low side breakers and switches of the Transformers will be upgraded to 5000Amps. Transformers 1&2 relay protection and transformer 2 high side lead relay protection will be replaced. One 230 kV Circuit Breaker (CB 201342) will be replaced with the 63 kA rated breaker. A new breaker-and-half row will be added with three 230 kV, 63 kA Circuit Breakers. Substation expansion will be required to accommodate new infrastructure. Level 1 fence will be expanded.

Transformer Information

	Name	**Capacity (MVA)**	
Transformer	Ox TX#1	1440	
	High Side	**Low Side**	**Tertiary**
Voltage (kV)	500	230	
	Name	**Capacity (MVA)**	
Transformer	Ox TX#2	1440	
	High Side	**Low Side**	**Tertiary**
Voltage (kV)	500	230	

New equipment description	The major components being installed at Possum Point 230kV Substation include: 1. Eight (8), 500-230 kV, 1-Phase, 480 MVA Transformers (includes 1 spare unit for each bank) 2. Two (2), 500 kV, 3000 Amps, Double End Break Disconnect Switches with Motor Operators 7. Two (2), 230 kV, 5000 Amps, 63 kA Circuit Breakers 8. Four (4), 230 kV, 5000 Amps, Double End Break Disconnect Switches 9. Four (4), 230 kV, 63 kA, 4000 A Circuit Breakers 10. Six (6), 230 kV, 4000 Amps double-end-break disconnect switches 11. One (1), 230 kV, 4000 Amps, Wave Trap The entire Scope of Work (SOW) is attached in the Substation Supporting Documents section with the OX operating and 992945-2 proposal substation drawings.
Substation assumptions	Substation expansion will be contained within Dominion-owned property.
Real-estate description	The substation footprint will be expanded to accommodate the new equipment. See attached 992945-2 Real Estate and Permitting Summary.
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Component Cost Details - In Current Year $	
Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$61,335,799.40
Component cost (in-service year)	$65,690,640.00

Transmission Line Upgrade Component

Component title	Cut and Loop Line 237 into Ox Substation

Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Impacted transmission line	237
Point A	Braddock
Point B	Possum Point
Point C	
Terrain description	Ox Substation, located in Fairfax County, is surrounded by maintained right-of-way and a mix of residential properties and forested open space.

Existing Line Physical Characteristics

Operating voltage	230
Conductor size and type	1033.5 ACSS (45/7) 125°C, 2-721 ACAR (18/19) 90°C
Hardware plan description	Existing Hardware will not be used for the affected portion of the Line 237 work.
Tower line characteristics	Line 237 structures were installed as early as 1963. The age of the structures does not affect this project.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	230.000000	230.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	605.000000	633.000000
Winter (MVA)	724.000000	724.000000
Conductor size and type	1033.5 ACSS (45/7) 125°C,	
Shield wire size and type	7#7 alumoweld	
Rebuild line length	0	

Rebuild portion description	The line will not be rebuilt under this proposal.
Right of way	Although the right-of-way will be expanded to accommodate the 237 cut-in, the expansion will be within Dominion-owned property.
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Component Cost Details - In Current Year $	
Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$2,364,786.00
Component cost (in-service year)	$2,532,685.00

Substation Upgrade Component

Component title	Braddock Substation Relay Resets and Field Work
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Braddock
Substation zone	351
Substation upgrade scope	System Protection Engineering Coordination Study and System Protection Technician relay resets ONLY.

Transformer Information

None

New equipment description	No substation materials or relay materials are required for this proposal.
Substation assumptions	No additional relay equipment required for this proposal
Real-estate description	The substation will not be expanded for this proposal.
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Component Cost Details - In Current Year $

Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$33,637.00
Component cost (in-service year)	$36,025.00

Substation Upgrade Component

Component title	Possum Point 230kV Substation Relay Resets and Field Work
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Possum Point 230kV

Substation zone	352
Substation upgrade scope	System Protection Engineering Coordination Study and System Protection Technician relay resets ONLY.

Transformer Information

None

New equipment description	No substation materials or relay materials are required for this proposal.
Substation assumptions	No additional relay equipment required for this proposal.
Real-estate description	No additional relay equipment required for this proposal.
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Component Cost Details - In Current Year $

Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$33,637.00
Component cost (in-service year)	$36,025.00

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
DOM-T3	314919	8OX	314068	6OX	1	500/230	345	FERC 715 Thermal	Included
DOM-T4	314919	8OX	314068	6OX	2	500/230	345	FERC 715 Thermal	Included

New Flowgates

The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Financial Information

Capital spend start date	06/2022
Construction start date	01/2025
Project Duration (In Months)	48

Additional Comments

Contact info: for Technical: ETAreaPlanning@dominionenergy.com; for Fees/Financial: Dane.Jonas@dominionenergy.com