

Juniata - Hunterstown 500 kV line

General Information

Proposing entity name	Proprietary Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Proprietary Information
Company proposal ID	Proprietary Information
PJM Proposal ID	330
Project title	Juniata - Hunterstown 500 kV line
Project description	<p>Proposer Scope: Rebuild the existing single circuit Juniata – Three Mile Island (TMIS) 500kV line as double circuit 500 kV for 16.8 miles from Juniata substation to the PPL/METED demarcation point. Utilize triple bundle 1590 ACSR (for both circuits) with a minimum rating of 3637 MVA SN, 4503 MVA SE, 4156 MVA WN, and 5022 MVA WE. Install dual 144 count OPGW. Expand ROW to the west as needed to allow for the line to be rebuilt offset with the new circuit constructed on the west side. Relocate as needed the Juniata – Shermansdale #1 & #2 69kV lines. Install two 4000 A breakers, four 4000 A MODs, a 500 kV dead-end structure, and associated bay equipment in Bay #3 in the Juniata 500kV yard. Move the existing Juniata – TMIS 500 kV line from its current location in bay position 4S and re-terminate it into the new Bay #3 in the south position in the Juniata 500 kV yard. Then terminate the new Juniata – Hunterstown 500 kV line into the vacated Bay 4 south position. Acquire ROW and construct a new 25-mile Juniata - Hunterstown 500 kV line from the PPL EU/METED demarcation point on the existing Juniata - TMIS 500 kV line to the Hunterstown 500 kV Substation. Utilize triple bundle 1590 ACSR with a rating of 3637 MVA SN, 4503 MVA SE, 4156 MVA WN, and 5022 MVA WE. Install dual 144 count OPGW.</p> <p>Other Scope: In the Hunterstown 500 kV yard, move the T2 GSU transformer termination into the bay shared with the Vinco 500 kV line. Install one new 500 kV circuit breaker and two 500 kV MODs in that bay to complete the BAAH design and protect the relocated GSU. Terminate the new Juniata -Hunterstown 500 kV line into the bay position vacated by the T2 GSU transformer move. Protection upgrades as necessary to accommodate the new line and the GSU relocation. (Note that despite all ratings shown in this proposal being the intended final ratings for these upgrades, all 500 kV IDEVs provided to PJM by Proposer presently have Proposer standard 500 kV line ratings of 2707 MVA SN, 3112 MVA SE, 3207 MVA WN, and 3566 MVA WE in case equipment limitations are encountered during pursuit of this project that cause the anticipated ratings to be reduced. If standard ratings are exceeded during PJM assessment, Proposer would like to be made aware of 500 kV elements that must be held to proposed ratings.)</p>

Email	Proprietary Information
Project in-service date	12/2032
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Proprietary Information

Project Components

1. Juniata - Hunterstown 500 kV line (DCT segment with existing JUNI-TMIS line)
2. Juniata 500 kV yard upgrade
3. Juniata - Hunterstown 500 kV line (greenfield segment)
4. Hunterstown 500 kV yard upgrade

Transmission Line Upgrade Component

Component title	Juniata - Hunterstown 500 kV line (DCT segment with existing JUNI-TMIS line)
Project description	Proprietary Information
Impacted transmission line	Juniata - Three Mile Island (TMIS) 500 kV line
Point A	Juniata
Point B	TMIS
Point C	
Terrain description	Existing transmission corridor. Rolling hills with congestion due to urban areas around ROW.
Existing Line Physical Characteristics	
Operating voltage	500
Conductor size and type	Double bundle 2493 ACAR 54/37 conductor

Hardware plan description	Line will be completely removed. All new hardware will be installed.	
Tower line characteristics	See attachment entitled JUNI-HUNT-Structures.pdf for illustrations of structure types to be used for this project.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	3637.000000	4503.000000
Winter (MVA)	4156.000000	5022.000000
Conductor size and type	Triple bundle 1590 ACSR conductor	
Shield wire size and type	dual 144 count OPGW	
Rebuild line length	16.8 miles	
Rebuild portion description	Rebuild the existing single circuit Juniata – Three Mile Island (TMIS) 500kV line as double circuit 500 kV for 16.8 miles from Juniata substation to the PPL/METED demarcation point. Utilize triple bundle 1590 ACSR (for both circuits) with a minimum rating of 3637 MVA SN, 4503 MVA SE, 4156 MVA WN, and 5022 MVA WE. Install dual 144 count OPGW.	
Right of way	Expand ROW to the west as needed to allow for the line to be rebuilt offset with the new circuit constructed on the west side.	
Construction responsibility	Proprietary Information	
Benefits/Comments	Proprietary Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary Information	
Permitting / routing / siting	Proprietary Information	
ROW / land acquisition	Proprietary Information	

Materials & equipment	Proprietary Information
Construction & commissioning	Proprietary Information
Construction management	Proprietary Information
Overheads & miscellaneous costs	Proprietary Information
Contingency	Proprietary Information
Total component cost	\$126,595,922.01
Component cost (in-service year)	\$156,368,283.20

Substation Upgrade Component

Component title	Juniata 500 kV yard upgrade
Project description	Proprietary Information
Substation name	Juniata 500/230 kV Substation
Substation zone	PPL
Substation upgrade scope	Install two 4000 A circuit breakers, four 4000 A MODs, a 500 kV dead-end structure, and associated bay equipment in Bay #3 in the Juniata 500kV yard. Move the existing Juniata – TMIS 500 kV line from its current location in bay position 4S and re-terminate it into the new Bay #3 in the south position in the Juniata 500 kV yard. Then terminate the new Juniata – Hunterstown 500 kV line into the vacated Bay 4 south position.

Transformer Information

None	
New equipment description	Two 4000 A circuit breakers Four 4000 A MODs One 500 kV dead-end structure Associated bay equipment
Substation assumptions	Space is sufficient in the station owned by the Proposer to accommodate the additional new bay in this project scope.
Real-estate description	No substation expansion is anticipated to be necessary to accommodate this upgrade.
Construction responsibility	Proprietary Information

Benefits/Comments	Proprietary Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Information
Permitting / routing / siting	Proprietary Information
ROW / land acquisition	Proprietary Information
Materials & equipment	Proprietary Information
Construction & commissioning	Proprietary Information
Construction management	Proprietary Information
Overheads & miscellaneous costs	Proprietary Information
Contingency	Proprietary Information
Total component cost	\$9,675,000.00
Component cost (in-service year)	\$11,950,330.75

Greenfield Transmission Line Component

Component title	Juniata - Hunterstown 500 kV line (greenfield segment)	
Project description	Proprietary Information	
Point A	Juniata	
Point B	Hunterstown	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	3637.000000	4503.000000
Winter (MVA)	4156.000000	5022.000000

Conductor size and type	Triple bundle 1590 ACSR conductor
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	Acquire greenfield ROW and construct a new 25-mile Juniata - Hunterstown 500 kV line from the PPL EU/METED demarcation point on the existing Juniata - TMIS 500 kV line to the Hunterstown 500 kV Substation.
Terrain description	Mountainous terrain and rolling hills. Refer to attachment "JUNI-HUNT_Corridor_Fig 1_20240830.pdf".
Right-of-way width by segment	Proposing 200 ft ROW for the greenfield segment of line.
Electrical transmission infrastructure crossings	Gardners - Dillsburg 115 kV line, Gardners - Texas Eastern Tap 115 kV line, Hunterstown generator lead line crossing, Hunterstown to Jackson 230 kV line, PPGI - Allen 115 kV line
Civil infrastructure/major waterway facility crossing plan	Appalachian Trail Route 15 Route 74
Environmental impacts	Proposer will provide comprehensive siting and right of way (ROW) support for (1) Rebuild the existing single circuit JUNI-TMIS 500kV line as double circuit 500kV for 16.8 miles from Juniata substation to the demarcation point with MAIT (FE), and (2) Juniata - Hunterstown 500 kV line. We will prepare and file a Full Siting Application (FSA) with the Pennsylvania Public Utility Commission (PUC) to obtain necessary approvals, and our siting efforts will include reviewing environmental, regulatory, and land-use constraints to determine the best alignment and minimize impacts. An FSA is required because new ROW is needed to offset the proposed centerline due to outage constraints. A comprehensive rights review will be completed to identify the existing rights and then an additional 50' of ROW will be acquired to facilitate the offset. Approximately 25-miles of new right of way would be required to the Hunterstown 500 kV yard. The Proposer ROW team will acquire all new rights in compliance with its procedures and industry best practices. Potential siting and ROW risks include interactions with adjacent landowners, the need for additional land rights, and potential interveners in the PUC filing process. The Proposer ROW team will engage proactively with landowners and serve as project liaisons to address concerns and maintain positive relationships throughout the project. This includes communicating the project timeline, activities, and any temporary access needs.
Tower characteristics	See attachment entitled JUNI-HUNT-Structures.pdf for illustrations of structure types to be used for this project.
Construction responsibility	Proprietary Information

Benefits/Comments	Proprietary Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Information
Permitting / routing / siting	Proprietary Information
ROW / land acquisition	Proprietary Information
Materials & equipment	Proprietary Information
Construction & commissioning	Proprietary Information
Construction management	Proprietary Information
Overheads & miscellaneous costs	Proprietary Information
Contingency	Proprietary Information
Total component cost	\$202,431,779.70
Component cost (in-service year)	\$250,038,937.69
Substation Upgrade Component	
Component title	Hunterstown 500 kV yard upgrade
Project description	Proprietary Information
Substation name	Hunterstown Substation
Substation zone	METED
Substation upgrade scope	In the Hunterstown 500 kV yard, move the T2 GSU transformer termination into the bay shared with the Vinco 500 kV line. Install one new 500 kV circuit breaker and two 500 kV MODs in that bay to complete the BAAH design and protect the relocated GSU. Terminate the new Juniata - Hunterstown 500 kV line into the bay position vacated by the T2 GSU transformer move. Protection upgrades as necessary to accommodate the new line and the GSU relocation.
Transformer Information	

None	
New equipment description	One new 500 kV circuit breaker Two 500 kV MODs
Substation assumptions	Room is available to move the T2 GSU transformer termination to the position adjacent to the Vinco line, and an outage can be arranged to accomplish the re-termination.
Real-estate description	It is not anticipated that a substation footprint expansion will be necessary to accommodate this upgrade since there is an open bay position in the existing station layout based on one-line diagrams and a Google Earth review.
Construction responsibility	Proprietary Information
Benefits/Comments	Proprietary Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Information
Permitting / routing / siting	Proprietary Information
ROW / land acquisition	Proprietary Information
Materials & equipment	Proprietary Information
Construction & commissioning	Proprietary Information
Construction management	Proprietary Information
Overheads & miscellaneous costs	Proprietary Information
Contingency	Proprietary Information
Total component cost	\$18,000,000.00
Component cost (in-service year)	\$2,496,383.07
Congestion Drivers	
None	

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-IPD-S104	200009	JUNI	208004	JUNI	2	500/230	229	Summer IPD	Included
2024W1-IPD-W2	200009	JUNI	208004	JUNI	2	500/230	229	Winter IPD	Included
2024W1-N1-WT1	200009	JUNI	208004	JUNI	2	500/230	229/229	Winter Thermal	Included
2024W1-GD-W106	200009	JUNI	208004	JUNI	2	500/230	229	Winter Gen Deliv	Included
2024W1-GD-S390	200009	JUNI	208004	JUNI	2	500/230	229	Summer Gen Deliv	Included

New Flowgates

Proprietary Information

Financial Information

Capital spend start date 01/2025

Construction start date 06/2029

Project Duration (In Months) 95

Cost Containment Commitment

Cost cap (in current year) Proprietary Information

Cost cap (in-service year) Proprietary Information

Components covered by cost containment

1. Juniata - Hunterstown 500 kV line (DCT segment with existing JUNI-TMIS line) - PPL
2. Juniata 500 kV yard upgrade - PPL
3. Juniata - Hunterstown 500 kV line (greenfield segment) - PPL

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	Yes
Overheads & miscellaneous costs	No
Taxes	No
AFUDC	No
Escalation	No
Additional Information	Proprietary Information
Is the proposer offering a binding cap on ROE?	No
Is the proposer offering a Debt to Equity Ratio cap?	Proprietary Information

Additional Comments

None