INTERCONNECTION FACILITIES STUDY REPORT

GEN-2025-SR8

Published December 2025

By SPP Generator Interconnections Special Studies Dept.

CONTENTS

Summary 1
Introduction 1
Phase(s) of Interconnection Service 1
Compensation for Amounts Advanced for Network Upgrade(s) 1
Interconnection Customer Interconnection Facilities 2
Transmission Owner Interconnection Facilities and Non-Shared Network Upgrade(s) 3
Conclusion 4
Appendices 5
A: Transmission Owner's Interconnection Facilities Study Report and Network Upgrades Report(s) 5

SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request GEN-2025-SR8 is for a 220 MW generating facility located in Morrison County, OK. The Interconnection Request was studied in the Surplus Impact Study for ERIS. The Interconnection Customer's requested in-service date is 01/24/2027.

The interconnecting Transmission Owner, Oklahoma Gas and Electric (OG&E), performed a detailed IFS at the request of SPP. The full report is included in Appendix A. SPP has determined that full Interconnection Service will be available after the assigned Transmission Owner Interconnection Facilities (TOIF), and Non-Shared Network Upgrades that are required for full interconnection service are completed.

The primary objective of the IFS is to identify necessary Transmission Owner Interconnection Facilities, other direct assigned upgrades, cost estimates, and associated upgrade lead times needed to grant the requested Interconnection Service.

PHASE(S) OF INTERCONNECTION SERVICE

It is not expected that Interconnection Service will occur in phases. However, full Interconnection Service will not be available until all Interconnection Facilities and Network Upgrade(s) can be placed in service.

COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADE(S)

FERC Order ER20-1687-000 eliminated the use of Attachment Z2 revenue crediting as an option for compensation. The Incremental Long Term Congestion Right (ILTCR) process will be the sole process to compensate upgrade sponsors as of July 1st, 2020.

INTERCONNECTION CUSTOMER INTERCONNECTION FACILITIES

The Generating Facility is proposed to consist of sixty-one (61) FP4200M 3.64 MW Battery Inverters for a total generating nameplate capacity of 222.96 MW which exceeds the requested Surplus Interconnection Service of 219.96 MW. The sum of the output from the combined generation of GEN-2015-066 and GEN-2025-SR8 are limited at the Point of Interconnection to 219.96 MW.

The Interconnection Customer's Interconnection Facilities to be designed, procured, constructed, installed, maintained, and owned by the Interconnection Customer at its sole expense include:

- 34.5 kV underground cable collection circuits;
- The project will connect the existing 34.5 kV collector substation to the Point of Interconnection (POI) at the 345 kV bus at the existing Transmission Owner substation (Whitetail 345 kV) that is owned and maintained by Transmission Owner;
- All transmission facilities required to connect the Interconnection Customer's substation to the POI;
- Equipment at the Interconnection Customer's substation necessary to maintain a composite power delivery at continuous rated power output at the high-side of the generator substation at a power factor within the range of 95% lagging and 95% leading in accordance with Federal Energy Regulatory Commission (FERC) Order 827. Additionally, needed approximately 0.27 Mvars[1] of reactors to compensate for injection of reactive power into the transmission system under no/reduced generating conditions. The Interconnection Customer may use inverter manufacturing options for providing reactive power under no/reduced generation conditions. The Interconnection Customer will be required to provide documentation and design specifications demonstrating how the requirements are met; and,
- All necessary relay, protection, control and communication systems required to protect Interconnection Customer's Interconnection Facilities and Generating Facilities and coordinate with Transmission Owner's relay, protection, control and communication systems.

[1] This approximate minimum reactor amount is needed for the current configuration of GEN-2025-SR8 as studied in the Surplus Impact Study.

TRANSMISSION OWNER INTERCONNECTION FACILITIES AND NON-SHARED NETWORK UPGRADE(S)

To facilitate interconnection, the interconnecting Transmission Owner will perform work as shown below necessary for the acceptance of the Interconnection Customer's Interconnection Facilities.

Table 1 and **Table 2** list the Interconnection Customer's estimated cost responsibility for Transmission Owner Interconnection Facilities (TOIF) and Non-Shared Network Upgrade(s) and provides an estimated lead time for completion of construction. The estimated lead time begins when the Generator Interconnection Agreement has been fully executed.

Table 1: Transmission Owner Interconnection Facilities (TOIF)

Transmission Owner Interconnection Facilities (TOIF)	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
Transmission Owner's Interconnection (TOIF): Add revenue metering at the 34.5kV injection point for the Battery/Storage generation **Estimated Lead Time: 9 Months**	$200,000	100%	$200,000
Total	**$200,000**		**$200,000**

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
None		$0	100.00%	$0
Total		**$ 0**		**$ 0**

CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 219.96 MW can be granted. Full Interconnection Service will be delayed until the TOIF, and Non-Shared NU that are required for full interconnection service are completed. The Interconnection Customer's estimated cost responsibility for full interconnection service is summarized in the table below.

Table 3: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilities Upgrade(s)	**$200,000**
Non-Shared Network Upgrade(s)	**$ 0**
Total	**$200,000**

Use the following link for Quarterly Updates on upgrades from this report: https://spp.org/spp-documents-filings/?id=18641

A draft Generator Interconnection Agreement will be provided to the Interconnection Customer consistent with the results of this IFS report. The Transmission Owner and Interconnection Customer will have 60 days to negotiate the terms of the GIA consistent with the SPP Open Access Transmission Tariff (OATT).

APPENDICES

A: TRANSMISSION OWNER'S INTERCONNECTION FACILITIES STUDY REPORT AND NETWORK UPGRADES REPORT(S)

See next page for the Transmission Owner's Interconnection Facilities Study Report and Network Upgrades Report(s).

FACILITY STUDY

for

Generation Surplus Request 2025-SR8

220MW Battery/Storage Generating Facility
Morrison County
Oklahoma

November 25, 2025

Benjamin Sasu
Senior Engineer
Transmission Planning
OG&E Electric Services

Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Oklahoma Gas and Electric (OG&E) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request GEN-2025-SR8. The request for interconnection was placed with SPP in accordance SPP's Open Access Transmission Tariff, which covers new generation interconnections on SPP's transmission system. The requirements for interconnection consist of adding revenue metering at the Interconnection Customer's collector substation for the purpose of separating the surplus resource GEN-2025-SR8 from the original GEN-2015-066 resource. The total cost for OKGE to install meters for the Surplus Generating Facility, at the customer's collector substation, is estimated at **$200,000.**

Table of Contents

Table of Contents	3
Introduction	4
Interconnection Facilities	5
Interconnection Costs	6
One-Line diagram of Interconnection	7

Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting a Battery/Storage surplus generating facility within the service territory of OG&E Electric Services (OKGE) in Morrison County, Oklahoma. The proposed 34.5kV point of metering is at the existing generating facility in Morrison County. This substation is owned by Willow Creek, LLC. The cost for adding new 34.5kV meters to the generating facility, is estimated at **$200,000**.

Interconnection Facilities

The primary objective of this study is to identify attachment facilities. The requirements for interconnection consist of adding metering to the surplus generating facility. This 34.5kV addition shall be constructed and maintained by OKGE.

The total cost for OKGE to add new 34.5kV meters at the generating facility, is estimated at **$200,000**.

This Facility Study does not guarantee the availability of transmission service necessary to deliver the additional generation to any specific point inside or outside the Southwest Power Pool (SPP) transmission system. The transmission network facilities may not be adequate to deliver the additional generation output to the transmission system. If the customer requests firm transmission service under the SPP Open Access Transmission Tariff at a future date, Network Upgrades or other new construction may be required to provide the service requested under the SPP OATT.

The costs of interconnecting the facility to the OKGE transmission system are listed in Table 1.

Short Circuit Fault Duty Evaluation

It is standard practice for OG&E to recommend replacing a circuit breaker when the current through the breaker for a fault exceeds 100% of its interrupting rating with re-closer de-rating applied, as determined by the ANSI/IEEE C37.5-1979, C37.010-1979 & C37.04-1979 breaker rating methods.

For this generator interconnection, no breakers were found to exceed their interrupting capability after the addition of the Customer's 220 MW surplus generation and related facilities. OG&E found no breakers that exceeded their interrupting capabilities on their system. Therefore, there is no short circuit upgrade costs associated with the GEN-2025-SR8 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2025 DOLLARS)
Lead time	9 months
OKGE – **Interconnection Facilities**- Add revenue metering at the 34.5kV injection point for the Battery/Storage generation	$200,000
OKGE – **Network Upgrades**	No additional network upgrades
OKGE – Land or ROW	No Additional ROW
Total	**$200,000**

Prepared by Benjamin Sasu November 25, 2025
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Reviewed by:
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Senior Manager, Transmission Planning

Willow Creek Substation

GENERAL NOTES

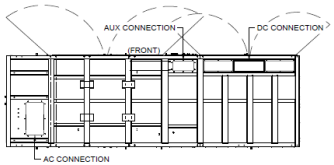
1. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS AND EQUIPMENT LOCATIONS PRIOR TO STARTING ANY WORK.
2. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY ON PLANS AND IS ONLY AN APPROXIMATION. THE EXACT ROUTING SHALL BE FIELD VERIFIED AND INSTALLED PER JURISDICTIONAL, MANUFACTURER, AND CLIENT REQUIREMENTS.
3. REFER TO CIVIL PLANS FOR ROAD AND OTHER CIVIL FEATURES.

BESS SUMMARY	
SITE LAT/LONG	36.389726, -97.027575
BESS CAPACITY (kW / kWh)	200,000 / 800,000
POWER CONVERSION STATION INVERTER	
MAKE	POWER ELECTRONICS
MODEL	FP4200M PCSM GEN 3
QUANTITY	(67) 4,200 kW INVERTERS (CURTAILED TO MEET 200 MW AT POI)
ENERGY STORAGE SYSTEM	
MAKE	LG
MODEL	JF2 DC LINK 5.1
CONFIGURATION TO GRID	AC COUPLED
DURATION (@ MAX)	4 HOURS
CONTAINER CAPACITY (@ MAX)	1,277.50 kW / 5,110.00 kWh
CONTAINER QUANTITY	93 TYPE A 100 TYPE C
AUXILIARY EQUIPMENT	
AUX SWITCHBOARD MODEL	LAKESHORE LSE2000FMCD-110ET-AB
AUX SWITCHBOARD QUANTITY	5
AUX TRANSFORMER MODEL	XXX
AUX TRANSFORMER QUANTITY	5

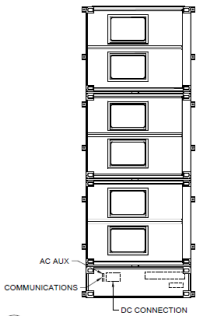
AUGMENTATION SCHEDULE	
COMMERCIAL OPERATION DATE	2026
2030	XXX MWh
2033	XXX MWh
2036	XXX MWh
2039	XXX MWh
2042	XXX MWh
2045	XXX MWh

LEGEND:

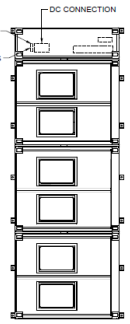
- PROJECT BOUNDARY
- UNDERGROUND MV FEEDERS
- PROP. FENCE
- PROP. AUXILIARY TRANSFORMER
- PROP. BESS AUXILIARY SWITCHBOARD
- PROP. FIBER PATCH PANEL
- PROP. PCS INVERTER PAD
- PROP. AUGMENTED PCS INVERTER PAD
- PROP. BESS ENCLOSURE
- PROP. AUGMENTED BESS ENCLOSURE



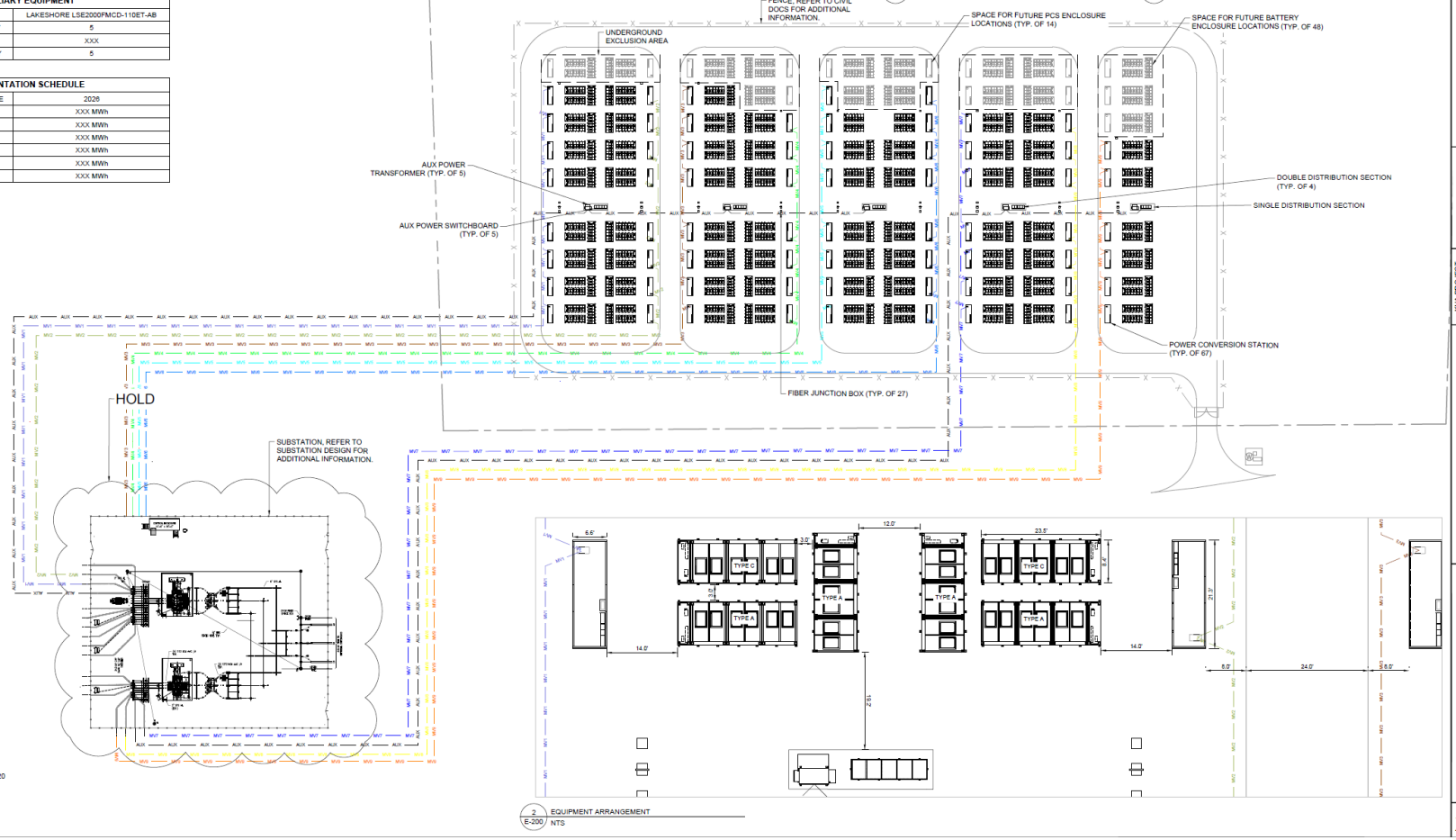
2 / E-200 POWER ELECTRONICS FP4200M GEN 3
NTS



1A / E-200 LG JF2 DC LINK TYPE A
NTS



1B / E-200 LG JF2 DC LINK TYPE C
NTS



2 / E-200 EQUIPMENT ARRANGEMENT
NTS

No.	REVISIONS	DATE	BY
3	60% DESIGN DRAWINGS	08/22/2025	GAD
2	30% DESIGN DRAWINGS	04/25/2025	GAD
1	10% DESIGN DRAWINGS	04/08/2025	GAD

Kimley»Horn

1615 S. CONGRESS AVE., SUITE 201, DELRAY BEACH, FL 33445
PHONE: 561-330-2340
WWW.KIMLEY-HORN.COM
REGISTRY # 30106

PRELIMINARY, NOT FOR CONSTRUCTION

KHA PROJECT 041458153
DATE 08/22/2025
SCALE AS SHOWN
DESIGNED BY NJA
DRAWN BY GAD
CHECKED BY AJ

SITE PLAN

WILLOW CREEK
PREPARED FOR
WILLOW CREEK, LLC

PAWNEE COUNTY OKLAHOMA

SHEET NUMBER
XXX-E-200