Siegfried 500/230 kV Substation expansion project

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	876
Project title	Siegfried 500/230 kV Substation expansion project
Project description	Install a 500kV yard at Siegfried Substation: Install a three bay, six breaker DBDB GIS substation with sufficient space to accommodate a final buildout of seven bays. Utilize 4000 A circuit breakers and 4000 A MODs in the new GIS station. All new bay equipment will have minimum ratings of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. Install a 500/230 kV 750 MVA transformer connected to the 500 kV bus via 500 kV transformer leads with minimum ratings of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. Terminate the 230 kV transformer leads into Bay 4 in the 230 kV yard. Utilize double bundle 1590 ACSR. Install one 3000 A circuit breaker and two 3000 A MODs in Bay 4. Replace all the existing 2000 A MODs in Bay 4 with 3000 A MODs. At the completion of this project, normally close in the Wescosville 230/138 kV T5 transformer.
Email	Proprietary Information
Project in-service date	03/2030
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Proprietary Information

Project Components

1. Siegfried 500/230 kV Substation Expansion

2. Susquehanna - Wescosville 500 kV line taps into new Siegfried 500 kV yard

Substation Upgrade Component

Component title	Siegfried 500/230 kV Substation Expansion
Project description	Proprietary Information
Substation name	Siegfried
Substation zone	PPL
Substation upgrade scope	Install a 500kV yard at Siegfried Substation: Install a three bay, six breaker DBDB GIS substation with sufficient space to accommodate a final buildout of seven bays. Utilize 4000 A circuit breakers and 4000 A MODs in the new GIS station. All new bay equipment will have minimum ratings of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. Install a 500/230 kV 750 MVA transformer connected to the 500 kV bus via 500 kV transformer leads with minimum ratings of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. Terminate the 230 kV transformer leads into Bay 4 in the 230 kV yard. Utilize double bundle 1590 ACSR. Install one 3000 A circuit breaker and two 3000 A MODs in Bay 4. Replace all the existing 2000 A MODs in Bay 4 with 3000 A MODs. At the completion of this project, normally close in the Wescosville 230/138 kV T5 transformer.

Transformer Information

None

New equipment description	Install a 500 kV yard at Siegfried Substation: Three new 500 kV GIS double bus, double breaker bays Six 500 kV 4000 A GIS circuit breakers Twelve 500 kV 4000 A GIS MODs One 500/230 kV 750 MVA transformer 500 kV transformer leads with minimum ratings of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE 230 kV transformer leads utilizing double bundle 1590 ACSR One 230 kV 3000 A circuit breaker Six 230 kV 3000 A MODs
Substation assumptions	Proposer owns the existing land under the SUSQ-WESC 500kV and a 500 GIS can be accommodated in the footprint that is there.
Real-estate description	Proposer owns the existing land under the SUSQ-WESC 500kV and a 500 GIS can be accommodated in the footprint that is there. No new property is anticipated to be necessary.
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	$97,500,000.00
Component cost (in-service year)	$113,122,193.78

Transmission Line Upgrade Component

Component title	Susquehanna - Wescosville 500 kV line taps into new Siegfried 500 kV yard
Project description	Proprietary Information
Impacted transmission line	Susquehanna - Wescosville 500 kV line
Point A	Susquehanna
Point B	Wescosville
Point C	
Terrain description	Immediately adjacent to Siegfried transmission yard. Mountainous terrain.
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 with the new facilities.	
Tower line characteristics	New transmission poles will be installed.	
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	Less than 1 mile	
Rebuild portion description	Bifurcate the Susquehanna – Wescosville 500 kV line near the new Siegfried 500 kV Switchyard and extend the lines into the new yard on a short double circuit of less than 0.2 miles. 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.	
Right of way	No new ROW is anticipated to be needed 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	$9,425,000.00
Component cost (in-service year)	$10,935,145.40

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Proprietary Information

Financial Information

Capital spend start date	03/2025
Construction start date	09/2028
Project Duration (In Months)	60

Cost Containment Commitment

Cost cap (in current year)	Proprietary Information
Cost cap (in-service year)	Proprietary Information

Components covered by cost containment

1. Siegfried 500/230 kV Substation Expansion - PPL
2. Susquehanna - Wescosville 500 kV line taps into new Siegfried 500 kV yard - 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