Joshua Falls - Durandal

General Information

Proposing entity name	Company confidential and proprietary information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Company confidential and proprietary information
Company proposal ID	Company confidential and proprietary information
PJM Proposal ID	286
Project title	Joshua Falls - Durandal
Project description	
Email	Company confidential and proprietary information
Project in-service date	12/2029
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Company confidential and proprietary information

Project Components

1. Joshua Falls - Durandal 765 kV
2. Joshua Falls Upgrade
3. Durandal Station
4. Durandal Cut-in lines

Greenfield Transmission Line Component

Component title	Joshua Falls - Durandal 765 kV	
Project description	Company confidential and proprietary information	
Point A	Joshua Falls Station	
Point B	Durandal Station	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	4571.000000	4571.000000
Winter (MVA)	6485.000000	6485.000000
Conductor size and type	The new single circuit line will be constructed using 6 Bundled – 795 kcmil (45/7 Strand) ACSR “Tern” conductor.	
Nominal voltage	AC	
Nominal voltage	765	
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 substation and the greenfield Durandal substation as the two endpoints. The evaluation resulted in the Bid Route that extends approximately 43-miles of greenfield line through 5 counties (Campbell, Appomattox, Prince Edwards, Charlotte, and Halifax) in Virginia. The 765kV line exits the existing Joshua Falls Substation from the south, then travels in a predominantly southeast direction until it reaches the greenfield Durandal substation from the west. 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 for the Joshua Falls–Durandal 765kV line is relatively hilly. Land use in the area encompasses mostly agricultural and a few 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, water crossings, and existing utilities.	

Right-of-way width by segment	The Joshua Falls–Durandal 765kV greenfield route ROW will be 200 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	36.995, -78.5721, 37.2316, -78.7487, 37.3816, -78.9648, In addition to these crossings, it is assumed there are additional, and smaller kV lines, being crossed along areas such as major roadways.
Civil infrastructure/major waterway facility crossing plan	The greenfield Joshua Falls-Durandal 765kV line greenfield route crosses & runs parallel with multiple railroads, numerous water facilities, and large underground pipelines. The route does not cross any notable waterways; however the southern terminus is located approximately 0.6-mile east of the Roanoke River, and the northern terminus is located approximately 0.4-mile southeast of the James River. The four Norfolk Southern railroad crossings are located at latitude/longitude 37.1187, -78.6238; 37.2031, -78.6612; 37.228, -78.6864; and 37.3579, -78.8991. The transmission line runs parallel with one pipeline for a short distance in Charlotte County and crosses over several pipeline The transmission line runs parallel with and crosses over several pipelines frequently.
Environmental impacts	Land use along the Bid Route corridor is a predominantly rural agricultural landscape with pockets of residential development. The route intersects FEMA-mapped floodplains and/or floodways and NWI-mapped wetlands primarily adjacent to streams and low-lying areas. Named and unnamed streams also bisect the route in various locations. Based on existing aerial photography, the proposed route likely has unmapped wetland or drainage features. Timing of construction will be executed in accordance with state and federal agencies criteria as needed. Desktop studies and record reviews for the station parcel and line route will be conducted for wetlands and streams, hazardous materials, and cultural resources. Following field studies, data will be digitized and provided to engineering so that pole locations and the station is sited to 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 765kV line will predominantly utilize a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand guys and anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will predominantly utilize concrete drilled pier foundations with grillage foundations reserved for areas of steeper terrain.
Construction responsibility	Company confidential and proprietary information
Benefits/Comments	Company confidential and proprietary information

Component Cost Details - In Current Year $

Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$219,300,000.00
Component cost (in-service year)	$246,824,082.00

Substation Upgrade Component

Component title	Joshua Falls Upgrade
Project description	Company confidential and proprietary information
Substation name	Joshua Falls 765 kV Station
Substation zone	AEP
Substation upgrade scope	- Add two 765kV breakers at Joshua Falls

Transformer Information

None

New equipment description	Two breakers
Substation assumptions	The existing AC station service is assumed to be sufficient to accommodate the new substation equipment. The existing station control enclosure is assumed to be sufficient to accommodate the new transmission line and circuit breaker protection and control relay panels.

Real-estate description	All necessary land rights are acquired.
Construction responsibility	Company confidential and proprietary information
Benefits/Comments	Company confidential and proprietary information
Component Cost Details - In Current Year $	
Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$16,582,000.00
Component cost (in-service year)	$18,663,187.00

Greenfield Substation Component

Component title	Durandal Station
Project description	Company confidential and proprietary information
Substation name	Durandal Station
Substation description	Construct new “Durandal” 765/500 kV station near Clover 500 kV substation.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

None

Major equipment description	1-765KV, 50KA line circuit breaker; 1-765KV, 50KA reactor circuit breaker; 15-765KV, 1-phase, motor-operated disc. sw. & steel str.; 12-765KV arresters & steel str.; 6-765KV CCVT’s & steel str.; 3-765KV, 50MVar, 1-phase line shunt reactors; 3-765/500KV, 750MVA, 1-phase, autotransformers;	
	Normal ratings	Emergency ratings
Summer (MVA)	2987.000000	3604.000000
Winter (MVA)	3792.000000	4140.000000
Environmental assessment	Land use for the new Durandal substation is flat rural landscape in the vicinity of the Clover Power Station. The substation will lie adjacent and outside FEMA-mapped floodplains and/or floodways and NWI-mapped wetlands primarily adjacent to streams and low-lying areas. Based on existing aerial photography, the proposed greenfield the new Durandal substation route likely has unmapped wetland or drainage features. Timing of construction will be executed in accordance with state and federal agencies criteria as needed. Desktop studies and record reviews for the station and line route will be conducted for wetlands and streams, hazardous materials, and cultural resources. Following field studies, data will be digitized and provided to engineering so that pole locations and the station is sited to 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.	
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.	
Land acquisition plan	The proposed Durandal substation will be 63 acres in size and located on undeveloped agricultural land in rural Charlotte County, Virginia. The proposed station will be purchased in fee.	
Construction responsibility	Company confidential and proprietary information	

Benefits/Comments	Company confidential and proprietary information
Component Cost Details - In Current Year $	
Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information
Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$105,769,158.00
Component cost (in-service year)	$119,044,120.00

Greenfield Transmission Line Component

Component title	Durandal Cut-in lines
Project description	Company confidential and proprietary information
Point A	DVP Clover
Point B	Rawlings
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	3814.000000	5149.000000
Winter (MVA)	4825.000000	5848.000000

Conductor size and type	The new cut in lines will be constructed using a bundled conductor to meet/exceed SN/SE WN/WE ratings stated above.
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	The 500 kV tie-ins will be approximately 1 mile for each leaving the proposed Durandal Substation in Charlotte County, Virginia.
Terrain description	The topography for the 500 kV tie-ins is flat rural agricultural land in Charlotte County, Virginia.
Right-of-way width by segment	The 500 kV tie-ins ROW will be 175 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	The tie-ins lines will not cross or impact existing electrical transmission infrastructure crossings.
Civil infrastructure/major waterway facility crossing plan	The tie-ins lines will not cross or impact existing civil infrastructure/major waterway facility crossings.
Environmental impacts	The tie-ins lines have undergone a robust siting analysis.
Tower characteristics	
Construction responsibility	Company confidential and proprietary information
Benefits/Comments	Company confidential and proprietary information
Component Cost Details - In Current Year $	
Engineering & design	Company confidential and proprietary information
Permitting / routing / siting	Company confidential and proprietary information
ROW / land acquisition	Company confidential and proprietary information
Materials & equipment	Company confidential and proprietary information
Construction & commissioning	Company confidential and proprietary information

Construction management	Company confidential and proprietary information
Overheads & miscellaneous costs	Company confidential and proprietary information
Contingency	Company confidential and proprietary information
Total component cost	$8,600,000.00
Component cost (in-service year)	$9,679,376.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Company confidential and proprietary information

Financial Information

Capital spend start date	02/2025
Construction start date	11/2027
Project Duration (In Months)	58

Cost Containment Commitment

Cost cap (in current year)	Company confidential and proprietary information
Cost cap (in-service year)	Company confidential and proprietary information

Components covered by cost containment

1. Joshua Falls - Durandal 765 kV - Transource

2. Durandal Station - Dominion

Cost elements covered by cost containment

Engineering & design	Yes
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 confidential and 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 confidential and proprietary information

Additional Comments

None