

Kammer to Juniata 765 kV Extension + Buttermilk Falls and Mountain Stone STATCOM Additions + Isabella 765 kV Substation

General Information

Proposing entity name	Proprietary & Confidential Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Proprietary & Confidential Information
Company proposal ID	Proprietary & Confidential Information
PJM Proposal ID	765
Project title	Kammer to Juniata 765 kV Extension + Buttermilk Falls and Mountain Stone STATCOM Additions + Isabella 765 kV Substation
Project description	Construct a new 765 kV transmission line between Mountain Stone and a new Spicewood 765/500/230 kV substation, with connections to the existing 500 kV and 230 kV transmission networks. Expand Mountain Stone and Buttermilk Falls substations and construct a new Isabella 765/500 kV substation on the Kammer-Buttermilk Falls 765 kV line with a new 500 kV connection to Hatfield.
Email	Proprietary & Confidential Information
Project in-service date	06/2034
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Proprietary & Confidential Information

Project Components

1. 137) Isabella - Hatfield 500 kV

2. 146) Mountain Stone - Spicewood 765 kV
3. 90) Spicewood 765 kV Substation
4. 183) Isabella 765/500 kV Substation
5. 135) Kammer - Buttermilk Falls 765 kV (PJM Baseline ID: b4036.9)
6. 187) Susquehanna - Orefield 500 kV loop-in out of Spicewood Substation
7. 188) Seigfried - Tresckow 230 kV loop-in out of Spicewood Substation
8. 189) East Palmerton - Tresckow 230 kV loop-in out of Spicewood Substation
9. 132) Hatfield 500kV Substation Upgrade
10. 173) Mountain Stone Substation 765 kV
11. 175) Buttermilk Falls Substation 765 kV

Greenfield Transmission Line Component

Component title	137) Isabella - Hatfield 500 kV	
Project description	Proprietary & Confidential Information	
Point A	Isabella	
Point B	Hatfield	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	4488.000000	4866.000000
Winter (MVA)	5220.000000	5659.000000
Conductor size and type	3xChukar ACSS	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	

General route description	The proposed Isabella - Hatfield 500 kV transmission line component originates at the Isabella substation and terminates at the Hatfield substation, traversing through Greene County, Pennsylvania. The line is proposed as an overhead single circuit 500 kV transmission facility. The component generally follows existing infrastructure corridors where practicable, such as major roadways, existing transmission corridors, rail corridors, and utility rights-of-way, in order to minimize environmental and land use impacts.
Terrain description	The proposed Isabella - Hatfield 500 kV component traverses terrain that is generally characterized by rolling to moderately steep terrain, consisting primarily of agriculture, forested, and developed land uses. The topography along the route includes rolling, dissected uplands within the Western Allegheny Plateau ecoregion, with slope conditions characterized by moderate to steep slopes ranging from approximately 5 to 20 percent, with gentler grades along valley floors and steeper pitches exceeding 30 percent on ridge ascents. Subsurface conditions generally consist of sandstone and limestone overlain by Dormont-Culleoka complex, Dormont silt loam, and Udorthents. Please see Attachment 14 for detailed route analysis.
Right-of-way width by segment	The route will require a 200-foot-wide right-of-way (ROW).
Electrical transmission infrastructure crossings	See Attachment 4 (Google Earth .kmz file) for crossing locations.
Civil infrastructure/major waterway facility crossing plan	See Attachment 5 (Crossing Plan) and Attachment 4 (Google Earth .kmz file) for crossing plans and locations.
Environmental impacts	Environmental constraints associated with the proposed Isabella - Hatfield 500 kV component were evaluated within the vicinity of the proposed project centerline and are considered manageable through avoidance, minimization, and mitigation during routing, siting, design, and permitting. The proposed component was developed to maximize the use of existing utility and transportation corridors, previously disturbed areas, and compatible land uses, where practicable. Route alternatives were evaluated through environmental screening, aerial imagery review, GIS analysis, and constructability assessments. The project evaluated opportunities for co-location with existing infrastructure, land use considerations, permitting considerations, and other project-specific factors to avoid and minimize impacts to sensitive environmental resources, to the extent practicable. Additional details on preliminary routing and feasibility are included in Attachment 14 (Routing Supplemental Attachment). Industry-standard environmental construction Best Management Practices and Time-of-Year restrictions will be implemented to minimize impacts to natural and cultural resources encountered by the proposed project. Based on environmental reviews completed to date, no fatal environmental flaws or significant constraints have been identified that would preclude permitting, construction, or operation of the Project. Identified impacts are anticipated to be manageable through standard permitting, agency coordination, route refinement, and mitigation. Additional details on the anticipated environmental permitting approach and a description of the federal, state, and local regulatory environment is included in Attachment 8 (Environmental and Permitting Plan).

Tower characteristics	Self-Supported Lattice. See structure drawing set included in Attachment 10.	
Construction responsibility	Proprietary & Confidential Information	
Benefits/Comments	Proprietary & Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary & Confidential Information	
Permitting / routing / siting	Proprietary & Confidential Information	
ROW / land acquisition	Proprietary & Confidential Information	
Materials & equipment	Proprietary & Confidential Information	
Construction & commissioning	Proprietary & Confidential Information	
Construction management	Proprietary & Confidential Information	
Overheads & miscellaneous costs	Proprietary & Confidential Information	
Contingency	Proprietary & Confidential Information	
Total component cost	\$20,767,637.00	
Component cost (in-service year)	\$22,725,168.00	
Greenfield Transmission Line Component		
Component title	146) Mountain Stone - Spicewood 765 kV	
Project description	Proprietary & Confidential Information	
Point A	Mountain Stone	
Point B	Spicewood	
Point C		
	Normal ratings	Emergency ratings

Summer (MVA)	6877.000000	6942.000000
Winter (MVA)	8011.000000	8245.000000
Conductor size and type	6xRedwing ACSR(GA2)	
Nominal voltage	AC	
Nominal voltage	765	
Line construction type	Overhead	
General route description	The proposed Mountain Stone - Spicewood 756 kV transmission line component originates at the Mountain Stone substation and terminates at the Spicewood substation, traversing through 4 counties, including Perry County, Dauphin County, Schuylkill County, and Carbon County, Pennsylvania. The line is proposed as an overhead single circuit 765 kV transmission facility. The route is primarily located within forested, agricultural, and developed terrain and follows existing right-of-way for approximately 22% of the route and will require new right-of-way for approximately 78% of the route. The component generally follows existing infrastructure corridors where practicable, such as major roadways, existing transmission corridors, rail corridors, and utility rights-of-way, in order to minimize environmental and land use impacts.	
Terrain description	The proposed Mountain Stone - Spicewood 756 kV component traverses terrain that is generally characterized by rolling to moderately steep terrain, consisting primarily of forested, agricultural, and developed land uses. The topography along the route includes ridge-and-valley terrain within the Ridge and Valley ecoregion, with slope conditions characterized by gentle to steep slopes ranging from approximately 5 to 25 percent, with gentler grades along valley floors and steeper pitches exceeding 30 percent on ridge ascents. Subsurface conditions generally consist of shale, sandstone, and siltstone overlain by Calvin-Leck Kill shaly silt loams, Hazleton-Clymer association, and Leck kill channery silt loam. Population and development characteristics along the proposed route consist of predominantly rural and undeveloped areas, with limited residential presence and minimal population exposure along the proposed route. Please see Attachment 14 for detailed route analysis.	
Right-of-way width by segment	The proposed 765 kV transmission line will utilize a 200-foot-wide right-of-way (ROW) along the route. Approximately 22% of the proposed route is anticipated to parallel, co-locate within, or expand upon existing transmission or utility corridors, while the remaining approximately 78% of the route will consist of new greenfield ROW.	
Electrical transmission infrastructure crossings	See Attachment 4 (Google Earth .kmz file) for crossing locations.	
Civil infrastructure/major waterway facility crossing plan	See Attachment 5 (Crossing Plan) and Attachment 4 (Google Earth .kmz file) for crossing plans and locations.	

Environmental impacts	Environmental constraints associated with the proposed Mountain Stone - Spicewood 756 kV component were evaluated within the vicinity of the proposed project centerline and are considered manageable through avoidance, minimization, and mitigation during routing, siting, design, and permitting. The proposed component was developed to maximize the use of existing utility and transportation corridors, previously disturbed areas, and compatible land uses, where practicable. Route alternatives were evaluated through environmental screening, aerial imagery review, GIS analysis, and constructability assessments. The project evaluated opportunities for co-location with existing infrastructure, land use considerations, permitting considerations, and other project-specific factors to avoid and minimize impacts to sensitive environmental resources, to the extent practicable. Additional details on preliminary routing and feasibility are included in Attachment 14 (Routing Supplemental Attachment). Industry-standard environmental construction Best Management Practices and Time-of-Year restrictions will be implemented to minimize impacts to natural and cultural resources encountered by the proposed project. Based on environmental reviews completed to date, no fatal environmental flaws or significant constraints have been identified that would preclude permitting, construction, or operation of the Project. Identified impacts are anticipated to be manageable through standard permitting, agency coordination, route refinement, and mitigation. Additional details on the anticipated environmental permitting approach and a description of the federal, state, and local regulatory environment is included in Attachment 8 (Environmental and Permitting Plan).
Tower characteristics	Guyed-Y (Tangent)/ Self-Supported (Deadend). See structure drawing set included in Attachment 10.
Construction responsibility	Proprietary & Confidential Information
Benefits/Comments	Proprietary & Confidential Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary & Confidential Information
Permitting / routing / siting	Proprietary & Confidential Information
ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information

Contingency	Proprietary & Confidential Information		
Total component cost	\$581,821,464.00		
Component cost (in-service year)	\$659,900,099.00		
Greenfield Substation Component			
Component title	90) Spicewood 765 kV Substation		
Project description	Proprietary & Confidential Information		
Substation name	Spicewood		
Substation description	Construct the new Spicewood 765/500/230 kV Substation with a 765 kV straight bus designed for future expansion to a double-breaker, double-bus configuration; install one 765 kV breaker, one 765/500 kV transformer connected to the 765 kV and 500 kV buses, and a two 500/230 kV transformers connecting the 230kV bus.		
Nominal voltage	AC		
Nominal voltage	765/500/500		
Transformer Information			
	Name		Capacity (MVA)
Transformer	765-500kV Xfmr #1		3125
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	N/A
	Name		Capacity (MVA)
Transformer	500-230kV Xfmr #1		906
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	N/A

	Name	Capacity (MVA)	
Transformer	500-230kV Xfmr #2	906	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	N/A
Major equipment description	AC Air Insulated Substation (AIS): New proposed 765-500-230kV substation. New 765-500-230kV substation with one (1) incoming 765kV lines from Mountain Stone Substation, two (2) incoming 500kV lines from Susquehanna and OREF substations, and four (4) 230kV lines from Trescov#1, Trescov#2, Siegried, and East Palmerton substations. Included equipment is one (1) 765-500kV transformer bays [1 transformer per phase plus 1 spare for 4 XFMRs total], and two (2) 500-230kV transformer bays [1 transformer per phase for each bay, plus a spare to share between bays for 7 total Xfmrs, one (1) 300MVAR Line Shunt Reactor bank outgoing to Mountain Stone Substation which includes one (1) 765kV-5000A-63kAIC in said Shunt reactor bay, one (1) 765kV-5000A-63kAIC line Breaker for the High side (765kV) of the substation bus in a single breaker layout, seven (7) 500kV-5000A-63kAIC breakers in a double bus double breaker (DBDB) configuration for the 500kV DBDB section and three (3) transformer bays, eight (8) 230kV-5000A-63AIC breakers in a Breaker-and-a-half (BAAH) layout for the 230kV bus section and the 230 side of each 500/230kV transformer bays. This configuration allows for two total BAAH 230kV bays, two 500/230kV XFMR bays, two DBDB 500 bays, one 765/500kV transformer bay, and a single 765kV line bay for final buildout.		
	Normal ratings	Emergency ratings	
Summer (MVA)	6877.000000	6942.000000	
Winter (MVA)	8011.000000	8245.000000	

Environmental assessment

Environmental constraints were evaluated within the proposed substation site and are considered manageable through avoidance, minimization, and mitigation measures. The parcel contains one NWI-mapped wetland. According to FEMA data, no portion of the proposed substation layout contains a 100-year floodplain or regulated floodway. No major watercourses are located within the parcel, although overland flow is assumed to drain to unnamed tributaries Mill Creek and Aquashicola Creek. No fatal flaws have been identified. Based on publicly available information, no previously recorded archaeological sites, cemeteries, architectural resources, or historic districts are located within the immediate vicinity of the site. Five federally listed species (two endangered, one threatened, and one proposed threatened) have known ranges in the area, but no critical habitat has been identified within the vicinity of the site. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will be conducted. The project intends to follow recommended tree-clearing windows and seasonal restrictions to minimize impacts to federally listed bats, migratory birds, and other protected species. Standard construction BMPs, along with avoidance and minimization measures, will be implemented to prevent impacts to natural resources to the maximum extent practicable. There are no environmental concerns that cannot be addressed through standard agency coordination and mitigation. No major federal action triggering NEPA is anticipated. See Attachment 08 - Permitting Plan.

Outreach plan

The proposer is committed to informing the public about the project to the greatest extent practicable while working with all interested stakeholders including landowners through a robust public outreach program to address and respond to community concerns. A well-designed public outreach program can have numerous benefits, including fostering cooperative relationships with landowners and other stakeholders, expediting the regulatory permitting process, and assisting with project development. In general, the purpose of the community outreach plan is to gain community support for the project. In the affected communities, the proposer's public outreach plan will educate the public and relevant stakeholders on specific project details to enable timely regulatory approvals and construction activities. Elements of the public outreach plan will include the following: 1) Identify potential issues at an early stage by engagement with key community stakeholders at the outset; 2) Broaden the community engagement process to identify potential and relevant community benefits that can facilitate community support for the proposed project; 3) Develop a broad base of community support for the proposed project before the regulatory agencies; and 4) Develop a comprehensive administrative record documenting the community outreach process that can be presented to the regulatory agency or, in the event of a legal challenge, to the appropriate court. The outreach plan proposes to dedicate considerable time and resources in engaging the community, and specifically the affected community during the planning process to identify highly sensitive areas in order to develop a project that has the least amount of cultural, environmental, and social impacts. The plans will reflect avoidance of impacts rather than mitigation. However, in some cases, if avoidance is not possible, then the proposer will involve landowners and other stakeholders in providing appropriate and practical mitigation measures. Public outreach activities by the proposer will begin following project award.

Land acquisition plan

See attachment 9.

Construction responsibility

Proprietary & Confidential Information

Benefits/Comments	Proprietary & Confidential Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary & Confidential Information
Permitting / routing / siting	Proprietary & Confidential Information
ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$414,720,751.00
Component cost (in-service year)	\$461,534,078.00
Greenfield Substation Component	
Component title	183) Isabella 765/500 kV Substation
Project description	Proprietary & Confidential Information
Substation name	Isabella
Substation description	Construct the new Isabella 765/500 kV breaker-and-a-half substation. Install one three-breaker 765 kV string to terminate the Kammer and Buttermilk Falls lines and provide a second string designed for future breaker installation. Terminate one 765/500 kV transformer in an un-breakered bay with a low-side breaker and operate the switch between the transformer and the Kammer-Isabella line normally open.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

	Name	Capacity (MVA)	
Transformer	765-500kV Xfmr #1	3125	
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	N/A
Major equipment description	AC Air Insulated Substation (AIS): New proposed 765-500kV substation. New 765kV Breaker and a half (BAAH) substation including five (5) 765kV-5000A-63kAIC breakers (number includes breakers for the shunt reactor banks), two (2) 300MVAR Line Reactor banks outgoing to Kammer and Buttermilk substations, One (1) 765/500kV transformer bay [1 transformer per phase plus 1 spare for 4 total), and one (1) 500kV-5000A-63AIC line breaker between the incoming 500kV Hatfield substation line and the transformer bank (low side). Two outgoing 765kV lines to Kammer and Buttermilk substations and one outgoing 500kV line to Hatfield substation. This configuration allows for one total BAAH bay in a ring bus layout at the substation for final buildout.		
	Normal ratings	Emergency ratings	
Summer (MVA)	6877.000000	6942.000000	
Winter (MVA)	8011.000000	8245.000000	

Environmental assessment

Environmental constraints were evaluated within the proposed substation site and are considered manageable through avoidance, minimization, and mitigation measures. The parcel contains one NWI-mapped wetland. According to FEMA data, no portion of the proposed substation layout contains a 100-year floodplain or regulated floodway. No major watercourses are located within the parcel, although overland flow is assumed to drain to unnamed tributaries Mill Creek and Aquashicola Creek. No fatal flaws have been identified. Based on publicly available information, no previously recorded archaeological sites, cemeteries, architectural resources, or historic districts are located within the immediate vicinity of the site. Five federally listed species (two endangered, one threatened, and one proposed threatened) have known ranges in the area, but no critical habitat has been identified within the vicinity of the site. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will be conducted. The project intends to follow recommended tree-clearing windows and seasonal restrictions to minimize impacts to federally listed bats, migratory birds, and other protected species. Standard construction BMPs, along with avoidance and minimization measures, will be implemented to prevent impacts to natural resources to the maximum extent practicable. There are no environmental concerns that cannot be addressed through standard agency coordination and mitigation. No major federal action triggering NEPA is anticipated. See Attachment 08 - Permitting Plan.

Outreach plan

The proposer is committed to informing the public about the project to the greatest extent practicable while working with all interested stakeholders including landowners through a robust public outreach program to address and respond to community concerns. A well-designed public outreach program can have numerous benefits, including fostering cooperative relationships with landowners and other stakeholders, expediting the regulatory permitting process, and assisting with project development. In general, the purpose of the community outreach plan is to gain community support for the project. In the affected communities, the proposer's public outreach plan will educate the public and relevant stakeholders on specific project details to enable timely regulatory approvals and construction activities. Elements of the public outreach plan will include the following: 1) Identify potential issues at an early stage by engagement with key community stakeholders at the outset; 2) Broaden the community engagement process to identify potential and relevant community benefits that can facilitate community support for the proposed project; 3) Develop a broad base of community support for the proposed project before the regulatory agencies; and 4) Develop a comprehensive administrative record documenting the community outreach process that can be presented to the regulatory agency or, in the event of a legal challenge, to the appropriate court. The outreach plan proposes to dedicate considerable time and resources in engaging the community, and specifically the affected community during the planning process to identify highly sensitive areas in order to develop a project that has the least amount of cultural, environmental, and social impacts. The plans will reflect avoidance of impacts rather than mitigation. However, in some cases, if avoidance is not possible, then the proposer will involve landowners and other stakeholders in providing appropriate and practical mitigation measures. Public outreach activities by the proposer will begin following project award.

Land acquisition plan

See attachment 9.

Construction responsibility

Proprietary & Confidential Information

Benefits/Comments	Proprietary & Confidential Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary & Confidential Information
Permitting / routing / siting	Proprietary & Confidential Information
ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$279,062,331.00
Component cost (in-service year)	\$305,530,641.00
Transmission Line Upgrade Component	
Component title	135) Kammer - Buttermilk Falls 765 kV (PJM Baseline ID: b4036.9)
Project description	Proprietary & Confidential Information
Impacted transmission line	Kammer to Buttermilk Falls 765 kV (PJM Baseline ID: b4036.9)
Point A	Kammer
Point B	Buttermilk Falls
Point C	

Terrain description	The proposed transmission line is a modification of the Kammer-Buttermilk Falls transmission corridor associated with PJM Baseline ID b4036.9 to route through the proposed Isabella Substation. The rerouted alignment traverses predominantly rolling to moderately hilly terrain characteristic of southwestern Pennsylvania, with localized steeper slopes associated with stream and river valleys. The surrounding terrain consists of dissected uplands and valleys associated with the Monongahela River watershed.	
Existing Line Physical Characteristics		
Operating voltage	765	
Conductor size and type	Transmission Owner has selected conductor to achieve the required ratings	
Hardware plan description	Matches existing facilities (PJM Baseline ID: b4036.9)	
Tower line characteristics	Matches existing facilities (PJM Baseline ID: b4036.9)	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	765.000000	765.000000
	Normal ratings	Emergency ratings
Summer (MVA)	6877.000000	6942.000000
Winter (MVA)	8011.000000	8245.000000
Conductor size and type	Matches existing facilities (PJM Baseline ID: b4036.9)	
Shield wire size and type	Matches existing facilities (PJM Baseline ID: b4036.9)	
Rebuild line length	41.99	
Rebuild portion description	The proposed route for PJM Baseline ID: b4036.9 (Kammer to Buttermilk Falls; awarded in 2025 RTEP Window) will be modified to interconnect the new Isabella substation.	
Right of way	200 ft ROW	
Construction responsibility	Proprietary & Confidential Information	

Benefits/Comments	Proprietary & Confidential Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary & Confidential Information
Permitting / routing / siting	Proprietary & Confidential Information
ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$34,228,563.00
Component cost (in-service year)	\$38,099,444.00
Transmission Line Upgrade Component	
Component title	187) Susquehanna - Orefield 500 kV loop-in out of Spicewood Substation
Project description	Proprietary & Confidential Information
Impacted transmission line	Susquehanna to Orefield 500 kV
Point A	Spicewood
Point B	Susquehanna/Orefield
Point C	
Terrain description	The proposed transmission line connections are located primarily within the existing Susquehanna-Orefield 500 kV transmission corridor and immediately adjacent to the proposed Spicewood 765 kV Substation. Terrain is generally consistent with the existing transmission corridor and substation area.

Existing Line Physical Characteristics

Operating voltage	500
Conductor size and type	Incumbent / Transmission Owner to select conductor to achieve the required ratings
Hardware plan description	Matches existing facilities
Tower line characteristics	Matches existing facilities

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2707.000000	3112.000000
Winter (MVA)	3207.000000	3566.000000
Conductor size and type	Matches existing facilities	
Shield wire size and type	Matches existing facilities	
Rebuild line length	0.18	
Rebuild portion description	Cuts into existing Susquehanna to Orefield 500 kV Transmission line and routes directly into and out of the new Spicewood 765 kV Substation; Creates a new Susquehanna to Spicewood 500 kV circuit connection and a new Orefield to Spicewood 500 kV circuit connection.	
Right of way	200-foot ROW will be required for the new line length	
Construction responsibility	Proprietary & Confidential Information	
Benefits/Comments	Proprietary & Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary & Confidential Information	
Permitting / routing / siting	Proprietary & Confidential Information	

ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$5,000,000.00
Component cost (in-service year)	\$5,664,016.00
Transmission Line Upgrade Component	
Component title	188) Seigfried - Tresckow 230 kV loop-in out of Spicewood Substation
Project description	Proprietary & Confidential Information
Impacted transmission line	Seifried to Tresckow 230 kV
Point A	Spicewood
Point B	Seigfried/Tresckow
Point C	
Terrain description	The proposed transmission line connections are located primarily within the existing Seigfried-Tresckow 230 kV transmission corridor and immediately adjacent to the proposed Spicewood 765 kV Substation. Terrain is generally consistent with the existing transmission corridor and substation area.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	Incumbent / Transmission Owner to select conductor to achieve the required ratings
Hardware plan description	Matches existing facilities

Tower line characteristics	Matches existing facilities	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	929.000000	1069.000000
Winter (MVA)	1101.000000	1225.000000
Conductor size and type	Matches existing facilities	
Shield wire size and type	Matches existing facilities	
Rebuild line length	0.26	
Rebuild portion description	Cuts into existing Seigfried to Tresckow 230 kV Transmission line and routes directly into and out of the new Spicewood 765 kV Substation; Creates a new Seigfried to Spicewood 230 kV circuit connection and a new Tresckow to Spicewood 230 kV circuit connection.	
Right of way	150-foot ROW will be required for the new line length	
Construction responsibility	Proprietary & Confidential Information	
Benefits/Comments	Proprietary & Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary & Confidential Information	
Permitting / routing / siting	Proprietary & Confidential Information	
ROW / land acquisition	Proprietary & Confidential Information	
Materials & equipment	Proprietary & Confidential Information	
Construction & commissioning	Proprietary & Confidential Information	

Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$3,500,000.00
Component cost (in-service year)	\$3,964,811.00
Transmission Line Upgrade Component	
Component title	189) East Palmerton - Tresckow 230 kV loop-in out of Spicewood Substation
Project description	Proprietary & Confidential Information
Impacted transmission line	East Palmerton to Tres 230kV
Point A	Spicewood
Point B	East Palmerton/Tresckow
Point C	
Terrain description	The proposed transmission line connections are located primarily within the existing East Palmerton-Tres 230 kV transmission corridor and immediately adjacent to the proposed Spicewood 765 kV Substation. Terrain is generally consistent with the existing transmission corridor and substation area.
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	Incumbent / Transmission Owner to select conductor to achieve the required ratings
Hardware plan description	Matches existing facilities
Tower line characteristics	Matches existing facilities
Proposed Line Characteristics	
	Designed
	Operating

Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	721.000000	814.000000
Winter (MVA)	842.000000	911.000000
Conductor size and type	Matches existing facilities	
Shield wire size and type	Matches existing facilities	
Rebuild line length	0.26	
Rebuild portion description	Cuts into existing East Palmerton to Tresckow 230 kV Transmission line and routes directly into and out of the new Spicewood 765 kV Substation; Creates a new East Palmerton to Spicewood 230 kV circuit connection and a new Tresckow to Spicewood 230 kV circuit connection.	
Right of way	150-foot ROW will be required for the new line length	
Construction responsibility	Proprietary & Confidential Information	
Benefits/Comments	Proprietary & Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary & Confidential Information	
Permitting / routing / siting	Proprietary & Confidential Information	
ROW / land acquisition	Proprietary & Confidential Information	
Materials & equipment	Proprietary & Confidential Information	
Construction & commissioning	Proprietary & Confidential Information	
Construction management	Proprietary & Confidential Information	
Overheads & miscellaneous costs	Proprietary & Confidential Information	
Contingency	Proprietary & Confidential Information	
Total component cost	\$3,500,000.00	

Component cost (in-service year) \$3,964,811.00

Substation Upgrade Component

Component title 132) Hatfield 500kV Substation Upgrade

Project description Proprietary & Confidential Information

Substation name Hatfield

Substation zone APS

Substation upgrade scope Add one (1) 500kV breaker to the switchyard to create one (1) additional line terminal.

Transformer Information

	Name	Capacity (MVA)	
Transformer	NA	NA	
	High Side	Low Side	Tertiary
Voltage (kV)	NA	NA	NA

New equipment description Add (1) 500kV, 5000A, 63kAIC breaker and (1) 500kV line.

Substation assumptions Assumes required equipment upgrades occur in existing footprint. Spare position available in existing switchyard.

Real-estate description Proposed upgrade does not require additional real estate acquisition.

Construction responsibility Proprietary & Confidential Information

Benefits/Comments Proprietary & Confidential Information

Component Cost Details - In Current Year \$

Engineering & design Proprietary & Confidential Information

Permitting / routing / siting Proprietary & Confidential Information

ROW / land acquisition Proprietary & Confidential Information

Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$5,000,000.00
Component cost (in-service year)	\$5,547,518.00

Substation Upgrade Component

Component title	173) Mountain Stone Substation 765 kV
Project description	Proprietary & Confidential Information
Substation name	Mountain Stone: b4036.13
Substation zone	PPL
Substation upgrade scope	Expand the in-development Mountain Stone substation by adding a new double-breaker-double bus string (2x new breakers) to create a new terminal position for a 750MVAR StatCom. Add two new 250 MVAR 765 kV cap banks with breakers off the bus. Add a new single string double-breaker-double bus with bus tie breakers (4x new breakers) off the existing buses creating a new terminal position for the line to Spicewood. Add two (2) new 250 MVAR 765 kV cap banks with breakers off the bus. Install two (2) new 500kV low side circuit breakers on low side of 765/500kV transformers.

Transformer Information

	Name	Capacity (MVA)
Transformer	765-500kV Xfmr #1	3125
	High Side	Low Side
Voltage (kV)	765	500
		Tertiary
		NA

	Name	Capacity (MVA)
Transformer	765-500kV Xfmr #2	3125
	High Side	Low Side Tertiary
Voltage (kV)	765	500 NA
New equipment description	Expand the 765kV Switchyard by adding (11) 765kV, 5000A, 63kAIC breakers and adding (2) additional bays. Add (4) 765kV, 250 MVAR capacitor banks, (1) 765kV line terminal, (1) 765kV, 300 MVAR line shunt reactor, and (1) 765kV, +/- 750 MVAR STATCOM. Add (2) 500kV, 5000A, 63kAIC breakers.	
Substation assumptions	The proposed substation modifies the 2025 RTEP substation (PJM Baseline ID: b4036.13). The ultimate substation configuration has been designed in coordination with the engineering team currently designing Mountain Stone Substation and configured to fit on the same parcels identified in the awarded 2025 RTEP proposal, however the larger footprint requires shifting the substation several hundred feet to the east on the other side of PPL's existing 500-kV transmission lines feeding into the Juniata substation.	
Real-estate description	Expansion will be sited on the same property as PJM Baseline ID: b4036.13.	
Construction responsibility	Proprietary & Confidential Information	
Benefits/Comments	Proprietary & Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Proprietary & Confidential Information	
Permitting / routing / siting	Proprietary & Confidential Information	
ROW / land acquisition	Proprietary & Confidential Information	
Materials & equipment	Proprietary & Confidential Information	
Construction & commissioning	Proprietary & Confidential Information	
Construction management	Proprietary & Confidential Information	
Overheads & miscellaneous costs	Proprietary & Confidential Information	

Contingency	Proprietary & Confidential Information		
Total component cost	\$461,390,868.00		
Component cost (in-service year)	\$495,947,544.00		
Substation Upgrade Component			
Component title	175) Buttermilk Falls Substation 765 kV		
Project description	Proprietary & Confidential Information		
Substation name	Buttermilk Falls (PJM Baseline ID: b4036.14)		
Substation zone	PENELEC		
Substation upgrade scope	Expand the in-development Buttermilk Falls substation by adding a new double-breaker-double bus string (2x new breakers) to create a new terminal position for a 750MVAR StatCom. Add two new 250 MVAR 765 kV cap banks with breakers off the bus. Add a new two string double-breaker-double bus with bus tie breakers (5x new breakers) off the existing buses. The first string will create a new terminal position for the existing line to Mountain Stone. The second string will create a new terminal position for the existing 765/500 kV Transformer. Add two new 250 MVAR 765 kV cap banks with breakers off the bus.		
Transformer Information			
	Name		Capacity (MVA)
Transformer	765-500kV Xfmr #1		3125
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	NA
New equipment description	Expand the 765kV switchyard by adding (11) 765kV, 5000A, 63kAIC breakers adding (3) additional bays. Add (4) 765kV, 250 MVAR capacitor banks and (1) 765kV, +/- 750 MVAR STATCOM.		
Substation assumptions	The proposed substation modifies the 2025 RTEP substation (PJM Baseline ID: b4036.14). The ultimate substation configuration has been designed in coordination with the engineering team currently designing Buttermilk Falls Substation and configured to fit on the same parcels identified in the awarded 2025 RTEP proposal, resulting in a larger footprint and limited impact to real estate acquisition plan.		

Real-estate description	Expansion will be sited on the same property as PJM Baseline ID: b4036.14.
Construction responsibility	Proprietary & Confidential Information
Benefits/Comments	Proprietary & Confidential Information
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary & Confidential Information
Permitting / routing / siting	Proprietary & Confidential Information
ROW / land acquisition	Proprietary & Confidential Information
Materials & equipment	Proprietary & Confidential Information
Construction & commissioning	Proprietary & Confidential Information
Construction management	Proprietary & Confidential Information
Overheads & miscellaneous costs	Proprietary & Confidential Information
Contingency	Proprietary & Confidential Information
Total component cost	\$315,585,741.00
Component cost (in-service year)	\$340,710,348.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Proprietary & Confidential Information

Financial Information

Capital spend start date	02/2027
Construction start date	06/2030
Project Duration (In Months)	88

Cost Containment Commitment

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

Components covered by cost containment

1. 137) Isabella - Hatfield 500 kV - PROPOSER
2. 146) Mountain Stone - Spicewood 765 kV - PROPOSER
3. 90) Spicewood 765 kV Substation - PROPOSER
4. 183) Isabella 765/500 kV Substation - PROPOSER
5. 135) Kammer - Buttermilk Falls 765 kV (PJM Baseline ID: b4036.9) - PROPOSER
6. 173) Mountain Stone Substation 765 kV - PROPOSER
7. 175) Buttermilk Falls Substation 765 kV - PROPOSER

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	No
Additional Information	Proprietary & Confidential Information
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	No
Would the proposer seek to increase the proposed ROE if FERC finds that a higher ROE would not be unreasonable?	No
Is the proposer offering a Debt to Equity Ratio cap?	Proprietary & Confidential Information
Additional cost containment measures not covered above	Proprietary & Confidential Information

Additional Comments

As per confirmation by PJM, the Project Capital Expenditures Section will be automatically redacted by PJM.