



## Executive Summary

1. Executive Summary		Inputs	
Instructions			
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	2018/19 RTEP Long-Term
Provide the Proposing Entity project proposal id. Use "A, B, C, ...", etc. to differentiate between proposals.	1.c.	Proposal identification	
PJM proposal identification	1.d.	PJM proposal identification	201819_1-387
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 accommodations for the new line.)	1.e.	General project description	Add a 500 kV substation on Hunterstown-Conastone 500 kV line near Wentz, MD., add a 500-230 kV transformer at new substation, add a 230 kV line from new substation to Carroll substation, increase ratings of Carroll-Mt. Airy 230 kV line
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	Yes
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	Choose Yes or No Yes, except for connection of new 230 kV line at Carroll substation
Total current year project cost estimate including estimates for any required Transmission Owner upgrades.	1.i.	Project cost estimate (current year)	\$ 140,821,618
Total in-service year project cost estimate including estimates for any required Transmission Owner upgrades.	1.j.	Project cost estimate (in-service year)	\$ 152,175,504



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Project estimated schedule duration in months.	<b>1.k.</b> Project schedule duration 50 months
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	<b>1.l.</b> 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.).	<b>1.m.</b> Additional benefits
Confirm that all technical analysis files have been provided for this proposal.	<b>1.n.</b> Technical analysis files provided <input checked="" type="checkbox"/>
Confirm that all necessary project diagrams have been provided for this proposal.	<b>1.o.</b> Project diagram files provided <input checked="" type="checkbox"/>
Indicate if company evaluation and operations and maintenance information has been provided for this proposal.	<b>1.p.</b> Company evaluation and operations and maintenance information provided <input checked="" type="checkbox"/>



# Executive Summary

## 1. Executive Summary

### Instructions

### Inputs

If the answer to the cross-border question above at 1.g. was yes, complete the questions

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 provisions

Choose Yes or No

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.

If 'yes,' specify analysis and applicable Tariff or Operating Agreement provisions

Empty text box for providing 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.

Empty text box for listing specific regional and interregional violations and issues.









**Major Project Components**

3. Major Project Components					
Instructions		Component 1	Component 2	Component 3	
<p>Provide a description for each major project component. Each project component will require the completion of the tab corresponding to the category of the component ("Greenfield Substation Component" tab for any proposed new substation, for example).</p>	3.a.	<p><b>Component description(s)</b></p> <p>Add 500 kV substation on Hunterstown-Conastone 500 kV line near Wentz, MD., add 500-230 kV transformer at new substation, add 230 kV line from new substation to Carroll substation (includes subcomponents 1a-1b as described in tabs 4-7)</p>	<p>Connect new 230 kV line at Carroll substation</p>	<p>Increase ratings of Carroll-Mt. Airy 230 kV line</p>	
	<p>Provide a component project cost breakdown into the identified categories along with a total component cost. Costs should be in current year dollars.</p>	3.b.	<p><b>Component cost (current year)</b></p> <p>Engineering and design</p> <p>Permitting / routing / siting</p> <p>ROW / land acquisition</p> <p>Materials and equipment</p> <p>Construction and commissioning</p> <p>Construction management</p> <p>Overheads and miscellaneous costs</p> <p>Contingency</p> <p><b>Total component cost</b></p>	<p>\$ 119,520,996</p>	<p>\$ 6,079,584</p>
3.c.		<p><b>Component cost (in-service year)</b></p>	<p>\$ 129,157,497</p>	<p>\$ 6,569,757</p>	<p>\$ 16,448,250</p>
3.d.		<p><b>Construction responsibility</b></p>			



## Greenfield Substation Component

### 7. Greenfield Substation Component

Instructions	Inputs - 1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	<b>7.a. Component number</b>	1a
Provide the name for the proposed substation.	<b>7.b. Proposed substation name</b>	Wentz
Provide the latitude and longitude (in decimal degrees) of the site(s) evaluated for the substation.	<b>7.c. Evaluated location(s)</b>	
Provide a general description of the substation. Also, provide a single line diagram and general arrangement drawing.	<b>7.d. Substation description</b>	substation will contain a 500 kV ring bus with three circuit breakers creating three positions for connecting transmission facilities; a 500-230 kV transformer will also be added at the substation
Describe the major substation equipment and provide the equipment ratings.	<b>7.e. Substation equipment</b>	500 kV ring bus with three circuit breakers; rating of bus and circuit breakers will not limit rating of any connected facilities; rating of circuit breakers will exceed required fault interrupting capability; summer rating of transformer will be 1559 MVA normal and 1940 MVA emergency
Describe the required site size, geography and current land use for the proposed site(s).	<b>7.f. Geography and land use</b>	eight acres of land is estimated to be required; siting would be along 500 kV ROW to minimize required land acquisition; area is rural, relatively flat farmland
Provide an assessment of the potential environmental impacts (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues).	<b>7.g. Environmental assessment</b>	An environmental assessment study will be performed prior to construction to identify and mitigate any potential environmental impacts. All environmental permits and requirements related to construction and operation of a new electric substation will be obtained and followed.





## Greenfield Substation Component

### 7. Greenfield Substation Component

#### Instructions

Provide the corresponding component number from the "Project Components" tab of the proposal template.

Community and landowner outreach plan

Provide the project land acquisition plan and approach for both public and private lands.

Describe any files or information that has been redacted from this section and provide the basis for the redaction.

#### Inputs - 1

##### Component number

1a

7.h.

##### Outreach plan

As much of the new substation would be sited within the ROW of the 500 kV line as possible. However, there will likely need to be some land acquired. [REDACTED] will design the substation to minimize the footprint. [REDACTED] will work with nearby residents to construct appropriate screening to soften visual impact. [REDACTED] will reach out and address any nearby resident or community concerns related to the building and operation of the new substation.

7.i.

##### Land acquisition plan

It is estimated that the new substation will require eight acres of land. However, a significant amount of that could be within the existing 500 kV ROW. Additional land that is required would have to be purchased from the owner. Since the area is rural and mostly farmland, there is some flexibility in locating the substation along the ROW and therefore where the land would have to be acquired.

7.j.

##### Redacted information



## Greenfield Transmission Line Component

### 6. Transmission Line Component

Instructions	Inputs - 1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	6.a. Component Number	1b
Provide the substation endpoints for the proposed transmission line component.	6.b. Line terminal points	Wentz 230 kV (new substation) Carroll 230 kV bus
Provide the target ratings for the proposed line.	6.c. Project ratings	1098 MVA normal / 1247 MVA emergency
Provide the proposed conductor type and size.	6.d. Conductor type and size	1622 kcmil Type 13 ACSS
Provide a general description of the line, including nominal voltage, whether the facility will be AC or DC and if the construction will be overhead, underground, submarine or some combination.	6.e. General line description	line will be 230 kV AC all aerial construction with single conductor on pole type towers; line length would be approximately 18 miles
Provide a general description of the evaluated routes or routing study area. Provide a Google Earth .KMZ file with the evaluated routes or study plan.	6.f. General route description	from new substation, line would be routed [REDACTED]
Describe the terrain traversed by the proposed new line.	6.g. Terrain description	relatively flat, open space, mostly rural with some farmland
Route description by segment that includes lengths and widths and classified by whether the segment will be new right of way, an expansion of an existing right of way or use an existing right of way. This information may be included with the Google Earth .KMZ.	6.h. Right of way plan by segment	line will require new ROW, [REDACTED]



**Greenfield Transmission Line Component**

**6. Transmission Line Component**

Instructions	Inputs - 1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	<b>6.a. Component Number</b>	1b
Provide the project right of way and land acquisition plan and approach for both public and private lands.	<b>6.i. ROW and land acquisition plan</b>	It is estimated that approximately 18 miles of [REDACTED] ROW would be needed to route the new line from the new substation at the 500 kV ROW to Carroll substation. There is no known ROW available in that area, so the assumption is that this ROW would have to be acquired from the property owners. Since the area is rural, there is some flexibility in how the line could be routed, thereby minimizing impact to the community.
Provide the location and plan for any transmission facility crossings.	<b>6.j. Transmission facility crossings</b>	there would be no transmission facility crossings
Provide an assessment of the potential environmental impacts (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues).	<b>6.k. Environmental impacts</b>	An environmental assessment study will be performed prior to construction to identify and mitigate any potential environmental impacts. All environmental permits and requirements related to construction and operation of a new transmission line will be obtained and followed.
Proposed tower characteristics such as monopole, lattice, wood h-frame design, double or single circuit, and horizontal, vertical or delta conductor configurations. Note, preliminary drawings for proposed structure types are acceptable in place of a written description.	<b>6.l. Tower characteristics</b>	new line would be constructed as a single circuit on pole type towers with phases arranged in vertical configuration
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	<b>6.m. Redacted information</b>	[REDACTED]



## Substation Upgrade Component

### 5. Substation Upgrade Component

Instructions	Inputs-1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	<b>5.a. Component number</b>	2
Identify the name of the existing substation where the upgrade will take place.	<b>5.b. Substation</b>	Carroll
Describe the scope of the upgrade work at the identified substation.	<b>5.c. Substation upgrade scope</b>	attach new 230 kV line to Carroll substation by expanding the existing bus section into a ring with three circuit breakers
Describe any new substation equipment and provide the equipment ratings.	<b>5.d. New equipment description</b>	new 230 kV bus sections to create ring bus with three circuit breakers to create three positions for transmission facilities; bus sections and circuit breakers will have ratings that will meet or exceed the ratings of the new line and existing transmission facilities; circuit breakers will have interrupting capability that will exceed the required fault interrupting capability at the substation
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.	<b>5.e. Substation assumptions</b>	the existing substation will be expanded on the northwest side to create space for the 230 kV ring bus with three circuit breakers
If the upgrade changes or expands upon the substation configuration provide a single line diagram and a station general arrangement drawing. These documents should be provided on the 'Redacted Information' tab under the appropriate project component.	<b>5.f. Substation drawings</b>	
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.	<b>5.g. Real-estate plan</b>	expansion of the substation at Carroll will likely be required; there is significant open space outside the existing fence on the northwest side with no obstructions and no residents nearby; if the required property is not already owned by Potomac Edison, it will need to be acquired through purchase from the present owner; it is estimated that about one acre of additional land would be needed adjacent to the northwest side of the substation
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	<b>5.h. Redacted information</b>	



**4. Transmission Line Reconductor/Rebuild Component**

**Instructions**

Provide the corresponding component number from the "Project Components" tab of the proposal template.

Identify the line terminal points. Add additional spaces if required.

Provide the size and type conductor that will be removed.

Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.

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.

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.

**Inputs - 1**

**4.a. Component number** 3

**4.b. Terminal points**  
 Carroll 230 kV bus  
 Mt. Airy 230 kV bus

**Existing Line Physical Characteristics**

**4.c. Existing conductor size and type** unknown

**4.d. Existing hardware plan**  
 new hardware will be used

**4.e. Existing tower line characteristics**  
 unknown

**4.f. Terrain description**  
 relatively flat, mostly open space



## Reconductor/Rebuild Transmission Line Component

### 4. Transmission Line Reconductor/Rebuild Component

#### Instructions

Provide the corresponding component number from the "Project Components" tab of the proposal template.

Provide the target ratings for the line.

Provide the type and size of the conductor to be installed.

If the shield wire is to be replaced, identify the type and size to be used.

Describe the amount of the line that is anticipated to be rebuilt versus reconducted. 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.

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.

Describe any files or information that has been redacted from this section and provide the basis for the redaction.

#### Inputs - 1

4.a. **Component number** 3

#### Reconductor/Rebuild Component Plan

4.g. **Component target ratings** 489 MVA normal and 554 MVA emergency

4.h. **Proposed conductor size and type** 795 kcmil 30/19 ACSR

4.i. **Proposed shield wire size and type** 203 kcmil 16/19 ACSR

4.j. **Rebuild portion**

It is estimated that the necessary increase in rating for the facility will require a reconductor, however, it is possible that a reconductor would not be needed, as the ratings for the facility in the model are suspected to be incorrectly listed as the ratings for the transformer that is presently in series with the line, not the line itself

4.k. **Right of way**

new ROW should not be required to implement a reconductor of the line

4.l. **Redacted information**

**9. Project Financial Information**

**Instructions**

**Inputs**

**Project Schedule**

Provide the planned construction period, include the month and year of when capital spend will begin, when construction will begin and when construction will end. The final construction month should be the month preceding the commercial operation month.

9.a.

Capital spend start date (Mo-Yr) Apr-20

Construction start date (Mo-Yr) Apr-21

Commercial operation date (Mo-Yr) May-24

**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. Capital expenditure estimates should include all capital expenditure, including any ongoing expenditures, for which the Proposing Entity plans to seek FERC approval for recovery.

9.b.

Capital expenditure details	Total	2020	2021	2022	2023	2024	2025
Engineering and design							
Permitting / routing / siting							
ROW / land acquisition							
Materials and equipment							
Construction and commissioning							
Construction management							
Overheads and miscellaneous costs							
Contingency							
Proposer total capex							
Work by others capex							
<b>Total project capex</b>	<b>\$ 140,821,618</b>	<b>\$ 12,054,192</b>	<b>\$ 37,149,038</b>	<b>\$ 33,261,771</b>	<b>\$ 33,261,771</b>	<b>\$ 25,094,846</b>	

Even if AFUDC is not going to be employed, provide a yearly AFUDC cash flow.

9.c.

	Total	2020	2021	2022	2023	2024	2025
<b>AFUDC</b>	<b>\$ 24,766,026</b>	<b>\$ 745,831</b>	<b>\$ 3,044,360</b>	<b>\$ 5,102,371</b>	<b>\$ 7,160,383</b>	<b>\$ 8,713,081</b>	



**9. Project Financial Information**

Instructions	Inputs
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Provide any assumptions for the capital expenditure estimate (e.g. design assumptions, weather, manpower needed and work schedule, number of hours per day, construction area

**9.d. Assumptions for the capital expenditure estimate**

assumes standard seasonal weather and permitting schedule

Describe any files or information that has been redacted from this section and provide the basis for the redaction.

**9.e. Redacted information**

[Redacted information]





## Cost Containment Commitment

### 10. Cost Containment Commitment

Instructions	Inputs																					
Provide a description of the cost containment mechanism being proposed.	<b>10.a. Cost containment commitment description</b> <div style="background-color: #e0e0e0; height: 40px; width: 100%;"></div>																					
	<b>10.b. Project scope covered by the cost containment commitment</b> <div style="background-color: #e0e0e0; height: 60px; width: 100%;"></div>																					
Provide, in present year dollars and year of occurrence dollars, the Proposing Entity's proposed binding cap on capital expenditures.	<b>10.b.i. Cost cap in present year dollars</b> <div style="background-color: #e0e0e0; height: 20px; width: 80%;"></div>																					
	<b>Cost cap in in-service year dollars</b> <div style="background-color: #e0e0e0; height: 20px; width: 80%;"></div>																					
Provide any additional information related to the cap on capital expenditures, including but not limited to: if AFUDC is included in the cap, if all costs prior to commercial operation date are included in the cap, if the cap includes a variable or fixed inflation rate, etc.	<b>10.b.ii. Additional Information on cost cap:</b> <div style="background-color: #e0e0e0; height: 60px; width: 100%;"></div>																					
	<b>10.b.iii. Cost containment capital expenditure exemptions</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #444; color: white;">Capital cost component</th> <th style="background-color: #444; color: white;">Component covered by cost containment</th> </tr> </thead> <tbody> <tr> <td>Engineering and design</td> <td>Choose Yes or No</td> </tr> <tr> <td>Permitting / routing / siting</td> <td>Choose Yes or No</td> </tr> <tr> <td>ROW / land acquisition</td> <td>Choose Yes or No</td> </tr> <tr> <td>Materials and equipment</td> <td>Choose Yes or No</td> </tr> <tr> <td>Construction and commissioning</td> <td>Choose Yes or No</td> </tr> <tr> <td>Construction management</td> <td>Choose Yes or No</td> </tr> <tr> <td>Overheads and miscellaneous costs</td> <td>Choose Yes or No</td> </tr> <tr> <td>Taxes</td> <td>Choose Yes or No</td> </tr> <tr> <td>AFUDC</td> <td>Choose Yes or No</td> </tr> <tr> <td>Escalation</td> <td>Choose Yes or No</td> </tr> </tbody> </table>	Capital cost component	Component covered by cost containment	Engineering and design	Choose Yes or No	Permitting / routing / siting	Choose Yes or No	ROW / land acquisition	Choose Yes or No	Materials and equipment	Choose Yes or No	Construction and commissioning	Choose Yes or No	Construction management	Choose Yes or No	Overheads and miscellaneous costs	Choose Yes or No	Taxes	Choose Yes or No	AFUDC	Choose Yes or No	Escalation
Capital cost component	Component covered by cost containment																					
Engineering and design	Choose Yes or No																					
Permitting / routing / siting	Choose Yes or No																					
ROW / land acquisition	Choose Yes or No																					
Materials and equipment	Choose Yes or No																					
Construction and commissioning	Choose Yes or No																					
Construction management	Choose Yes or No																					
Overheads and miscellaneous costs	Choose Yes or No																					
Taxes	Choose Yes or No																					
AFUDC	Choose Yes or No																					
Escalation	Choose Yes or No																					
Indicate which components of capital costs fall under the cost cap.																						



## Cost Containment Commitment

### 10. Cost Containment Commitment

#### Instructions

#### Inputs

Describe any other cost containment measures not detailed above.

10.c.

Describe any other Cost Containment Measures not covered above:

Provide language to be included in the Designated Entity Agreement that expresses the legally binding commitment of the developer to the construction cost cap.

10.d.

Cost Commitment Legal Language

Explain any plans the proposing entity has in place to address the situation where project actual costs exceed the proposed cost containment commitment.

10.e.

Actuals Exceed Commitment

Describe any files or information that has been redacted from this section and provide the basis for the redaction.

10.f.

Redacted information