

Juniata 500 kV Substation yard reconfiguration

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	935
Project title	Juniata 500 kV Substation yard reconfiguration
Project description	Juniata 500 kV yard expansion to include one new bay so that the Keystone 500 kV line can be moved, such that it will no longer be adjacent to the Alburdis 500 kV line. Additionally, the Juniata 500/230 kV T1 transformer will be moved from the south bus to its own dedicated bay position next to the Sunbury 500 kV line, such that it will no longer be lost with the TMIS 500 kV line under breaker failure conditions.
Email	Proprietary Information
Project in-service date	03/2029
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 500/230 kV transformer high side re-termination
2. Juniata 500 kV line reconfiguration (bay expansion)
3. Juniata 500 kV line reconfiguration (Keystone line move)

Substation Upgrade Component

Component title	Juniata 500/230 kV transformer high side re-termination
Project description	Proprietary Information
Substation name	Juniata 500/230 kV Substation
Substation zone	PPL
Substation upgrade scope	Re-terminate the high side 500 kV connection of the Juniata 500/230 kV T1 into Juniata 500 kV Bay 1S: Install one new 3000 A circuit breaker and two 3000 A MODs. All equipment to have a minimum rating of 2338 MVA SN, 2693 MVA SE, 2771 MVA WN, and 3550 MVA WE. Install a new 500 kV Bay 1S dead-end structure. Remove the existing high-side T1 transformer 500 kV breaker and disconnect switch. Terminate the T1 transformer into the new Bay 1 south dead-end structure utilizing single 1590 ACSR with a minimum rating of 1408 MVA SN, 1743 MVA SE, 1622 MVA WN, and 1963 MVA WE for the lead.

Transformer Information

None	
New equipment description	One 3000 A circuit breaker Two 3000 A MODs One new 500 kV Bay 1S dead-end structure Associated bay equipment with a minimum rating of 2338 MVA SN, 2693 MVA SE, 2771 MVA WN, and 3550 MVA WE Down-comers utilizing single 1590 ACSR
Substation assumptions	Available footprint for new bay position at existing station owned by Proposer is sufficient to accommodate this project.
Real-estate description	No substation expansion required. Existing owned property sufficient to accommodate 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	\$11,800,000.00
Component cost (in-service year)	\$13,177,884.98

Substation Upgrade Component

Component title	Juniata 500 kV line reconfiguration (bay expansion)
Project description	Proprietary Information
Substation name	Juniata
Substation zone	PPL
Substation upgrade scope	Install two 4000 A circuit breakers, four 4000 A MODs, one 500 kV dead-end structure, and associated bay equipment in Bay 3 in the Juniata 500 kV yard.

Transformer Information

None	
New equipment description	One 500 kV dead-end structure Two 4000 A circuit breakers Four 4000 A MODs Associated bay equipment for Bay 3 Down-comers utilizing double-bundle 2493 ACAR
Substation assumptions	Available footprint for new bay at existing station owned by Proposer is sufficient to accommodate this project.
Real-estate description	No substation expansion required. Existing owned property sufficient to accommodate 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	\$9,825,000.00
Component cost (in-service year)	\$10,972,264.40

Transmission Line Upgrade Component

Component title	Juniata 500 kV line reconfiguration (Keystone line move)
Project description	Proprietary Information
Impacted transmission line	Keystone - Juniata 500 kV line
Point A	Keystone
Point B	Juniata
Point C	
Terrain description	Flat. Immediately adjacent to existing Juniata Substation.
Existing Line Physical Characteristics	
Operating voltage	500
Conductor size and type	Double bundle 2493 ACAR 54/37 conductor

Hardware plan description	New hardware will be installed for the proposed span.	
Tower line characteristics	Reusing/relocating an existing single circuit 500 kV tower.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2857.000000	3723.000000
Winter (MVA)	3550.000000	4416.000000
Conductor size and type	Double bundle 2493 ACAR 54/37 conductor	
Shield wire size and type	19n9 Alumoweld	
Rebuild line length	0.1 miles	
Rebuild portion description	Just the termination into Juniata 500 kV station will be relocated to a new bay to separate this line by more than one breaker from the Juniata - Albutis 500 kV line.	
Right of way	No ROW impact.	
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	\$610,000.00
Component cost (in-service year)	\$681,229.65

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-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
2024W1-N1-SNC33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Deleted
2024W1-N1-WT1	200009	JUNI	208004	JUNI	2	500/230	229/229	Winter Thermal	Included

New Flowgates

Proprietary Information

Financial Information

Capital spend start date	01/2025
Construction start date	06/2028
Project Duration (In Months)	50

Cost Containment Commitment

Cost cap (in current year) Proprietary Information

Cost cap (in-service year) Proprietary Information

Components covered by cost containment

1. Juniata 500/230 kV transformer high side re-termination - PPL
2. Juniata 500 kV line reconfiguration (bay expansion) - PPL
3. Juniata 500 kV line reconfiguration (Keystone line move) - PPL

Cost elements covered by cost containment

Engineering & design Yes

Permitting / routing / siting Yes

ROW / land acquisition No

Materials & equipment Yes

Construction & commissioning Yes

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