

Executive Summary

To be publically posted by PJM

Blue indicates input cells for the Proposing Entity to complete Orange indicates input cells for PJM to complete

| 1. Executive Summary | _ | |
|--|------|--|
| Instructions | | Inputs |
| Provide the name of the Proposing Entity. If there are multiple entities, please identify each party. | 1.a. | Proposing Entity name |
| Provide the RTEP Proposal Window in which this proposal is being submitted. | 1.b. | Proposal window 2019 Proposal Window 1 |
| Provide the Proposing Entity project proposal id. Use "A, B, C,", etc. to differentiate between proposals. | 1.c. | Proposal identification C |
| PJM proposal identification | 1.d. | PJM proposal identification 2019_1-418 |
| Provide a general description of the scope of this project (e.g. Project is a new line between X and Y substations utilizing AAA structures. A new bay will be created within the existing substation X footprint. Substation Y will be reconfigured to a breaker and a half with accomodations for the new line.) | 1.e. | General project description Proposal C increases the ampacity on Line 227 by rebuilding the line between Cochran Mill DP - Pleasant View Junction and reconductoring between Pleasant View Junction – Beaumeade and Cochran Mill DP - Belmont. |
| Identify if the proposal or a proposal component span two PJM Transmission Owner zones. I.e. The proposal topology connects equipment owned by more than one Transmission Owner. This group includes transmission that spans two or more affiliated companies (e.g. Meted and Allegheny Power). | 1.f. | Tie line impact No |
| Indicate if the project is being proposed as a solution to a cross-border (e.g. PJM to MISO, PJM to NYISO) issue. (Note: The Proposing Entity is responsible for initiating and satisfying all regional and interregional requirements.) | 1.g. | Interregional project No |
| Indicate if the Proposing Entity intends to construct, own, operate, and maintain the infrastructure built under this proposal. | 1.h. | Construct, own, operate and maintain Yes |
| Total current year project cost estimate including estimates for any required Transmission Owner upgrades. | 1.i. | Project cost estimate (current year)\$13,994,013.00 |
| Total in-service year project cost estimate including estimates for any required Transmission Owner upgrades. | 1.j. | Project cost estimate (in-service year) \$ 16,255,296.00 |
| Project estimated schedule duration in months. | 1.k. | Project schedule duration 22 |
| Indicate if any cost containment commitment is being proposed as part of the project. If yes, the "10. Cost Contain" tab within this project proposal template is to be completed | 1.I. | Cost containment commitment No |
| If the project provides any known additional benefits above solving the identified violations or constraints, identify those benefits (e.g. reliability, economic, resilience, etc.). | 1.m. | Additional benefits Proposal C reduces the Line 227 loading to less than 70%. No new ROW required. It is providing three viable alternatives (A, B, C) to resolve the violations caused by the flowgates listed under Tab 2. Proposal C, with the highest conductor capacity, meets the current standard for 230kV construction in northern Virginia and believes that this is the best long term solution for these violations. In addition, the rebuild section from Pleasant View Junction to Cochran Mill DP provides end of life benefit in the long term planning horizon. |



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| 1. Executive Summary | | |
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| Instructions | | Inputs |
| Confirm that all technical analysis files have been provided for this proposal. | 1.n. | Technical analysis files provided |
| Confirm that all necessary project diagrams have been provided for this proposal. | 1.o. | Project diagram files provided |
| Indicate if company evaluation and operations and maintenance information has been provided for this proposal. | 1.p. | Company evaluation and operations and maintenance information provided |
| | | If the answer to the cross-border question above at 1.g. was yes, complete the questions below. |
| Indicate if an evaluation for interregional cost allocation is desired. | 1.q.i. | Interregional Cost Allocation Evaluation Choose Yes or No |
| | 1.q.ii. | Evaluated in interregional analysis under PJM Tariff or Operating Agreement provisionsChoose Yes or No |
| | | If 'yes,' specify analysis and applicable Tariff or Operating Agreement provisions |
| Indicate if the proposal has been evaluated in a coordinated interregional analysis under the PJM Tariff or Operating Agreement provisions. Specify the analysis and applicable Tariff or Operating Agreement provisions. | | |
| | 1.q.iii. | Regional and Interregional violations and issues from the Regional and/or Interregional analyses that identified the violations and issues addressed by the proposal. |
| List the specific regional and interregional violations and issues from the regional and/or interregional analyses that identified the violations and issues addressed by the proposal. | | |

| | ssed by the proposed project | | | | | | | |
|--------------|---|-----------------------|------------------------|-----------------|----------------|-----|---------|---------|
| nstructions: | List the criteria violation(s) or syste | em constraint(s) solv | ved or mitigated by th | ne proposed pro | ject. | _ | | |
| FG # | Analysis Type | Bus # | Facility Name | To Bus # | To Bus Name | скт | Voltage | Area |
| N1-ST46 | Sum Basecase Analysis Thermal | 314170 | 6COHMIL | 314006 | 6ASHBURA | 1 | 230/230 | 345/345 |
| GD-S5 | Sum Gen Deliv | 314170 | 6COHMIL | 314006 | 6ASHBURA | 1 | 230/230 | 345/345 |
| GD-S7 | Sum Gen Deliv | 314006 | 6ASHBURA | 314010 | 6BEAMEAD | 1 | 230/230 | 345/345 |
| N2-ST69 | Sum N-1-1 Thermal | 314170 | 6COHMIL | 314006 | 6ASHBURA | 1 | 230/230 | 345/345 |
| N2-ST70 | Sum N-1-1 Thermal | 314170 | 6COHMIL | 314006 | 6ASHBURA | 1 | 230/230 | 345/345 |
| N2-ST71 | Sum N-1-1 Thermal | 314170 | 6COHMIL | 314006 | 6ASHBURA | 1 | 230/230 | 345/345 |
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Major Project Components To be publically posted by PJM

| 3. Major Project Components | | | | | |
|--|------|--|--|--|--|
| Instructions | | | Component 1 | Component 2 | Component 3 |
| Describe the scope of work for each major project component. Provide additional detail for each component on the cooresponding (yellow) component tab. For example, complete a component on the "Greenfield Sub Comp" tab for each proposed new substation. | 3.a. | Component description(s) | At Beaumeade Substation, replace terminal equipment | At Ashburn Substation, replace terminal equipment | Uprate line segment from Beaumeade to Ashburn by reconductoring with 2-768.2 ACSS/TW/HS conductor |
| Provide a project cost breakdown by the inticated categories for each component. State costs in current year dollars. | 3.b. | Component cost (current year)Engineering and designPermitting / routing / sitingROW / land acquisitionMaterials and equipmentConstruction and commissioningConstruction managementOverheads and miscellaneous costsContingencyTotal component cost | | | |
| For Market Efficiency projects, provide an in-service year component project total cost. | 3.c. | Component cost (in-service year) | | | |
| Identify the entity who will be designated to build the component. | 3.d. | Construction responsibility | Dominion Energy Virginia | Dominion Energy Virginia | Dominion Energy Virginia |



Major Project Components

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| 3. Major Project Components | | | |
|--|------|--|--|
| Instructions | | | Componei |
| Describe the scope of work for each major project component. Provide additional detail for each component on the cooresponding (yellow) component tab. For example, complete a component on the "Greenfield Sub Comp" tab for each proposed new substation. | 3.a. | Component description(s) | (a) Uprate line segment from Ashburn to O between Ashburn and Pleasant View Jurn conductor and rebuilding between Pleasand DP with 2-768.2 ACSS/TW/HS conductor structures. Also replace two (2) line switch the line. (b) Uprate line segment from Cochran Mill with 2-768.2 ACSS/TW/HS. This include eliminates the need for a structure restriction. |
| Provide a project cost breakdown by the inticated categories for each component. State costs in current year dollars. | 3.b. | Component cost (current year) Engineering and design Permitting / routing / siting ROW / land acquisition Materials and equipment Construction and commissioning Construction management Overheads and miscellaneous costs Contingency Total component cost | |
| For Market Efficiency projects, provide an in-service year component project total cost. | 3.c. | Component cost (in-service year) | |
| Identify the entity who will be designated to build the component. | 3.d. | Construction responsibility | Dominion Energy |

ent 4

o Cochran Mill DP by reconductoring lunction with 2-768.2 ACSS/TW/HS sant View Junction and Cochran Mill ctor and double circuit monopole itches outside of Cochran Mill DP on ne.

Aill DP to Belmont by reconductoring udes 2 spans of reconductor that replacement and reduces cost.

rgy Virginia



Substation Upgrade Component

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| 5. Substation Upgrade Component | | |
|---|------|---|
| Instructions | | Inputs-1 |
| Provide the corresponding component number from the "Project Components" tab. | 5.a. | Component number 1 |
| Identify the name of the existing substation where the upgrade will take place. | 5.b. | Substation Beaumeade |
| | 5.c. | Substation upgrade scope |
| Describe the scope of the upgrade work at the identified substation. | | Replace two (2) 230kV breakers, wave trap, line switch, bus conductor, and breaker disconnects. |
| | 5.d. | New equipment description |
| Describe any new substation equipment and provide the equipment ratings. | | N/A |
| | 5.e. | Substation assumptions |
| Describe the assumptions that were made about the substation that were used in developing the scope and cost for the upgrade. For example, the use of a bay that appears to be available, the proposed use of an open area within the substation or the relocation of existing equipment. | | N/A |
| Provide a single line diagram and a station general arrangement drawing for upgraded which change or expand the substation configuration List these documents on the 'Redacted Information' tab under the appropriate project component. | 5.f. | Substation drawings |
| | 5.g. | Real-estate plan |
| If the substation fence needs to be expanded, indicate the real-estate plan for acquiring the needed land. Also, provide a Google Earth .KMZ file detailing the expansion. | | N/A |
| | 5.h. | Redacted information |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | 5f |



 Substation Upgrade Component

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| 5. Substation Upgrade Component Instructions | | Inputs-1 |
|---|------|--|
| Provide the corresponding component number from the "Project Components" tab. | 5.a. | Component number 2 |
| Identify the name of the existing substation where the upgrade will take place. | 5.b. | Substation Ashburn |
| | 5.c. | Substation upgrade scope |
| Describe the scope of the upgrade work at the identified substation. | | Replace line lead and two (2) line switches. |
| | 5.d. | New equipment description |
| Describe any new substation equipment and provide the equipment ratings. | | N/A |
| | 5.e. | Substation assumptions |
| Describe the assumptions that were made about the substation that were used in developing the scope and cost for the upgrade. For example, the use of a bay that appears to be available, the proposed use of an open area within the substation or the relocation of existing equipment. | | N/A |
| Provide a single line diagram and a station general arrangement drawing for upgraded which change or expand the substation configuration List these documents on the 'Redacted Information' tab under the appropriate project component. | 5.f. | Substation drawings |
| | 5.g. | Real-estate plan |
| If the substation fence needs to be expanded, indicate the real-estate plan for acquiring the needed land. Also, provide a Google Earth .KMZ file detailing the expansion. | | N/A |
| | 5.h. | Redacted information |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | 5f |



To be publically posted by PJM

| . Transmission Line Reconductor/Rebuild Component | | | |
|---|------|---|---|
| Instructions | | | Inputs - 1 |
| Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number | 3 |
| Identify the line terminal points. Add additional spaces if required. | 4.b. | Terminal points | Beaumeade Ashburn |
| | | Existing Line Physical Characteristics | |
| Provide the size and type conductor that will be removed. | 4.c. | Existing conductor size and type | 1590 ACSR 45/7 145°C and 1192.5 ACSS 45/7 145°C |
| Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware. | 4.d. | Existing hardware plan All conductor and related line hardware will be | e replaced. |
| Provide the condition and age of the existing structures. Describe the findings of any recent inspections or of analysis that has indicated a need for structural repair or reinforcement to re-conductor the line. | 4.e. | Existing tower line characteristics | |
| Describe the terrain that the existing line traverses. Additionally, provide a Google Earth .KMZ file with the existing line path as an included document with the project proposal package. | 4.f. | flat terrain with more dense scrub shrub and the existing line parallels a large quarry and c crossing Belmont Ridge Road (Route 659) th terrain. This final segment crosses another u | Beaumeade Substation, the line traverses through still, relatively wooded vegetation. The surrounding area is industrial in nature as crosses Goose Creek, a tributary to the Potomac River. After he existing line is surrounded mostly by residential homes on flat nnamed tributary to the Potomac River. From Pleasant View isting line also parallels a paved and flat Pedestrian/Bike Trail. |
| | | Reconductor/Rebuild Component Plan | |
| Provide the target ratings for the line. | 4.g. | Component target ratings | 1572 MVA |
| Provide the type and size of the conductor to be installed. | 4.h. | Proposed conductor size and type | 2-768.2 ACSS/TW/HS 20/7 250°C |
| For shield wire replacements, identify the type and size to be used. | 4.i. | Proposed shield wire size and type | AC-77/556 OPGW shield wire |



To be publically posted by PJM

| . Transmission Line Reconductor/Rebuild Component | | | |
|--|------|---|-----------|
| Instructions | | | Input |
| Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number | |
| Describe the amount of the line that is antisinated to be rebuilt versus reconductored. Dravide any | 4.j. | Rebuild portion | |
| Describe the amount of the line that is anticipated to be rebuilt versus reconductored. Provide any assumptions that were used in arriving at this determination. If specific line sections have been identified for rebuild, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | | Approximately 2.88 miles of line will be recon- | ductored. |
| Describe the segments of the existing right-of-way that will need to be expanded or any newly required rights-of-way that will be required. If new or expanded right-of-way is required, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | 4.k. | Right of way N/A | |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | 4.1. | Redacted information 4e | |
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| . Transmission Line Reconductor/Rebuild Component | | | | |
|---|------|---|--|--|
| Instructions | | | Inputs - 2 | |
| Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number | 4a | |
| Identify the line terminal points. Add additional spaces if required. | 4.b. | Terminal points | | Ashburn Cochran Mill DP |
| | | Existing Line Physical Characteristics | | |
| Provide the size and type conductor that will be removed. | 4.c. | Existing conductor size and type | | 5°C and 1192.5 ACSS 45/7 ACSS/TW/HS 54/7 250°C |
| Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware. | 4.d. | Existing hardware plan All conductor and related line hardware will be | e replaced. | |
| Provide the condition and age of the existing structures. Describe the findings of any recent inspections or of analysis that has indicated a need for structural repair or reinforcement to re- conductor the line. | 4.e. | Existing tower line characteristics | | |
| Describe the terrain that the existing line traverses. Additionally, provide a Google Earth .KMZ file with the existing line path as an included document with the project proposal package. | 4.f. | Terrain description From Pleasant View Substation, southeast to flat terrain with more dense scrub shrub and y the existing line parallels a large quarry and o crossing Belmont Ridge Road (Route 659) th terrain. This final segment crosses another un Substation to Beaumeade Substation, the exist | wooded vegetation. The crosses Goose Creek, a e existing line is surrou nnamed tributary to the | e surrounding area is industrial in nature as a tributary to the Potomac River. After inded mostly by residential homes on flat Potomac River. From Pleasant View |
| | | Reconductor/Rebuild Component Plan | | |
| Provide the target ratings for the line. | 4.g. | Component target ratings | | 1572 MVA |
| Provide the type and size of the conductor to be installed. | 4.h. | Proposed conductor size and type | 2-768.2 ACSS | S/TW/HS 20/7 250°C |
| For shield wire replacements, identify the type and size to be used. | 4.i. | Proposed shield wire size and type | AC-77/556 | OPGW shield wire |



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| 4. Transmission Line Reconductor/Rebuild Component | | |
|--|----------|--|
| Instructions | | Inputs - 2 |
| Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number 4a |
| | 4.j. | Rebuild portion |
| Describe the amount of the line that is anticipated to be rebuilt versus reconductored. Provide any assumptions that were used in arriving at this determination. If specific line sections have been identified for rebuild, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | | Approximately 2.49 miles of line will be reconductored and approximately 1.00 miles of line will be rebuilt. |
| | 4.k. | Right of way |
| Describe the segments of the existing right-of-way that will need to be expanded or any newly required rights-of-way that will be required. If new or expanded right-of-way is required, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | - | N/A |
| | 4.1. | Redacted information |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | 4e |



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| . Transmission Line Reconductor/Rebuild Component | | | | | |
|---|------|--|---|---|--|
| Instructions | | | Inputs - 3 | | |
| Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number | 4b | | |
| | 4.b. | Terminal points | | Cochran Mill DP | |
| Identify the line terminal points. Add additional spaces if required. | 4.0. | Torrininal points | | Belmont | |
| | | | | | |
| | | Existing Line Physical Characteristics | | | _ |
| | | | | | |
| Provide the size and type conductor that will be removed. | 4.c. | Existing conductor size and type | 1233.6 ACS | SS/TW/HS 54/7 250°C | |
| | 4.d. | Existing hardware plan | | | |
| Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware. | | All conductor and related line hardware will be | be replaced. | | |
| | 4.e. | Existing tower line characteristics | | | |
| Provide the condition and age of the existing structures. Describe the findings of any recent inspections or of analysis that has indicated a need for structural repair or reinforcement to re-conductor the line. | | | | | |
| | 4.f. | Terrain description | | | |
| Describe the terrain that the existing line traverses. Additionally, provide a Google Earth .KMZ file with the existing line path as an included document with the project proposal package. | | From Pleasant View Substation, southeast to relatively flat terrain with more dense scrub sh in nature as the existing line parallels a large River. After crossing Belmont Ridge Road (Ro homes on flat terrain. This final segment cros Pleasant View Substation to Beaumeade Sub Pedestrian/Bike Trail. | nrub and wooded vege quarry and crosses G oute 659) the existing ses another unnamed | etation. The surrounding area is i oose Creek, a tributary to the Po line is surrounded mostly by resi tributary to the Potomac River. I | industrial otomac idential From |
| | | Reconductor/Rebuild Component Plan | | | _ |
| Provide the target ratings for the line. | 4.g. | Component target ratings | | 1141 MVA | |
| Provide the type and size of the conductor to be installed. | 4.h. | Proposed conductor size and type | 2-768.2 ACS | SS/TW/HS 20/7 250°C | |
| | | | | | |
| For shield wire replacements, identify the type and size to be used. | 4.i. | Proposed shield wire size and type | AC-77/55 | 6 OPGW shield wire | |
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| 4. | Transmission Line Reconductor/Rebuild Component | | | |
|----|--|--------------|--|-----------|
| | Instructions | | | Inputs |
| | Provide the corresponding component number from the "Project Components" tab. | 4.a. | Component number | 4 |
| | | 4.j. | Rebuild portion | |
| | Describe the amount of the line that is anticipated to be rebuilt versus reconductored. Provide any assumptions that were used in arriving at this determination. If specific line sections have been identified for rebuild, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | | Approximately 0.31 miles of line will be recon | ductored. |
| | | 4.k. | Right of way | |
| | Describe the segments of the existing right-of-way that will need to be expanded or any newly required rights-of-way that will be required. If new or expanded right-of-way is required, provide route maps for (or specify in a Google Earth .KMZ file) those segments and identify the areas. | | N/A | |
| | | 4. I. | Redacted information | |
| | Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | 4e | |
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Project Financial Information

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| Instructions | | | | Inputs | |
|--|------|---|------------------|--------|------|
| | | Project Schedule | | | |
| Provide the planned construction period. Include start and end dates (month and year) of capital spend as well as the | 9.a. | Capital spend start date (Mo-Yr) | Mar-21 |] | |
| start and end dates (month and year) of capital spend as well as the start and end dates (month and year) of construction. Commercial operation typically begins in the month following the end of construction. | | Construction start date (Mo-Yr) Commercial operation date (Mo-Yr) | Mar-22 Dec-22 |] | |
| | | Project Capital Expenditures | | | |
| Provide, in present year dollars, capital expenditure estimates by year for the Proposing Entity, work to be completed by others (e.g. incumbent TO) and total project. Include all capital expenditure, such as ongoing expenditures, for which the Proposing Entity plans to seek FERC approval for recovery. | 9.b. | Capital expenditure detailsEngineering and designPermitting / routing / sitingROW / land acquisitionMaterials and equipmentConstruction and commissioningConstruction managementOverheads and miscellaneous costsContingencyProposer total capexWork by others capexTotal project capex | Total | 2019 | 2020 |
| Provide a yearly AFUDC cash flow, even if AFUDC is not going to be employed. | 9.c. | AFUDC | Total | 2019 | 2020 |
| | 9.d. | Assumptions for the capital expenditure estimate | | | |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | | | | |
| | 9.e. | Redacted information | | | |
| Describe any files or information that has been redacted from this section and provide the basis for the redaction. | | 9b,c,d | | | |

| 2021 | 2022 | 2023 | 2024 |
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