Interconnection Facilities Study for GEN-2022-065 Network Upgrades and TOIF upgrades on the Great Bend Station to Spearville 230 kV Transmission Line

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STUDY OVERVIEW:

The Southwest Power Pool has requested a Facility Study for Interconnection Facilities and Network Upgrades from Sunflower Electric Power Corporation (Sunflower) on the Great Bend Station to Spearville 230 kV Transmission Line for request GEN-2022-065. The GEN-2022-065 request consists of a total of 145 MW of solar generation interconnecting on the Great Bend Station to Spearville 230 kV Transmission Line.

The Non-Shared Network Upgrades (NU) identified to accept a new generator lead includes terminal equipment to accept a new line on the existing Great Bend Station to Spearville 230 kV Transmission Line. The cost for these Network Upgrades is estimated at $24,830,563.

The Transmission Owner Interconnection Facility (TOIF) addition identified is a new 230 kV generator lead connection on the existing Great Bend Station to Spearville 230 kV Transmission Line. The cost for adding the new 230 kV generator lead is estimated at $2,175,621.

The purpose of this study is to provide estimated costs of facilities required for interconnection of the proposed generation to Sunflower's transmission system and to identify scope and estimated costs for network upgrades required on Sunflower's transmission system to allow the generation to run at the full requested capacity.

Additional network upgrades required for facilities of other transmission owners are not included in this study and will be identified by SPP.

INTERCONNECTION FACILITIES AND NON-SHARED NETWORK UPGRADES:

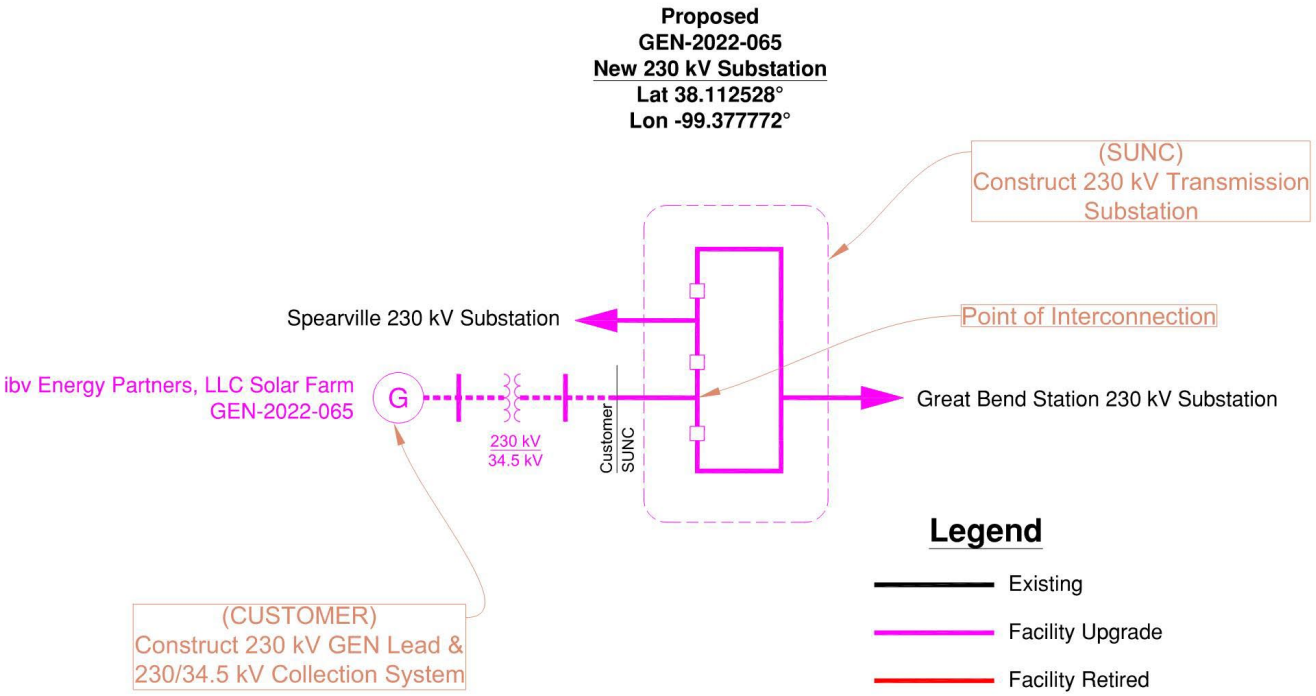
Non-shared Network Upgrades (NU) additions required by Sunflower consist of the addition of a new 230 kV Substation (ring bus configuration) with circuit breakers, CCVTs, disconnect switches, structures, foundations, conductors, insulators, and all other associated work and materials. It was also identified that OPGW will be needed from Great Bend Station to Spearville 230 kV substations for protection requirements.

Transmission Owner Interconnection Facility (TOIF) additions required by Sunflower consist of revenue metering CTs and PTs, disconnect switch, protective relays, and terminal equipment needed to interconnect the customer's generator lead line to Sunflower's new 230 kV Substation.

This 230 kV Substation addition on the Great Bend Station to Spearville 230 kV Transmission Line shall be constructed and maintained by Sunflower. It is assumed that obtaining all necessary right-of-way for the line into the Sunflower 230 kV substation facilities will be performed by the interconnection customer. The addition of the generator 230 kV lead line from the customer substation into the new Sunflower 230 kV substation and the step-up transformer that connects to the customer's collector substation is not included and is the responsibility of the interconnection customer.

The proposed arrangement for interconnection of GEN-2022-065 is shown in Figure 1.

Figure 1: One-line Diagram Facilities for GEN-2022-065



INTERCONNECTION COSTS:

Summary of interconnection costs for both Interconnection Facilities and Sunflower identified Network Upgrades can be found in the following table. The cost increase from Phase 2 to Facility Study is due to increased market costs for both material and labor as well as having a more defined scope for estimating purposes.

Upgrade Type	UID	Upgrade Name/Description	DISIS Cost Estimate	DISIS Lead Time
Interconnection	158386	**Tap on Arthur Mullergren (Great Bend Station)-Spearville 230 kV Line GEN-2022-065 Interconnection (TOIF) (SEPC)** Construct one (1) line terminal addition in the new 230 kV substation with revenue metering CTs and PTs, disconnect switch, protective relays, and terminal equipment needed to interconnect the customer's generator lead line.	$2,175,621	48
Interconnection	158387	**Tap on Arthur Mullergren (Great Bend Station)-Spearville 230 kV Line GEN-2022-065 Interconnection (Non-Shared NU) (SEPC)** Construct the addition of a new 230 kV Substation (ring bus configuration) with circuit breakers, CCVTs, disconnect switches, structures, foundations, conductors, insulators, and all other associated work and materials.	$24,830,563	48
		Total Interconnection Cost:	**$27,006,184**	

PROJECT TIMELINE:

Specific construction schedule and milestones will be determined during the Generator Interconnection Agreement negotiations. Sunflower is estimating an engineering and construction schedule for this project as approximately 48 months. Other factors associated with clearances, equipment procurement delays and work schedules could cause additional delays. This is applicable after all required agreements are signed and internal approvals are granted.