

# AFFECTED SYSTEM INTERCONNECTION FACILITIES STUDY REPORT ASGI-2016-003

Published October 2019

By SPP Generator Interconnections Dept.

## **REVISION HISTORY**

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
9/23/2019	SPP	Draft report issued
10/24/2019	SPP	Final report issued

## CONTENTS

Revision Historyi	
Summary	
Introduction3	
Phase(s) of Interconnection Service	
Credits/Compensation for Amounts Advanced for Network Upgrade(s)	
Affected System Interconnection Customer Interconnection Facilities	
Transmission Owner Interconnection Facilities and Non-Shared Network Upgrade(s)4	
Shared Network Upgrade(s)5	
Previous Network Upgrade(s)5	
Affected System Upgrade(s)6	
Conclusion	
Appendices7	
A: Affected System Transmission Owner's Affected System Interconnection Facilities Study Report and Network Upgrades Report(s)	

## SUMMARY

### **INTRODUCTION**

This Affected System Interconnection Facilities Study (ASIFS) for Affected System Generator Interconnection (ASGI) Request ASGI-2016-003 is for a <u>12 MW</u> generating facility located in <u>Eastern Kansas</u>. The Interconnection Request was studied in the <u>DISIS-2016-001 Impact Study and</u> <u>Restudies</u> for <u>Energy Resource Interconnection Service (ERIS)</u>. The Interconnection Customer's original Commercial Operation Date was <u>December 31, 2017</u>.

The interconnecting Transmission Owner <u>Kansas City Power & Light (KCPL)</u>, 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), Non-Shared Network Upgrades, Shared Network Upgrades, Previous Network Upgrades, and Affected System Upgrades that are required for full interconnection service are completed.

The primary objective of the ASIFS is to identify necessary Transmission Owner Interconnection Facilities, Network Upgrades, 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.

## CREDITS/COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADE(S)

Interconnection Customer shall be entitled to compensation in accordance with Attachment Z2 of the SPP OATT for the cost of SPP creditable-type Network Upgrades, including any tax gross-up or any other tax-related payments associated with the Network Upgrades, that are not otherwise refunded to the Interconnection Customer. Compensation shall be in the form of either revenue credits or incremental Long Term Congestion Rights (iLTCR).

## AFFECTED SYSTEM INTERCONNECTION CUSTOMER INTERCONNECTION FACILITIES

The Generating Facility is proposed to consist of <u>six (6) 2.0 MW diesel piston units</u> for a total generating nameplate capacity of <u>12 MW</u>.

## 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** lists 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 Facilities Construction Agreement has been fully executed.

Transmission Owner Interconnection Facilities (TOIF)	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
Transmission Owner's 7th and 9th Street Substations: Construct/upgrade the metering and communications equipment for the new generation.	\$93,000	100%	\$93,000	TBD
Total	\$93,000		\$93,000	

### Table 1: Transmission Owner Interconnection Facilities (TOIF)

## Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	Z2 Type <sup>1</sup>	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
None	N/A	\$0	N/A	\$0	N/A
Total		\$0		\$0	

<sup>&</sup>lt;sup>1</sup> Indicates the method used for calculating credit impacts under Attachment Z2 of the Tariff.

## SHARED NETWORK UPGRADE(S)

The Interconnection Customer's share of costs for Shared Network Upgrades is estimated in **Table 3** below.

Shared Network Upgrades Description	Z2 Туре	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
None	N/A	\$0	N/A	\$0	N/A
Total		\$0		\$0	

### Table 3: Interconnection Customer Shared Network Upgrade(s)

All studies have been conducted assuming that higher-queued Interconnection Request(s) and the associated Network Upgrade(s) will be placed into service. If higher-queued Interconnection Request(s) withdraw from the queue, suspend or terminate service, the Interconnection Customer's share of costs may be revised. Restudies, conducted at the customer's expense, will determine the Interconnection Customer's revised allocation of Shared Network Upgrades.

## PREVIOUS NETWORK UPGRADE(S)

Certain Previous Network Upgrades are **currently not the cost responsibility** of the Interconnection Customer but will be required for full Interconnection Service.

#### Table 4: Interconnection Customer Previous Network Upgrade(s)

Previous Network Upgrade(s) Description	Current Cost Assignment	Estimated In- Service Date
None	\$0	N/A

Depending upon the status of higher- or equally-queued customers, the Interconnection Request's in-service date is at risk of being delayed or Interconnection Service is at risk of being reduced until the in-service date of these Previous Network Upgrades.

## AFFECTED SYSTEM UPGRADE(S)

To facilitate interconnection, the Affected System Transmission Owner will be required to perform the facilities study work as shown below necessary for the acceptance of the Interconnection Customer's Interconnection Facilities. **Table 5** displays the current impact study costs provided as part of the Affected System Impact review. The Affected System facilities study could provide revised costs and will provide each Interconnection Customer's allocation responsibilities for the upgrades.

Affected System Upgrades Description	Total Cost Estimate (\$)	Allocated Share (%)	Allocated Cost Estimate (\$)
None	\$0	N/A	\$0
Total	\$0		\$0

#### Table 5: Interconnection Customer Affected System Upgrade(s)

### **CONCLUSION**

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 12 MW can be granted. Full Interconnection Service will be delayed until the transmission owner interconnect facilities (TOIF), non-shared network upgrades, shared network upgrades, previously allocated, and affected system upgrades that are required for full interconnection service are completed. The Interconnection Customer's estimated cost responsibility is summarized in the table below.

#### Table 6: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilities	\$93,000
Network Upgrades	\$0
Total	\$93,000



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

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



## Kansas City Power & Light Company

## Affected System Interconnection Facility Study for Southwest Power Pool

**Generation Interconnection Request** 

ASGI-2016-003

Prepared by: Kansas City Power & Light Transmission Planning September 13, 2017

## **Executive Summary**

Pursuant to the Southwest Power Pool (SPP) Open Access Transmission Tariff (Tariff) and at the request of SPP, Kansas City Power & Light Company (KCP&L) performed the following Affected System Interconnection Facility Study to satisfy the Affected System Interconnection Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request ASGI-2016-003. The request for interconnection was placed with SPP in accordance the Tariff, which covers new generation interconnections on SPP member's transmission system. The customer requests interconnection service for 12 MW of diesel generation on its existing 34kV interconnection with KCP&L in eastern Kansas. The customer has proposed a commercial operation date of December 31, 2017. The requirements for interconnection consist of construction/upgrade of metering and communications equipment within the city limits of Osawatomie, Kansas. There are no transmission level upgrades associated with this generation interconnection.

The total cost for KCP&L to construct/upgrade the metering and communications equipment for the new generation is estimated at \$93,000. This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with GIP Section 8.11 pursuant to Section 3.5. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual procurement and construction cannot be assured.

Nothing in this study should be construed as a guarantee of delivery or transmission service. If the customer(s) wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer(s).

## **Interconnection Facilities**

The primary objective of this study is to identify the transmission owner network upgrades for interconnection facilities in accordance with the Scope of Affected System Interconnection Facilities Study in GIP Section 8.10 and the Affected System Interconnection Facilities Study Procedures in accordance with GIP Section 8.11. The customer requests interconnection service for 12 MW of diesel generation on its existing 34kV interconnection with KCP&L in eastern Kansas. The customer has proposed a commercial operation date of December 31, 2017. The requirements for interconnection consist of construction/upgrade of metering and communications equipment within the city limits of Osawatomie, Kansas. The customer will be responsible to construct, own and maintain all facilities on the customer's side of the point of interconnection. The major components of the transmission owner network upgrades and their estimated costs are shown below.

KCP&L substation land	\$ 0
KCP&L substation	\$ 0
KCP&L transmission line cut-in	\$ 0
KCP&L metering & communications	\$ 93,000
KCP&L Centerville line relaying	\$ 0
KCP&L AFUDC & contingencies	\$ 0
-	

Total \$ 93,000

#### Description of transmission owner network upgrades

There are no transmission level upgrades associated with this generator interconnection.

**KCP&L metering & communications:** KCP&L, or its designated agent, will install, own, operate and maintain revenue grade meter with real time telemetry at both the 7<sup>th</sup> and 9<sup>th</sup> Street substations at the cost of the City. Marginal power losses that are settled in the SPP Integrated Marketplace and associated with service across SPP Transmission Facilities to the designated point provided for under the terms and conditions of the SPP OATT. The metering will be loss compensated to the 161kV bus in the KCP&L Paola Substation.

KCP&L will own, operate and maintain a RTU. KCP&L will supply data via ICCP to SPP and the City may receive data from SPP via ICCP. The City can elect to provide backup meter data at its own cost to KCP&L via an ICCP link with SPP and can elect to provide, at a minimum, data points pertaining to kWh, kW, and VARS.

**Engineering, Procurement, and Construction Schedule**: A nominal schedule for KCP&L is to have the 7<sup>th</sup> Street Substation facilities and the

9<sup>th</sup> Street Substation facilities in place by December 31, 2017. KCP&L will endeavor in good faith to achieve the in-service date but shall not be held responsible for delays associated with weather or other uncontrollable factors following the start of construction.

## **Short Circuit Fault Duty Evaluation**

KCP&L engineering staff reviewed short circuit analysis performed by SPP for the proposed interconnection to determine if the added generation would cause the available fault currents to exceed the interrupting capability of any existing KCP&L circuit breakers. The calculated fault currents were within KCP&L's circuit breaker interrupting capability with the addition of the ASGI-2016-003 generation.

## **Other Required Interconnection Facilities**

The Definitive Interconnection System Impact Study for Generation Interconnection Requests (DISIS-2016-001) dated February 8, 2017, did not identify any additional interconnection facilities required for this generator interconnection.



