Joshua Falls - Yeat

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	820
Project title	Joshua Falls - Yeat
Project description	This proposal includes the following major system components: Joshua Falls 765kV station expansion including 2 765kV CB’s. A new 138.5 mile 765kV line from Joshua Falls to the new Yeat 765/500/230kV station north of Bristers 500/230kV station. Yeat station will include 2 765/500XFR’s in parallel, a 500/230kV XFR, a 500kV 500Mvar cap bank, a single 765kV breaker, 9 500kV breakers and 3 230kV breakers. This station will cut in the Bristers – Ox 500kV line, the Meadowbrook – Vint Hill 500kV line and the Vint Hill – Elk Run 230kV line. The 765kV line is assumed utilizing 6 bundled 795 ACSR.
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- Yeat 765 kV line
2. Yeat Station Greenfield Station

3. Yeat 500 cut in-lines Greenfield Transmission Line
4. Joshua Falls Upgrade
5. Yeat 230 kV cut in-lines Greenfield Transmission Line

Greenfield Transmission Line Component

Component title	Joshua Falls- Yeat 765 kV line	
Project description	Company confidential and proprietary information	
Point A	Joshua Falls Station	
Point B	Yeat Station	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	4047.000000	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 and new Yeat substations as the two endpoints. The evaluation resulted in the Bid Route that extends approximately 138-miles through 11 counties (Albemarle, Amherst, Buckingham, Campbell, Culpeper, Fauquier, Fluvanna, Louisa, Nelson, Orange, and Spotsylvania) in Virginia. The 765kV line exits Joshua Falls Substation from the northwest, turns north, then travels in a predominantly northeast direction until it reaches the new Yeat Substation from the south. The 765kV line crosses multiple named waterbodies including three crossings of the James River. Other stream crossings include Nunn Creek and the Rappahannock River and smaller headwater streams and their associated unnamed tributaries. The proposed 765kV line crosses multiple high voltage transmission lines. The Proposed Entity identified several opportunities to parallel existing transmission lines for nearly half of its proposed alignment. No habitable structures are present within the proposed ROW. Overall, the Route selected is the most direct route between the two 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–Yeat 765kV 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, water crossings, and existing utilities.
Right-of-way width by segment	The Joshua Falls–Yeat 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	Lat: 37°26'41.44"N/Lon: 79° 2'50.73"W, Lat: 37°27'25.83"N/Lon: 79° 2'39.03"W, Lat: 37°33'33.14"N/Lon: 79° 0'28.29"W, Lat: 37°35'42.33"N/Lon: 78°57'29.14"W, Lat: 37°37'25.32"N/Lon: 78°55'3.83"W, Lat: 37°38'16.16"N/Lon: 78°53'33.12"W, Lat: 37°41'48.98"N/Lon: 78°48'5.43"W, Lat: 37°42'25.10"N/Lon: 78°47'19.35"W, Lat: 37°45'11.93"N/Lon: 78°43'32.57"W, Lat: 37°45'2.57"N/Lon: 78°44'20.25"W, Lat: 37°45'22.33"N/Lon: 78°42'40.32"W, Lat: 37°45'27.10"N/Lon: 78°42'15.44"W, Lat: 37°45'35.87"N/Lon: 78°41'25.94"W, Lat: 37°45'47.59"N/Lon: 78°40'30.64"W, Lat: 37°46'35.33"N/Lon: 78°36'28.08"W, Lat: 37°47'31.57"N/Lon: 78°30'58.28"W, Lat: 37°47'37.12"N/Lon: 78°31'12.84"W, Lat: 37°47'8.39"N/Lon: 78°29'29.21"W, Lat: 37°50'19.41"N/Lon: 78°25'3.88"W, Lat: 37°50'56.46"N/Lon: 78°15'21.55"W, Lat: 37°51'45.10"N/Lon: 78°20'52.84"W, Lat: 37°54'1.44"N/Lon: 78° 5'49.25"W, Lat: 38° 0'26.29"N/Lon: 78° 1'53.65"W, Lat: 38° 0'39.25"N/Lon: 78° 1'45.67"W, Lat: 38° 1'53.30"N/Lon: 78° 0'55.54"W, Lat: 38°12'38.09"N/Lon: 77°54'19.42"W, Lat: 38°13'39.66"N/Lon: 77°51'22.30"W, Lat: 38°14'13.78"N/Lon: 77°50'43.56"W, Lat: 38°14'27.69"N/Lon: 77°50'32.54"W, Lat: 38°15'16.46"N/Lon: 77°48'41.26"W, Lat: 38°29'17.30"N/Lon: 77°43'1.80"W, Lat: 38°29'25.81"N/Lon: 77°42'9.40"W, Lat: 38°33'32.17"N/Lon: 77°35'41.90"W, Lat: 38°33'55.02"N/Lon: 77°35'30.82"W, n 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 Joshua Falls–Yeat 765kV line crosses and runs parallel with multiple railroads, numerous water facilities, and large underground pipelines. The most notable water crossings are the James River, the Buffalo River, the Tye River, the Rockfish River, the Hardware River, the Rivanna River, the South Anna River, the Rapidan River, and the Rappahannock River. The railroads are located at Lat: 37°26'0.77"N/Lon: 79° 2'40.14"W, Lat: 37°47'15.81"N/Lon: 78°30'5.95"W, Lat: 37°47'5.55"N/Lon: 78°28'46.49"W, and Lat: 38° 1'43.36"N/Lon: 78° 1'0.78"W. Three of these railroads parallel the James River with the other paralleling a major roadway. A large underground pipeline is first encountered at Lat: 37°47'2.36"N/Lon: 78°27'59.03"W. The transmission line runs parallel with and crosses over the pipeline 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. The James River is the most significant body of water the Joshua Falls–Yeat 765kV line crosses. Due to this waterway's size, additional permitting may be required. 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	$674,999,999.00
Component cost (in-service year)	$759,718,447.00

Greenfield Substation Component

Component title	Yeat Station Greenfield Station
Project description	Company confidential and proprietary information
Substation name	Yeat Station
Substation description	This station will cut in the Bristers – Ox 500kV line, the Meadowbrook – Vint Hill 500kV line and the Vint Hill – Elk Run 230kV line.
Nominal voltage	AC
Nominal voltage	765/500/230

Transformer Information

	Name	Capacity (MVA)
Transformer	Transformer Bank 1	750

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	

	Name	Capacity (MVA)

Transformer	Transformer Bank 2		750
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	
	Name		Capacity (MVA)
Transformer	Transformer Bank 3		500
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	

Major equipment description	Yeat station will include -2 765/500XFR’s in parallel - -500/230kV XFR -500kV 500Mvar cap bank, -765kV breaker, -500kV breakers -3 230kV breakers.

	Normal ratings	Emergency ratings
Summer (MVA)	2987.000000	3792.000000
Winter (MVA)	3604.000000	4140.000000

Environmental assessment	Land use at the proposed parcel for Yeat Station is predominantly agricultural to the west and forested and forested wetlands to the east. One residence is located on the parcel. The station footprint is situated in the northwestern portion of the parcel. A National Wetlands Inventory (NWI) mapped riverine wetland is located within the station footprint. No National Hydrography Dataset (NHD) mapped streams are located on the station footprint. It is possible that regulated wetlands or streams will be affected as part of this solution. Desktop studies and record reviews will be completed for the development parcel including an environmental site assessment(s), wetland and stream delineation, threatened and endangered species review, and cultural resource study. Following these studies, the station will be sited on the property and designed to avoid impacts to sensitive features. Major regulatory approvals for the proposed solution would not be anticipated to exceed any general performance standard or require any variance to be readily permitted. Appropriate best management practices will be installed prior to construction to manage storm water runoff. Timing of construction will be executed in accordance with state and federal agencies criteria as needed. A General Virginia Pollutant Discharge Elimination System (VPDES) Permit is required for the project, and will be administered by Loudoun County, who is delegated program authority by the Virginia Department of Environmental Quality. The VPDES permit submission will include a SWPPP, erosion and sediment control plan, stormwater management plan, and pollution prevention plan. The stormwater management plan will include a narrative that describes, among other things, the proposed stormwater management facilities, the limits of clearing and grading, and the proposed drainage patterns on the site, proposed buildings, roads, parking areas, utilities, and the total disturbed acreage for the site. The proposed stormwater management facilities and all associated impacts are typical of energy infrastructure projects and would not represent a risk to the overall project schedule, cost, or ability to meet the identified requirements of the RFP
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 Yeat station will be 65 acres in size and located on undeveloped agricultural land in rural Fauquier 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	$226,903,530.00
Component cost (in-service year)	$255,381,922.00

Greenfield Transmission Line Component

Component title	Yeat 500 cut in-lines Greenfield Transmission Line
Project description	Company confidential and proprietary information
Point A	Bristers & Meadowbrook
Point B	Ox & Vint hill
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	4244.000000	5515.000000
Winter (MVA)	4357.000000	5515.000000

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 1.5 miles for each leaving the proposed Yeat Station to the existing Bristers – Ox 500 kV (1.03 miles) and Meadowbrook – Vint Hill 500 kV (0.5 mile) lines in Fauquier County, Virginia.
Terrain description	The topography for the 500 kV tie-ins is rolling hills and forested. Land use in the area encompasses mostly residential parcels in Fauquier County, Virginia. The line crosses low density developed areas, a significant amount of heavily vegetated (wooded) rural land, state/county highways, railroads, and existing utilities.
Right-of-way width by segment	The 500 kV greenfield tie-ins routes will be 175 feet each 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	The condition of the existing line is assumed to be in good working order based on the age determination from aerial imagery (less than 20 years). Structure loading at adjacent structures would remain unchanged due to proposing structure locations on cL and near existing tower locations. It is assumed that a total of four (4) three-pole deadend structures supported by concrete pier foundations will be utilized to turn the existing Meadowbrook – Vint Hill 500kV lines in/out of the proposed Yeat Station.
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

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	765 kV 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	$99,192,030.00
Component cost (in-service year)	$111,641,505.00

Greenfield Transmission Line Component

Component title	Yeat 230 kV cut in-lines Greenfield Transmission Line
Project description	Company confidential and proprietary information
Point A	Vint Hill
Point B	Elk Run
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1573.000000	1573.000000
Winter (MVA)	1648.000000	1648.000000

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	230

Line construction type	Overhead
General route description	The 230 kV tie-ins will be less than 1 mile for each leaving the proposed Yeat Station to the existing Vin Hill - Elk Run lines in Fauquier County, Virginia.
Terrain description	The topography for the 230 kV tie-ins is rolling hills and forested. Land use in the area encompasses mostly residential parcels in Fauquier County, Virginia. The line crosses low density developed areas, a significant amount of heavily vegetated (wooded) rural land, state/county highways, railroads, and existing utilities.
Right-of-way width by segment	The 230 kV greenfield tie-ins routes will be 130 feet each 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	The condition of the existing line is assumed to be in good working order based on the age determination from aerial imagery (less than 20 years). Structure loading at adjacent structures would remain unchanged due to proposing structure locations on cL and near existing tower locations.
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	$7,200,000.00
Component cost (in-service year)	$8,103,663.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Company confidential and proprietary information

Financial Information

Capital spend start date	02/2025
Construction start date	05/2027
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- Yeat 765 kV line - Transource

2. Yeat Station Greenfield Station - Transource

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