Montville 500/230 kV Transformer Installation and Associated Upgrades

General Information

Proposing entity name	Confidential Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Confidential Information
Company proposal ID	Confidential Information
PJM Proposal ID	140
Project title	Montville 500/230 kV Transformer Installation and Associated Upgrades
Project description	At Montville Substation establish a new 500 kV ring bus by looping the Hopatcong – Roseland 500 kV Line, install a new 500/230 kV transformer, and converting the existing 230 kV yard to a 230 kV breaker-and-a-half layout
Email	Confidential Information
Project in-service date	11/2029
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Confidential Information

Project Components

1. Montville 500 kV Ring Bus and 230 kV Breaker and a Half
2. Montville-Whippany 34.5 kV K115 Line: Replace Structures and Install New Conductor
3. Chapin Road - Montville - Whippany 34.5 kV O93 Line: Replace Structures and Install New Conductor
4. Hopatcong- Roseland Line Loop into Montville Substation

Substation Upgrade Component

Component title	Montville 500 kV Ring Bus and 230 kV Breaker and a Half
Project description	Confidential Information
Substation name	Montville Substation
Substation zone	JCPL
Substation upgrade scope	Install a 500 kV three breaker ring bus at Montville Substation Install a 500/230 kV transformer Install new breaker string in the 230 kV yard to create a breaker and a half layout Re-terminate the 230-34.5 kV transformers

Transformer Information

	Name	Capacity (MVA)
Transformer	Montville 500/230 kV #1	700

	High Side	Low Side	Tertiary
Voltage (kV)	500	230	13.2

New equipment description	Install (1) 500/230-kV transformer. Install (3) 500-kV, 5000-A, 63-kA circuit breakers. Install (9) 500-kV, 3000-A, motor-operated breaker, line, and transformer disconnect switches. Install (9) 500-kV CVTs. Install (2) 500-kV, 3000-A wave traps. Install (2) 500-kV H-frames. Install (6) 318-kV MCOV surge arresters. Install (6) 144-kV MCOV surge arresters. Install (1) 230-kV, 2000 A wave trap for the Newton line terminal. Install (6) 230-kV CVTs, three each on the 230 kV Newton and Roseland line terminals. Install (10) 230-kV, 4000-A, 50-kA circuit breakers. Install (18) 230-kV, 2000-A, manual, group-operated breaker disconnect switches. Install (6) 230-kV, 3000-A, motor-operated transformer/line disconnect switch. Install (2) 230-kV, 167-kVA SSVTs and fused disconnects. Install (5) 230 kV dead end structures. Install one lot of structural steel. Install one lot of insulators, rigid bus, conductor, cables, grounding, and fittings. Install (1) FE standard “large” control building. Install physical security system. Install (7) transmission monopoles for transformer bank connections. Install (1) lot of fencing. Relays & Controls: Install (9) breaker control panels. Install (2) line relay panels, one each for the 230 kV Newton and Roseland line terminals. Install (1) line carrier panel for the 230 kV Newton line terminal. Install (4) line relay panels, two each for the Roseland and Hopatcong 500 kV line terminals. Install (4) carrier panel, two each for the Roseland and Hopatcong 500 kV line terminals. Install (8) transformer panels, two each for the new 500/230-kV transformer, and the No. 1, No. 2 and No. 3 230-34.5 kV transformers. Install (1) SCADA RTU. Install (1) HMI panel including RTAC and GPS clock. Install (1) DFR. Install (2) 125-VDC battery systems (primary and backup). Install (1) fiber patch panel. Install (1) sync panel. Install 240/120-VAC automatic transfer switch (ATS) and one lot of AC panels. Install one lot of control cable, SEL cables, and fiber to all new and relocated equipment
Substation assumptions	500-kV protection schemes will be specified by PSE&G. 500 kV and 230 kV Interconnection metering will be at PSE&G. 230 kV yard to be removed and replaced with 230 kV breaker-and-a-half layout. No existing equipment and relays will be reused or relocated. Existing 34.5 kV equipment will be retained and relaying will be relocated to the new control building. New fence expansion will be high security.
Real-estate description	Assumption: purchase property adjacent to the station to install the 500 kV ring bus, transformer, and expand the 230 kV yard to a breaker and a half layout.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information

Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$63,897,318.00
Component cost (in-service year)	$69,902,699.00

Transmission Line Upgrade Component

Component title	Montville-Whippany 34.5 kV K115 Line: Replace Structures and Install New Conductor
Project description	Confidential Information
Impacted transmission line	Montville-Whippany 34.5 kV K115 Line
Point A	Montville
Point B	Whippany
Point C	
Terrain description	This line traverses a semi-urban area which is relatively flat on a coastal plain.
Existing Line Physical Characteristics	
Operating voltage	34.5
Conductor size and type	336.4 kcmil 26/7 ACSR
Hardware plan description	It is assumed that new underground conductor will be installed from the new riser structure to the existing, to be removed, riser structure. It is assumed the new underground conductor will be spliced with the existing underground conductor. A new splice vault or manhole will be required at the splice location. It may be determined that the existing underground conductor may also be removed and replaced as part of this project. It is assumed that due to the proposed substation layout and adjacent circuit that the existing overhead portion of the MONTVILLE - WHIPPANY 34.5 KV K115 LINE between structures 154 and 155 will need to be removed and relocated underground. Existing double structure 154 is to be removed in this estimate and replaced with (1) new single circuit WPE overhead to underground transition (riser) structure.

Tower line characteristics	Replacements should be new single circuit wood pole equivalent	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	34.500000	34.500000
	Normal ratings	Emergency ratings
Summer (MVA)	40.000000	48.000000
Winter (MVA)	44.000000	57.000000
Conductor size and type	336.4 kcmil 26/7 ACSR	
Shield wire size and type	#7 Alumo Weld	
Rebuild line length	200 ft	
Rebuild portion description	Install approximately (200-ft) of new UG conductor to be spliced with existing section of UG conductor into the Montville Substation	
Right of way	It is assumed that all work will take place within the existing ROW. A rights and restrictions review by Real Estate will be required. Georeferenced ROW extents will be required to be provided to engineering	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year $		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	

Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$.00
Component cost (in-service year)	$.00

Transmission Line Upgrade Component

Component title	Chapin Road - Montville - Whippany 34.5 kV O93 Line: Replace Structures and Install New Conductor
Project description	Confidential Information
Impacted transmission line	Chapin Road - Montville - Whippany 34.5 kV O93 Line
Point A	Chapin Road
Point B	Montville
Point C	Whippany
Terrain description	This line traverses a semi-urban area which is relatively flat on a coastal plain.
Existing Line Physical Characteristics	
Operating voltage	34.5
Conductor size and type	336.4 kcmil 26/7 ACSR
Hardware plan description	It is assumed that new underground conductor will be installed from the new riser structure to the existing, to be removed, riser structure. It is assumed the new underground conductor will be spliced with the existing underground conductor. A new splice vault or manhole will be required at the splice location. It may be determined that the existing underground conductor may also be removed and replaced as part of this project. It is assumed that due to the proposed substation layout and adjacent circuit that the existing overhead portion of the MONTVILLE - WHIPPANY 34.5 KV K115 LINE between structures 154 and 155 will need to be removed and relocated underground. Existing double structure 154 is to be removed in this estimate and replaced with (1) new single circuit wood pole equivalent overhead to underground transition (riser) structure.

Tower line characteristics	Replacements should be new single circuit wood pole equivalent.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	34.500000	34.500000
	Normal ratings	Emergency ratings
Summer (MVA)	40.000000	48.000000
Winter (MVA)	44.000000	57.000000
Conductor size and type	336.4 kcmil 26/7 ACSR	
Shield wire size and type	#7 Alumoweld	
Rebuild line length	200 ft	
Rebuild portion description	Install approximately 200-ft of new UG conductor to be spliced with existing section of UG conductor into the Montville Substation	
Right of way	It is assumed that all work will take place within the existing ROW. A rights and restrictions review by Real Estate will be required. Georeferenced ROW extents will be required to be provided to engineering	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year $		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	

Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$.00
Component cost (in-service year)	$.00

Transmission Line Upgrade Component

Component title	Hopatcong- Roseland Line Loop into Montville Substation
Project description	Confidential Information
Impacted transmission line	Roseland - Hopatcong 500 kV Line
Point A	Roseland Substation
Point B	Montville Substation
Point C	Hopatcong Substation
Terrain description	Line loop near Montville Substation is relatively flat with some slopes.
Existing Line Physical Characteristics	
Operating voltage	500
Conductor size and type	unknown
Hardware plan description	Looping transmission line into substation that is immediately adjacent to the transmission line.
Tower line characteristics	Line was constructed and placed into service in 2015. Line is in good condition.
Proposed Line Characteristics	

	Designed	Operating
Voltage (kV)	500.000000	500.000000

	Normal ratings	Emergency ratings
Summer (MVA)	3464.000000	3811.000000
Winter (MVA)	4230.000000	4763.000000
Conductor size and type	3 x 1113 ACSS	
Shield wire size and type	Unknown	
Rebuild line length	~0.1 miles	
Rebuild portion description	500 kV line loop into Montville Substation	
Right of way	Line is adjacent to substation and any ROW will be on JCPL owned property.	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year $		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	
Construction management	Confidential Information	
Overheads & miscellaneous costs	Confidential Information	
Contingency	Confidential Information	
Total component cost	$2,932,532.00	
Component cost (in-service year)	$3,270,256.00	

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-SVD206244	206244	28MONTVILE	206244	28MONTVILE	N/A	230	228	N-1-1 Voltage Drop	Included
2025W1-N11-SVD206260	206260	28NEWTON	206260	28NEWTON	N/A	230	228	N-1-1 Voltage Drop	Included
2025W1-N11-SVD206264	206264	28LK ILIFF	206264	28LK ILIFF	N/A	230	228	N-1-1 Voltage Drop	Included
2025W1-N11-SVM206244	206244	28MONTVILE	206244	28MONTVILE	N/A	230	228	N-1-1 Voltage Magnitude	Included

New Flowgates

Confidential Information

Financial Information

Capital spend start date	03/2026
Construction start date	08/2028
Project Duration (In Months)	44

Cost Containment Commitment

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

Components covered by cost containment

1. Montville 500 kV Ring Bus and 230 kV Breaker and a Half - JCPL
2. Montville-Whippany 34.5 kV K115 Line: Replace Structures and Install New Conductor - JCPL
3. Chapin Road - Montville - Whippany 34.5 kV O93 Line: Replace Structures and Install New Conductor - JCPL

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	Confidential Information
Is the proposer offering a binding cap on ROE?	No
Is the proposer offering a Debt to Equity Ratio cap?	Confidential Information

Additional Comments

Proposal is ready for submission. Contact us with any questions.