

VA 138kV & 115kV Solution

General Information

Proposing entity name	Company proprietary information.
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Company proprietary information.
Company proposal ID	Company proprietary information.
PJM Proposal ID	27
Project title	VA 138kV & 115kV Solution
Project description	Perform 115kV and 138kV upgrades in the AEP and Dominion zones to resolve voltage issues across Dominion's footprint and provide a new path across a historically congested interface.
Email	Company proprietary information.
Project in-service date	07/2031
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Company proprietary information.

Project Components

1. Joshua Falls 138kV Station upgrade
2. Sherwill Station upgrade
3. Stonewall Station upgrade
4. Stonewall - South Creek 115kV
5. Joshua Falls - Sherwill 138kV

6. Joshua Falls - Sherwill 138kV Rebuild
7. Stonewall - Long Mountain upgrade
8. South Creek 115kV Station upgrade
9. Red House - Pamplin 115kV
10. Long Mountain Station upgrade
11. Joshua Falls - Riverville Line Relocation

Substation Upgrade Component

Component title	Joshua Falls 138kV Station upgrade
Project description	Company proprietary information.
Substation name	Joshua Falls
Substation zone	AEP
Substation upgrade scope	Create a new 138KV line position in an existing breaker-and-a-half string by adding one 138KV circuit breaker, relocating the existing 138KV Riverville line, and interconnecting a new 138KV Long Mountain - Sherwill - Stonewall line.

Transformer Information

None	
New equipment description	Create a new 138KV line position in an existing circuit breaker & a half string by adding one 138KV, 3000A, 63KA line circuit breaker; one 138KV, 3000A three-phase disc. switch; one set of 138KV CCVTs; one set of 138KV arresters; and associated bus jumpers, bus tubing & dampening cable, insulators, steel structures, foundations, yard lighting, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house. Relocate the existing 138KV Riverville line to this new line position. Interconnect a new 138KV Long Mountain-Sherwill-Stonewall line into the old 138KV Riverville line position.
Substation assumptions	It is assumed that all necessary outages will be available, the existing AC, DC, & telecom. systems will accommodate the new equipment, the existing control house has space for the new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, the existing cable trench has space for the new control cables, and soil boring logs and geotechnical report are available.
Real-estate description	No additional real estate will be required for this upgrade project.

Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$1,172,782.00
Component cost (in-service year)	\$1,440,641.00
Substation Upgrade Component	
Component title	Sherwill Station upgrade
Project description	Company proprietary information.
Substation name	Sherwill
Substation zone	AEP
Substation upgrade scope	Replace the existing 69KV equipment with 138KV equipment to accommodate a new 138KV Long Mountain-Joshua Falls-Stonewall line.
Transformer Information	
None	

New equipment description	Replace the existing 69KV equipment with 138KV equipment to accommodate a new 138KV Long Mountain-Joshua Falls-Stonewall line by installing one 138KV, 3000A three-phase disc. switch; one 138KV, 3000A, 40KA circuit switcher; one set of 138KV arresters; one 138/12KV, 20MVA three-phase transformer with arresters; and associated bus jumpers, bus tubing & dampening cable, insulators, steel structures, foundations, yard lighting, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house. Site development will include grading, fencing, gate, and station stone.
Substation assumptions	It is assumed that all necessary outages will be available, the existing AC, DC, & telecom. systems will accommodate the new equipment, the existing control house has space for new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, and soil boring logs and geotechnical report are available. For the station expansion, it is assumed that wetland mitigation will not be required and all necessary permits will be available.
Real-estate description	The acquisition of additional fee lands is not required for the Sherwill Substation located in Campbell County, Virginia.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$4,801,627.00
Component cost (in-service year)	\$5,898,302.00

Substation Upgrade Component

Component title	Stonewall Station upgrade
Project description	Company proprietary information.
Substation name	Stonewall
Substation zone	AEP
Substation upgrade scope	Replace the existing 69KV equipment with 138KV equipment to accommodate a new 138KV Long Mountain-Joshua Falls-Sherwill line and install a new 138/115KV transformer to interconnect a new 115KV South Creek line.

Transformer Information

	Name		Capacity (MVA)	
Transformer	T1		20	
	High Side	Low Side	Tertiary	
Voltage (kV)	138		12	
	Name		Capacity (MVA)	
Transformer	T2		250	
	High Side	Low Side	Tertiary	
Voltage (kV)	138		115	
			12	

New equipment description	Replace the existing 69KV equipment with 138KV equipment to accommodate a new 138KV Long Mountain-Joshua Falls-Sherwill line and install a new 138/115KV transformer to interconnect a new 115KV South Creek line by installing five 138KV, 3000A three-phase disc. switch; three 138KV, 3000A, 40KA circuit breakers; two sets of 138KV CCVTs; one set of 115KV CCVTs; one set of 138KV arresters; one set of 115KV arresters; one 138/12KV, 20MVA three-phase transformer with arresters; one 138/115KV, 250MVA three-phase transformer with arresters; and associated bus jumpers, bus tubing & dampening cable, strain bus, insulators, steel structures, foundations, yard lighting, control cables, conduits, cable trench, ground grid, and equipment/fence grounding. Install associated relay equipment in the existing control house. Site development will include grading, access road, fencing, gates, and station stone.
Substation assumptions	It is assumed that all necessary outages will be available, the existing AC, DC, & telecom. systems will accommodate the new equipment, the existing control house has space for new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, the existing cable trench has space for the new control cables, and soil boring logs and geotechnical report are available. For the station expansion, it is assumed that wetland mitigation will not be required and all necessary permits will be available.
Real-estate description	The acquisition of additional fee lands is not required for the Stonewall Substation located in Appomattox County, Virginia.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.

Total component cost	\$14,801,152.00
Component cost (in-service year)	\$18,181,684.00

Greenfield Transmission Line Component

Component title	Stonewall - South Creek 115kV
Project description	Company proprietary information.
Point A	Stonewall
Point B	South Creek
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	214.000000	300.000000
Winter (MVA)	271.000000	337.000000
Conductor size and type	1 - 795 (26/7) ACSR Drake	
Nominal voltage	AC	
Nominal voltage	115	
Line construction type	Overhead	

General route description	The Proposing Entity assessed environmental and land use constraints and opportunities within an area that included the existing Stonewall and South Creek substations as the two endpoints. The evaluation resulted in the Bid Route of approximately 7 miles of greenfield line through Appomattox County in Virginia. The 115kV greenfield line exits the existing Stonewall substation from the southeast, then travels in a predominantly southeastern direction until it reaches the existing South Creek substation from the east. No habitable structures are present within the proposed ROW. Overall, the Route selected is the most direct route between the two existing substations and has the least overall impact on land use and environmental resources based on the Proposing Entity's qualitative review. The Route significantly reduces the number of new access roads, reducing overall constructability impacts.	
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Terrain description	The topography along the Stonewall - South Creek 115kV greenfield line is relatively hilly. Land use in the area encompasses mostly agricultural and residential parcels in rural Virginia. The line crosses low density developed areas, a significant amount of highly vegetated (wooded) rural land, state/county highways, railroads, streams, and existing utilities.
Right-of-way width by segment	The Stonewall - South Creek 115 kV greenfield route ROW will be 100 feet in width and will parallel/cross existing rights-of-way to include interstates, roads, railroads, existing transmission lines/utilities, existing pipelines and best minimizes potential impacts to the natural and human environments.
Electrical transmission infrastructure crossings	N/A
Civil infrastructure/major waterway facility crossing plan	Body of Water, Coordinates Pond (Unnamed), 37.400076° -78.877080° Phelps Branch, 37.389641° -78.862622° Phelps Branch, 37.389232° -78.862506° Phelps Branch, 37.388624° -78.862336° Railroad, Coordinates N/A, N/A
Environmental impacts	Land use along the Bid Route corridor is predominantly forested with pockets of agricultural development and rural residences. The route intersects FEMA-mapped floodplains and/or floodways, and NWI-mapped wetlands primarily adjacent to streams and low-lying areas. The route also crosses named and unnamed streams in various locations. Based on existing aerial photography, the proposed route likely has unmapped wetland or drainage features. The timing of construction will be executed in accordance with state and federal agency criteria as needed. Desktop studies and record reviews for the line route will be conducted for wetlands and streams and cultural resources prior to onsite investigations. Following field studies, data will be digitized and provided to engineering so that pole locations maximize avoidance of sensitive resources. For example, poles will be placed outside of or span wetlands, streams, and floodplains to the greatest extent possible. Existing access and roads will be utilized to access pole locations. If necessary, temporary access roads to pole locations will be identified and field surveyed for environmental and cultural resources and will be adjusted to avoid or minimize impacts.
Tower characteristics	This 115kV line is proposed to utilize single circuit tubular steel H-frame tangent structures and lattice steel running corner and deadend structures. The phases are planned to be in a horizontal configuration. Structures are expected to be direct embedded structures or to be supported by drilled concrete pier foundations. Sections of this line may utilize tubular steel monopole structures as well if short spans are necessitated.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.

Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$34,443,192.00
Component cost (in-service year)	\$42,309,899.00

Greenfield Transmission Line Component

Component title	Joshua Falls - Sherwill 138kV
Project description	Company proprietary information.
Point A	Joshua Falls
Point B	Sherwill
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	205.000000	284.000000
Winter (MVA)	258.000000	337.000000
Conductor size and type	1 – 795 kcmil (26/7) ACSR Drake	
Nominal voltage	AC	
Nominal voltage	138	

Line construction type	Overhead
General route description	The Proposing Entity assessed environmental and land use constraints and opportunities within an area that included the existing Joshua Falls and Sherwill substations as the two endpoints. The evaluation resulted in the Bid Route of approximately 2 miles of greenfield line through Campbell County in Virginia. The 138kV greenfield line exits the existing Joshua Falls substation from the south, then travels in a predominantly southwestern direction until it taps the Joshua Falls - Sherwill 138kV rebuild line. No habitable structures are present within the proposed ROW. Overall, the Route selected is the most direct route between the two existing substations and has the least overall impact on land use and environmental resources based on the Proposing Entity's qualitative review. The Route significantly reduces the number of new access roads, reducing overall constructability impacts.
Terrain description	The topography along the Joshua Falls - Sherwill 138kV greenfield line is relatively steep. Land use in the area consists of forested terrain in Virginia. The line crosses highly vegetated (wooded) rural land, low density developed areas, state/county highways, streams and existing utilities.
Right-of-way width by segment	The Joshua Falls - Sherwill 138 kV greenfield route ROW will be from 80 feet in width and will parallel/cross existing rights-of-way to include interstates, roads, railroads, existing transmission lines/utilities, existing pipelines and best minimizes potential impacts to the natural and human environments.
Electrical transmission infrastructure crossings	N/A
Civil infrastructure/major waterway facility crossing plan	The Joshua Falls - Sherwill 138kV greenfield line does not cross or run parallel with railroads, water features or large underground pipelines. The route does not cross any notable waterways; however, the northern terminus is located approximately 0.4 miles southeast of the James River. Body of Water, Coordinates N/A, N/A Railroad, Coordinates N/A, N/A
Environmental impacts	Land use along the Bid Route corridor is predominantly forested with pockets of agricultural development and rural residences. The route intersects FEMA-mapped floodplains and/or floodways, and NWI-mapped wetlands primarily adjacent to streams and low-lying areas. The route also crosses named and unnamed streams in various locations. Based on existing aerial photography, the proposed route likely has unmapped wetland or drainage features. The timing of construction will be executed in accordance with state and federal agency criteria as needed. Desktop studies and record reviews for the line route will be conducted for wetlands and streams and cultural resources prior to onsite investigations. Following field studies, data will be digitized and provided to engineering so that pole locations maximize avoidance of sensitive resources. For example, poles will be placed outside of or span wetlands, streams, and floodplains to the greatest extent possible. Existing access and roads will be utilized to access pole locations. If necessary, temporary access roads to pole locations will be identified and field surveyed for environmental and cultural resources and will be adjusted to avoid or minimize impacts.

Tower characteristics	This 138kV line is proposed to utilize single circuit tubular steel H-frame tangent structures and lattice steel running corner and deadend structures. The phases are planned to be in a horizontal configuration. Structures are expected to be direct embedded structures or to be supported by drilled concrete pier foundations. Sections of this line may utilize tubular steel monopole structures as well if short spans are necessitated.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$10,003,757.00
Component cost (in-service year)	\$12,288,581.00
Transmission Line Upgrade Component	
Component title	Joshua Falls - Sherwill 138kV Rebuild
Project description	Company proprietary information.
Impacted transmission line	Babcock & Wilcox to Sherwill 69kV
Point A	Joshua Falls
Point B	Sherwill

Point C

Terrain description	The topography along the Rebuild Route is relatively hilly. Land use in the area encompasses mostly agricultural and residential parcels in rural Virginia. The line crosses low density developed areas, a significant amount of highly vegetated (wooded) rural land, state/county highways, railroads, streams, and existing utilities.	
Existing Line Physical Characteristics		
Operating voltage	69	
Conductor size and type	336.4 KCM ACSR 30/7 (Oriole/ACSR)	
Hardware plan description	The existing structure hardware will be replaced.	
Tower line characteristics	The line voltage will be upgraded so the existing wood pole structures are not large enough and will be replaced.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	214.000000	300.000000
Winter (MVA)	271.000000	337.000000
Conductor size and type	1 - 795 ACSR Drake sct	
Shield wire size and type	144 Count Fiber OPGW	
Rebuild line length	6.62 miles	

Rebuild portion description	The existing 69kV line from Babcock & Wilcox Station to Sherwill station will be removed, totalling 7.2 miles. 6.3 miles of the line is planned to be rebuilt in the same general corridor but will be built from Sherwill station to approximately structure 16 (coordinate ~79.05062, 37.40451). From there it will head east on a greenfield route to Joshua Falls. This 138kV line is proposed to utilize single circuit tubular steel H-frame tangent structures and lattice steel running corner and deadend structures. The phases are planned to be in a horizontal configuration. Structures are expected to be direct embedded structures or to be supported by drilled concrete pier foundations. Sections of this line may utilize tubular steel monopole structures as well if short spans are necessitated.
Right of way	The Joshua Falls - Sherwill 138 kV rebuild route ROW will be expanded from 80 feet in width to 100 feet in width and will parallel/cross existing rights-of-way to include interstates, roads, railroads, existing transmission lines/utilities, existing pipelines and best minimizes potential impacts to the natural and human environments. Existing Right of Way will be utilized for the 80-foot ROW and new supplemental easements will be acquired for the additional 20-foot wide ROW expansion.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$31,776,000.00
Component cost (in-service year)	\$39,033,529.00
Transmission Line Upgrade Component	

Component title	Stonewall - Long Mountain upgrade	
Project description	Company proprietary information.	
Impacted transmission line	Stonewall to Long Mountain	
Point A	Stonewall	
Point B	Long Mountain	
Point C		
Terrain description	The topography along existing Stonewall - Long Mountain Route is relatively hilly. Land use in the area encompasses mostly agricultural and residential parcels in rural Virginia. The line crosses low density developed areas, a significant amount of highly vegetated (wooded) rural land, state/county highways, railroads, streams, and existing utilities.	
Existing Line Physical Characteristics		
Operating voltage	69	
Conductor size and type	795 KCM ACSR 45/7 (Tern/ACSR)	
Hardware plan description	It is planned to utilize all existing conductor, shield wire and hardware. The line was built in 1995 and looks to be generally be original construction. Condition is assumed to be good.	
Tower line characteristics	The existing line is a wood monopole line with manufactured davit arms and ceramic bell suspension insulators. The line was built in 1995 and looks to generally be original construction. It is assumed to be in good condition.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	205.000000	284.000000
Winter (MVA)	258.000000	300.000000

Conductor size and type	795 KCM ACSR 45/7 (Tern/ACSR)
Shield wire size and type	The plan is to keep the existing 7 #8 Alumoweld.
Rebuild line length	8.66 miles
Rebuild portion description	The existing line is already built to 138kV standards and insulator and structure replacement are not anticipated.
Right of way	Existing Right of Way will be utilized.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$200,000.00
Component cost (in-service year)	\$245,679.00
Substation Upgrade Component	
Component title	South Creek 115kV Station upgrade
Project description	Company proprietary information.

Substation name	South Creek Station
Substation zone	Dominion
Substation upgrade scope	Perform substation upgrade project at Dominion's South Creek 115kV to accommodate new line from Stonewall.
Transformer Information	
None	
New equipment description	Is it anticipated new lines breakers, foundations, disconnect switches, and associated relaying equipment will be needed to interconnect the new 115kV line from Stonewall. Dominion may consider alternate configurations, including installing a phase-over-phase switch in lieu of a 115kV station upgrade.
Substation assumptions	It is assumed that all necessary outages will be available, the existing AC, DC, & telecom. systems will accommodate the new equipment, the existing control house has space for new relay equipment, ground grid resistivity test data are available, ground grid upgrades will not be needed, the existing cable trench has space for the new control cables, and soil boring logs and geotechnical report are available. For the station expansion, it is assumed that wetland mitigation will not be required and all necessary permits will be available.
Real-estate description	The acquisition of additional fee lands is not required for the South Creek Substation located in Appomattox County, Virginia.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.

Overheads & miscellaneous costs	Company proprietary information.	
Contingency	Company proprietary information.	
Total component cost	\$2,000,000.00	
Component cost (in-service year)	\$2,456,793.00	
Transmission Line Upgrade Component		
Component title	Red House - Pamplin 115kV	
Project description	Company proprietary information.	
Impacted transmission line	Red House - Pamplin	
Point A	Red House	
Point B	Pamplin	
Point C		
Terrain description	The topography along the Rebuild Route is relatively hilly. Land use in the area encompasses mostly agricultural and residential parcels in rural Virginia. The line crosses low density developed areas, a significant amount of highly vegetated (wooded) rural land, state/county highways, railroads, streams, and existing utilities.	
Existing Line Physical Characteristics		
Operating voltage	115	
Conductor size and type	795 ACSR	
Hardware plan description	It is assumed that all existing hardware will be removed and replaced.	
Tower line characteristics	The existing line is a steel monopole line with braced post insulators. The age or condition of the line is unknown but it is assumed that it needs to be replaced.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	115.000000	115.000000

	Normal ratings	Emergency ratings
Summer (MVA)	214.000000	300.000000
Winter (MVA)	271.000000	337.000000
Conductor size and type	1 – 795 kcmil (26/7) ACSR Drake	
Shield wire size and type	It is assumed that the shield wire will be replaced to Dominions standard Shield or OPGW	
Rebuild line length	9.5 miles	
Rebuild portion description	9.5 miles of the existing Dominion owned transmission line from Rehouse (-78.81 Long, 37.19 Lat) to Pamplin (-78.68 Long, 37.25 Lat). The existing structure design characteristics are unknown so it is assumed that the line will need to be completely removed and replaced.	
Right of way	Existing Right of Way will be utilized.	
Construction responsibility	Company proprietary information.	
Benefits/Comments	Company proprietary information.	
Component Cost Details - In Current Year \$		
Engineering & design	Company proprietary information.	
Permitting / routing / siting	Company proprietary information.	
ROW / land acquisition	Company proprietary information.	
Materials & equipment	Company proprietary information.	
Construction & commissioning	Company proprietary information.	
Construction management	Company proprietary information.	
Overheads & miscellaneous costs	Company proprietary information.	
Contingency	Company proprietary information.	
Total component cost	\$70,400,001.00	
Component cost (in-service year)	\$86,479,120.00	

Substation Upgrade Component

Component title	Long Mountain Station upgrade
Project description	Company proprietary information.
Substation name	Long Mountain
Substation zone	AEP
Substation upgrade scope	Replace the existing 69KV, 3-way, phase-over-phase switch with a 138KV, 3-way, phase-over-phase switch to accommodate a new 138KV Joshua Falls-Sherwill-Stonewall line.
Transformer Information	
None	
New equipment description	Replace the existing 69KV, 3-way, phase-over-phase switch with a 138KV, 3-way, phase-over-phase switch to accommodate a new 138KV Joshua Falls-Sherwill-Stonewall line by installing one 138KV, 2000A, 3-way phase-over-phase switch and associated bus jumpers, bus tubing & dampening cable, insulators, steel structure, foundation, ground grid, and equipment grounding.
Substation assumptions	It is assumed that all necessary outages will be available, ground grid resistivity test data are available, and soil boring logs and geotechnical report are available. It is also assumed that additional property will not be needed and all necessary permits will be available.
Real-estate description	The acquisition of additional fee lands is not required for the Long Mountain Substation located in Campbell County, Virginia.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.

Construction & commissioning	Company proprietary information.	
Construction management	Company proprietary information.	
Overheads & miscellaneous costs	Company proprietary information.	
Contingency	Company proprietary information.	
Total component cost	\$769,458.00	
Component cost (in-service year)	\$945,200.00	
Greenfield Transmission Line Component		
Component title	Joshua Falls - Riverville Line Relocation	
Project description	Company proprietary information.	
Point A	Joshua Falls	
Point B	Riverville	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	257.000000	360.000000
Winter (MVA)	325.000000	404.000000
Conductor size and type	1 – 795 kcmil (26/7) ACSR Drake	
Nominal voltage	AC	
Nominal voltage	138	
Line construction type	Overhead	
General route description	The re-located route will run adjacent to the east side of Joshua Falls 138kV station and terminate into a new breaker-and-a-half position from the north side of the station.	

Terrain description	The topography along the line re-location route relatively hilly and is directly adjacent to the existing Joshua Falls 138kV Station.
Right-of-way width by segment	100 feet.
Electrical transmission infrastructure crossings	N/A
Civil infrastructure/major waterway facility crossing plan	N/A
Environmental impacts	Construction and environmental permits will be required for the project. The timing of construction will be executed in accordance with state and federal agency criteria as needed. Desktop studies and record reviews for the line route will be conducted for wetlands and streams and cultural resources prior to onsite investigations. Following field studies, data will be digitized and provided to engineering so that pole locations maximize avoidance of sensitive resources.
Tower characteristics	This 138kV line is proposed to utilize single circuit tubular steel H-frame tangent structures and lattice steel running corner and deadend structures. The phases are planned to be in a horizontal configuration. Structures are expected to be direct embedded structures or to be supported by drilled concrete pier foundations.
Construction responsibility	Company proprietary information.
Benefits/Comments	Company proprietary information.
Component Cost Details - In Current Year \$	
Engineering & design	Company proprietary information.
Permitting / routing / siting	Company proprietary information.
ROW / land acquisition	Company proprietary information.
Materials & equipment	Company proprietary information.
Construction & commissioning	Company proprietary information.
Construction management	Company proprietary information.
Overheads & miscellaneous costs	Company proprietary information.
Contingency	Company proprietary information.
Total component cost	\$1,999,999.00

Component cost (in-service year)	\$2,456,792.00
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Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Company proprietary information.

Financial Information

Capital spend start date	03/2027
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Construction start date	10/2029
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Project Duration (In Months)	52
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Cost Containment Commitment

Cost cap (in current year)	Company proprietary information.
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Cost cap (in-service year)	Company proprietary information.
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Components covered by cost containment

1. Stonewall - South Creek 115kV - PROPOSER
2. Joshua Falls - Sherwill 138kV - PROPOSER

Cost elements covered by cost containment

Engineering & design	Yes
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Permitting / routing / siting	No
ROW / land acquisition	No
Materials & equipment	No
Construction & commissioning	No
Construction management	No
Overheads & miscellaneous costs	No
Taxes	No
AFUDC	No
Escalation	No
Additional Information	Company proprietary information.
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	Yes
Would the proposer seek to increase the proposed ROE if FERC finds that a higher ROE would not be unreasonable?	No
Is the proposer offering a Debt to Equity Ratio cap?	Company proprietary information.
Additional cost containment measures not covered above	Company proprietary information.

Additional Comments

None