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	[redacted]
Provide the RTEP Proposal Window in which this proposal is being submitted.	1.b.	Proposal window	2018/2019 Long Term Market Efficiency Window
Provide the Proposing Entity project proposal id. Use "A, B, C, …", etc. to differentiate between proposals.	1.c.	Proposal identification	[redacted]
PJM proposal identification	1.d.	PJM proposal identification	201819_1-647
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	Install a new 115 kV 4-breaker ring bus at the Orrtanna tap point of the METED Hunterstown – Orrtanna – Lincoln 115 kV 963 line. Tap the TMIS – Furnace Run 500 kV line near the existing PPL Otter Creek Station and construct a new Otter Creek 500/230 kV 3-breaker double-bus double-breaker design Substation. Leave space in one 500 kV bay for one additional future 500 kV breaker. Connect the new station to the existing Otter Creek 230 kV Station with a new 500/230 kV Otter Creek transformer with normal/emergency ratings of 900/1250 MVA and a 0.65 mile 230 kV lead line with normal/emergency capacity of 2260 A / 3138 A. Add two new 230 kV breakers to the existing Otter Creek 230 kV substation. Replace Face Rock 115/69 kV T1 and T2 transformers with larger units each capable of 110/135 MVA SN/SE and 125/155 MVA WN/WE. Perform additional work to remove limiting substation components from the 69 kV bay the transformers terminate into at Face Rock. Reconduct / rebuild 1.3 miles of Manor – Graceton 230 kV line (section presently at 795 ACSR) to accommodate 1590 ACSR conductor.

Executive Summary

1. Executive Summary

Instructions		Inputs	
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)	$ 51,169,988.68
Total in-service year project cost estimate including estimates for any required Transmission Owner upgrades.	1.j.	Project cost estimate (in-service year)	$ 55,124,612.44
Project estimated schedule duration in months.	1.k.	Project schedule duration	34
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	Reduced fault exposure on both source lines to Orrtanna. Reduced fault exposure on main line from Hunterstown to Lincoln. Maintain / upkeep FARO-FIFO which is a tie line between two PJM TOs. This line also plays a role in ensuring local area generator stability. Addresses residual congestion in [redacted] on the Face Rock - Five Forks 115 kV line, the Manor-Graceton 230 kV line, and the Furnace Run - Conastone 230 kV line. [redacted]

1. Executive Summary

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	
Indicate if an evaluation for interregional cost allocation is desired.	**1.q.i.**	**Interregional Cost Allocation Evaluation**	*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.	**1.q.ii.**	**Evaluated in interregional analysis under PJM Tariff or Operating Agreement provisions**	*Choose Yes or 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.**	

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	From Bus #	Facility Name	To Bus #	To Bus Name	CKT	Voltage	Area

2. Overloaded Facilities

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

2. Overloaded Facilities

2.c.

Market Efficiency flowgate(s) addressed by the proposed project

Instructions: Identify the Market Efficiency flowgate(s) the proposed project mitigates.

FG#	Facility Name	Area	Type	2023 Frequency (Hours)	2023 Market Congestion ($ millions)	2026 Frequency (Hours)	2026 Market Congestion ($ millions)
ME-1	Hunterstown to Lincoln 115 kV	METED	Transmission Line Conductor - Internal Flowgate	1720	20.77	1832	29.62

Major Project Components

3. Major Project Components

Instructions

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 categories along with a total component cost. Costs should be in current year dollars.

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

Identify the entity who will be designated the component.

		Component 1	Component 2 - [redacted]
3.a.	Component description(s)	**Orrtanna Tap 115 kV 4-Breaker Ring Bus Switchyard** Install a new 115 kV ring bus at the Orrtanna tap point of the METED Hunterstown – Orrtanna – Lincoln 115 kV 963 line. Add four 115 kV 2000 A breakers and eight 2000 A MODs. Protection upgrades and/or adjustments as necessary.	**Tap Hunterstown - Lincoln 115 kV (963) line** Tap into existing Hunterstown - Lincoln 115 kV 963 line at the location of the original tap prior to METED's supplemental project that provides two sources to Orrtanna. Bring the Hunterstown and Lincoln lines into the new ring bus with two breakers separation between them. PPL to continue tap from new poles installed by METED in METED ROW into new switchyard.
3.b.	Component cost (current year)		
	Engineering and design	[redacted]	
	Permitting / routing / siting		
	ROW / land acquisition		
	Materials and equipment		
	Construction and commissioning		
	Construction management		
	Overheads and miscellaneous costs		
	Contingency		
	Total component cost	$ 5,970,380.09	$ 688,914.66
3.c.	Component cost (in-service year)	$ 6,431,794.97	$ 742,156.74
3.d.	Construction responsibility	[redacted]	[redacted]

3. Major Project Components

Instructions

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).

		Component 2	Component 3
3.a.	Component description(s)	**Tap Hunterstown - Lincoln 115 kV (963) line** Tap into existing Hunterstown - Lincoln 115 kV 963 line at the location of the original tap prior to METED's supplemental project that provides two sources to Orrtanna. Bring the Hunterstown and Lincoln lines into the new ring bus with two breakers separation between them.	**New Otter Creek 500/230 kV Substation** Tap the TMIS – Furnace Run 500 kV line near the existing PPL Otter Creek Station and construct a new Otter Creek 500/230 kV Substation in a double-bus double-breaker design with three (3) 500 kV 4000 A breakers, eight (8) 500 kV 4000 A MODs, and one (1) 230 kV 2000 A MOD in the initial construction. Leave space in one 500 kV bay for one additional future 500 kV breaker. Connect the new station to the existing Otter Creek 230 kV Station with a new 500/230 kV Otter Creek transformer with normal/emergency ratings of 900/1250 MVA and Component 5 (a 0.65 mile 230 kV lead line with normal/emergency capacity of 2260 A / 3138 A).
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	$ 375,277.73	$ 25,230,582.59
3.c.	Component cost (in-service year)	$ 404,280.70	$ 27,180,503.03
3.d.	Construction responsibility		

Provide a component project cost breakdown into the identified categories along with a total component cost. Costs should be in current year dollars.

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

Identify the entity who will be designated the component.

3. Major Project Components

Instructions

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).

		Component 4	Component 5	Component 6
3.a.	Component description(s)	**Tap TMIS - Furnace Run (Peach Bottom) 500 kV line** **A.** Tap into existing TMIS-FURU (PEBO) 500 kV line near the location of the existing Otter Creek 230 kV Switchyard. Bring the new OTCR-TMIS and OTCR-FURU (PEBO) 500 kV lines into separate bays in the new Otter Creek 500 kV station.	**Otter Creek 500/230 kV Substation to Otter Creek 230 kV Switchyard lead line** **A.** Build a 0.65 mile 230 kV lead line between the existing Otter Creek 230 kV switchyard and the new Otter Creek 500/230 kV Substation with normal/emergency capacity of 2260 A / 3138 A.	**Otter Creek 230 kV Switchyard Upgrade** Add two (2) new 230 kV 2000 A circuit breakers and three (3) 230 kV 2000 A MODs to the existing Otter Creek 230 kV substation to accommodate the new transformer from Otter Creek 500/230 kV Substation Protection upgrades and/or adjustments as necessary.

Provide a component project cost breakdown into the identified categories along with a total component cost. Costs should be in current year dollars.

3.b.	Component cost (current year)			
	Engineering and design	[redacted]		
	Permitting / routing / siting			
	ROW / land acquisition			
	Materials and equipment			
	Construction and commissioning			
	Construction management			
	Overheads and miscellaneous costs			
	Contingency			
	Total component cost	$ 3,817,906.81	$ 3,611,148.00	$ 1,952,634.46

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

3.c.	Component cost (in-service year)	$ 4,112,969.94	$ 3,890,234.13	$ 2,103,541.87

Identify the entity who will be designated the component.

3.d.	Construction responsibility	[redacted]	[redacted]	[redacted]

3. Major Project Components

Instructions

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).

		Component 7	Component 8 - [redacted]	Component 8 - [redacted]
3.a.	Component description(s)	**Face Rock 115/69 kV Substation Upgrade** Replace Face Rock 115/69 kV T1 and T2 transformers with larger units each capable of 110/135 MVA SN/SE and 125/155 MVA WN/WE. Perform additional work to remove limiting substation components from the 69 kV bay the transformers terminate into at Face Rock. Protection upgrades and/or adjustments as necessary.	**Manor - Graceton 230 kV line partial reconductor** Reconduct / rebuild 1.3 miles of Manor – Graceton 230 kV line (section presently at 795 ACSR) to accommodate 1590 ACSR conductor. Protection upgrades and/or adjustments as necessary.	**Manor - Graceton 230 kV line partial reconductor** Reconduct / rebuild 1.3 miles of Manor – Graceton 230 kV line (section presently at 795 ACSR) to accommodate 1590 ACSR conductor. Protection upgrades and/or adjustments as necessary.
3.b.	Component cost (current year)			
	Engineering and design	[redacted]		
	Permitting / routing / siting			
	ROW / land acquisition			
	Materials and equipment			
	Construction and commissioning			
	Construction management			
	Overheads and miscellaneous costs			
	Contingency			
	Total component cost	$ 3,272,306.26	$ 42,858.05	$ 5,088,202.00
3.c.	Component cost (in-service year)	$ 3,525,203.19	$ 46,170.29	$ 5,481,438.62
3.d.	Construction responsibility	[redacted]	[redacted]	[redacted]

Provide a component project cost breakdown into the identified categories along with a total component cost. Costs should be in current year dollars.

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

Identify the entity who will be designated the component.

3. Major Project Components

Instructions

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).

		Component 9
3.a.	Component description(s)	**Peach Bottom 500 kV North Station Bus Upgrade** Upgrade PEBO North Station buswork to accommodate full PEBO-FURU 500 kV line conductor rating. OPTIONAL COMPONENT ONLY APPLICABLE IF A PEBO-FURU 500 kV THERMAL RELIABILITY VIOLATION IS IDENTIFIED WITH PPL-B IN SERVICE.

Provide a component project cost breakdown into the identified categories along with a total component cost. Costs should be in current year dollars.

3.b.	Component cost (current year)	
	Engineering and design	[redacted]
	Permitting / routing / siting	
	ROW / land acquisition	
	Materials and equipment	
	Construction and commissioning	
	Construction management	
	Overheads and miscellaneous costs	
	Contingency	
	Total component cost	$ 1,119,778.02

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

3.c.	Component cost (in-service year)	$ 1,206,318.95

Identify the entity who will be designated the component.

3.d.	Construction responsibility	[redacted]

7. Greenfield Substation Component

Instructions		Inputs - 1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number	1
Provide the name for the proposed substation.	7.b.	Proposed substation name	Orrtanna Tap 115 kV Switchyard
Provide the latitude and longitude (in decimal degrees) of the site(s) evaluated for the substation.	7.c.	Evaluated location(s)	[redacted]
Provide a general description of the substation. Also, provide a single line diagram and general arrangement drawing.	7.d.	Substation description	Install a new 115 kV ring bus at the Orrtanna tap point of the METED Hunterstown – Orrtanna – Lincoln 115 kV 963 line (approximately 1.85 miles from Hunterstown 115 kV Station and 1.95 miles from Lincoln 115 kV Substation). Bring the Hunterstown - Orrtanna - Lincoln 115 kV line in and out of the new switchyard and provide two dedicated source feeds to Orrtanna from the new switchyard. Add four 115 kV 2000 A breakers and eight 2000 A MODs. The two dedicated feeds to Orrtanna will be separated by two breakers. Protection upgrades and/or adjustments as necessary.
Describe the major substation equipment and provide the equipment ratings.	7.e.	Substation equipment	- All 115kV switchyard conductor will be two (2) 795 ACC conductors (with spacers), per phase, or 4" schedule 80 aluminum bus. - Install four (4) 115kV, 2000A, 40kA circuit breakers. - Install eight (8) 115kV, 2000A, motor operated disconnect switches. - Install six (6) 115kV, 100kVA power voltage transformers. - Install two (2) 480V fused Square D safety switches. - Install two (2) 480V-240/120V, 300kVA transformers. - Install 25'x25'' "stick built" or modular control cubicle will be erected and all electrical systems within the cubicle will be installed. - Break the existing First energy lines near [redacted] First Energy to install 4 wood poles in their existing ROW. PPL to install 4 steel poles to bring lines into the new switchyard.

7. Greenfield Substation Component

Instructions		Inputs - 1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number: 1
Describe the required site size, geography and current land use for the proposed site(s).	7.f.	Geography and land use: Fence line = 260 ft by 156 ft. 7.1 acre lot assumed. Land is presently vacant and fairly flat.
Provide an assessment of the potential environmental impacts (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues).	7.g.	Environmental assessment: The site was chosen based on operational and constructability intent. The intent was to minimize earth disturbance and environmental impacts. Upon award throughout development and engineering all civil and permitting activities will be adhered to. It is anticipated that a NPDES permit will be required and the appropraite time will be allotted during project execution.
Community and landowner outreach plan	7.h.	Outreach plan: [redacted] is committed to open communications and transparency throughout the project lifecycle. As such, [redacted] develops a project-specific Community and Outreach Plan based on the unique conditions associated with each project. To communicate clearly and transparently [redacted] utilizes a wide variety of strategies including, in-person meetings with local municipalities and regulators, direct mail, project websites, fact sheets, frequently asked questions, and public open houses. For example, during the [redacted] developed a strategic public outreach program that was the cornerstone of the project's success. The program included soliciting input from and providing timely updates to external stakeholders from the onset of the project through the completion. This was achieved using face to face meetings, direct mailings, multiple rounds if open houses, fact sheets, press releases and an interactive website.

7. Greenfield Substation Component

Instructions		Inputs - 1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number: 1
Provide the project land acquisition plan and approach for both public and private lands.	7.i.	**Land acquisition plan** > Ordering of title, Phase 1 environmental study and appraisal > Various disciplines would perform a review to ensure the site meets standards > Meet with the property owner(s) to deliver the 15 Day Packet (PUC Requirement) and begin negotiations > Ongoing property owner negotiations and presentation of formal written offer (Agreement of Sale) once an agreement is reached > Revision (as needed) and execution of Agreement of Sale > [redacted] to perform due diligence activities (core boring, soil resistivity testing, infiltration testing, all other site testing) during the due diligence period outlined in the Agreement of Sale > Once the site has been approved by all required departments, [redacted] ROW to coordinate scheduling of closing with OGC and outside counsel
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	7.j.	**Redacted information**

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	2
Identify the line terminal points. Add additional spaces if required.	4.b.	Terminal points	Hunterstown Lincoln 963 line
		Existing Line Physical Characteristics	
Provide the size and type conductor that will be removed.	4.c.	Existing conductor size and type	Unknown
Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.	4.d.	Existing hardware plan	Existing hardware is FE owned. New conductor and isulators will be installed between tap point and new 115kV switchyard. Conductor will match or exceed current rating.
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	Existing structures in FE right of way to be replaced with new tap structures.
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	New switchyard and tap points located in a farm filed, relatively flat.

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	2
		Reconductor/Rebuild Component Plan	
Provide the target ratings for the line.	4.g.	Component target ratings	Match exisitng
Provide the type and size of the conductor to be installed.	4.h.	Proposed conductor size and type	795 ACSR 26 / 7
If the shield wire is to be replaced, identify the type and size to be used.	4.i.	Proposed shield wire size and type	Would install an equivalent.
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	Not applicable. Not a reconductor, just tapping the line.
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	Switchyard property to extend to exisitng FE ROW. No additional ROW will be required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	4.l.	Redacted information	

7. Greenfield Substation Component

Instructions		Inputs - 2	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number	3
Provide the name for the proposed substation.	7.b.	Proposed substation name	Otter Creek 500 kV Substation
Provide the latitude and longitude (in decimal degrees) of the site(s) evaluated for the substation.	7.c.	Evaluated location(s)	[redacted]
Provide a general description of the substation. Also, provide a single line diagram and general arrangement drawing.	7.d.	Substation description	Tap the TMIS – Furnace Run 500 kV line near the existing PPL Otter Creek Substation and construct a new Otter Creek 500/230 kV station in a double-bus double-breaker design with three (3) 500 kV 4000 A breakers, eight (8) 500 kV 4000 A MODs, and one (1) 230 kV 2000 A MOD in the initial construction. Leave space in one 500 kV bay for one additional future 500 kV breaker. Connect the new station to the existing Otter Creek 230 kV substation with a new 500/230 kV Otter Creek transformer with normal/emergency ratings of 900/1250 MVA and Component 5 (a 0.65 mile 230 kV lead line with normal/emergency capacity of 2260 A / 3138 A).
Describe the major substation equipment and provide the equipment ratings.	7.e.	Substation equipment	- All 500kV substation conductor will be three (3) 1590 ACSR conductors (with spacers), per phase, or 5" schedule 80, aluminum bus. - All 230kV substation conductor will be two (2) 1590 ACSR conductors (with spacers), per phase, or 4" schedule 80, aluminum bus. - Install nine (9) 500kV single pole 500kV circuit breakers. - Install eight (8) 500kV ganged MOD switches with ground operators. - Install three (3) 500-230-12.47kV power transformers. - Install three (3) 500-480V, 100kVA power voltage transformers. - Install one (1) 480V, 400A fused safety switch. - Install one (1) 12.47kV-240/120V, 300kVA padmount station service transformer. - Install one (1) 480V-240/120V, 300kVA station service Transformer - Install one (1) 230kV MOD switch. - Install three (3) 230kV CCVTs.

7. Greenfield Substation Component

Instructions		Inputs - 2
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number: 3
Describe the required site size, geography and current land use for the proposed site(s).	7.f.	Geography and land use: Fence line = 765 ft by 465 ft. Land is presently vacant and fairly flat.
Provide an assessment of the potential environmental impacts (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues).	7.g.	Environmental assessment: The site was chosen based on operational and constructability intent. The intent was to minimize earth disturbance and environmental impacts. Upon award throughout development and engineering all civil and permitting activities will be adhered to. It is anticipated that a NPDES permit will be required and the appropraite time will be allotted during project execution.
Community and landowner outreach plan	7.h.	Outreach plan: [redacted] is committed to open communications and transparency throughout the project lifecycle. As such, [redacted] develops a project-specific Community and Outreach Plan based on the unique conditions associated with each project. To communicate clearly and transparently [redacted] utilizes a wide variety of strategies including, in-person meetings with local municipalities and regulators, direct mail, project websites, fact sheets, frequently asked questions, and public open houses. For example, during the [redacted] developed a strategic public outreach program that was the cornerstone of the project's success. The program included soliciting input from and providing timely updates to external stakeholders from the onset of the project through the completion. This was achieved using face to face meetings, direct mailings, multiple rounds if open houses, fact sheets, press releases and an interactive website.

7. Greenfield Substation Component

Instructions		Inputs - 2	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	7.a.	Component number	3
Provide the project land acquisition plan and approach for both public and private lands.	7.i.	Land acquisition plan	> Ordering of title, Phase 1 environmental study and appraisal > Various disciplines would perform a review to ensure the site meets standards > Meet with the property owner(s) to deliver the 15 Day Packet (PUC Requirement) and begin negotiations > Ongoing property owner negotiations and presentation of formal written offer (Agreement of Sale) once an agreement is reached > Revision (as needed) and execution of Agreement of Sale > [redacted] to perform due diligence activities (core boring, soil resistivity testing, infiltration testing, all other site testing) during the due diligence period outlined in the Agreement of Sale > Once the site has been approved by all required departments, [redacted] ROW to coordinate scheduling of closing with OGC and outside counsel
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	7.j.	Redacted information	

Reconductor/Rebuild Transmission Line Component

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	Three Mile Island Furnace Run (Peach Bottom)
		Existing Line Physical Characteristics	
Provide the size and type conductor that will be removed.	4.c.	Existing conductor size and type	Double Bundle 2493 ACAR / 5437
Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.	4.d.	Existing hardware plan	Existing structures will not be modified. New conductor will be installed between tap point and new 115kV switchyard. Conductor will match or exceed current rating.
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	Exisitng structures will not be touched. Two new 3-pole structures will need to be installed in PECO ROW to break the exisitng line into the new substation.
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	New switchyard and tap points located in a farm filed, relatively flat.

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
		Reconductor/Rebuild Component Plan	
Provide the target ratings for the line.	4.g.	Component target ratings	Not applicable. Not a reconductor, just tapping the line.
Provide the type and size of the conductor to be installed.	4.h.	Proposed conductor size and type	Not applicable. Not a reconductor, just tapping the line.
If the shield wire is to be replaced, identify the type and size to be used.	4.i.	Proposed shield wire size and type	Not applicable. Not a reconductor, just tapping the line.
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	Not applicable. Not a reconductor, just tapping the line.
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	Substation property to extend to exisitng PECO ROW. No additional ROW will be required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	4.l.	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**	5
Provide the substation endpoints for the proposed transmission line component.	**6.b.**	**Line terminal points**	New Otter Creek 500 / 230 kV Substation Existing Otter Creek 230 kV Switchyard
Provide the target ratings for the proposed line.	**6.c.**	**Project ratings**	normal / emergency capacity of 2260 A / 3138 A.
Provide the proposed conductor type and size.	**6.d.**	**Conductor type and size**	Double bundle 1590 54 / 19 ACSR
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**	Connect the new Otter Creek 500 / 230 kV Substation to the existing Otter Creek 230 kV Switchyard with a 0.65 mile overhead AC 230 kV lead line with a target normal/emergency capacity of 2260 A / 3138 A.
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**	Tie between the new 500-230kV substation and exisiting 230kV Otter Creek switchyard will be in the same ROW as the existing Manor-Otter Creek 230kV line.
Describe the terrain traversed by the proposed new line.	**6.g.**	**Terrain description**	Rolling hills.

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	5
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	Exisitng ROW will be used along the exisitng Manor-Otter Creek 230kV corridor. No additional ROW needed.
Provide the project right of way and land acquisition plan and approach for both public and private lands.	6.i. ROW and land acquisition plan	•Ordering of title on each property crossed and a market study for the project area •Meet with the property owner(s) along the route to deliver the 15 Day Packet (PUC Requirement) and begin negotiations •Order survey exhibits to be prepared by [redacted] Survey •Ongoing property owner negotiations and presentation of offer (Easement and Additional Consideration Form) once survey exhibits are completed •Revision (as needed) and execution of Easement and Additional Consideration Form •Recording of the easement with survey exhibit in the respective court house
Provide the location and plan for any transmission facility crossings.	6.j. Transmission facility crossings	The tie line will cross underneath the Manor-Otter Creek 230kV line. This section will be rebuilt to accommodate double circuit and the crossing will be incorporated into the design of this section.

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**: 5
Provide an assessment of the potential environmental impacts (i.e. environmental impact study requirements, environmental permitting, sediment, and erosion control issues).	**6.k.**	**Environmental impacts**: It is anticipated that all required permits and environmental plans will be needed during project development. It assumed no special permits will be required outside of earth disturbance permits.
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.	**6.l.**	**Tower characteristics**: Monopole, double circuit.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	**6.m.**	**Redacted information**

Substation Upgrade Component

5. Substation Upgrade Component

Instructions		Inputs-1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**	6
Identify the name of the existing substation where the upgrade will take place.	**5.b.**	**Substation**	Otter Creek 230 kV Switchyard
	5.c.	**Substation upgrade scope**	
Describe the scope of the upgrade work at the identified substation.			Add two (2) new 230 kV 2000 A circuit breakers and three (3) 230 kV 2000 A MODs to the existing Otter Creek 230 kV substation to accommodate the new transformer from Otter Creek 500/230 kV and electrically separate it from the existing 230 kV line to Manor Substation. This upgrade adds one new 230 kV breaker in each of bays 1 and 2 at the existing 230 kV switchyard. No station expansion is required. Substation Protection upgrades and/or adjustments as necessary.

5. Substation Upgrade Component

Instructions		Inputs-1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**	6
	5.d.	**New equipment description**	

Describe any new substation equipment and provide the equipment ratings.

- Install one (1) 230kV, 3000A half tandem MOD switch in bay 1.
- Install one (1) 230kV, 3000A half tandem MOD switch in bay 2.
- Install one (1) 230kV, 3000A three insulator vertical break switch in bay 1 north.
- Install one (1) motor operator to the existing bay 2 north three insulator vertical break switch.
- Install two (2) 230kV circuit breaker in bay positions 1T and 2N.
- Bus conductor will be 4”, schedule 80. Estimate 260’ of 4”.
- All 230kV substation conductor will be two (2) 1590 ACSR conductors

5. Substation Upgrade Component

Instructions		Inputs-1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**: 6
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**: Not Applicable.
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**
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**: No expansion required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	**5.h.**	**Redacted information**

Substation Upgrade Component

5. Substation Upgrade Component

Instructions		Inputs-2	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**	7
Identify the name of the existing substation where the upgrade will take place.	**5.b.**	**Substation**	Face Rock 115 / 69 kV
Describe the scope of the upgrade work at the identified substation.	**5.c.**	**Substation upgrade scope**	Replace Face Rock 115/69 kV T1 and T2 transformers with larger units each capable of 110/135 MVA SN/SE and 125/155 MVA WN/WE. Perform additional work as follows to remove limiting substation components from the 69 kV bay the transformers terminate into at Face Rock: Replace limiting components in Bay 6 of the 69 kV yard and the transformer (T1 and T2) buses in order to achieve minimum terminal ratings of 2000 A (normal) and 2300 A (emergency). The 1200/5 A CT on the north side of CB 6C is to be upgraded to a 2000/5 A CT. All down-comers and leads between equipment within Bay 6 will need to be upgraded to either double bundle 795 KCMIL conductor or 3'' Aluminum tubular bus that will meet the standard ampacity requirement of 2000/2300 A. Conductor termination into substation equipment will also need to be replaced to accommodate the new conductors or tubular bus. Down-comers, leads, and conductor terminations from the T1 and T2 low side to their respective terminations into Bay 6 will also be upgraded to double bundle 795 KCMIL conductors. All terminations are to be upgraded accordingly to accommodate the new conductors. Protection upgrades and/or adjustments as necessary.

5. Substation Upgrade Component

Instructions		Inputs-2	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number	7
	5.d.	New equipment description	- Install two (2) new 115/69kV 110/135 MVA transformers T1 and T2 at the Face Rock 115/69kV Substation. - Rewire the existing control and AC cables to the new transformer control cabinet. If the cables will not reach the new control cabinet, install two (2) junction boxes to terminate cables. - Install the existing 4/0 ground connections to the new transformers. - Replace two (2) spans of 1033 KCMIL (one down-comer to T1 and one span from the T1 structure to Bay 6D) with two (2) 795 ACSR. - Replace two (2) spans of 1033 KCMIL (one down-comer to T2 and one span from the T2 structure to Bay 5D) with new double bundle 795 KC. - Replace all conductor terminations associated with T1 and T2 with new terminations utilizing bifurcation pads to accommodate the new double bundle conductor. - Install a new 2000/5A CT in place on the 1-3-5 bushings of CB 6C - Replace the following conductor spans within Bay 6 with new two (2) 795 ACSR: (a) Two (2) spans of 1590 ACSR from the North and South high side busses into disconnect switches. (b) Six (6) leads of 1590 ACSR from each circuit breaker 6B, 6BT, 6C to their respective disconnect switches. (c) Two (2) spans of 1590 ACSR (one down-comer and one OH span between lattice structures) Bay 6. (d) Two (2) spans of 500 MCM Cu. (one down-comer and one OH span between lattice structures) (e) One (1) down-comer of 350 KCMIL - Replace the following conductor spans within Bay 6 with tubular bus to meet the standard ampacity requirements of a 69kV bus: (a) One (1) span of 1590 ACSR between the 69kV disconnect switches for the Transformer T1 and T2 line circuit. (b) One (1) span of 2.5” Al. tubular bus between the 69kV disconnect switches for the No. 695 SPAN HOLTWOOD line circuit. - Replace all conductor terminations within Bay 6 with new terminations utilizing bifurcation pads to accommodate the new double bundle conductor
Describe any new substation equipment and provide the equipment ratings.			

5. Substation Upgrade Component

Instructions		Inputs-2
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number: 7
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: Not Applicable.
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
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: No expansion required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	5.h.	Redacted information

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	8
Identify the line terminal points. Add additional spaces if required.	4.b.	Terminal points	Manor 230 kV Graceton 230 kV
		Existing Line Physical Characteristics	
Provide the size and type conductor that will be removed.	4.c.	Existing conductor size and type	795 ACSR 30 / 19
Indicate whether the existing line hardware will be reused. If so, provide the age and condition of the hardware.	4.d.	Existing hardware plan	BG&E section of line will need to have towers and hardware 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	BG&E towers and hardware were designed for 795 ACSR and now need to support 1590 ACSR. The PPL section has been rebuilt to support 1590 ACSR.
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	Rolling hills.

Reconductor/Rebuild Transmission Line Component

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**	8
		Reconductor/Rebuild Component Plan	
Provide the target ratings for the line.	**4.g.**	**Component target ratings**	SN / SE: 1626A / 2013A. WN / WE: 1873A / 2267A
Provide the type and size of the conductor to be installed.	**4.h.**	**Proposed conductor size and type**	1590 ACSR 45 / 7
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 .752, 48 count
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**	Approximately 1.3 miles of the line needs to be reconducted. The remainder of the line already has 1590 ACSR. The section of line that needs to be upgraded is owned by BGE. For the purposes of this estimate it is assumed that the entire 1.3 mile section would have to be rebuilt to accommodate the larger conductor. Rebuild 1.3 miles of line to single circuit future double circuit with 1590 ACSR and dual 48 count OPGW. Rebuild from 39.721190° -76.384672° (Maryland border) to 39.702063° -76.385545° and tie new conductor in existing steel monopole. Install conductor from Maryland border to PPL dead-end structure 38374S14542.
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**	No expansion required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	**4.l.**	**Redacted information**	

5. Substation Upgrade Component

Instructions		Inputs-3	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number	9
Identify the name of the existing substation where the upgrade will take place.	5.b.	Substation	Peach Bottom (North)
Describe the scope of the upgrade work at the identified substation.	5.c.	Substation upgrade scope	Upgrade PEBO North Station buswork to accommodate full PEBO-FURU 500 kV line conductor rating of (SN/SE of 2546 A / 3232 A and WN/WE of 3134 A / 3274 A). OPTIONAL COMPONENT ONLY APPLICABLE IF A PEBO-FURU 500 kV THERMAL RELIABILITY VIOLATION IS IDENTIFIED WITH [redacted] IN SERVICE.

5. Substation Upgrade Component

Instructions		Inputs-3	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**	9
	5.d.	**New equipment description**	
Describe any new substation equipment and provide the equipment ratings.			3900 linear feet of rigid bus to be replaced with 5” rigid bus

5. Substation Upgrade Component

Instructions		Inputs-3
Provide the corresponding component number from the "Project Components" tab of the proposal template.	**5.a.**	**Component number**: 9
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**: Assumes tie lines between North and South PEBO stations and buswork at PEBO South are adequate to accommodate the ratings noted above.
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**
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**: No expansion required.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	**5.h.**	**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)	Jan-19
Construction start date (Mo-Yr)	
Commercial operation date (Mo-Yr)	Jan-23

Project Capital Expenditures

0.05 0.2 0.35 0.4

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	2019	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	$ 51,169,988.68	$1,279,249.72	$ 2,558,499.43	$ 6,396,248.59	$15,350,996.60	$ 25,584,994.34	
Work by others capex	$ -						
Total project capex	$ 51,169,988.68	$1,279,249.72	$ 2,558,499.43	$ 6,396,248.59	$15,350,996.60	$ 25,584,994.34	

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

9.c.

	Total	2019	2020	2021	2022	2023	2024
AFUDC	$ 1,627,780.00	$ 40,694.50	$ 81,389.00	$ 203,472.50	$ 488,334.00	$ 813,890.00	

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** The estimate assumes competitive unit prices to execute the proposed scope of work. Costs assume favorable weather, schedule, environmental conditions, and outage requirements to execute at a competitive price. The cost assumes that land and land rights for the proposed substation, switchyards and right of way ("ROW") will be acquired in the general vicinity of the locations included within this proposal. Land and ROW will be acquired amicably, and condemnation will not be required. Civil land conditions are suitable for the development of the proposed substations, switchyards, and transmission lines; including but not limited to geotechnical conditions, access rights, stormwater management, and permitting requirements. Potential environmental impacts can reasonably be mitigated or avoided, and appropriate permits and approvals can be readily obtained.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	**9.e.**	**Redacted information**

10. Cost Containment Commitment

Instructions		Inputs
Provide a description of the cost containment mechanism being proposed.	10.a.	Cost containment commitment description
Indicate what project scope is covered by the proposed cost containment commitment. Identify the components covered by number.	10.b.	Project scope covered by the cost containment commitment
Provide, in present year dollars and year of occurrence dollars, the Proposing Entity's proposed binding cap on capital expenditures.	10.b.i.	Cost cap in present year dollars
		Cost cap in in-service year dollars
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.ii.	Additional Information on cost cap:

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
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**