INTERCONNECTION FACILITIES STUDY REPORT

GEN-2020-087

Published August 2025

By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
August 5, 2025	SPP	Initial draft report issued.
August 15, 2025	SPP	Final report issued.

CONTENTS

SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request GEN-2020-087 is for a 500 MW generating facility located in Comanche, OK. The Interconnection Request was studied in the DISIS-2020-001 Impact Study for NRIS. The Interconnection Customer's requested in-service date is 10/1/2026.

The interconnecting Transmission Owner, AEP Oklahoma Transmission Company, Inc. (AEP), 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, Contingent Network Upgrades, and Affected System Upgrades that are required for full interconnection service are completed.

The primary objective of the IFS 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.

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 two-hundred sixteen (216) 2.37 MW Siemens Sinacon PV 2500 inverters for a total generating nameplate capacity of 500 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;
- 34.5 kV to 345 kV transformation substation with associated 34.5 kV and 345 kV switchgear;
- Two 345 kV/34.5 kV 159/212/265 MVA (ONAN/ONAF/ONAF) step-up transformer to be owned and maintained by the Interconnection Customer at the Interconnection Customer's substation;
- An Approximately 0.2 mile overhead 345 kV line to connect the Interconnection Customer's substation to the Point of Interconnection ("POI") at the 345 kV bus at existing Transmission Owner substation ("Cimmarron to Lawton 345 kV Line") 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. 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.

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 New Cimmarron - Lawton 345 kV Line Substation (TOIF) (UID156889): Interconnection upgrades and cost estimates needed to interconnect the following Interconnection Customer facility, GEN-2020-087 (500/Solar), into the Point of Interconnection (POI) at Cimmarron to Lawton 345 kV Line. Estimated Lead Time: 42 Months	$4,020,729	100.00%	$4,020,729
Total	**$4,020,729**		**$4,020,729**

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
Transmission Owner's New Cimmarron - Lawton 345 kV Line Substation (UID156890): Interconnection upgrades and cost estimates needed to interconnect the following Interconnection Customer facility, GEN-2020-087 (500/Solar), into the Point of Interconnection (POI) at Cimmarron to Lawton 345 kV Line. Estimated Lead Time: 42 Months	Ineligible	$18,669,427	100.00%	$18,669,427

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
Transmission Owner's Duncan Eastside to OMDUNE-4 138 kV Line Rebuild (AEP) (UID 170579): Rebuild the existing Duncan Eastside to OMDUNE-4 138 kV line (1.26 miles) to a minimum rating of 135 MVA. Estimated Lead Time: 36 Months	Eligible	$3,054,469	100.00%	$3,054,469
Transmission Owner's Duncan Eastside to Duncan Cherokee 138 kV Line Rebuild (AEP) (UID 170581): Rebuild the existing Duncan Eastside to Duncan Cherokee 138 kV line (3.53 miles) to a minimum rating of 140 MVA. Estimated Lead Time: 36 Months	Eligible	$5,609,849	100.00%	$5,609,849
Transmission Owner's Duncan Substation to Duncan Cherokee 138 kV Line Rebuild (AEP) (UID 170582): Rebuild the existing Duncan Substation to Duncan Cherokee 138 kV line (1.6 miles) to a minimum rating of 144 MVA. Estimated Lead Time: 36 Months	Eligible	$3,706,276	100.00%	$3,706,276
Total		**$31,040,021**		**$31,040,021**

SHARED NETWORK UPGRADE(S)

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

Table 3: Interconnection Customer Shared Network Upgrade(s)

Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
Transmission Owner's Sunnyside to G20-074-TAP 345 kV Line Rebuild (AEP) (UID 170576): Rebuild 13.1 miles of 345 kV from Sunnyside to G20-074-Tap to a minimum of 1464 MVA. Estiamted Lead Time: 48 Months	Eligible	$61,509,926	21.07%	$12,960,204
OGE's Sunnyside to G20-074-TAP 345 kV New Line Circuit 2 Substation Expansion (OGE) (UID 170592): Expand Sunnyside 345 kV Sub to accommodate the interconnection of new line circuit 2. Estimated Lead Time: 36 Months	Eligible	$6,185,239	21.07%	$1,303,236
Transmission Owner's Comanche Tap to Duncan Bois D' Arc 138 kV Line Rebuild (AEP) (UID 170577): Rebuild the existing Comanche Tap to Duncan Bois D' Arc 138 kV line (17.69 miles) to a minimum rating of 190 MVA. Estimated Lead Time: 42 Months	Eligible	$21,149,366	43.41%	$9,181,611
Transmission Owner's Duncan to Duncan Bois D' Arc 138 kV Line Rebuild (AEP) (UID 170578): Rebuild the existing Duncan to Duncan Bois D' Arc 138 kV line (3.9 miles) to a minimum rating of 190 MVA. Upgrade RCTL at Duncan. Estimated Lead Time: 42 Months	Eligible	$5,572,393	60.13%	$3,350,581
Total		**$94,416,924**		**$26,795,632**

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.

CONTINGENT NETWORK UPGRADE(S)

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

Table 4: Interconnection Customer Contingent Network Upgrade(s)

Contingent Network Upgrade(s) Description	Current Cost Assignment	Estimated In-Service Date
OKGE/WFEC (NTC220754) Line - Anadarko - Gracemont 138 kV double Ckt 2 & 3: Build two new 15 mile circuits from Anadarko to Gracemont 138 kV with SN/SE ratings of 478 MVA.	**$0**	12/31/2027

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 Contingent 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 by either MISO or AECI 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.

Table 5: Interconnection Customer Affected System Upgrade(s)

Affected System Upgrades Description	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
NA			
Total	**$0**		**$0**

CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 500 MW can be granted. Full Interconnection Service will be delayed until the TOIF, Non-Shared NU, Shared NU, Contingent NU, Affected System Upgrades 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 6: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilities Upgrade(s)	$4,020,729
Non-Shared Network Upgrade(s)	$31,040,021
Shared Network Upgrade(s)	$26,795,632
Affected System Upgrade(s)	$0
Total	**$61,856,382**

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 final 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).

AEP Generation Interconnection

Facilities Study Report

for

DISIS-2020-001

GEN-2020-087

345 kV Lawton Eastside to Treasure Island transmission line

Comanche County, Oklahoma

May 2025

1 FACILITIES STUDY SUMMARY

American Electric Power (AEP) Southwest Transmission Planning performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request DISIS-2020-001; GEN-2020-087. Per the SPP Generator Interconnection Procedures (GIP), SPP requested that AEP perform an Interconnection Facilities Studies (IFS) for Network Upgrade(s) in accordance with Section 8.11 for the following Interconnection and/or Network Upgrade(s):

1.1 PROJECT DESCRIPTION

GEN-2020-087 proposes to install a 500 MW solar generating facility in Comanche County, Oklahoma (Figure 2). The point of interconnection for the generating facility will be AEP's 345 kV Lawton Eastside to Treasure Island transmission line (Figure 1).

1.2 AEP'S SCOPE OF WORK TO FACILITATE INTERCONNECTION

- To accommodate the interconnection to AEP's existing 345 kV Lawton Eastside to Treasure Island transmission line, a new 345 kV, 3-breaker ring bus station will be installed. Also, AEP will complete any needed remote work at the 345 kV Lawton Eastside and Treasure Island stations associated with this project. The design and construction of the new station will meet all 345 kV specifications. Bus work and disconnect switches will be designed to accommodate the loading requirements, and circuit breakers will be rated to ensure adequate load and fault interrupting capability. AEP will own, operate, and maintain the new 345 kV ring bus station.
- Installation of associated protection and control equipment, SCADA, and revenue metering will be required at the new 345 kV ring bus station. AEP reserves the right to specify the final acceptable configuration considering design practices, future expansion, and compliance requirements.
- AEP will extend one span of 345 kV transmission line from the generator's terminal at the new 345 kV ring bus station to the GEN-2020-087 POI. AEP will build and own the first transmission line structure outside of new 345 kV ring bus station, to which AEP's transmission line conductor will attach. Right of Way (ROW) will be required for this span.
- It is understood that the Interconnection Customer is responsible for all of the connection costs associated with interconnecting GEN-2020-087 to the AEP transmission system. The cost of the customer's generating facility and the costs for the line connecting the generating facility to AEP's transmission system (Beyond the

first span exiting the POI) are not included in this report; these are assumed to be the Customer's responsibility.

- The customer will be responsible for the cost of constructing a fiber-optic connection from their telecom equipment to AEP's new 345 kV ring bus station.

1.3SHORT CIRCUIT EVALUATION

- It is standard practice for AEP to recommend replacing a circuit breaker when the current through the breaker for a fault exceeds 100% of its interrupting rating with recloser de-rating applied, as determined by the ANSI/IEEE C37.5-1979, C37.010-1979 & C37.04-1979 breaker rating methods.
- In the AEP system, no breakers were found to exceed their interrupting capability after the addition of the generation and related facilities. Therefore, there are no additional short circuit upgrade costs associated with the DISIS-2020-001; GEN-2020-087 interconnection.

1.4STABILITY EVALUATION

- Based on the results of the DISIS-2020-001 DISIS short circuit and stability report, AEP is not aware of any instances where the system does not meet TPL-001 stability performance requirements for the planning events and generation dispatch conditions that were considered in this DISIS study.

1.5INTERCONNECTION COST OF FACILITIES INCLUDED IN THE FACILITIES STUDY:

Network Upgrades (Build new 345 kV 3-breaker ring bus station)	$18,494,833
Transmission Owner Interconnection Facilities (TOIF)	$4,020,729
Remote End Work	$174,593
Total Cost	$22,690,155

The estimates do not include the impact that delays in obtaining ROW, permits, or other approvals may have.

1.6PROJECT LEAD TIME

Project in-service date is projected to be 42 months after the issuance of Authorization to Proceed from the Interconnection Customer.

Figure 1: Point of Interconnection (POI INFORMATION) One-Line Diagram

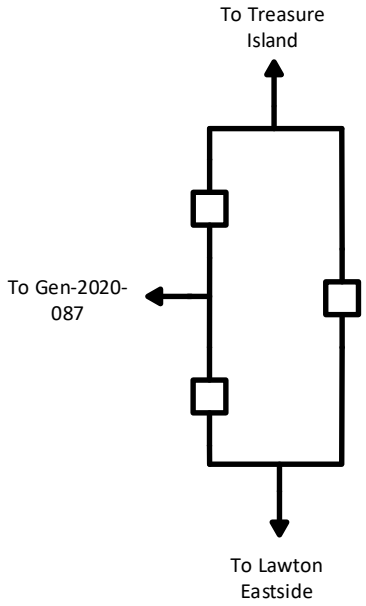
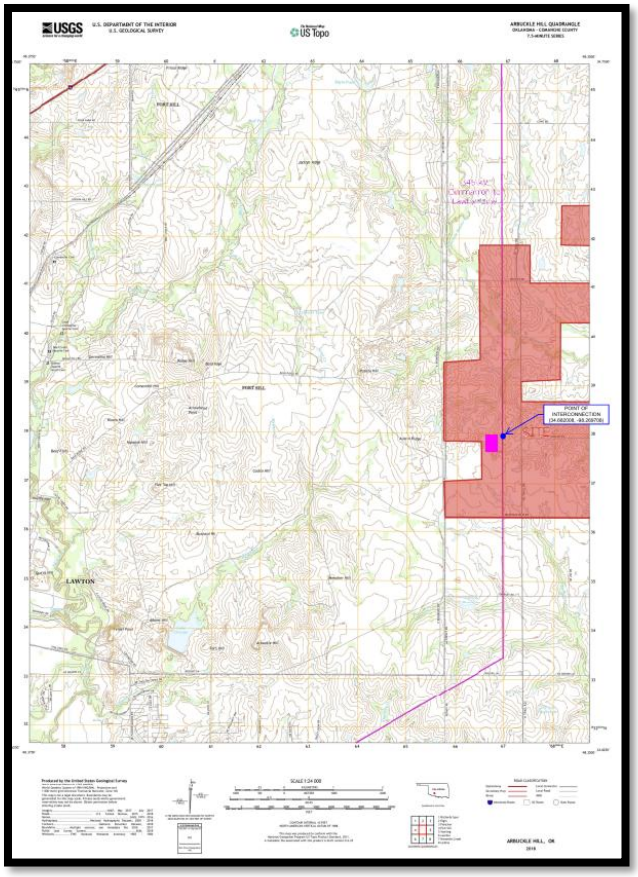


Figure 2: Point of Interconnection Map


USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
ARBUCKLE HILL QUADRANGLE
OKLAHOMA - COMANCHE COUNTY
7.5-MINUTE SERIES
PORT HILL
LAWTON
POINT OF INTERCONNECTION
SCALE 1:24 000
ARBUCKLE HILL, OK
2018

AEP Generation Interconnection

Facilities Study Report

for

DISIS-2020-001

Duncan to Comanche Tap 138 kV Line Rebuild

Stephens and Comanche County, Oklahoma

June 2025

2 FACILITIES STUDY SUMMARY

American Electric Power (AEP) Southwest Transmission Planning performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request DISIS-2020-001. Per the SPP Generator Interconnection Procedures (GIP), SPP requested that AEP perform an Interconnection Facilities Study (IFS) for Network Upgrade(s) in accordance with Attachment V, Section 8.11 of the Generator Interconnection Procedures (GIP).

Duncan to Duncan Bois D 'Arc to Comanche Tap 138 kV

- Rebuild the approx. 21.6-mile line section to achieve the desired 190 MVA summer emergency rating.

1.7PROJECT DESCRIPTION

Per the DISIS-2020-001 study request, AEP proposes to rebuild the Duncan to Duncan Bois D 'Arc to Comanche Tap 138 kV line section (Figure 1) in Stephens and Comanche County, Oklahoma.

1.8AEP'S SCOPE OF WORK TO FACILITATE INTERCONNECTION

- To accommodate the desired summer emergency rating of 190 MVA requested for the Duncan to Duncan Bois D 'Arc to Comanche Tap 138 kV line section, an existing approx. 21.6-mile line will be rebuilt.
- The design and construction of the new equipment will meet all AEP specifications for transmission lines. AEP will own, operate, and maintain the Duncan to Duncan Bois D 'Arc to Comanche Tap 138 kV line.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.9SHORT CIRCUIT EVALUATION

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

- In the AEP system, no breakers were found to exceed their interrupting capability after the addition of this equipment. Therefore, there are no additional short circuit upgrade costs associated with the DISIS-2020-001, UID 170577 and 170578 interconnection.

1.10 INTERCONNECTION COST OF FACILITIES INCLUDED IN THE FACILITIES STUDY:

Rebuild the approx. 3.9-mile Duncan to Duncan Bois D 'Arc 138 kV line	$5,572,393
Rebuild the approx. 17.7-mile Duncan Bois D 'Arc to Comanche Tap 138 kV line	$21,149,366
Total Cost	$26,721,759

The estimates do not include the impact that delays in obtaining ROW, permits, or other approvals may have.

1.11 PROJECT LEAD TIME

Project in-service date is projected to be 42 months after the issuance of Authorization to Proceed from the Interconnection Customer.

Figure 1

AEP Generation Interconnection

Facilities Study Report

for

DISIS-2020-001

Sunnyside to GEN-2020-074 345 kV Line

Carter County, Oklahoma

June 2025

3 FACILITIES STUDY SUMMARY

American Electric Power (AEP) Southwest Transmission Planning performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request DISIS-2020-001. Per the SPP Generator Interconnection Procedures (GIP), SPP requested that AEP perform an Interconnection Facilities Study (IFS) for Network Upgrade(s) in accordance with Attachment V, Section 8.11 of the Generator Interconnection Procedures (GIP).

Sunnyside to GEN-2020-074 345 kV

- Build a new approx. 13-mile line and complete the needed work to tie into the proposed GEN-2020-074 station with a 1151/1301 MVA summer normal/emergency rating.

1.12 PROJECT DESCRIPTION

Per the DISIS-2020-001 study request, AEP proposes to build a new Sunnyside to GEN-2020-074 345 kV line and expand the proposed GEN-2020-074 station to create a new 345 kV terminal for the line (Figure 1) in Carter County, Oklahoma.

1.13 AEP'S SCOPE OF WORK TO FACILITATE INTERCONNECTION

- To accommodate the request AEP will build a new Sunnyside to GEN-2020-074 345 kV line and expand the 345 kV ring bus configuration at the proposed GEN-2020-074 station to terminate the new line.
- The design and construction of the new equipment will meet all AEP specifications for transmission lines and stations. AEP will own, operate, and maintain the Sunnyside to GEN-2020-074 345 kV line and associated line terminal.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.14 SHORT CIRCUIT EVALUATION

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

- In the AEP system, no breakers were found to exceed their interrupting capability after the addition of this equipment. Therefore, there are no additional short circuit upgrade costs associated with the DISIS-2020-001, UID 170576 interconnection.

1.15 INTERCONNECTION COST OF FACILITIES INCLUDED IN THE FACILITIES STUDY:

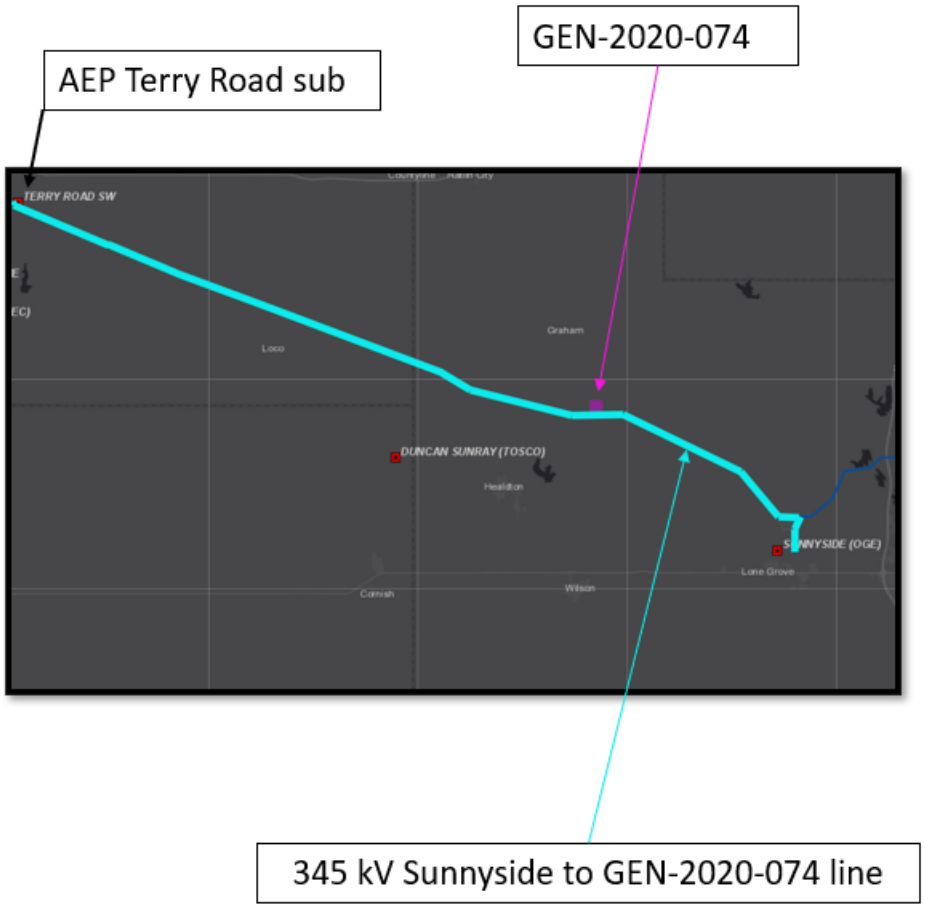
Build a new Sunnyside to GEN-2020-074 345 kV line and expand the 345 kV ring bus configuration at the proposed GEN-2020-074 station	$61,509,926
Total Cost	$61,509,926

The estimates do not include the impact that delays in obtaining ROW, permits, or other approvals may have.

1.16 PROJECT LEAD TIME

Project in-service date is projected to be 48 months after the issuance of Authorization to Proceed from the Interconnection Customer.

Figure 1


GEN-2020-074
AEP Terry Road sub
TERRY ROAD SW
Loco
Graham
DUNCAN SUNRAY (TOSCO)
Healdton
SUNNYSIDE (OGE)
Lone Grove
Wilson
Cornish
345 kV Sunnyside to GEN-2020-074 line

AEP Generation Interconnection

Facilities Study Report

for

DISIS-2020-001

Duncan to Duncan Elder 138 kV Line Rebuild

Stephens County, Oklahoma

June 2025

4 FACILITIES STUDY SUMMARY

American Electric Power (AEP) Southwest Transmission Planning performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request DISIS-2020-001. Per the SPP Generator Interconnection Procedures (GIP), SPP requested that AEP perform an Interconnection Facilities Study (IFS) for Network Upgrade(s) in accordance with Attachment V, Section 8.11 of the Generator Interconnection Procedures (GIP).

Duncan to Duncan Cherokee to Duncan Eastside to Duncan Elder 138 kV

- Rebuild the approx. 6.4-mile line section to achieve the desired 140 MVA summer emergency rating.

1.17 PROJECT DESCRIPTION

Per the DISIS-2020-001 study request, AEP proposes to rebuild the Duncan to Duncan Cherokee to Duncan Eastside to Duncan Elder 138 kV line section (Figure 1) in Stephens County, Oklahoma.

1.18 AEP'S SCOPE OF WORK TO FACILITATE INTERCONNECTION

- To accommodate the desired summer emergency rating of 140 MVA requested for the Duncan to Duncan Cherokee to Duncan Eastside to Duncan Elder 138 kV line section, an existing approx. 6.4-mile line will be rebuilt.
- The design and construction of the new equipment will meet all AEP specifications for transmission lines. AEP will own, operate, and maintain the Duncan to Duncan Cherokee to Duncan Eastside to Duncan Elder 138 kV line.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.19 SHORT CIRCUIT EVALUATION

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

- In the AEP system, no breakers were found to exceed their interrupting capability after the addition of this equipment. Therefore, there are no additional short circuit upgrade costs associated with the DISIS-2020-001, UID 170579, 170581, and 170582 interconnection.

1.20 INTERCONNECTION COST OF FACILITIES INCLUDED IN THE FACILITIES STUDY:

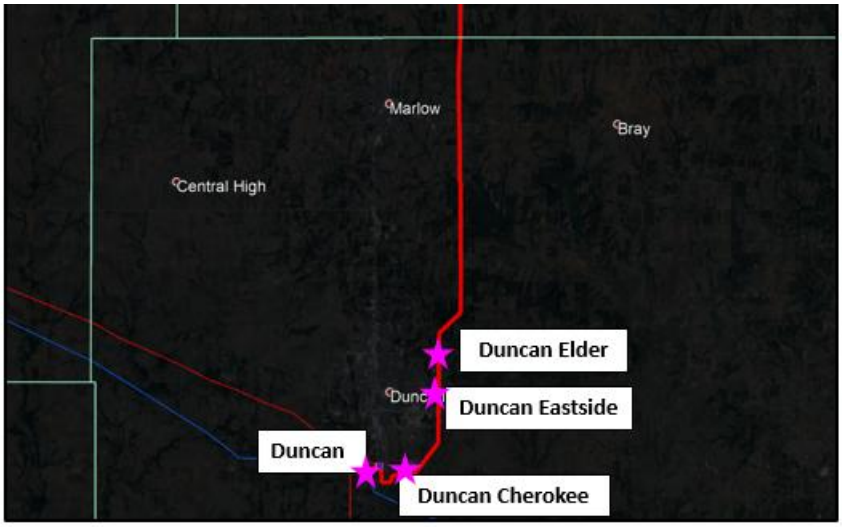
Rebuild the approx. 1.6-mile Duncan to Duncan Cherokee 138 kV line	$3,706,276
Rebuild the approx. 3.5-mile Duncan Cherokee to Duncan Eastside 138 kV line	$5,609,849
Rebuild the approx. 1.3-mile Duncan Eastside to Duncan Elder 138 kV line	$3,054,469
Total Cost	$12,370,594

The estimates do not include the impact that delays in obtaining ROW, permits, or other approvals may have.

1.21 PROJECT LEAD TIME

Project in-service date is projected to be 36 months after the issuance of Authorization to Proceed from the Interconnection Customer.

Figure 1


Marlow
Bray
Central High
Duncan Elder
Duncan Eastside
Duncan
Duncan Cherokee

FACILITY STUDY

for

DISIS-2020-001 Request UID: 170592

345kV Terminal Install at Sunnyside Substation
Carter County
Oklahoma

July 23, 2025

Rhiannon Hensley
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 DISIS-2020-001 UID 170592. 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 expanding the bus, adding a terminal, two breakers, associated equipment, and revenue metering to the injection point to be established by UID 170592. The total cost for OKGE to complete these upgrades at Sunnyside Substation is estimated at **$6,185,239.**

Table of Contents

Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting a new line within the service territory of OG&E Electric Services (OKGE) in Carter County Oklahoma. The proposed 345kV point of interconnection is at Sunnyside Substation in Carter County. This substation is owned by OKGE. The cost for expanding the bus, adding a terminal, two breakers, associated equipment, and revenue metering to the injection point, Sunnyside Substation, the required interconnection facility, is estimated at **$6,185,239**.

Interconnection Facilities

The primary objective of this study is to identify attachment facilities. The requirements for interconnection consist of expanding the bus, adding a terminal, two breakers, associated equipment, and revenue metering to the injection point, Sunnyside Substation. This 345kV addition shall be constructed and maintained by OKGE.

The total cost for OKGE to complete the work is estimated at **$6,185,239**.

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 line 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 line interconnection, no breakers were found to exceed their interrupting capability after the addition of the new line's 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 UID 170592 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2025 DOLLARS)
Lead time	36 months
OKGE – **Interconnection Facilities**- Add a single 345kV line terminal to Sunnyside Substation. Dead-end structure, line grounding switch, line relaying, revenue metering including CTs and PTs	**$2,474,096**
OKGE – **Network Upgrades** at Sunnyside Substation, install 2-345kV 3000A breakers, line relaying, disconnect switches, and associated equipment	**$3,711,143**
OKGE – Land or ROW	No Additional ROW
Total	**$6,185,239**

Prepared by Rhiannon Hensley July 23, 2025
Senior Engineer, Transmission Planning
OG&E Electric Services

Reviewed by:
Adam Snap, P.E.
Manager, Transmission Planning

Sunnyside Substation

Sunnyside Substation - 345kV