

Hunterstown - Doubs - Gant Solution

General Information

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| 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 | 255 |
| Project title | Hunterstown - Doubs - Gant Solution |
| Project description | New Gant 500 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. 40X - New 500kV transmission line from existing Doubs substation to new Gant substation
3. 21B - New 500kV transmission line between Hunterstown substation and Doubs substation
4. 39a3 - New Gant substation - 3 terminal
5. 21A - Hunterstown 500kV single breaker expansion

Substation Upgrade Component

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| 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

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| 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 \$

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|-------------------------------|---------------------------------|
| 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 |

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| 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 |

Greenfield Transmission Line Component

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| 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

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.

Terrain description

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.

Right-of-way width by segment

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.

Electrical transmission infrastructure crossings

See .kmz with identified major crossings.

Civil infrastructure/major waterway facility crossing plan

See .kmz with identified major crossings and Attachment 5 - Crossing Plan for more detail.

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| 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 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.</p> |
| Tower characteristics | <p>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.</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 |

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| Overheads & miscellaneous costs | Proprietary Company Information |
| Contingency | Proprietary Company Information |
| Total component cost | \$86,117,081.00 |
| Component cost (in-service year) | \$82,273,334.00 |

Greenfield Transmission Line Component

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|---------------------|---|
| 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 | |

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| 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. |

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| 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 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." |
| Tower characteristics | 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. |
| 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 |

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| 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 |

Greenfield Substation Component

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| Component title | 39a3 - New Gant substation - 3 terminal |
| Project description | Proprietary Company Information |
| Substation name | Gant |
| Substation description | AC Air Insulated Substation (AIS): New proposed 500 kV Substation. New 500 kV Breaker and a Half (BAAH) switchyard, two (2) bays, three (3) line terminals, five (5) 500kV, 5000A, 63kAIC Breakers. |
| Nominal voltage | AC |
| Nominal voltage | 500 |

Transformer Information

None

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|-----------------------------|---|
| Major equipment description | AC Air Insulated Substation (AIS): New proposed 500 kV Substation. New 500 kV Breaker and a Half (BAAH) switchyard, two (2) bays, three (3) line terminals, five (5) 500kV, 5000A, 63kAIC Breakers. |
|-----------------------------|---|

| | Normal ratings | Emergency ratings |
|--------------|----------------|-------------------|
| Summer (MVA) | 0.000000 | 0.000000 |
| Winter (MVA) | 0.000000 | 0.000000 |

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

Substation Upgrade Component

Component title

21A - Hunterstown 500kV single breaker expansion

Project description

Proprietary Company Information

Substation name

Hunterstown

Substation zone

Metropolitan Edison Company

Substation upgrade scope

Create a new 500 kV line termination position by adding a new 500 kV circuit breaker and two MODs in the second bay from the top. Terminate the new greenfield 500 kV line in this position.

Transformer Information

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| 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 \$

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|----------------------------------|---------------------------------|
| 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 |

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

Proprietary Company Information

Financial Information

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

Cost Containment Commitment

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|----------------------------|---------------------------------|
| 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. 21B - New 500kV transmission line between Hunterstown substation and Doubs substation - NEETMA
3. 39a3 - New Gant substation - 3 terminal - NEETMA

Cost elements covered by cost containment

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|---------------------------------|-----|
| Engineering & design | Yes |
| Permitting / routing / siting | Yes |
| ROW / land acquisition | Yes |
| Materials & equipment | Yes |
| Construction & commissioning | Yes |
| Construction management | Yes |
| Overheads & miscellaneous costs | Yes |

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|---|---------------------------------|
| 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