Executive Summary

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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	2018-2019 Market Efficiency
Provide the Proposing Entity project proposal id. Use "A, B, C, …", etc. to differentiate between proposals.	**1.c.**	Proposal identification	FE-2019-LTW1-B
PJM proposal identification	**1.d.**	PJM proposal identification	
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	Rebuild the Hunterstown – Lincoln - Germantown 115 kV and Germantown - Carrol 138 kV corridor (~24.1 mi.) using double circuit 230 kV construction. Construct a new 230 kV ring bus at Carroll substation and add a new 230 kV breaker at Hunterstown substation. Project will result in a rebuilt 115 kV and a 138 kV circuit (230 kV construction) and a new Hunterstown - Carroll 230 kV circuit.
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	*Yes*
Total current year project cost estimate including estimates for any required Transmission Owner upgrades.	**1.i.**	Project cost estimate (current year)	$ 119,910,000.00
Total in-service year project cost estimate including estimates for any required Transmission Owner upgrades	**1.j.**	Project cost estimate (in-service year)	$ 136,640,000.00
Project estimated schedule duration in months.	**1.k.**	Project schedule duration	37 months

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1. Executive Summary

Instructions		Inputs	
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.l.**	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	
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.

Instructions		Inputs	
Indicate if an evaluation for interregional cost allocation is desired.	**1.q.i.**	Interregional Cost Allocation Evaluation	*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.	**1.q.ii.**	Evaluated in interregional analysis under PJM Tariff or Operating Agreement provisions	*No*
		If 'yes,' specify analysis and applicable Tariff or Operating Agreement provisions	
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.	**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.	

Overloaded Facilities

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2. **Overloaded Facilities**

Facilities addressed by the proposed project

Instructions: Identify the criteria violation(s) or system constraint(s) that the proposed project solves or mitigates.

2.a.

FG #	Analysis Type	Bus #	Facility Name	To Bus #	To Bus Name	CKT	Voltage	Area

Overloaded Facilities

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2.b.

Facilities not addressed/caused by the proposed project								
Instructions:	Identify the criteria violation(s) or system constraint(s) that the proposed project causes or does not address.							
Unique Proposer Generated ID	**Analysis Type**	**Bus #**	**Facility Name**	**To Bus #**	**To Bus Name**	**CKT**	**Voltage**	**Area**

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	Market Efficiency flowgate(s) addressed by the proposed project							
	Instructions:	Identify the Market Efficiency flowgate(s) the proposed project mitigates.						
2.c.	FG#	Facility Name	Area	Type	2023 Frequency (Hours)	2023 Market Congestion ($ millions)	2026 Frequency (Hours)	2026 Market Congestion ($ millions)
	ME-1	Hunterstown - Lincoln 115 kV	METED		1720	20.77	1832	29.62

Major Project Components

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3. Major Project Components

Instructions			Component 1	Component 2	Component 3
	3.a.	Component description(s)	Hunterstown Substation 230 kV (ME Zone) Add a new 230 kV line terminal.	Hunterstown - Lincoln 115 kV line (ME Zone) Rebuild line - double circuit 230 kV construction.	Lincoln - Germantown 115 kV line (ME Zone) Rebuild line - double circuit 230 kV construction.

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).

Provide a component project cost breakdown into the identified

	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	$ 1,150,000.00	$ 13,120,000.00	$ 27,510,000.00

If this proposal is being submitted as Market Efficiency project, provide an in-service year component project total cost.

	3.c.	Component cost (in-service year)	$ 1,310,000.00	$ 14,950,000.00	$ 31,350,000.00

Identify the entity who will be designated the component.

	3.d.	Construction responsibility			

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3. Major Project Components

Instructions			Component 4	Component 5	Component 6
	3.a.	**Component description(s)**	Germantown - Carroll 138 kV line (ME Zone) Rebuild line - double circuit 230 kV construction.	Germantown - Carroll 138 kV line (APS Zone) Rebuild line - double circuit 230 kV construction.	Carroll Substation: (APS Zone) Expand existing 230 kV bus to a three breaker Ring Bus.

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).

Instructions			Component 4	Component 5	Component 6
Provide a component project cost breakdown into the identified	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	$ 10,440,000.00	$ 63,050,000.00	$ 4,150,000.00

Instructions			Component 4	Component 5	Component 6
If this proposal is being submitted as Market Efficiency project, provide an in-service year component project total cost.	3.c.	**Component cost (in-service year)**	$ 11,900,000.00	$ 71,840,000.00	$ 4,730,000.00

Instructions			
Identify the entity who will be designated the component.	3.d.	**Construction responsibility**	

Major Project Components
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3.	**Major Project Components**			

Instructions			**Component 7**	**Component 8**
	3.a.	**Component description(s)**	**Hunterstown Substation** **115 kV (ME Zone)** Replace Limiting Terminal Equipment -Replace Relays -Replace Line Trap -Replace Substation Conductors	**Lincoln Substation** **115 kV (ME Zone)** Replace Limiting Terminal Equipment -Replace Relay -Replace Line Trap -Replace Meter -Replace Current Transformer -Replace Substation Conductors
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).				
	3.b.	**Component cost (current year)**		
Provide a component project cost breakdown into the identified		**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	$ 220,000.00	$ 270,000.00
If this proposal is being submitted as Market Efficiency project, provide an in-service year component project total cost.	**3.c.**	**Component cost (in-service year)**	$ 250,000.00	$ 310,000.00
Identify the entity who will be designated the component.	**3.d.**	**Construction responsibility**		

Substation Upgrade Component
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5.	Substation Upgrade Component

Instructions	Inputs-1

Provide the corresponding component number from the "Project Components" tab of the proposal temp **5.a.**	**Component number**	1
Identify the name of the existing substation where the upgrade will take place. **5.b.**	**Substation**	Hunterstown 230 kV

5.c. **Substation upgrade scope**

Describe the scope of the upgrade work at the identified substation.

Add a new 230 kV line terminal.

5.d. **New equipment description**

Describe any new substation equipment and provide the equipment ratings.

The new line terminal will include equipment such as a 3000 A circuit breaker, relay panel, and disconnects.

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.

All work will be performed within the existing substation
Estimate assumes modifications will be needed to existing SCADA points

5.f. **Substation drawings**

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.

Not necessary, no configuration change - Single line diagram illustrates facilities added

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 t

N/A

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

Instructions	Inputs - 1

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

4.a. Component number — 2

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

4.b. Terminal points
- Hunterstown
- Lincoln

Existing Line Physical Characteristics

Provide the size and type conductor that will be removed.

4.c. Existing conductor size and type — 336.4 ACSR - Existing line is 115 kV construction, new line will be 230 kV construction

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

4.d. Existing hardware plan

This project is a full rebuild of the line due to the transition from single circuit structures to double circuit structures and construction type (i.e. 115 kV to 230 kV construction).

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

This is not relevant due to the project requiring a full rebuild.

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

Line traverses mostly open fields. ▆▆▆▆▆▆▆▆

Reconductor/Rebuild Component Plan

Provide the target ratings for the line.

4.g. Component target ratings — 726 MVA SN / 890 MVA SE

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

4.h. Proposed conductor size and type — 1590 ACSR

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

4.i. Proposed shield wire size and type — OPGW

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.

4.j. Rebuild portion

The entire length of the Hunterstown-Lincoln 115 kV line (~2.6 miles) will be rebuilt to 230 kV double circuit construction.

Reconductor/Rebuild Transmission Line Component

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4. Transmission Line Reconductor/Rebuild Component

Instructions	Inputs - 1

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

Component number	2

4.k. 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.

Right of way

ROW requirements will be expanded as necessary along the existing corridor shown in the .kmz file.

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

Redacted information

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

Instructions	Inputs - 2	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**4.a.**	**Component number**	3
Identify the line terminal points. Add additional spaces if required.	**4.b.**	**Terminal points**	Lincoln
			Germantown
	Existing Line Physical Characteristics	
Provide the size and type conductor that will be removed.	**4.c.**	**Existing conductor size and type**	556 ACSR - Existing line is 115 kV construction, new line will be 230 kV construction
Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.	**4.d.**	**Existing hardware plan**	
		This project is a full rebuild of the line due to the transition from single circuit structures to double circuit structures and construction type (i.e. 115 kV to 230 kV construction).	
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**	
		This is not relevant due to the project requiring a full rebuild.	
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**	
		Line traverses mostly open fields. ████████	
	Reconductor/Rebuild Component Plan	
Provide the target ratings for the line.	**4.g.**	**Component target ratings**	726 MVA SN / 890 MVA SE
Provide the type and size of the conductor to be installed.	**4.h.**	**Proposed conductor size and type**	1590 ACSR
If the shield wire is to be replaced, identify the type and size to be used.	**4.i.**	**Proposed shield wire size and type**	OPGW
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.	**4.j.**	**Rebuild portion**	
		The entire length of the Lincoln-Germantown 115 kV line (~7.5 miles) will be rebuilt to 230 kV double circuit construction.	

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

Instructions	Inputs - 2

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

4.a. | Component number | 3 |

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.

ROW requirements will be expanded as necessary along the existing corridor shown in the .kmz file.

4.l. **Redacted information**

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

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

Instructions	Inputs - 3	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**4.a.** Component number	4
Identify the line terminal points. Add additional spaces if required.	**4.b.** Terminal points	Germantown
		Carroll
	Existing Line Physical Characteristics	
Provide the size and type conductor that will be removed.	**4.c.** Existing conductor size and type	556 ACSR - Existing line is 138 kV construction, new line will be 230 kV construction
Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.	**4.d.** Existing hardware plan	
	This project is a full rebuild of the line due to the transition from single circuit structures to double circuit structures and construction type (i.e. 138 kV to 230 kV construction).	
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	
	This is not relevant due to the project requiring a full rebuild.	
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	
	Line traverses mostly open fields. ███████████	
	Reconductor/Rebuild Component Plan	
Provide the target ratings for the line.	**4.g.** Component target ratings	726 MVA SN / 890 MVA SE
Provide the type and size of the conductor to be installed.	**4.h.** Proposed conductor size and type	1590 ACSR
If the shield wire is to be replaced, identify the type and size to be used.	**4.i.** Proposed shield wire size and type	OPGW
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.	**4.j.** Rebuild portion	
	The entire length of the Germantown-Carroll 138 kV line (~2.7 miles) will be rebuilt to 230 kV double circuit construction.	

Reconductor/Rebuild Transmission Line Component

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4.   Transmission Line Reconductor/Rebuild Component

Instructions		Inputs - 3	

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

4.a. | **Component number** | 4 |

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.

ROW requirements will be expanded as necessary along the existing corridor shown in the .kmz file.

4.l. | **Redacted information**

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

Reconductor/Rebuild Transmission Line Component

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4.	Transmission Line Reconductor/Rebuild Component

Instructions	Inputs - 4

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

4.a. Component number — **5**

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

4.b. Terminal points — Germantown / Carroll

Existing Line Physical Characteristics

Provide the size and type conductor that will be removed.

4.c. Existing conductor size and type — 556 ACSR - Existing line is 138 kV construction, new line will be 230 kV construction

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

4.d. Existing hardware plan — This project is a full rebuild of the line due to the transition from single circuit structures to double circuit structures and construction type (i.e. 138 kV to 230 kV construction).

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 — This is not relevant due to the project requiring a full rebuild.

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 — Line traverses mostly open fields. ▮▮▮▮▮▮

Reconductor/Rebuild Component Plan

Provide the target ratings for the line.

4.g. Component target ratings — 726 MVA SN / 890 MVA SE

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

4.h. Proposed conductor size and type — 1590 ACSR

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

4.i. Proposed shield wire size and type — OPGW

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.

4.j. Rebuild portion — The entire length of the Germantown-Carroll 138 kV line (~11.3 miles) will be rebuilt to 230 kV double circuit construction. The line loop into Taneytown (~2.4 miles) will not be rebuilt.

Reconductor/Rebuild Transmission Line Component

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4.	Transmission Line Reconductor/Rebuild Component

Instructions	Inputs - 4	

Provide the corresponding component number from the "Project Components" tab of the proposal template.	**4.a.**	**Component number**	5

	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.

ROW requirements will be expanded as necessary along the existing corridor shown in the .kmz file.

4.l.	**Redacted information**

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

Substation Upgrade Component

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5. Substation Upgrade Component

Instructions		Inputs-1	
Provide the corresponding component number from the "Project Components" tab of the proposal temp	**5.a.**	**Component number**	6
Identify the name of the existing substation where the upgrade will take place.	**5.b.**	**Substation**	Carroll 230 kV
Describe the scope of the upgrade work at the identified substation.	**5.c.**	**Substation upgrade scope**	Expand existing 230 kV to a three breaker ring bus configuration.
Describe any new substation equipment and provide the equipment ratings.	**5.d.**	**New equipment description**	The new ring bus will require three 3000 A circuit breakers and relay panels.
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.	**5.e.**	**Substation assumptions**	Estimate assumes the following: Additional relaying panels will fit in the existing control house. The existing relaying and terminal equipment serving Mt. Airy remains sufficient. Exisiting AC/DC systems, RTU, and stations service are adequate.
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.	**5.f.**	**Substation drawings**	*see preliminary plan view*
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.	**5.g.**	**Real-estate plan**	Substation fence expansion will be necessary.
Describe any files or information that has been redacted from this section and provide the basis for t	**5.h.**	**Redacted information**	

Substation Upgrade Component
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5.	Substation Upgrade Component

Instructions	Inputs-3

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

Component number	7

5.b. Identify the name of the existing substation where the upgrade will take place.

Substation	Hunterstown 115 kV

5.c. Describe the scope of the upgrade work at the identified substation.

Substation upgrade scope

Upgrade Relays, Line Trap, and Substation conductor at the Hunterstown substation (115 kV terminal).

5.d. Describe any new substation equipment and provide the equipment ratings.

New equipment description

- Electromechanical relaying to be replaced with new standard line relay panel.
- 1200 A Line Trap to be replaced with a 2000 A Line Trap.
- Substation conductor to be replaced will be rated higher than line conductor.

5.e. 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.

Substation assumptions

All work will be performed within the existing substation
Estimate assumes existing line tuner is adequate.
Estimate assumes existing wave trap stand is adequate.
Estimate assumes modifications will be needed to existing SCADA points

5.f. 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.

Substation drawings

Not necessary, no configuration change

5.g. 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.

Real-estate plan

N/A

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

Redacted information

N/A

Substation Upgrade Component
To be publically posted by PJM

Blue indicates input cells for the Proposing Entity to complete

5.	Substation Upgrade Component

Instructions	Inputs-4

5.a. Provide the corresponding component number from the "Project Components" tab of the proposal temp

Component number	8

5.b. Identify the name of the existing substation where the upgrade will take place.

Substation	Lincoln 115 kV

5.c. Describe the scope of the upgrade work at the identified substation.

Substation upgrade scope

Upgrade Relays, Line Trap, Meter, Current Transformer, and Substation Conductors at the Hunterstown 115 kV terminal.

5.d. Describe any new substation equipment and provide the equipment ratings.

New equipment description

- Electromechanical relaying to be replaced with new standard line relay panel.
- 1200 A Line Trap to be replaced with a 2000 A Line Trap.
- Substation conductor, CTs, Metering to be replaced will be rated higher than line conductor.

5.e. 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.

Substation assumptions

All work will be performed within the existing substation
Estimate assumes existing line tuner is adequate.
Estimate assumes existing CT stand and line trap stand is adequate.
Estimate assumes modifications will be needed to existing SCADA points

5.f. 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.

Substation drawings

Not necessary, no configuration change

5.g. 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.

Real-estate plan

N/A

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

Redacted information

N/A

Project Financial Information

To be publically posted by PJM

Blue indicates input cells for the Proposing Entity to complete

9. Project Financial Information

Instructions	Inputs

Project Schedule

9.a.

Capital spend start date (Mo-Yr)	May-20
Construction start date (Mo-Yr)	Feb-22
Commercial operation date (Mo-Yr)	Jun-23

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.

Project Capital Expenditures

9.b.

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.

Capital expenditure details	Total	2020	2021	2022	2023	2024
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						
Total project capex	$119,910,000	$ 1,570,000	$ 2,340,000	$ 74,010,000	$ 41,990,000	

9.c.

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

	Total	2020	2021	2022	2023	2024
AFUDC	*Under PJM Review*					

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9. Project Financial Information

Instructions	Inputs

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 access, etc.).

9.d.

Assumptions for the capital expenditure estimate

1. The rebuild is assumed to require the installation of approximately 208 new structures.
2. Existing switch 96266 will be replaced with a new 1200A switch with SCADA.
3. New steel structures are assumed to have concrete drilled shaft foundations
4. Loop structures into Taneytown substation will not be rebuilt
5. Siting application will be required to be filed with the PA PUC.
6. Line route crosses US Route 15. Crossing permits will be required.
7. Line route crosses a railroad in one location. Crossing and proximity permits will be required. Flagging will be required.
8. Assume minimal social and ecological impacts.
9. An environmental review will be required to identify any construction constraints or additional permitting requirements.
10. A full Rights and Restrictions review by Real Estate will be required.
11. The ROW will need to be expanded along the entire line route.
12. Some ROW clearing will be required.
13. Access roads will be required along the entire line route

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

9.e.

Redacted information

Cost Containment Commitment

To be publically posted by PJM

Blue indicates input cells for the Proposing Entity to complete

10. Cost Containment Commitment

Instructions	Inputs

10.a. **Cost containment commitment description**

Provide a description of the cost containment mechanism being proposed.

10.b. **Project scope covered by the cost containment commitment**

Indicate what project scope is covered by the proposed cost containment commitment. Identify the components covered by number.

10.b.i. **Cost cap in present year dollars**

Cost cap in in-service year dollars

Provide, in present year dollars and year of occurrence dollars, the Proposing Entity's proposed binding cap on capital expenditures.

10.b.ii. **Additional Information on cost cap:**

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.

10.b.iii. **Cost containment capital expenditure exemptions**

Indicate which components of capital costs fall under the cost cap.

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*

10.   Cost Containment Commitment

Instructions	Inputs

10.c. **Describe any other Cost Containment Measures not covered above:**

Describe any other cost containment measures not detailed above.

10.d. **Cost Commitment Legal Language**

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.e. **Actuals Exceed Commitment**

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

10.f. **Redacted information**

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