

Build a new 230 kV switching station at the double circuit tap to Hollymeade substation and Proffit Rd. DP

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	578
Project title	Build a new 230 kV switching station at the double circuit tap to Hollymeade substation and Proffit Rd. DP
Project description	Proposal 6 is to build a new 230kV switching station at the double circuit tap to Hollymeade substation and Proffit Rd. DP with a 4-breaker ring. Proposal 6 will split and terminate all 4 lines into the ring bus.
Project in-service date	05/2023
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. Line 2054 Charlottesville Substation to New 230kV Switching Station
2. Line 2135 Gordonsville to New 230kV Switching Station
3. Cash's Corner Substation - Relay Resets and Documentation
4. Charlottesville Substation - Relay Resets and Documentation
5. Gordonsville Substation - Relay Resets and Documentation
6. Hollymeade Substation - Relay Resets and Documentation

7. New 230kV Switching Station

Transmission Line Upgrade Component

Component title	Line 2054 Charlottesville Substation to New 230kV Switching Station
Impacted transmission line	2054
Point A	Charlottesville Substation
Point B	New 230kV Switching Station
Point C	N/A
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 Hollymead Tap.

Existing Line Physical Characteristics

Operating voltage	230kV
Conductor size and type	2-477 ACSR MOT - 90°C
Hardware plan description	Proposal 6 does not upgrade the existing line. Existing line hardware will not be modified.
Tower line characteristics	The existing line contains fifty-eight (58) direct embed wood and weathering steel poles. Existing structures do not need to be replaced as part of this project.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings

Summer (MVA)	586.000000	586.000000
Winter (MVA)	740.000000	740.000000
Conductor size and type	Conductor size and type will not change	
Shield wire size and type	Shield wire will not change	
Rebuild line length	Line will not be rebuilt	
Rebuild portion description	<p>Proposal 6 requires the removal and installation of transmission structures to cut and terminate the 2135 and 2054 lines into the new substation. A temporary 230kV line will be built around the new substation to maintain power to Hollymeade substation and Proffit Rd. DP during the new station's construction. Specifically, the line work includes: REMOVALS: Station Work 1. Remove two (2) Existing DC SUS H-frames Str. # 2054/338, 2135/342 and 2054/337, 2135/343. Remove foundations 18" below grade. 2. Remove 1000' of two (2) DNO-8482 Fibers. INSTALLATIONS: New Station 1. Install two (2) 38' 230 KV SC Backbones for Substation with associated conductor and fiber strain hardware. 2. Install one (1) DC DDE 2 Pole Str. New # 2054/337, 2135/342 outside the Substation with associated conductor and fiber strain hardware. 3. Transfer existing 2-636 ACSR to both new Backbones and DC DDE pole. 4. Cut two existing Fibers between Strs. # 2054/338, 2135/342 and 2054/339, 2135/341. Splice Existing Fiber on Backbones. 5. Install approximately 1000' of two (2) new fibers back to Existing Splice at Str. 2054/230, 2135/340. 6. Install two spans (approximately 500' each) of 7#7 ALWD from each of the backbones to the DC DDE structure outside the Substation. Temp Line 7. Install 0.5 Mile 3-phase 795 ACSR Temp Line with 1-3#6 Alumoweld shield wire. 8. Install two (2) Terminal DE 3-pole structures. 9. Install two (2) DDE Single pole structures. 10. Install one (1) DDE 3-pole structure. 11. Install two (2) SUS Single pole structures.</p>	
Right of way	Temporary right of way is required for this project. Please review section A.2 Land Acquisition by Segment in the attached Proposal 6 - 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	\$1,197,050.00
Component cost (in-service year)	\$1,282,040.00

Transmission Line Upgrade Component

Component title	Line 2135 Gordonsville to New 230kV Switching Station
Impacted transmission line	2135
Point A	Gordonsville Substation
Point B	New 230kV Switching Station
Point C	N/A
Terrain description	From the Hollymead Tap to Gordonsville Substation, the terrain is very similar to the areas west of the Tap point; however, this stretch is characterized by an increased number of open farms, with more gently rolling terrain, with some scattered wooded areas. While there are some moderate hills here, the land appears to be generally flatter with fewer obstructions for access.

Existing Line Physical Characteristics

Operating voltage	230kV
Conductor size and type	2-477 ACSR MOT - 90°C
Hardware plan description	Proposal 6 does not upgrade the existing line. Existing line hardware will not be modified.
Tower line characteristics	The existing line contains fifty-eight (58) direct embed wood and weathering steel poles. Existing structures do not need to be replaced as part of this project.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	586.000000	586.000000
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Conductor size and type	Conductor size and type will not change	
Shield wire size and type	Shield wire will not change	
Rebuild line length	Line will not be rebuilt	
Rebuild portion description	<p>Proposal 6 requires the removal and installation of transmission structures to cut and terminate lines 2054 and 2135 into the new substation. A temporary 230kV line will be built around the new substation to maintain power to Hollymeade substation and Proffit Rd. DP during the station's construction. This project will rebuild utilizing Dominion 2017, 230kV standards. The conceptual estimate includes cost for the following: REMOVALS: Station Work 1. Remove two (2) Existing DC SUS H-frames Str. # 2054/338, 2135/342 and 2054/337, 2135/343. Remove foundations 18" below grade. 2. Remove 1000' of two (2) DNO-8482 Fibers. INSTALLATIONS: New Station 1. Install two (2) 38' 230 KV SC Backbones for Substation with associated conductor and fiber strain hardware. 2. Install one (1) DC DDE 2 Pole Str. New # 2054/337, 2135/342 outside the Substation with associated conductor and fiber strain hardware. 3. Transfer existing 2-636 ACSR to both new Backbones and DC DDE pole. 4. Cut two existing Fibers between Strs. # 2054/338, 2135/342 and 2054/339, 2135/341. Splice Existing Fiber on Backbones. 5. Install approximately 1000' of two (2) new fibers back to Existing Splice at Str. 2054/230, 2135/340. 6. Install two spans (approximately 500' each) of 7#7 ALWD from each of the backbones to the DC DDE structure outside the Substation. Temp Line 7. Install 0.5 Mile 3-phase 795 ACSR Temp Line with 1-3#6 Alumoweld shield wire. 8. Install two (2) Terminal DE 3-pole structures. 9. Install two (2) DDE Single pole structures. 10. Install one (1) DDE 3-pole structure. 11. Install two (2) SUS Single pole structures.</p>	
Right of way	Temporary right of way is required for this project. Please review section A.2 Land Acquisition by Segment in the attached Proposal 6 - 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	\$1,197,050.00
Component cost (in-service year)	\$1,282,040.00

Substation Upgrade Component

Component title	Cash's Corner Substation - Relay Resets and Documentation
Substation name	Cash's Corner
Substation zone	193
Substation upgrade scope	Update oneline to reflect new switching station. Provides for the drawing work, relay resets, and field support necessary to change the Line 2135 destination at Cash's Corner Substation.

Transformer Information

None	
New equipment description	N/A
Substation assumptions	No additional relay material is needed.

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	\$21,613.00
Component cost (in-service year)	\$23,148.00

Substation Upgrade Component

Component title	Charlottesville Substation - Relay Resets and Documentation
Substation name	Charlottesville
Substation zone	193
Substation upgrade scope	Update oneline to reflect new switching station. Provides for the drawing work, relay resets, and field support necessary to change the Line 2054 destination at Charlottesville Substation.

Transformer Information

None

New equipment description	N/A
Substation assumptions	No additional relay material is needed.
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	\$21,613.00
Component cost (in-service year)	\$23,148.00

Substation Upgrade Component

Component title	Gordonsville Substation - Relay Resets and Documentation
Substation name	Gordonsville
Substation zone	193
Substation upgrade scope	Update oneline to reflect new switching station. Provides for the drawing work, relay resets, and field support necessary to change the Line 2135 destination at Gordonsville Substation.

Transformer Information

None	
New equipment description	N/A
Substation assumptions	No additional relay material is needed.
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	\$21,613.00
Component cost (in-service year)	\$23,148.00

Substation Upgrade Component

Component title	Hollymeade Substation - Relay Resets and Documentation
Substation name	Hollymeade
Substation zone	193

Substation upgrade scope

Update oneline to reflect new switching station. Provides for the drawing work, relay resets, and field support necessary to change the Line 2054 destination at Hollymeade Substation.

Transformer Information

None

New equipment description

N/A

Substation assumptions

No additional relay material is needed.

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

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Component Cost Details - In Current Year \$

Engineering & design

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Permitting / routing / siting

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ROW / land acquisition

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

Materials & equipment

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Construction & commissioning

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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

\$21,613.00

Component cost (in-service year)

\$23,148.00

Greenfield Substation Component

Component title

New 230kV Switching Station

Substation name	To be determined
Substation description	New 230kV four-breaker ring bus switching station terminating four transmission line terminals. Location: lat: 38.067073, lon: -78.327256 Size: approximately 325' x 256'
Nominal voltage	AC
Nominal voltage	230kV

Transformer Information

None

Major equipment description

1.) Four (4) 230 kV, 3000A, 50 kA SF6 Circuit Breakers 2.) Eight (8) 230 kV, 3000A, 3-phase Center Break Gang Operated Switches 3.) Four (4), 230 kV, 3000 Amps Wave Trap and Line Tuner 4.) One (1) 24' X 40' Control Enclosure 5.) Two (2) 230 kV, 3000A, Single-phase Center Break Gang Operated Switches 6.) two (2) 38' 230 KV SC Backbones for Substation with associated conductor and fiber strain hardware 7.) one (1) DC DDE 2 Pole Str. New # 2054/337, 2135/342 outside the Substation with associated conductor and fiber strain hardware.

	Normal ratings	Emergency ratings
Summer (MVA)	586.000000	586.000000
Winter (MVA)	740.000000	740.000000

Environmental assessment

Please review section A.4 Assessment of Potential Environmental Impacts in the attached Proposal 6 - Permitting and Real Estate Summary document attached in the supporting documents.

Outreach plan

Please review section A.6 Discussion of Potential Public Opposition in the attached Proposal 6 - Permitting and Real Estate Summary document attached in the supporting documents.

Land acquisition plan

Please review section A.2 Land Acquisition by Segment in the attached Proposal 6 - Permitting and Real Estate Summary document attached in the supporting documents.

Construction responsibility

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Additional comments

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Component Cost Details - In Current Year \$

Engineering & design

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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	\$6,876,020.00
Component cost (in-service year)	\$7,364,217.00

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
ME-7	207950	CUMB TR2	208004	JUNI BU1	1	230	229	Market Efficiency
ME-3	235479	01JUNCTN	235467	01FRNCHM	1	138	201	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	09/2022

Project Duration (In Months)

16

Additional comments

None