

Install one 13.5 Ohm series reactor at Hollymeade substation

General Information

Proposing entity name	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	651
Project title	Install one 13.5 Ohm series reactor at Hollymeade substation
Project description	Proposal 7 is to install one 13.5 Ohm series reactor to control the power flow on the 230 kV line #2054 from Charlottesville substation to Proffit Rd. DP to reduce the congestion on congestion driver ME-5.
Project in-service date	06/2023
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. Hollymeade Substation 13.5 Ohm Series Reactor on Line 2054 Terminal
2. Charlottesville Substation Wave Trap and Relay Work
3. Proffit Rd. DP Wave Trap and Relay Work

Substation Upgrade Component

Component title	Hollymeade Substation 13.5 Ohm Series Reactor on Line 2054 Terminal
Substation name	Hollymeade
Substation zone	193

Substation upgrade scope

This proposal provides for the installation of air core series reactors on Line 2054 at Hollymeade Substation. The substation will be expanded to provide space for new equipment. New perimeter fencing will be installed to match the existing station fence. An internal separation fence must also be installed to prohibit personnel and equipment approach to reactors while energized. A synchronous breaker with disconnects will be installed in parallel with the reactors to allow for remote bypassing of the reactors based on operating conditions. External CT's on either side of the reactors will accommodate a special application differential protection scheme which will lockout the line for a fault in the reactor zone. Transmission will install a new backbone, into which the 2054 Line will terminate, as well as a static pole and shield wire for lightning protection in the expansion area. The 205449 switch, which is located on the existing backbone, will remain in place and become normally open to provide a means of local bypass for the reactor yard without outage. A new switch will be installed on the new backbone and another near the point of bus tie-in to provide isolation for maintenance. Substation will install new conduit between the backbone and trough to bring the relocated fiber into the control enclosure.

Transformer Information

None

New equipment description

1. Two (2), 230 kV, 3000A, 63kA, Synchronous, SF6 Circuit Breakers. 2. Three (3), 230 kV, 3000A, 3-Phase Center-Break Switches. 3. One (1), 230kV, 3000A, 3-Phase Vertical-Break Switch with LSS-II Interrupters. 4. Three (3), 230kV, 3000A, 13.5O, 35.8mH, Air-Core Series Reactors with Support Insulators. 5. Three (3), 230kV, Dual Core, 2000/5 ratio, External Current Transformers. 6. Foundations and steel support structures as required per current engineering standards. 7. Foundations with isolation ties or non-conductive reinforcing for equipment within the reactor field to prevent induced currents. 8. Conductors, connectors, conduit, control cable, and grounding materials as per current 9. One (1), 1340 – 28" Dual SEL-411L CD/Fiber Line Panel 10. 2. One (1), 1816 – 28" SEL-787 Gas Zone Differential Panel 11. 3. One (1), 1512 – 28" Single SEL-351 Reactor Breaker w/ Sync. Trip Panel 12. 4. One (1), 1216 – 28" SEL-587Z/387E Reactor Bank Panel 13. 5. Two (2), 4521 – Synchronous Breaker Monitor 14. 6. One (1), SPR Relay Auxiliary Package 15. 7. Two (2), 4510 - SEL-2411 Equipment Annunciator 16. 8. One (1), 7614 – Reactor Critical Low Oil Assembly 17. 9. One (1), 4526_B – Sync. Breaker Fiber M.U. Box 18. 10. One (1), 4526_C – Transmission Transformer or RX Fiber M.U. Box

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. Please review section A.1 Right-of-way land acquisition plan and approach in the attached Proposal 7 - Permitting and Real Estate Summary document attached in the supporting documents.

Construction responsibility

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

Additional 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	\$10,228,089.00
Component cost (in-service year)	\$10,954,282.00

Substation Upgrade Component

Component title	Charlottesville Substation Wave Trap and Relay Work
Substation name	Charlottesville
Substation zone	193
Substation upgrade scope	Proposal 7 provides for the removal of Line 2054 wave trap, installation of conduit to bring transmission fiber into the control enclosure, and replacement of Line 2054 line panel with an SEL-411L Current Differential over fiber line panel.

Transformer Information

None	
New equipment description	Purchase and install substation material: 1. Conductors, connectors, conduit, and tracer wire as required. Purchase and install relay material: 1. 1340 – 24” Dual SEL-411L CD/Fiber Line Panel
Substation assumptions	N/A

Real-estate description	The substation will not be expanded for this project.
Construction responsibility	The redacted information is proprietary to the Company, therefore it is privileged and confidential.
Additional 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	\$203,100.00
Component cost (in-service year)	\$217,520.00
Substation Upgrade Component	
Component title	Proffit Rd. DP Wave Trap and Relay Work
Substation name	Proffit Rd. DP
Substation zone	193
Substation upgrade scope	Proposal 7 provides for the removal of Line 2054 wave trap, installation of conduit to bring transmission fiber into the control enclosure, installation of a SEL-411L Current Differential over fiber line panel, and removal of the PLC equipment.

Transformer Information

None	
New equipment description	Purchase and install substation material: 1. Conductors, connectors, conduit, and tracer wire as required. Purchase and install relay material: 1. 1340 – 24” Dual SEL-411L CD/Fiber Line Panel
Substation assumptions	N/A
Real-estate description	The substation will not be expanded for this project.
Construction responsibility	The redacted information is proprietary to the Company, therefore it is privileged and confidential.
Additional 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	\$190,042.00
Component cost (in-service year)	\$203,535.00

Congestion Drivers

CD #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
ME-5	314749	6CHARLVL	314772	6PROFFIT	1	230	345	Market Efficiency

Existing Flowgates

None

New Flowgates

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

Financial Information

Capital spend start date	01/2022
Construction start date	11/2022
Project Duration (In Months)	17

Additional comments

None