Pennsylvania Border - Drakestown 500 kV line (brownfield route)

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	900
Project title	Pennsylvania Border - Drakestown 500 kV line (brownfield route)
Project description	Following predominantly JCPL ROW, construct a new 500 kV line from outside Martins Creek substation for approximately 20 miles to the new Drakestown 500 kV Switchyard somewhere in the vicinity of 40.789964° -74.757163° depending on what site can be acquired. 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. Acquire land and install a new Drakestown 3 bay DBDB initial, future BAAH 500 kV switchyard. Install six 500 kV, 4000 A circuit breakers and twelve 500 kV 4000 A MODS, leaving future locations for as many as 3 additional circuit breakers and bay positions. All substation conductors and equipment will have a minimum rating of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. For station service, install three PVTs on the North bus, and obtain 3 phase service from local distribution system or install three PVTs on the South bus. Install portable generator hook-up. Coordinate all relaying with Albrightsville, Hopatcong, and Branchburg. Terminate fiber into the new Drakestown control house.
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. Pennsylvania border - Drakestown 500 kV line (brownfield alternative)
2. Drakestown 500 kV Switchyard
3. Hopatcong - Branchburg 500 kV line taps into new Drakestown 500 kV yard

Transmission Line Upgrade Component

Component title	Pennsylvania border - Drakestown 500 kV line (brownfield alternative)
Project description	Proprietary Information
Impacted transmission line	Flanders - Pequest 115 kV line and Pequest - Gilbert 115 kV line
Point A	Flanders
Point B	Pequest
Point C	Gilbert
Terrain description	Existing transmission corridor. Rolling hills.
Existing Line Physical Characteristics	
Operating voltage	115
Conductor size and type	Unknown
Hardware plan description	Line will be removed and reinstalled with all new hardware.
Tower line characteristics	See attachment "DC 500kV.pdf" for an illustration of the structure type 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	20 miles	
Rebuild portion description	Following predominantly JCPL ROW for the Flanders - Pequest 115 kV line and Pequest - Gilbert 115 kV line, construct a new 500 kV line from outside Martins Creek substation for approximately 20 miles to a new Drakestown 500 kV Switchyard somewhere in the vicinity of 40.789964° -74.757163° depending on what site can be acquired.	
Right of way	Proposing to expand the existing corridor to 200 ft for entire route.	
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	$189,004,607.56	
Component cost (in-service year)	$208,324,331.13	

Greenfield Substation Component

Component title	Drakestown 500 kV Switchyard
Project description	Proprietary Information
Substation name	Drakestown 500 kV Switchyard
Substation description	Acquire land and install a new Drakestown 3 bay DBDB initial, future BAAH 500 kV switchyard. Install six 500 kV, 4000 A circuit breakers and twelve 500 kV 4000 A MODS, leaving future locations for as many as 3 additional circuit breakers and bay positions. All substation conductors and equipment will have a minimum rating of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE. For station service, install three PVTs on the North bus, and obtain 3 phase service from local distribution system or install three PVTs on the South bus. Install portable generator hook-up. Coordinate all relaying with Albrightsville, Hopatcong, and Branchburg. Terminate fiber into the new Drakestown control house.
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Three 500 kV BAAH bays Six 500 kV 4000 A circuit breakers Twelve 500 kV 4000 A MODs All substation conductors and equipment will have a minimum rating of 3609 MVA SN, 4149 MVA SE, 4276 MVA WN, and 4755 MVA WE Three PVTs on the North bus Obtain 3 phase service from local distribution system or install three PVTs on the South bus One portable generator hook-up Fiber as necessary for protection of all new facilities

	Normal ratings	Emergency ratings
Summer (MVA)	3609.000000	4149.000000
Winter (MVA)	4276.000000	4755.000000

Environmental assessment	The proposed project will traverse both Pennsylvania and northwestern New Jersey, requiring in-depth consultations with both states along with the National Park Service. For Pennsylvania, Proposer anticipates needing to apply for an Individual Permit in compliance with the National Pollutant Discharge Elimination System as administered by the Pennsylvania Department of Environmental Protection. Impacts to federal and state protected species typically associated with transmission development are anticipated, including time of year vegetation clearing restrictions for bat species along with potential presence/absence surveys for Bog Turtles in suitable wetland habitat. Cultural resource management activities will likely be comprised of historic architecture surveys to determine visual impacts to historic farmsteads and targeted, systemic shovel testing to determine the presence/absence of buried archaeological deposits in areas where new ground disturbing activities are required. A crossing of the Appalachian Trail is anticipated, which will trigger consultations with the National Park Service. This may include cultural resource surveys of the impacted section of trail, tribal consultations, and viewshed mitigation. New Jersey permits anticipated include an Individual Permit in compliance with the National Pollutant Discharge Elimination System as administered by the New Jersey Department of Environmental Protection. Compliance with New Jersey’s Highlands Act will most likely be triggered with the current proposed scope. Impacts to federal and state protected species typically associated with transmission development are anticipated, including time of year vegetation clearing restrictions for bat species along with potential presence/absence surveys for Bog Turtles in suitable wetland habitat. Like Pennsylvania, Cultural resource management activities will likely be comprised of historic architecture surveys to determine visual impacts to historic farmsteads and targeted, systemic shovel testing to determine the presence/absence of buried archaeological deposits in areas where new ground disturbing activities are required. Municipal permits related to the development of a new switchyard will likely be needed based on final site location

Outreach plan	Proposer will provide comprehensive siting and right of way (ROW) support for the following segments: • S01 – Lackawanna – Siegfried 500kV line – site and construct a new 500 kV line 50 miles to the existing Susquehanna – Wescosville 500 kV line and rebuild ~23 miles of the Susquehanna –Wescosville to a new Siegfried 500 kV yard • S02 – Siegfried 500 kV switchyard – site and construct a new 500kV switchyard adjacent to the existing Siegfried substation. Split the Susquehanna – Wescosville transmission line and re-terminate in the new yard. • S03 – Siegfried – Drakestown 500 kV line – Site and construct a new Siegfried – Drakestown 500 kV transmission line - Utilize the existing Martins Creek – Siegfried #2 transmission between Siegfried and Martins Creek and then site new ~20 mile greenfield transmission line to new Drakestown 500 kV yard • S04 – Drakestown 500 kV Switchyard - site and construct a new 500kV switchyard in Drakestown Proposer Siting will prepare and file a Full Siting Application (FSA) with the Pennsylvania (PUC) and a Siting Application with New Jersey Board of Public Utilities (NJ BPU) to obtain necessary approvals, and our siting efforts. Siting of the transmission lines and switchyard locations will include reviewing environmental, regulatory, and land-use constraints to determine an appropriate alignment and location which minimizes potential impacts. Where possible, Proposer will utilize existing electric transmission corridors and other linear opportunities to minimize new social and environmental impacts. Upon completion of the siting activities, the Proposer ROW team will acquire all needed ROW in compliance with its procedures and industry best practices. Potential siting and ROW risks include inability to acquire all needed ROW, interactions with adjacent landowners, and potential interveners in the Siting approval process. The Proposer Siting and 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 need, timeline, activities, construction impacts and site restoration.

Land acquisition plan	Proposer will provide comprehensive siting and right of way (ROW) support for the following segments: • S01 – Lackawanna – Siegfried 500kV line – site and construct a new 500 kV line 50 miles to the existing Susquehanna – Wescosville 500 kV line and rebuild ~23 miles of the Susquehanna –Wescosville to a new Siegfried 500 kV yard • S02 – Siegfried 500 kV switchyard – site and construct a new 500kV switchyard adjacent to the existing Siegfried substation. Split the Susquehanna – Wescosville transmission line and re-terminate in the new yard. • S03 – Siegfried – Drakestown 500 kV line – Site and construct a new Siegfried – Drakestown 500 kV transmission line - Utilize the existing Martins Creek – Siegfried #2 transmission between Siegfried and Martins Creek and then site new ~20 mile greenfield transmission line to new Drakestown 500 kV yard • S04 – Drakestown 500 kV Switchyard - site and construct a new 500kV switchyard in Drakestown Proposer Siting will prepare and file a Full Siting Application (FSA) with the Pennsylvania (PUC) and a Siting Application with New Jersey Board of Public Utilities (NJ BPU) to obtain necessary approvals, and our siting efforts. Siting of the transmission lines and switchyard locations will include reviewing environmental, regulatory, and land-use constraints to determine an appropriate alignment and location which minimizes potential impacts. Where possible, Proposer will utilize existing electric transmission corridors and other linear opportunities to minimize new social and environmental impacts. Upon completion of the siting activities, the Proposer ROW team will acquire all needed ROW in compliance with its procedures and industry best practices. Potential siting and ROW risks include inability to acquire all needed ROW, interactions with adjacent landowners, and potential interveners in the Siting approval process. The Proposer Siting and 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 need, timeline, activities, construction impacts and site restoration.
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	$74,263,384.83
Component cost (in-service year)	$95,120,908.12

Transmission Line Upgrade Component

Component title	Hopatcong - Branchburg 500 kV line taps into new Drakestown 500 kV yard
Project description	Proprietary Information
Impacted transmission line	Hopatcong - Branchburg 500 kV line
Point A	Hopatcong
Point B	Branchburg
Point C	
Terrain description	Existing transmission corridor. Rolling hills. Adjacent to proposed Drakestown 500 kV Switchyard.
Existing Line Physical Characteristics	
Operating voltage	500
Conductor size and type	Unknown
Hardware plan description	New hardware to be installed for new tap structures.
Tower line characteristics	See attachment entitled DC 500kV.pdf for illustrations of the types of structures to be used for this upgrade.

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 Hopatcong - Branchburg 500 kV line near the new Drakestown 500 kV Switchyard and extend the lines into the new yard on DCT towers for less than 1 mile.	
Right of way	Minimal or no new ROW should be necessary as this is a short tap of an existing line.	
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	$13,731,250.00	
Component cost (in-service year)	$15,134,834.59	

Congestion Drivers

None

Existing Flowgates

None

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. Drakestown 500 kV Switchyard - 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