

### **Executive Summary**

Instructions		Input	5
Provide the name of the Proposing Entity. If there are multiple entities, please identify each party.	1.a.	Proposing Entity name	
Provide the RTEP Proposal Window in which this proposal is being submitted.	1.b.	Proposal window	2018/19 RTEP Long-Term Wind
Provide the Proposing Entity project proposal id. Use "A, B, C,", etc. to differentiate between proposals.	1.c.	Proposal identification	
PJM proposal identification	1.d.	PJM proposal identification	201819_1-129
	1.e.	General project description	
Provide a general description of the scope of this project (e.g. Project is a new line between X and Y substations utilizing AAA structures. A new bay will be created within the existing substation X footprint. Substation Y will be reconfigured to a breaker and a half with accommodations for the new line.)		The Project will establish a new 138 kV Kuchar station 138 kV line in the area. The Project will establish a new the new Kuchar Station to the existing Luchtman Station	ew 138 kV single circuit transmission I
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).	1.1.	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	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

Proposal 201819\_1-129 Page 1 of 24



### **Executive Summary**

1. Executive Summary				
Instructions		Inp	outs	
Project estimated schedule duration in months.	1.k.	Project schedule duration		47
Indicate if any cost containment commitment is being proposed as part of the project. If yes the "10. Cost Contain" tab within this project proposal template is to be completed	, <b>1.l.</b>	Cost containment commitment	Yes	
	1.m.	Additional benefits	]	
If the project provides any known additional benefits above solving the identified violations o constraints, identify those benefits (e.g. reliability, economic, resilience, etc.).	r			
Confirm that all technical analysis files have been provided for this proposal.	1.n.	Technical analysis files provided	abla	
Confirm that all necessary project diagrams have been provided for this proposal.	1.o.	Project diagram files provided	V	
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	<b>V</b>	

Proposal 201819\_1-129 Page 2 of 24



### **Executive Summary**

1. Executive Summary  Instructions		Inputs
		If the answer to the cross-border question above at 1.g. was yes, complete the questions
Indicate if an evaluation for interregional cost allocation is desired.	1.q.i.	Interregional Cost Allocation Evaluation 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		If 'yes,' specify analysis and applicable Tariff or Operating Agreement provisions
Operating Agreement provisions.		PJM-MISO Joint Operating Agreement - 2018 RTEP and MTEP 2019 Market Efficiency Analysis
	1.q.iii.	Regional and Interregional violations and issues from the Regional and/or Interregional analyses that identified the violations and
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.		issues addressed by the proposal.  MTEP 2019 Market Efficiency Analysis  M2M Flowgate: C-G: Bosserman-Trail Creek 138 kV
		2018 RTEP Market Efficiency Analysis  M2M Flowgate: ME-7: Bosserman-Trail Creek 138 kV FLO Bosserman-Michigan City 138 kV

Proposal 201819\_1-129 Page 3 of 24



2.a.

#### **Overloaded Facilities**

#### . Overloaded Facilities

Facilities addressed by the proposed project Identify the criteria violation(s) or system constraint(s) that the proposed project solves or mitigates. **Instructions:** To Bus FG# Analysis Type Facility Name To Bus # CKT Voltage Bus # Area Name



### **Overloaded Facilities**

2. Overloaded Facilities

2.b.

Facilities not address	sed/caused by the proposed project Identify the criteria violation(s) or system constraint(s) that the proposed project causes or does not address.								
Instructions:	Identify the cr	iteria violation	(s) or system co	onstraint(s) tha	at the proposed	l project cause	s or does not a	address.	
Unique Proposer Generated ID	Analysis Type	Bus#	Facility Name	To Bus #	To Bus Name	СКТ	Voltage	Area	



2.c.

### **Overloaded Facilities**

#### . Overloaded Facilities

Instructions:	flowgate(s) addressed by the proposed proposed proposed proposed in the flow of the flow o	te(s) the proposed r	project mitigate	s.			
FG#	Facility Name	Area	Type		Market Congestion (\$ millions)	Frequency (Hours)	Market Congestion (\$ millions)
ME-7	Bosserman to Trail Creek 138kV	MISOE	Line	66	1.47	89	1.69

Proposal 201819\_1-129



# Major Project Components

Major Project Components					
Instructions			Component 1	Component 2	Component 3
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.a.	Component description(s)	Kuchar - Luchtman 138kV Transmission Line	Kuchar Extension Line 138kV	New 138 kV Kutchar Station
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  Permitting / routing / siting  ROW / land acquisition  Materials and equipment  Construction and commissioning  Construction management  Overheads and miscellaneous costs  Contingency  Total component cost	\$ 13,884,559.74	\$ 3,537,551.58	\$ 4,859,789.16
If this proposal is being submitted as Market Efficiency project, provide an in-service year component project	3.c.	Component cost (in-service year)	\$ 16,487,101.60	\$ 4,200,635.35	\$ 5,770,715.04
Identify the entity who will be designated the component.	3.d.	Construction responsibility			

Proposal 201819\_1-129 Page 7 of 24



# Major Project Components

. Major Project Components					
Instructions			Component 4	Component 5	Component 6
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.a.	Component description(s)	Luchtman Station Modifications	Remote-End Relaying at Luchtman, Marquette and Bootjack Stations	
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  Permitting / routing / siting  ROW / land acquisition  Materials and equipment  Construction and commissioning  Construction management  Overheads and miscellaneous costs  Contingency  Total component cost	\$ 835,067.00	\$ 144,000.00	
If this proposal is being submitted as Market Efficiency project, provide an in-service year component project	3.c.	Component cost (in-service year)	\$ 991,593.16	\$ 170,991.57	
Identify the entity who will be designated the component.	3.d.	Construction responsibility	Incumbent	Incumbent	

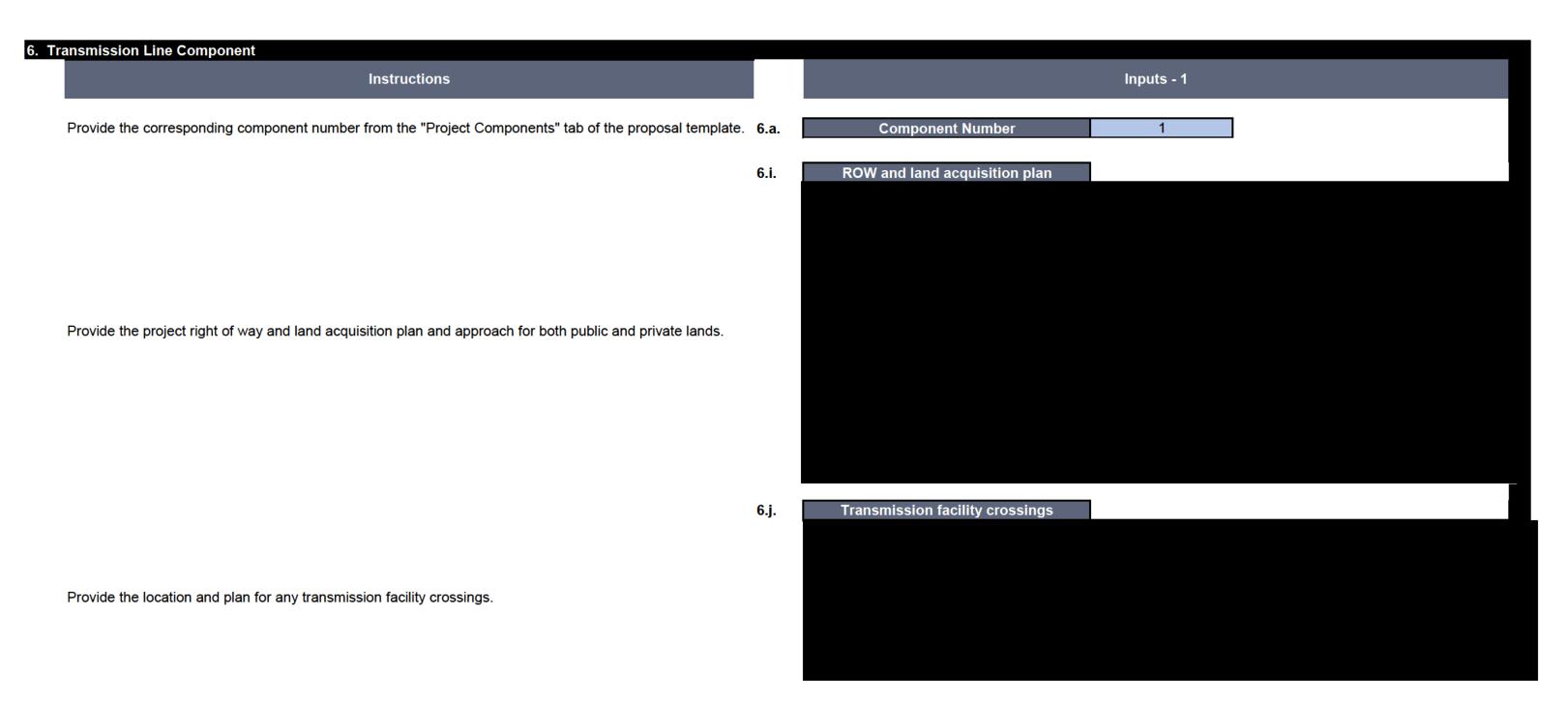
Proposal 201819\_1-129 Page 8 of 24



ransmission Line Component Instructions		Inputs - 1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	6.a.	Component Number 1
Provide the substation endpoints for the proposed transmission line component.	6.b.	Line terminal points  Luchtman 138 kV Station  Kuchar 138 kV Station
Provide the target ratings for the proposed line.	6.c.	Project ratings 257 MVA Summer Normal/360 Summer Emergency
Provide the proposed conductor type and size.	6.d.	Conductor type and size 795 kcm ACSR 26/7 DRAKE
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.	Approximately 8.5 miles of new single circuit 138 kV AC overhead line will be constructed. The line will be constructed using galvanized steel poles with braced post insulators arranged in an alternating configuration. The predominant structure types will use direct embedded foundation backfilled with soil.
Provide a general description of the evaluated routes or routing study area. Provide a Google Earth .KMZ fil with the evaluated routes or study plan.	<b>6.f.</b> e	General route description
Describe the terrain traversed by the proposed new line.	6.g.	Terrain description
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.	<b>6.h.</b> e	Right of way plan by segment

Proposal 201819\_1-129 Page 9 of 24





Page 10 of 24







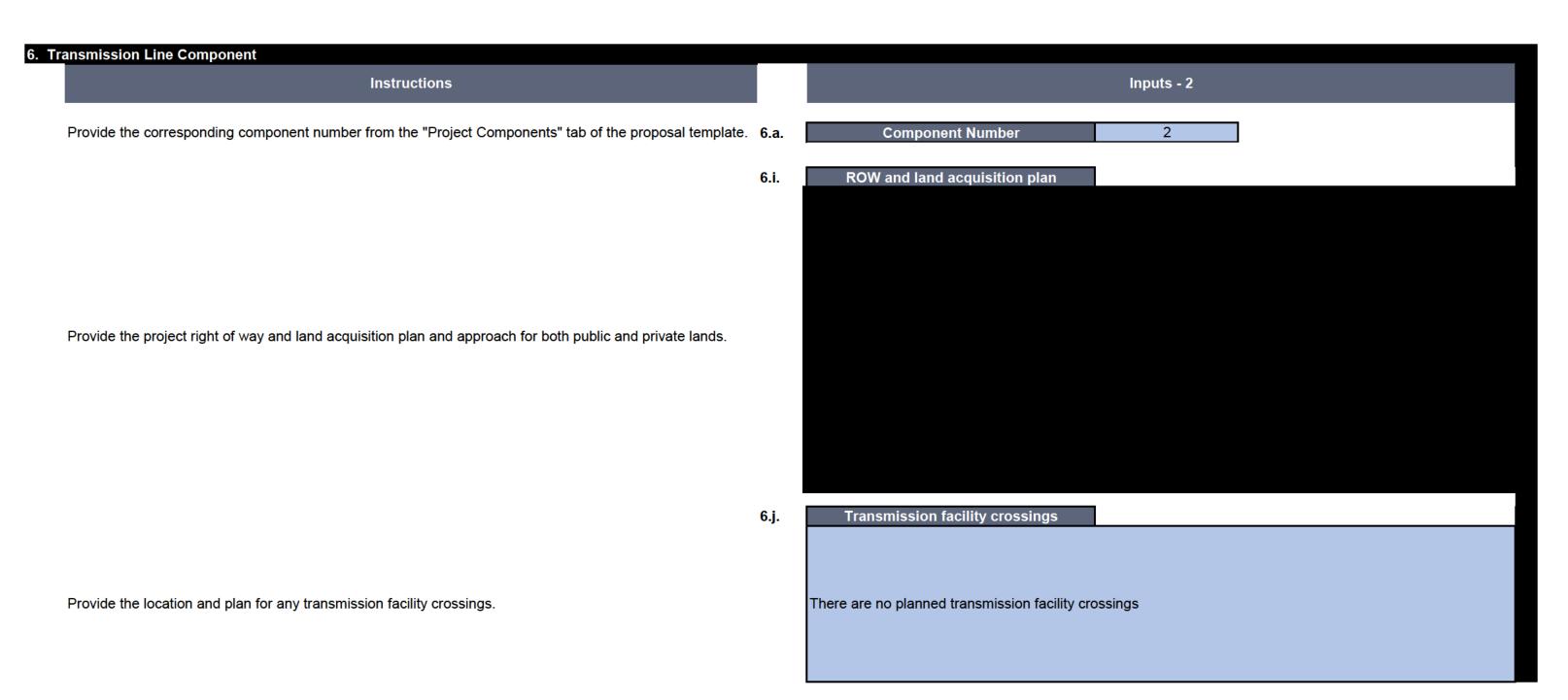
6. Transmission Line Component  Instructions		Inputs - 1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	6.a.	Component Number 1
Proposed tower characteristics such as monopole, lattice, wood h-frame design, double or single circuit, and horizontal, vertical or delta conductor configurations. Note, preliminary drawings for proposed structure types are acceptable in place of a written description.		Tower characteristics  The Kuchar-Luchtman 138 kV Line will be constructed predominately using galvanized steel poles with braced post insulators, arranged in an alternating configuration. The predominant structure types will use direct embedded foundations backfilled with soil.  A sketch of the typical proposed structure type is provided.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	6.m.	Redacted information



6. Transı	mission Line Component		
	Instructions		Inputs - 2
Pro	vide the corresponding component number from the "Project Components" tab of the proposal template.	6.a.	Component Number 2
Pro	vide the substation endpoints for the proposed transmission line component.	6.b.	Line terminal points  Kuchar 138 kV Station to Kuchar Switch 138kV  Kuchar Station 138 kVto Liquid Carbonics 138kV
Pro	vide the target ratings for the proposed line.	6.c.	Project ratings 251 MVA Summer Normal/335 Summer Emergency
Pro	vide the proposed conductor type and size.	6.d.	Conductor type and size 795 kcm ACSR 26/7 DRAKE
	vide a general description of the line, including nominal voltage, whether the facility will be AC or DC and e construction will be overhead, underground, submarine or some combination.	6.e.	Approximately 2 miles of new double circuit 138 kV line will be developed to establish the Bosserman-Kuchar 138 kV Circuit and the Kuchar-Liquid Carbonics 138kV Circuit. The Bosserman-Liquid Carbonics 138 kV cut in (Kuchar 138 kV Extension Line) will be constructed predominately using galvanized steel poles with braced post insulators, arranged in a vertical configuration. The predominant structure types will use direct embedded foundations backfilled with soil.
	vide a general description of the evaluated routes or routing study area. Provide a Google Earth .KMZ file n the evaluated routes or study plan.	6.f.	General route description
Des	scribe the terrain traversed by the proposed new line.	6.g.	Terrain description
nev	ute description by segment that includes lengths and widths and classified by whether the segment will be or right of way, an expansion of an existing right of way or use an existing right of way. This information or be included with the Google Earth .KMZ.	6.h.	Right of way plan by segment

Proposal 201819\_1-129 Page 13 of 24









Page 15 of 24



6. Transmission Line Component  Instructions		Inputs - 2
Provide the corresponding component number from the "Project Components" tab of the proposal template.	6.a.	Component Number 2
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.	6.1.	Tower characteristics  The Bosserman-Liquid Carbonics 138 kV cut in (Kuchar 138 kV Extension Line) will be constructed predominately using galvanized steel poles with braced post insulators, arranged in a vertical configuration. The predominant structure types will use direct embedded foundations backfilled with soil. A sketch of the typical proposed structure type is provided.
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	6.m.	Redacted information



### **Greenfield Substation Component**

Greenfield Substation Component		
Instructions		Inputs - 1
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 Kuchar 138 kV Station
Provide the latitude and longitude (in decimal degrees) of the site(s) evaluated for the substation.	7.c.	Evaluated location(s)
Provide a general description of the substation. Also, provide a single line diagram and general arrangement drawing	7.d.	Substation description  The new 138 kV Kuchar switching station will consist of breakers, switches, coupling capacitor voltage transformers (CCVTs), and rigid bus all arranged in a greenfield 3-breaker ring bus configuration. The 138 kV breakers are rated 3000 ampere and 40 kA.
Describe the major substation equipment and provide the equipment ratings.	7.e.	Substation equipment  The new 138 kV Kuchar switching station will consist of breakers, switches, coupling capacitor voltage transformers (CCVTs), and rigid bus all arranged in a greenfield 3-breaker ring bus configuration. The 138 kV breakers are rated 3000 ampere and 40 kA. The proposed location is near the location of the existing AEP owned 138 kV Kuchar Switch. The existing Kuchar Switch will have a line interfacing with one of the terminals of the proposed greenfield 3-breaker ring station. This new station will have a new transmission line constructed to the existing 138 kV Luchtman Station while the remaining will cut in towards the existing Liquid Carbanies Station.
Describe the required site size, geography and current land use for the proposed site(s).	7.f.	Geography and land use

Proposal 201819\_1-129 Page 17 of 24



### **Greenfield Substation Component**

eenfield Substation Component Instructions			Inputs - 1	
Provide the corresponding component number from the "Project Components" tab of the proposal template	e. <b>7.a.</b>	Component number	3	
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		
Community and landowner outreach plan	7.h.	Outreach plan		
Provide the project land acquisition plan and approach for both public and private lands.	7.i.	Land acquisition plan		
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	7.j.	Redacted information		

Proposal 201819\_1-129 Page 18 of 24



### **Substation Upgrade Component**

. Substation Upgrade Component		
Instructions		Inputs-1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number 4
Identify the name of the existing substation where the upgrade will take place.	5.b.	Substation Luchtman 138kV Station
Describe the scope of the upgrade work at the identified substation.	5.c.	Substation upgrade scope  Extend the Luchtman Station 138 kV straight bus by installing a second circuit breaker to allow for connection of the Kuchar-Luchtman 138 kV Circuit.
Describe any new substation equipment and provide the equipment ratings.	5.d.	New equipment description  Add a new 138kV, 3000 Ampere, 40kA breaker, associated switches and dead end line termination structure for a new line to the new Kuchar Station.
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  Assume the station can be expanded as necessary.
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. 5.g.	Substation drawings  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.	J	
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	5.h.	Redacted information

Proposal 201819\_1-129 Page 19 of 24



### **Substation Upgrade Component**

Instructions		Inputs-1
Provide the corresponding component number from the "Project Components" tab of the proposal template.	5.a.	Component number 5
Identify the name of the existing substation where the upgrade will take place.	5.b.	Substation Remote-End Relaying at multiple Stations
Describe the scope of the upgrade work at the identified substation.	5.c.	Substation upgrade scope  Replace or Reprogram Remote-End Relaying at Luchtman, Marquette and Bootjack Stations
Describe any new substation equipment and provide the equipment ratings.	5.d.	New equipment description  Replace or reprogram relays at remote end stations Luchtman, Marquette and Bootjack stations
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  Substation appears to have ample space to add these facilities
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. 5.g.	Substation drawings  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.		NA
Describe any files or information that has been redacted from this section and provide the basis for the redaction.	5.h.	Redacted information

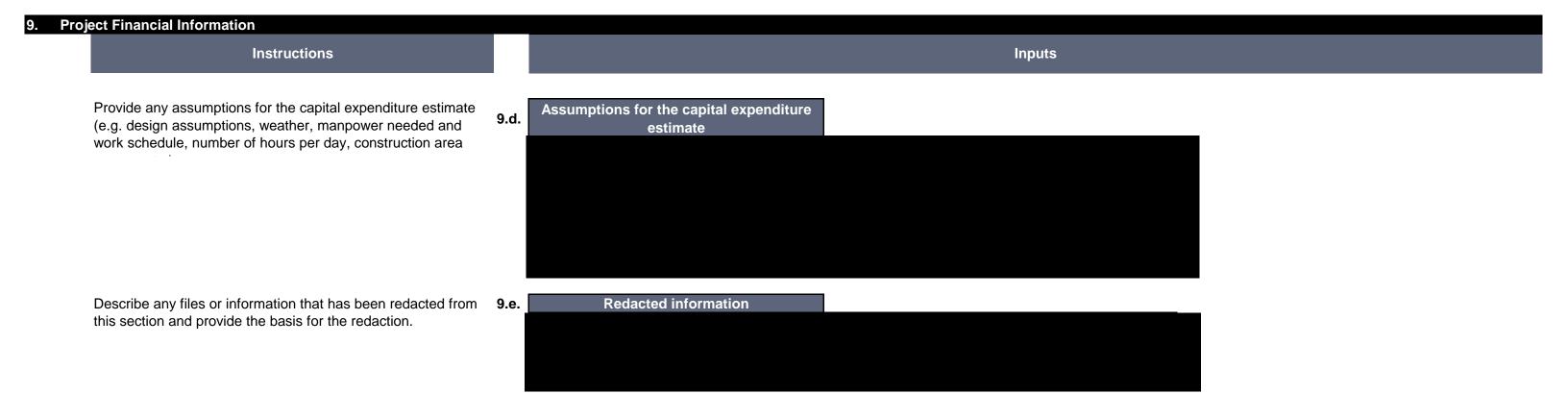
Proposal 201819\_1-129 Page 20 of 24



ject Financial Information			_		_				
Instructions		Inputs							
		Project Schedule							
Provide the planned construction period, include the month and 9.	9.a.	Capital spend start date (Mo-Yr)	Jan-20	]					
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.		Construction start date (Mo-Yr)	Jan-22	]					
operation month.		Commercial operation date (Mo-Yr)	Dec-23	]					
		Project Capital Expenditures							
Provide, in present year dollars, capital expenditure estimates	9.b.	Capital expenditure details	Total	2020	2021	2022	2023	2024	Γ
by year for the Proposing Entity, work to be completed by others (e.g. incumbent TO) and total project. Capital		Engineering and design							
expenditure estimates should include all capital expenditure,		Permitting / routing / siting							
including any ongoing expenditures, for which the Proposing Entity plans to seek FERC approval for recovery.		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	\$ 23,260,967.48	\$ 1,163,048.37	\$ 1,163,048.37	\$ 8,606,557.97	\$ 12,328,312.76		
									_
Even if AFUDC is not going to be employed, provide a yearly AFUDC cash flow.	9.c.		Total	2020	2021	2022	2023	2024	
7.11 O.D.O GUGIT HOTT.		AFUDC	\$ 1,828,626.11	\$ 34,196.11	\$ 116,428.21	\$ 457,218.06	\$ 1,220,783.73		

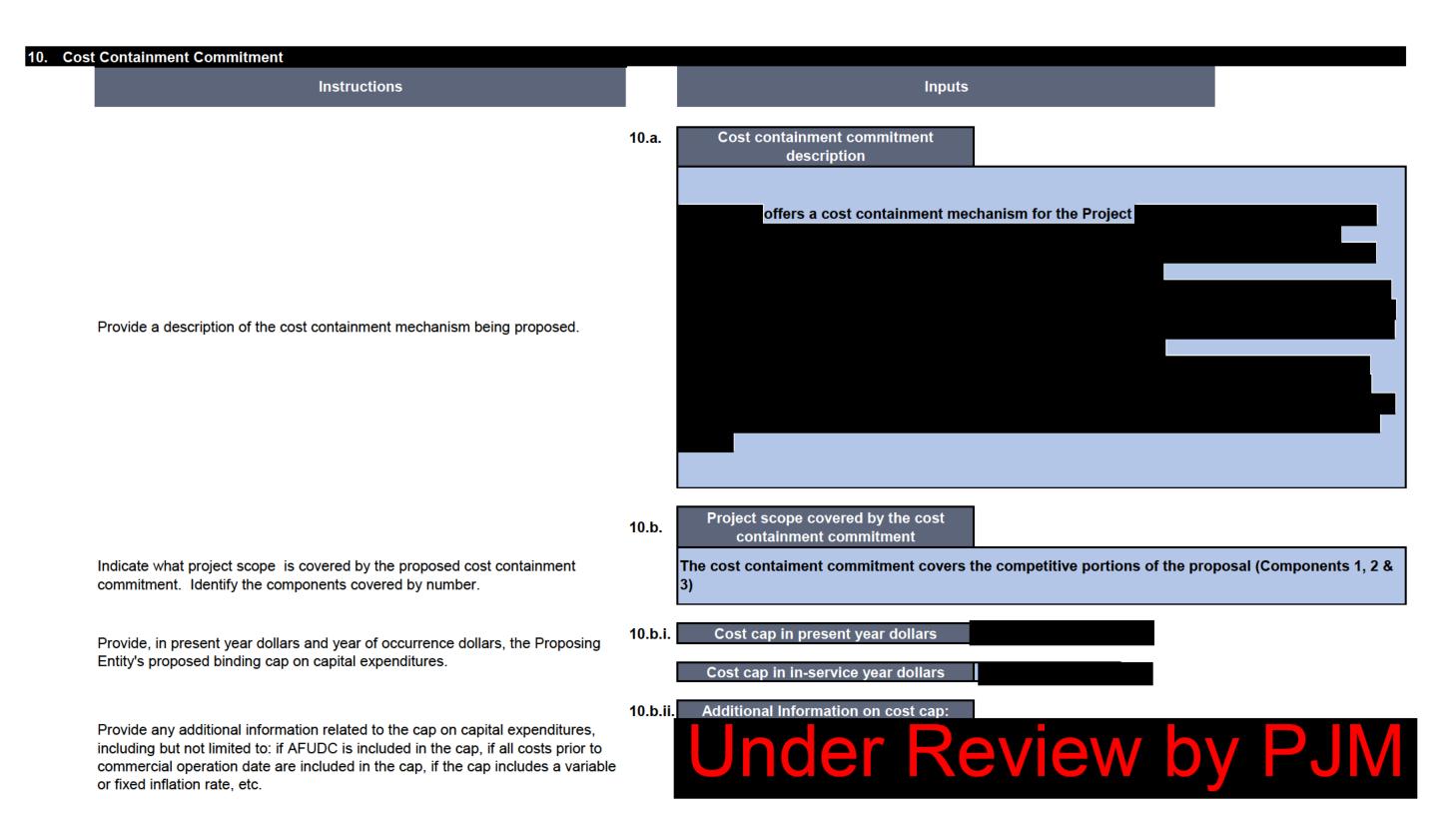
Proposal 201819\_1-129 Page 21 of 24







#### **Cost Containment Commitment**



Proposal 201819\_1-129 Page 23 of 24



# **Cost Containment Commitment**

Cost Containment Commitment			
Instructions		Inputs	
	10.b.iii	Cost containment capital expenditure exemptions  Capital cost component	Component covered by cost containment
Indicate which components of capital costs fall under the cost cap.		Engineering and design Permitting / routing / siting ROW / land acquisition Materials and equipment	Yes Yes Yes Yes Yes
		Construction and commissioning Construction management Overheads and miscellaneous costs Taxes AFUDC	Yes Yes Yes Yes No
	10.c.	Describe any other Cost Containment Measures not covered above:	Yes
Describe any other cost containment measures not detailed above.	10.d.	Cost Commitment Legal Language	eview by PJN
Frovide language to be included in the Designated Entity Agreement that expresses the legally hinding commitment of the developer to the construction		Under R	eview by PJM
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	

Proposal 201819\_1-129 Page 24 of 24