

Shingletown 230 kV: Upgrade #82 Transformer Circuit

General Information

Proposing entity name	Company specific
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	Company specific
PJM Proposal ID	919
Project title	Shingletown 230 kV: Upgrade #82 Transformer Circuit
Project description	Upgrade the Shingletown #82 230-46 kV Transformer Circuit by installing a 230 kV breaker and disconnect switches, removing existing 230 kV switches, replacing 46 kV disconnect switches, replacing limiting substation conductor, and installing/replacing relays.
Email	Company specific
Project in-service date	06/2025
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. Shingletown #82 230-46 kV Transformer Circuit

Substation Upgrade Component

Component title	Shingletown #82 230-46 kV Transformer Circuit
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Project description	Upgrade the Shingletown #82 230-46 kV Transformer Circuit by installing a 230 kV breaker and disconnect switches, removing existing 230 kV switches, replacing 46 kV disconnect switches, replacing limiting substation conductor, and installing/replacing relays.
Substation name	Shingletown (Bus # 235248)
Substation zone	APS (WPP, Zone 1202)
Substation upgrade scope	At Shingletown: -Install (1 lot) foundation, conduit, and grounding for the new equipment -Install (3) foundations for relocated 230 kV down drop conductors -Install (1) 230 kV circuit breaker -Install (1) 230 kV 2000 A GOAB disconnect switch and structure -Relocate 230 kV down drop conductors closer to 230 kV main bus -Re-nameplate (1) 46 kV breaker (POSN 110) to 3000 A, 40 kA IC -Replace 500 CU conductor and 1.5" AL -Replace (1 lot) 230 kV porcelain strain disc insulators with polymer insulators -Replace (2) 46 kV disconnect switches with 3000 A switches -Replace existing No. 82 transformer relays with (2) new transformer relay panels -Install (1) DC panel -Remove existing 230 kV transformer disconnect switch. The structure will remain as a bus support

Transformer Information

	Name	Capacity (MVA)	
Transformer	Shingletown #82	SN: 180 MVA, SE: 227 MVA, SLD: 280 MVA; WN: 218 MVA, WE: 253 MVA, WLD: 280 MVA	
	High Side	Low Side	Tertiary
Voltage (kV)	230	46	
New equipment description	At Shingletown: -Install (1 lot) foundation, conduit, and grounding for the new equipment -Install (3) foundations for relocated 230 kV down drop conductors -Install (1) 230 kV circuit breaker -Install (1) 230 kV 2000 A GOAB disconnect switch and structure -Relocate 230 kV down drop conductors closer to 230 kV main bus -Re-nameplate (1) 46 kV breaker (POSN 110) to 3000 A, 40 kA IC -Replace 500 CU conductor and 1.5" AL -Replace (1 lot) 230 kV porcelain strain disc insulators with polymer insulators -Replace (2) 46 kV disconnect switches with 3000 A switches -Replace existing No. 82 transformer relays with (2) new transformer relay panels -Install (1) DC panel -Remove existing 230 kV transformer disconnect switch. The structure will remain as a bus support All new equipment to meet or exceed the ratings of the existing #82 230-46 kV transformer. These will be the ratings of the Shingletown #82 230-46 kV transformer circuit upon completion of this project: SN: 180 MVA, SE: 227 MVA, SLD: 280 MVA; WN: 218 MVA, WE: 253 MVA, WLD: 280 MVA		

Substation assumptions	Assumptions: AC & DC services are adequate for new equipment, sufficient room in the existing control building for the new 230 kV breaker panel, SCADA RTU has adequate flexibility for additional points, existing 46 kV switch structures are adequate for reuse.
Real-estate description	N/A - No substation expansion is necessary.
Construction responsibility	Company specific
Benefits/Comments	The Shingletown #82 230-46 kV transformer has a 230 kV switch instead of a protective device. A transformer fault will de-energizing the #2 230 kV bus until the transformer is isolated, resulting in a voltage drop violation at the Shingletown 230 kV #1 bus in certain contingency scenarios. Installing a 230 kV breaker to protect against a transformer fault will prevent the #2 230 kV bus from tripping for a transformer fault, thus resolving the violation.

Component Cost Details - In Current Year \$

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	\$1,668,214.54
Component cost (in-service year)	\$1,861,502.58

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
APS-VD45	235248	01SHINGL	235248	01SHINGL	0	230	201	FERC 715 Voltage Drop	Included
APS-VD46	235248	01SHINGL	235248	01SHINGL	0	230	201	FERC 715 Voltage Drop	Included

New Flowgates

None

Financial Information

Capital spend start date 04/2024

Construction start date 01/2025

Project Duration (In Months) 14

Additional Comments

None