Monroe 230/138 kV Substation upgrade

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	688
Project title	Monroe 230/138 kV Substation upgrade
Project description	Upgrade the existing Monroe 230/138 kV Substation to a 2-bay breaker and a half on the 230 kV side (with space to accommodate 2 future bays), and a double-bus double-breaker design on the 138 kV side. To accomplish this expansion, add 2 full breaker and a half 230 kV bays, 6 new 230 kV 3,000 amp circuit breakers and 12 230 kV 3,000 amp MODs to complete the 230 kV yard expansion, and expand the 138 kV by creating 2 double-bus double-breaker bays, adding 3 new 138 kV 2,000 amp circuit breakers, and 6 138 kV 2,000 amp MODs. Add a 2nd 230/138 kV transformer matching the size of the existing transformer (340 MVA).
Email	Proprietary Information
Project in-service date	05/2030
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. Monroe 230/138 kV Substation upgrade
2. Monroe 230/138 kV Substation 230 kV line re-terminations

Substation Upgrade Component

Component title	Monroe 230/138 kV Substation upgrade
Project description	Proprietary Information
Substation name	Monroe 230/138 kV Substation
Substation zone	PPL EU
Substation upgrade scope	Upgrade the existing Monroe 230/138 kV Substation to a 2-bay breaker and a half on the 230 kV side (with space to accommodate 2 future bays), and a double-bus double-breaker design on the 138 kV side. To accomplish this expansion, add 2 full breaker and a half 230 kV bays, 6 new 230 kV 3,000 amp circuit breakers and 12 230 kV 3,000 amp MODs to complete the 230 kV yard expansion, and expand the 138 kV by creating 2 double-bus double-breaker bays, adding 3 new 138 kV 2,000 amp circuit breakers, and 6 138 kV 2,000 amp MODs. Add a 2nd 230/138 kV transformer matching the size of the existing transformer (340 MVA).

Transformer Information

	Name	Capacity (MVA)
Transformer	Monroe T2	340 MVA

	High Side	Low Side	Tertiary
Voltage (kV)	230	138	

New equipment description	2 full breaker and a half 230 kV bays 6 230 kV 3,000 amp circuit breakers 12 230 kV 3,000 amp MODs 2 double-bus double-breaker 138 kV bays 3 138 kV 2,000 amp circuit breakers 6 138 kV 2,000 amp MODs One 230/138 kV 340 MVA transformer (existing on site already)
Substation assumptions	Developer has confirmed it has adequate property for expansion of existing 230 kV yard and re-termination of lines to yard. The second transformer is already on site at the location as a spare.
Real-estate description	No new real estate is required 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	$30,946,584.00
Component cost (in-service year)	$35,036,967.70

Transmission Line Upgrade Component

Component title	Monroe 230/138 kV Substation 230 kV line re-terminations
Project description	Proprietary Information
Impacted transmission line	Monroe - Fox Hill 230 kV line, Monroe - Martins Creek 230 kV line
Point A	Monroe
Point B	Fox Hill
Point C	Martins Creek
Terrain description	On existing Developer-owned land adjacent to existing station.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	1590 ACSR 45/7 conductor

Hardware plan description	All hardware associated with the line re-terminations will be new and constructed to 230 kV standards with glass insulators.
Tower line characteristics	Developer proposes single circuit 230 kV steel poles on concrete foundations.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	647.000000	801.000000
Winter (MVA)	746.000000	903.000000

Conductor size and type	1590 ACSR 45/7 conductor
Shield wire size and type	1/2 in steel
Rebuild line length	Less than 1 mile
Rebuild portion description	Re-terminate the Martins Creek and Fox Hill 230 kV lines to the new 230 kV yard at Monroe. Connect both transformers to the new 230 kV yard.
Right of way	No ROW involved 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	$8,266,292.99
Component cost (in-service year)	$9,358,895.34

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
2025W1-N11-WVM210407	210407	APPE	210407	APPE	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210432	210432	BART TP1	210432	BART TP1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210433	210433	BART 1	210433	BART 1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM208072	208072	SIEG	208072	SIEG	N/A	230	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210406	210406	APPE TP	210406	APPE TP	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVD210748	210748	JKSN	210748	JKSN	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210896	210896	MCMI 2	210896	MCMI 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210693	210693	GILB 1CB	210693	GILB 1CB	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210694	210694	GILB 2CB	210694	GILB 2CB	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210695	210695	GILB 2	210695	GILB 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210696	210696	GILB 1	210696	GILB 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210596	210596	EFMO TP1	210596	EFMO TP1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210597	210597	EFMO	210597	EFMO	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210599	210599	EFMO TP2	210599	EFMO TP2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210600	210600	EFMO DC	210600	EFMO DC	N/A	138	229	N-1-1 Voltage Drop	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-N11-WVM210748	210748	JKSN	210748	JKSN	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WT36	210695	GILB 2	211161	SIEG	2	138	229	N-1-1 Thermal	Included
2025W1-N11-WVM210896	210896	MCMI 2	210896	MCMI 2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVD210897	210897	MCMI 1	210897	MCMI 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVM210599	210599	EFMO TP2	210599	EFMO TP2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210600	210600	EFMO DC	210600	EFMO DC	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WT33	210695	GILB 2	211161	SIEG	2	138	229	N-1-1 Thermal	Included
2025W1-N11-WVM210693	210693	GILB 1CB	210693	GILB 1CB	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210694	210694	GILB 2CB	210694	GILB 2CB	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210434	210434	BART TP2	210434	BART TP2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210436	210436	BART 2	210436	BART 2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210596	210596	EFMO TP1	210596	EFMO TP1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210597	210597	EFMO	210597	EFMO	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVD211249	211249	TANN 2	211249	TANN 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210992	210992	NSTR CB2	210992	NSTR CB2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD211231	211231	STRO 2	211231	STRO 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD211232	211232	STRO 1	211232	STRO 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD211248	211248	TANN 1	211248	TANN 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210937	210937	MONR	210937	MONR	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210989	210989	NSTR 1	210989	NSTR 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210990	210990	NSTR 2	210990	NSTR 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210991	210991	NSTR CB1	210991	NSTR CB1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVM211249	211249	TANN 2	211249	TANN 2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WT42	210437	BLMO	211161	SIEG	1	138	229	N-1-1 Thermal	Included
2025W1-N11-WVM210992	210992	NSTR CB2	210992	NSTR CB2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM211231	211231	STRO 2	211231	STRO 2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WT44	210437	BLMO	211161	SIEG	1	138	229	N-1-1 Thermal	Included
2025W1-N11-WVM211232	211232	STRO 1	211232	STRO 1	N/A	138	229	N-1-1 Voltage Magnitude	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-N11-WVM211248	211248	TANN 1	211248	TANN 1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210937	210937	MONR	210937	MONR	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210989	210989	NSTR 1	210989	NSTR 1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210990	210990	NSTR 2	210990	NSTR 2	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210991	210991	NSTR CB1	210991	NSTR CB1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WVM210897	210897	MCMI 1	210897	MCMI 1	N/A	138	229	N-1-1 Voltage Magnitude	Included
2025W1-N11-WT59	210437	BLMO	210696	GILB 1	1	138	229	N-1-1 Thermal	Included
2025W1-N11-WT58	210437	BLMO	210696	GILB 1	1	138	229	N-1-1 Thermal	Included
2025W1-N11-WVD210433	210433	BART 1	210433	BART 1	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210434	210434	BART TP2	210434	BART TP2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210436	210436	BART 2	210436	BART 2	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD208072	208072	SIEG	208072	SIEG	N/A	230	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210406	210406	APPE TP	210406	APPE TP	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210407	210407	APPE	210407	APPE	N/A	138	229	N-1-1 Voltage Drop	Included
2025W1-N11-WVD210432	210432	BART TP1	210432	BART TP1	N/A	138	229	N-1-1 Voltage Drop	Included

New Flowgates

Proprietary Information

Financial Information

Capital spend start date	02/2026
Construction start date	10/2028
Project Duration (In Months)	51

Cost Containment Commitment

Cost cap (in current year)	Proprietary Information

Cost cap (in-service year)	Proprietary Information

Components covered by cost containment

1. Monroe 230/138 kV Substation upgrade - PPL
2. Monroe 230/138 kV Substation 230 kV line re-terminations - PPL

Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes
Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	No
AFUDC	No
Escalation	Yes
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