

Hunterstown - Doubs - Gant Solution

General Information

Proposing entity name	Proprietary Company Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	Proprietary Company Information
PJM Proposal ID	116
Project title	Hunterstown - Doubs - Gant Solution
Project description	New Gant 500/230 kV substation, New Hunterstown - Doubs - Gant 500 kV line, plus various modifications to existing lines and substations. Proposal permitting and overhead costs are captured in Component 40X. See attachment 1 for flowgate information.
Email	Proprietary Company Information
Project in-service date	06/2027
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	

Project Components

1. 21C - Doubs substation expansion with two new 500kV breaker and a half bays
2. 35B - Hunterstown substation single 500kV circuit breaker expansion
3. 40X - New 500kV transmission line from existing Doubs substation to new Gant substation
4. 36F - Belmont substation two 230kV circuit breaker expansion
5. 39E - Farmwell substation two 230kV circuit breaker expansion

- 6. 39G - Roundtable substation single 230kV circuit breaker expansion
- 7. 39a1 - New Gant substation - 5 terminal
- 8. 39D - New 230kV transmission line from new Gant substation to existing Farmwell substation
- 9. 39F - New 230kV transmission line from Cochran Tap to Roundtable
- 10. 21B - New 500kV transmission line between Hunterstown substation and Doubs substation

Substation Upgrade Component

Component title	21C - Doubs substation expansion with two new 500kV breaker and a half bays
Project description	Proprietary Company Information
Substation name	Doubs
Substation zone	Allegheny Power
Substation upgrade scope	Add two new 500kV breaker and a half bays by adding a total of 4 breakers. Terminate the two new 500kV greenfield transmission lines into the new bays created. Recommend relocating the existing Doubs - Goose Creek 500kV line and Doubs - Brighton per the provided one-line diagram to avoid transmission line crossings of the new 500kV transmission lines with the existing transmission lines.

Transformer Information

None	
New equipment description	AC substation: Add two (2) new breaker and a half (BAAH) bays and four (4) new 500kV breakers.
Substation assumptions	The use of a spare bay appears to be available. Area west of substation fence is available.
Real-estate description	Expected expansion of fenceline is within utility owned property.
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process

Component Cost Details - In Current Year \$

Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information

ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$14,000,000.00
Component cost (in-service year)	\$15,453,380.00

Substation Upgrade Component

Component title	35B - Hunterstown substation single 500kV circuit breaker expansion
Project description	Proprietary Company Information
Substation name	Hunterstown
Substation zone	METED
Substation upgrade scope	Termination work for Hunterstown to Doubs Line. Add one 500kV circuit breaker and two MODs at Hunterstown.

Transformer Information

None	
New equipment description	AC Substation: Add one (1) new 500 kV breaker to existing bay in breaker and a half (BAAH) bus.
Substation assumptions	The use of a position within a bay appears to be available.
Real-estate description	No expansion of substation fence anticipated
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process

Component Cost Details - In Current Year \$

Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$1,400,000.00
Component cost (in-service year)	\$1,545,338.00

Greenfield Transmission Line Component

Component title	40X - New 500kV transmission line from existing Doubs substation to new Gant substation	
Project description	Proprietary Company Information	
Point A	Doubs	
Point B	Gant	
Point C	N/A	

	Normal ratings	Emergency ratings
Summer (MVA)	4295.000000	4357.000000
Winter (MVA)	5066.000000	5196.000000
Conductor size and type	3x 1780 kcmil Chukar ACSR	

Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	<p>The route is approximately 27 miles long. Starting a new dead end structure at the Doubs substation, the line routes west-northwest along the existing Doubs - Bismark 500kV transmission ROW and continues to follow the existing ROW west across the Potomac River. Colocating the line with the existing transmission line helps mitigate viewshed issues and permitting risk. After crossing the Potomac, the line shifts south for almost 7 miles before turning east and crossing over the Catoctin Mountain. The line then co-locates with Hwy 15 ROW south for about 3 miles before shifting west to avoid conflicts with Leesburg developed area. The line routes west and south for about 5.5 miles around Leesburg and then turns east near the intersection of Monroe Madison Memorial hwy and Harmony Church Rd. The line routes east-southeast for about 4 miles, routes along the south side of Dulles Greenway ROW for less than 1 mile, and then shifts north to terminate at the new Gant substation.</p>
Terrain description	<p>Much of the project is located in the rolling hills and pastures of the Piedmont east of the Blue Ridge, where the bedrock consists mostly of gneiss, schist, and granite rocks at a typical depth of between 2 and 10 feet. Soils developed from these rocks and minerals form acid, infertile soils, with sandy loam surfaces. Historically, much of the Piedmont region was cleared and farmed intensively, causing extreme erosion over much of the region. Many of the agricultural areas have since reverted to forests.</p>
Right-of-way width by segment	<p>The new right of way will have its own corridor for approximately 85% of the route length. The right of way will be an expansion of an existing transmission line corridor for approximately 15% of the route length. The right of way width will be 165 ft.</p>
Electrical transmission infrastructure crossings	<p>See .kmz with identified major crossings.</p>
Civil infrastructure/major waterway facility crossing plan	<p>See .kmz with identified major crossings and Attachment 5 - Crossing Plan for more detail.</p>

Environmental impacts	Environmental constraints identified are manageable through implementation of an environmental avoidance, minimization, and mitigation strategy incorporated at the beginning of the routing/siting process. Co-location with existing utilities and other infrastructure was prioritized to the greatest extent practicable to minimize the environmental impact on the landscape. The proposed route crosses 4 national wetland inventory (NWI) wetlands and 19 waterbodies, but it appears that most features are small and could be avoided without permitting. Consultation with the Army Corps of Engineers, Fish and Wildlife Service, and numerous state agencies are expected. Fatal flaws have not been identified for proposed route. A cultural resource professional assisted with the routing process to identify and minimize impacts to known areas with historic sensitivities. An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources. Federally listed species have been identified including listed bats, the rusty patched bumble bee, and clam species, but no critical habitat was identified along the proposed route. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will occur. The project intends to adhere to tree removal seasonal restriction windows to avoid and minimize impacts to protected birds and bats, such as the Tri-colored Bat, Northern Long-eared Bat, Bald Eagle, and other common raptors. Erosion control best management practices and setbacks will be engineered and utilized to prevent sedimentation from leaving the site for the protection of aquatic species and to avoid water quality impacts. There are no unique or sensitive environmental concerns or impacts with the proposed transmission line that cannot be addressed.
Tower characteristics	The proposed structures will be single circuit 500kV lattice towers (TTVS-500) in a horizontal configuration. Any proposed deadend structure will either be a steel lattice tower or a 3-pole, one phase per pole configuration. See proposed structure drawing set included in attachment 10.
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information

Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$89,190,081.00
Component cost (in-service year)	\$82,273,334.00

Substation Upgrade Component

Component title	36F - Belmont substation two 230kV circuit breaker expansion
Project description	Proprietary Company Information
Substation name	Belmont
Substation zone	Dominion
Substation upgrade scope	Add two new 230kV circuit breakers to existing ring bus at Belmont and tie-in into the new Gant substation.

Transformer Information

None	
New equipment description	AC Substation: Add two (2) new 230 kV breakers to existing ring.
Substation assumptions	Area east of the existing substation is available.
Real-estate description	Expected expansion of fenceline is within utility owned property.
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process

Component Cost Details - In Current Year \$

Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information

Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$2,800,000.00
Component cost (in-service year)	\$3,090,676.00

Substation Upgrade Component

Component title	39E - Farmwell substation two 230kV circuit breaker expansion
Project description	Proprietary Company Information
Substation name	Farmwell
Substation zone	Dominion
Substation upgrade scope	Expand the 230 kV ring by installing two new circuit breakers and four MODs at Farmwell

Transformer Information

None	
New equipment description	AC Substation: Add two (2) new 230 kV breakers to existing ring.
Substation assumptions	The use of two (2) spare positions within the existing ring appears to be available.
Real-estate description	No expansion of substation fence anticipated
Construction responsibility	Proprietary Company Information
Benefits/Comments	Proprietary Company Information

Component Cost Details - In Current Year \$

Engineering & design	Proprietary Company Information
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Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$3,500,000.00
Component cost (in-service year)	\$3,863,345.00

Substation Upgrade Component

Component title	39G - Roundtable substation single 230kV circuit breaker expansion
Project description	Proprietary Company Information
Substation name	Roundtable
Substation zone	Dominion
Substation upgrade scope	Terminate new 230 kV line from Cochran Tap at Roundtable substation by expanding the existing 230 kV ring bus by adding one CB and two MODs at Roundtable.

Transformer Information

None	
New equipment description	AC Substation: Add two (1) new breaker and a half (BAAH) bay and two (2) new 230 kV breakers.
Substation assumptions	Area south of substation fence is available.
Real-estate description	Expected expansion of fenceline is within utility owned property.
Construction responsibility	Proprietary Company Information

Benefits/Comments

Proprietary Company Information

Component Cost Details - In Current Year \$

Engineering & design

Proprietary Company Information

Permitting / routing / siting

Proprietary Company Information

ROW / land acquisition

Proprietary Company Information

Materials & equipment

Proprietary Company Information

Construction & commissioning

Proprietary Company Information

Construction management

Proprietary Company Information

Overheads & miscellaneous costs

Proprietary Company Information

Contingency

Proprietary Company Information

Total component cost

\$7,000,000.00

Component cost (in-service year)

\$7,726,690.00

Greenfield Substation Component

Component title

39a1 - New Gant substation - 5 terminal

Project description

Proprietary Company Information

Substation name

Gant

Substation description

AC Air Insulated Substation (AIS): New proposed 500 - 230 kV Substation. New 500 kV Breaker and a Half (BAAH) switchyard, two (2) bays, three (3) line terminals, seven (7) 500kV, 5000A, 63kAIC Breakers, two (2) 500 - 230 kV transformer banks. New 230 kV ring bus switchyard with seven (7) line terminals, seven (7) 230 kV, 80 kAIC breakers, two (2) 1% reactance series reactors.

Nominal voltage

AC

Nominal voltage

500/230

Transformer Information

	Name	Capacity (MVA)	
Transformer	Transformer 1	1559/1940	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	N/A
	Name	Capacity (MVA)	
Transformer	Transformer 2	1559/1940	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	N/A
Major equipment description	AC Air Insulated Substation (AIS): New proposed 500 - 230 kV Substation. New 500 kV Breaker and a Half (BAAH) switchyard, two (2) bays, three (3) line terminals, seven (7) 500kV, 5000A, 63kAIC Breakers, two (2) 500 - 230 kV transformer banks. New 230 kV ring bus switchyard with seven (7) line terminals, seven (7) 230 kV, 80 kAIC breakers, two (2) 1% reactance series reactors.		
	Normal ratings	Emergency ratings	
Summer (MVA)	1559.000000	1940.000000	
Winter (MVA)	1785.000000	2168.000000	

Environmental assessment

Environmental constraints identified are manageable through implementation of an environmental avoidance, minimization, and mitigation strategy incorporated at the beginning of the routing/siting process. Co-location with existing utilities and other infrastructure was prioritized to the greatest extent practicable to minimize the environmental impact on the landscape. The proposed site crosses no national wetland inventory (NWI) wetlands or waterbodies. Fatal flaws have not been identified for proposed site. A cultural resource professional assisted with the siting process to identify and minimize impacts to known areas with historic sensitivities. An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources. Federally listed species have been identified with potential to occur in the area including listed bats, but no critical habitat was identified in the area of the substation site. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will occur. The project intends to adhere to tree removal seasonal restriction windows to avoid and minimize impacts to protected birds and bats, such as the northern long-eared bat, bald eagle, and other common raptors. Erosion control best management practices and setbacks will be engineered and utilized to prevent sedimentation from leaving the site for the protection of aquatic species and to avoid water quality impacts. There are no unique or sensitive environmental concerns or impacts with the proposed substation site that cannot be addressed.

Outreach plan

The Company is committed to working with all interested stakeholders through a robust public outreach program to address/respond to community concerns and inform the public about the project to the greatest extent practicable. The Company believes a well-designed public outreach program can have numerous benefits, including fostering a cooperative relationship 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 Company'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 that have the least amount of cultural, environmental, and social impacts on the community. The plans will reflect avoidance of impacts rather than mitigation. However, in some cases, if avoidance is not possible, then the Company will involve the community in providing appropriate and practical mitigation measures. The Company will commence its public outreach activities following project award.

Land acquisition plan

See Attachment 9 for Land Acquisition Plan.

Construction responsibility

Proprietary Company Information

Benefits/Comments

Resolves reliability and market efficiency issues identified per PJM's. process. Substation is a switchyard with no voltage transformation.

Component Cost Details - In Current Year \$

Engineering & design

Proprietary Company Information

Permitting / routing / siting

Proprietary Company Information

ROW / land acquisition

Proprietary Company Information

Materials & equipment

Proprietary Company Information

Construction & commissioning

Proprietary Company Information

Construction management

Proprietary Company Information

Overheads & miscellaneous costs

Proprietary Company Information

Contingency

Proprietary Company Information

Total component cost

\$58,079,000.00

Component cost (in-service year)

\$64,108,349.00

Greenfield Transmission Line Component

Component title

39D - New 230kV transmission line from new Gant substation to existing Farmwell substation

Project description

Proprietary Company Information

Point A

Gant

Point B

Farmwell

Point C

Normal ratings

Emergency ratings

Summer (MVA)

1573.000000

1810.000000

Winter (MVA)	1648.000000	1896.000000
Conductor size and type	3x 1780 kcmil Chukar ACSR	
Nominal voltage	AC	
Nominal voltage	230	
Line construction type	Overhead	
General route description	<p>The route is approximately 11 miles long and is predominately double circuit with components 39D and 39F sharing a common tower for most of the route due to constructability considerations with minimizing ROW requirements. Starting a new dead end structure at the new Gant substation, the line routes north to coincide with the existing Goose Creek - Brambleton 500kV transmission ROW. Near the Pleasant View substation, the line deviates from the existing ROW and follows Cochran Mill Rd for about a half mile before turning west-southwest toward Belmont Ridge Rd where it follows north along the existing road ROW for about a half mile and then turns west-southwest again to follow the Harry Byrd ROW before turning south on the east side of Loudoun County Pkwy. The line follows the Loudoun County Pkwy ROW for a little more than 3 miles and shifts to the west side of Pkwy ROW near Interconnection Plaza to avoid conflict with 1757 Golf Club. The double circuit then splits into two single circuits near the intersection of Loudoun County Pkwy and Waxpool Road. Component 39D - Gant to Farmwell 230kV transmission line routes west along Waxpool Rd to the Farmwell substation and component 39F - Gant Cochran Rap to Roundtable continues along Loudoun County Pkwy to terminate at Roundtable substation.</p>	
Terrain description	<p>The Project is located in the valley south of the Potomac River in Loudoun County. A former agricultural region, the area is now densely developed with commercial buildings and planned residential communities within commuting distance to Washington, D.C. Some industrial facilities are located on the west end of the project area. Slopes are gentle, approximately 4%.</p>	
Right-of-way width by segment	<p>The majority of the new right of way will have its own corridor and will be 45 ft wide, with select locations where a narrower right of way width may be required.</p>	
Electrical transmission infrastructure crossings	<p>See Attachment 4 (Google Earth .kmz) with identified major crossings.</p>	
Civil infrastructure/major waterway facility crossing plan	<p>See Attachment 4 (Google Earth .kmz) with identified major crossings and Attachment 5 - Crossing Plan for more detail.</p>	

Environmental impacts	<p>" Environmental constraints identified are manageable through implementation of an environmental avoidance, minimization, and mitigation strategy incorporated at the beginning of the routing/siting process. Co-location with existing utilities and other infrastructure was prioritized to the greatest extent practicable to minimize the environmental impact on the landscape. The proposed route crosses 5 national wetland inventory (NWI) wetlands and 14 waterbodies, but it appears that most features are small and could be avoided without permitting. Consultation with the Army Corps of Engineers, Fish and Wildlife Service, and numerous state agencies are expected. Fatal flaws have not been identified for proposed route. A cultural resource professional assisted with the routing process to identify and minimize impacts to known areas with historic sensitivities. The Belmont and Ashburn Presbyterian Church are historic structures that were identified in close proximity and will require further consultations. An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources. Federally listed species have been identified including listed bats, the rusty-patched bumblebee, and aquatic species. There is potential for Yellow Lance critical habitat to be identified along the proposed route and will require further consultation with the US Fish and Wildlife Service. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will occur. The project intends to adhere to tree removal seasonal restriction windows to avoid and minimize impacts to protected birds and bats, such as the northern long-eared bat, bald eagle, and other common raptors. Erosion control best management practices and setbacks will be engineered and utilized to prevent sedimentation from leaving the site for the protection of aquatic species and to avoid water quality impacts. There are no unique or sensitive environmental concerns or impacts with the proposed transmission line that cannot be addressed."</p>
Tower characteristics	<p>The majority of the proposed structures will be double circuit 230kV steel monopoles (TVVS-230DC) in a vertical conductor configuration. Any proposed deadend structure will be a steel monopole. The proposed line is single circuit, so the double circuit structure allows for installation of component 39F. For approximately 0.75 miles, single circuit 230kV steel monopoles (TVVS-230) in a vertical conductor configuration will be used to reach and terminate into Farmwell Substation. For additional details, see proposed structure drawing set included in attachment 10.</p>
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information

Construction & commissioning	Proprietary Company Information
Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$25,552,799.00
Component cost (in-service year)	\$28,205,510.00

Greenfield Transmission Line Component

Component title	39F - New 230kV transmission line from Cochran Tap to Roundtable
Project description	Proprietary Company Information
Point A	Cochran Tap
Point B	Roundtable
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1573.000000	1810.000000
Winter (MVA)	1648.000000	1896.000000
Conductor size and type	3x 1780 kcmil Chukar ACSR	
Nominal voltage	AC	
Nominal voltage	230	
Line construction type	Overhead	

General route description

The route is approximately 11 miles long and is predominately double circuit with components 39D and 39F sharing a common tower for most of the route due to constructability considerations with minimizing ROW requirements. Starting a new dead end structure at the new Gant substation, the line routes north to coincide with the existing Goose Creek - Brambleton 500kV transmission ROW. Near the Pleasant View substation, the line deviates from the existing ROW and follows Cochran Mill Rd for about a half mile before turning west-southwest toward Belmont Ridge Rd where it follows north along the existing road ROW for about a half mile and then turns west-southwest again to follow the Harry Byrd ROW before turning south on the east side of Loudoun County Pkwy. The line follows the Loudoun County Pkwy ROW for a little more than 3 miles and shifts to the west side of Pkwy ROW near Interconnection Plaza to avoid conflict with 1757 Golf Club. The double circuit then splits into two single circuits near the intersection of Loudoun County Pkwy and Waxpool Road. Component 39D - Gant to Farmwell 230kV transmission line routes west along Waxpool Rd to the Farmwell substation and component 39F - Gant Cochran Rap to Roundtable continues along Loudoun County Pkwy to terminate at Roundtable substation.

Terrain description

The Project is located in the valley south of the Potomac River in Loudoun County. A former agricultural region, the area is now densely developed with commercial buildings and planned residential communities within commuting distance to Washington, D.C. Some industrial facilities are located on the west end of the project area. Slopes are gentle, approximately 4%.

Right-of-way width by segment

The majority of the new right of way will have its own corridor and will be 45 ft wide, with select locations where a narrower right of way width may be required.

Electrical transmission infrastructure crossings

See Attachment 4 (Google Earth .kmz) with identified major crossings.

Civil infrastructure/major waterway facility crossing plan

See Attachment 4 (Google Earth .kmz) with identified major crossings and Attachment 5 - Crossing Plan for more detail.

Environmental impacts	<p>" Environmental constraints identified are manageable through implementation of an environmental avoidance, minimization, and mitigation strategy incorporated at the beginning of the routing/siting process. Co-location with existing utilities and other infrastructure was prioritized to the greatest extent practicable to minimize the environmental impact on the landscape. The proposed route crosses 5 national wetland inventory (NWI) wetlands and 14 waterbodies, but it appears that most features are small and could be avoided without permitting. Consultation with the Army Corps of Engineers, Fish and Wildlife Service, and numerous state agencies are expected. Fatal flaws have not been identified for proposed route. A cultural resource professional assisted with the routing process to identify and minimize impacts to known areas with historic sensitivities. The Belmont and Ashburn Presbyterian Church are historic structures that were identified in close proximity and will require further consultations. An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources. Federally listed species have been identified including listed bats, the rusty-patched bumblebee, and aquatic species. There is potential for Yellow Lance critical habitat to be identified along the proposed route and will require further consultation with the US Fish and Wildlife Service. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will occur. The project intends to adhere to tree removal seasonal restriction windows to avoid and minimize impacts to protected birds and bats, such as the northern long-eared bat, bald eagle, and other common raptors. Erosion control best management practices and setbacks will be engineered and utilized to prevent sedimentation from leaving the site for the protection of aquatic species and to avoid water quality impacts. There are no unique or sensitive environmental concerns or impacts with the proposed transmission line that cannot be addressed."</p>
Tower characteristics	<p>This proposed line will be installed on the double circuit 230kV steel monopoles (TVVS-230DC) proposed for component 39D. For approximately 1.25 miles, single circuit 230kV steel monopoles (TVVS-230) in a vertical conductor configuration will be used to reach and terminate into Roundtable Substation. For additional details, see proposed structure drawing set included in attachment 10.</p>
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information

Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$26,735,800.00
Component cost (in-service year)	\$29,511,321.00

Greenfield Transmission Line Component

Component title	21B - New 500kV transmission line between Hunterstown substation and Doubs substation
Project description	Proprietary Company Information
Point A	Hunterstown
Point B	Doubs
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	4357.000000	4357.000000
Winter (MVA)	5066.000000	5196.000000
Conductor size and type	3x 1780 kcmil Chukar ACSR	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	

General route description	Route is approximately 57 miles long. Starting a new dead end structure at the Hunterstown substation, the new line routes south west for about 0.25 miles before shifting south-southeast for about 7 miles before turning south-southwest and then crossing the Maryland/Pennsylvania border after about 4 miles. The new line continues south-southwest for about 17 miles beyond the state boundary until about 2-miles northeast of Walkersville, Maryland, where it shifts east to navigate around the populated and developed area surrounding Federick, Maryland, including remaining more than 20,000 ft from the Federick airport, aligned with FAA guidance. The new line routes around Federick for about 15 miles until co-locating with the Doubs - Brighton 500kV transmission line near Ijamsville, Maryland. The line follows the existing transmission ROW on the north side for the remainder of the route, to Doubs substation, for about 13 miles.
Terrain description	The project is located in Maryland's Frederick and Carroll Counties east of the Monocacy River, and Adams County, Pennsylvania. The Frederick Valley, through which the Monocacy flows, is nestled between the Catoctin Mountains to the west, and the lower Parris Ridge to the east. The river valley's topography includes little steep terrain, but some steep gradients do exist adjacent to the river. These land elevations and the degree of slope have influenced land use in the watershed. The region's relatively flat topography has made it easily accessible for development and agriculture in some areas next to the river and its tributaries. York County lies within the Appalachian Highlands, a region characterized by a rounded/forested landscape with an elevation of 6,000 feet or less on average and rolling hills and valleys, generally with gentle to moderately steep slopes.
Right-of-way width by segment	Corridor Type: The new right of way will have its own corridor for approximately 75% of the route length. For approximately 25% of the route length, the right of way will be an expansion of an existing transmission line corridor. Approximately 85% of the route will have a ROW width of 165 ft. Approximately 15% of the route will require a ROW width of 75 ft.
Electrical transmission infrastructure crossings	See Attachment 4 (Google Earth .kmz) with identified major crossings.
Civil infrastructure/major waterway facility crossing plan	See Attachment 4 (Google Earth .kmz) with identified major crossings and Attachment 5 - Crossing Plan for more detail.

Environmental impacts	<p>"Environmental constraints identified are manageable through implementation of an environmental avoidance, minimization, and mitigation strategy incorporated at the beginning of the routing/siting process. Co-location with existing utilities and other infrastructure was prioritized to the greatest extent practicable to minimize the environmental impact on the landscape. The proposed route crosses 17 national wetland inventory (NWI) wetlands and 58 waterbodies, but it appears that most features are small and could be avoided without permitting. The crossing of the Monocacy River will require additional agency consultations. Consultation with the Army Corps of Engineers, Fish and Wildlife Service, and numerous state agencies is expected. Fatal flaws have not been identified for proposed route. A cultural resource professional assisted with the routing process to identify and minimize impacts to known areas with historic sensitivities. An investigation to further identify and evaluate historic properties will be conducted to determine the presence of archaeologically or historically significant resources. Federally listed species have been identified including listed bats, rusty patched bumble bee, fishes, and bog turtle, but no critical habitat was identified along the proposed route. If suitable habitat is identified or regulations change, agency coordination and species-specific surveys will occur. The project intends to adhere to tree removal seasonal restriction windows to avoid and minimize impacts to protected birds and bats, such as the northern long-eared bat, bald eagle, and other common raptors. Erosion control best management practices and setbacks will be engineered and utilized to prevent sedimentation from leaving the site for the protection of aquatic species and to avoid water quality impacts. Routing through the Appalachian Mountains will require additional control measures and monitoring. There are no unique or sensitive environmental concerns or impacts with the proposed transmission line that cannot be addressed."</p>
Tower characteristics	<p>The majority, approximately 65%, of the proposed structures will be single circuit 500kV lattice towers (TTVS-500) in a horizontal conductor configuration. Approximately 35% of the structures will be single circuit 500kV steel monopoles (TVS-500) in a delta conductor configuration. Any proposed deadend structure will either be a lattice tower or a 3-pole, one phase per pole structure type. See proposed structure drawing set included in attachment 10.</p>
Construction responsibility	Proprietary Company Information
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process
Component Cost Details - In Current Year \$	
Engineering & design	Proprietary Company Information
Permitting / routing / siting	Proprietary Company Information
ROW / land acquisition	Proprietary Company Information
Materials & equipment	Proprietary Company Information
Construction & commissioning	Proprietary Company Information

Construction management	Proprietary Company Information
Overheads & miscellaneous costs	Proprietary Company Information
Contingency	Proprietary Company Information
Total component cost	\$250,611,480.00
Component cost (in-service year)	\$276,628,182.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Proprietary Company Information

Financial Information

Capital spend start date	09/2023
Construction start date	07/2025
Project Duration (In Months)	45

Cost Containment Commitment

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

Components covered by cost containment

1. 40X - New 500kV transmission line from existing Doubs substation to new Gant substation - NEETMA
2. 39a1 - New Gant substation - 5 terminal - NEETMA
3. 39D - New 230kV transmission line from new Gant substation to existing Farmwell substation - NEETMA
4. 39F - New 230kV transmission line from Cochran Tap to Roundtable - NEETMA
5. 21B - New 500kV transmission line between Hunterstown substation and Doubs substation - NEETMA

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	Yes
AFUDC	No
Escalation	No
Additional Information	Proprietary Company Information
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	Yes
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 Company Information
Additional cost containment measures not covered above	Proprietary Company Information

Additional Comments

None