Executive Summary

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	Long Term Window RTEP 2018/2019
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_1-249
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	The project consists of building a new 50 MW 4-hour battery to be connected to the existing Trail Creek 138 kV station.
Identify if the proposal or a proposal component span two PJM Transmission Owner zones. I.e. The proposal topology connects equipment owned by more than one Transmission Owner. This group includes transmission that spans two or more affiliated companies (e.g. Meted and Allegheny Power).	1.f.	Tie line impact	*No*
Indicate if the project is being proposed as a solution to a cross-border (e.g. PJM to MISO, PJM to NYISO) issue. (Note: The Proposing Entity is responsible for initiating and satisfying all regional and interregional requirements.)	1.g.	Interregional project	*Yes*
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)	$ 43,976,926.78
Total in-service year project cost estimate including estimates for any required Transmission Owner upgrades.	1.j.	Project cost estimate (in-service year)	$ 45,403,585.00

1. Executive Summary

Instructions		Inputs	
Project estimated schedule duration in months.	**1.k.**	**Project schedule duration**	23
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**	*Yes*
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**	This solution provides additional grid resiliency as well as the potential for energy, ancillary and capacity market 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**	☑

1. Executive Summary

Instructions		Inputs	
		If the answer to the cross-border question above at 1.g. was yes, complete the questions below.	
Indicate if an evaluation for interregional cost allocation is desired.	**1.q.i.**	**Interregional Cost Allocation Evaluation**	*Yes*
	1.q.ii.	**Evaluated in interregional analysis under PJM Tariff or Operating Agreement provisions**	*Yes*
Indicate if the proposal has been evaluated in a coordinated interregional analysis under the PJM Tariff or Operating Agreement provisions. Specify the analysis and applicable Tariff or Operating Agreement provisions.		**If 'yes,' specify analysis and applicable Tariff or Operating Agreement provisions**	Project has not previously been evaluated in a coordinated interregional analysis. However, it should be evaluated in accordance with the MISO-PJM Joint Operating Agreement.
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.**	Bosserman to Trail Creek 138 kV market efficiency flow gate

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

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	Frequency (Hours)	Market Congestion ($ millions)	Frequency (Hours)	Market Congestion ($ millions)
ME-7	Bosserman to Trail Creek 138 kV	AEP/MISOE	BESS	66	$1.47	89	$1.69

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 1	Component 2	Component 3
3.a.	Component description(s)	Build a new Warnke battery storage facility 138 kV/50 MW-4 hour battery to connect battery facility to the existing Trail Creek 138 kV	Install new 138 kV breaker and modify substation to accommodate new line	
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	$ 43,576,926.78	$ 400,000.00	$ -
3.c.	Component cost (in-service year)	$ 44,987,425.00	$ 416,160.00	
3.d.	Construction responsibility	[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.

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	Warnke Energy Battery Energy Storage System (BESS)
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	[redacted]
Describe the major substation equipment and provide the equipment ratings.	7.e.	Substation equipment	[redacted]
Describe the required site size, geography and current land use for the proposed site(s).	7.f.	Geography and land use	[redacted]
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	[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
	7.h.	Outreach plan	
Community and landowner outreach plan		[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 project land acquisition plan and approach for both public and private lands.	7.i.	Land acquisition plan	[redacted]
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	7.j.	Redacted information	[redacted]

Substation Upgrade Component

5. Substation Upgrade Component

Instructions		Inputs-1	
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number	2
Identify the name of the existing substation where the upgrade will take place.	5.b.	Substation	Trail Creek
Describe the scope of the upgrade work at the identified substation.	5.c.	Substation upgrade scope	Install new 138 kV breaker and add additional buswork.
Describe any new substation equipment and provide the equipment ratings.	5.d.	New equipment description	New breakers, switches, and terminal equipment will be rated for at least 1000 amps.
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	Based on desktop analysis, it appears possible to expand the buswork and add a new breaker within the existing footprint of the existing switchyard. Ultimately, this work will be designed by the owner of the switchyard.
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	Desktop analysis indicates it may be possible to utilize the existing footprint
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-20
Construction start date (Mo-Yr)	Mar-21
Commercial operation date (Mo-Yr)	Jan-22

Project Capital Expenditures

Provide, in present year dollars, capital expenditure estimates by year for the Proposing Entity, work to be completed by others (e.g. incumbent TO) and total project. Capital expenditure estimates should include all capital expenditure, including any ongoing expenditures, for which the Proposing Entity plans to seek FERC approval for recovery.

9.b.

Capital expenditure details	Total	2020	2021	2022	2023	2024	2025
Engineering and design	[redacted]						
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	$ 43,976,926.78	$ 27,934,182.83	$ 16,042,743.96				

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

9.c.

	Total	2020	2021	2022	2023	2024	2025
AFUDC	$ 1,380,302.42	$ 351,084.41	$ 1,029,218.01				

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	9.d. Assumptions for the capital expenditure estimate	[redacted]
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	9.e. Redacted information	[redacted]

10. Cost Containment Commitment

Instructions		Inputs
Provide a description of the cost containment mechanism being proposed.	10.a.	**Cost containment commitment description** The developer is proposing a firm cost cap on the project components they are responsible for. [redacted]
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** Project Component 1
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** [redacted] **Cost cap in in-service year dollars** [redacted]
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:** [redacted] Under Review by PJM
Indicate which components of capital costs fall under the cost cap.	10.b.iii.	**Cost containment capital expenditure exemptions**

Capital cost component	Component covered by cost containment
Engineering and design	*Yes*
Permitting / routing / siting	*Yes*
ROW / land acquisition	*Yes*
Materials and equipment	*Yes*
Construction and commissioning	*Yes*
Construction management	*Yes*
Overheads and miscellaneous costs	*Yes*
Taxes	*Yes*
AFUDC	*Yes*
Escalation	*Yes*

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:
		Under Review by PJM
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
		Under Review by PJM

10. Cost Containment Commitment

Instructions	Inputs
	Under Review by PJM

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.