

Add a 4.35 ohm series reactor at Hollymeade station on the terminal of Line 2054.

General Information

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| 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 | 170 |
| Project title | Add a 4.35 ohm series reactor at Hollymeade station on the terminal of Line 2054. |
| Project description | Proposal 99-2947-4 is to install one 4.35 Ohm series reactor to control the power flow on the 230 kV line #2054 from Charlottesville substation to Proffit Rd. DP to reduce the thermal overload on reliability driver GD-S30. |
| Email | The redacted information is proprietary to the Company; therefore, it is privileged and confidential. |
| 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 4.35 Ohm Series Reactor on Line 2054 Terminal
2. Charlottesville Substation Wave Trap and Relay Work
3. Proffit Rd. DP Wave Trap and Relay Work
4. Line 2054 Transmission Work

Substation Upgrade Component

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|--------------------------|---|
| Component title | Hollymeade Substation 4.35 Ohm Series Reactor on Line 2054 Terminal |
| Project description | The redacted information is proprietary to the Company; therefore, it is privileged and confidential. |
| Substation name | Hollymeade |
| Substation zone | 363 |
| Substation upgrade scope | Purchase and install substation material: 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, 4.35?, 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 engineering standards. Purchase & Install Relay Material: 1. One (1), 1340 – 28” Dual SEL-411L CD/Fiber Line Panel 2. One (1), 1816 – 28” SEL-787 Gas Zone Differential Panel 3. One (1), 1512 – 28” Single SEL-351 Reactor Breaker w/ Sync. Trip Panel 4. One (1), 1216 – 28” SEL-587Z/387E Reactor Bank Panel 5. Two (2), 4521 – Synchronous Breaker Monitor 6. One (1), SPR Relay Auxiliary Package 7. Two (2), 4510 - SEL-2411 Equipment Annunciator 8. One (1), 7614 – Reactor Critical Low Oil Assembly 9. One (1), 4526_B – Sync. Breaker Fiber M.U. Box 10. One (1), 4526_C – Transmission Transformer or RX Fiber M.U. Box 11. One (1), Panel Retirement |

Transformer Information

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|-----------------------------|--|
| 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, 4.35 Ohm, Air-Core Series Reactors with Support Insulators. 5. Three (3), 230kV, Dual Core, 2000/5 ratio, External Current Transformers. |
| 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. |
| 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 | \$9,432,360.00 |
| Component cost (in-service year) | \$10,102,058.00 |

Substation Upgrade Component

| | |
|--------------------------|---|
| Component title | Charlottesville Substation Wave Trap and Relay Work |
| Project description | The redacted information is proprietary to the Company; therefore, it is privileged and confidential. |
| Substation name | Charlottesville |
| Substation zone | 363 |
| Substation upgrade scope | Purchase and install substation material: 1. Conductors, connectors, conduit, and tracer wire as required. 2. 24" Dual SEL-411L CD/Fiber Line Panel |

Transformer Information

| | |
|---------------------------|-----|
| None | |
| New equipment description | N/A |
| Substation assumptions | N/A |

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|--|---|
| 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. |
| 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 | \$203,100.00 |
| Component cost (in-service year) | \$217,520.00 |
| Substation Upgrade Component | |
| Component title | Proffit Rd. DP Wave Trap and Relay Work |
| Project description | The redacted information is proprietary to the Company; therefore, it is privileged and confidential. |
| Substation name | Proffit Rd. DP |
| Substation zone | 363 |
| Substation upgrade scope | Purchase and install substation material: 1. Conductors, connectors, conduit, and tracer wire as required. 2. 24" Dual SEL-411L CD/Fiber Line Panel |

Transformer Information

| | |
|-----------------------------|---|
| None | |
| New equipment description | N/A |
| 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. |
| 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 | \$190,042.00 |
| Component cost (in-service year) | \$203,535.00 |

Transmission Line Upgrade Component

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|----------------------------|---|
| Component title | Line 2054 Transmission Work |
| Project description | The redacted information is proprietary to the Company; therefore, it is privileged and confidential. |
| Impacted transmission line | 2054 |
| Point A | Charlottesville Substation |

Point B Hollymeade Substation

Point C

Terrain description Starting at Charlottesville Substation located on the eastern edge of the City of Charlottesville, the terrain of this existing right-of-way slopes down to the Rivanna River and rises back up as it crosses thru Darden-Towe Memorial Park. The terrain of the right-of-way then has some moderate slopes as it passes by a few established neighborhoods with trees buffering many of the homes. After leaving the suburban areas just outside of Charlottesville, the terrain starts out as predominately forested/vegetated areas outside of the existing right-of-way consisting of moderate to steep slopes. As the right-of-way extends further east to more rural areas, the terrain faces a mix of some steep hills along with some flatter lands traversing through many acres of open space (residential and agricultural) and a few wooded areas approaching the Hollymeade Tap.

Existing Line Physical Characteristics

Operating voltage 230kV
Conductor size and type 2-477 ACSR MOT - 90°
Hardware plan description N/A
Tower line characteristics The existing line contains seventy-seven (77) direct embed wood and weathering steel poles.

Proposed Line Characteristics

| | Designed | Operating |
|---------------------------|-----------------------|--------------------------|
| Voltage (kV) | 230.000000 | 230.000000 |
| | Normal ratings | Emergency ratings |
| Summer (MVA) | 586.000000 | 674.000000 |
| Winter (MVA) | 741.000000 | 852.000000 |
| Conductor size and type | 2-477 ACSR MOT - 90° | |
| Shield wire size and type | N/A | |
| Rebuild line length | N/A | |

| | |
|--|--|
| Rebuild portion description | Line 2054 will not be rebuilt as part of this project proposal. Removals: 1. Remove existing Wave traps and Risers at Charlottesville, Profit, and Hollymeade Substation. 2. Remove one span (approximately 200 feet) or 3#6 Alumoweld from Hollymeade Sub. Installations: 1. Install one 40' 230KV Backbone (12.902) at Hollymeade Sub with foundation. 2. Install one (1) Galvanized Steel Static Pole and foundation. 3. Install 200' of new 3-phase 2-636 ACSR from New Backbone structure to existing Backbone 4. Transfer 150' of existing 3-phase 2-636 ACSR from DC pole to New Backbone structure. 5. Transfer and terminate Existing Fiber into New Backbone. 6. Install four spans (approximately 700') of 7#7 Alumoweld shield wire at Hollymeade Sub. This will include safety catches. 7. Install new 3-phase 2-636 ACSR 24/7 Risers at Hollymeade Sub. 8. Install new 3-phase 2-636 ACSR 24/7 Risers at Proffit DP and Charlottesville Sub. |
| Right of way | The right-of-way will not be expanded. |
| 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 | \$795,729.00 |
| Component cost (in-service year) | \$852,225.00 |

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 |
|--------|--------------|---------------|------------|-------------|-----|---------|---------|------------------|----------|
| GD-S30 | 314749 | 6CHARLVL | 314772 | 6PROFFIT | 1 | 230 | 345 | Summer Gen Deliv | Included |

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

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