AEP Generation Interconnection

Facilities Study Report

for

DISIS-2022-001

GEN-2022-111

Wilkes 345 kV

Marion County, Texas

November 2025

1 Facilities Study Summary

American Electric Power Southwest Transmission Planning (AEP) performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request DISIS-2022-001; GEN-2022-111. 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-2022-111 proposes to connect a 150 MW solar/storage generating facility at the 345 kV Wilkes AEP station (Figure 1) in Marion County, Texas (Figure 2).

1.2 AEP's Scope of Work to Facilitate Interconnection

- To accommodate the interconnections, AEP's existing 345 kV Wilkes station will have to expand the existing 345 kV ring bus. 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 345 kV Wilkes station.
- Installation of associated protection and control equipment, SCADA, and revenue metering will be required at the AEP 345 kV Wilkes 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 for the generation lead going to the 345 kV Wilkes station. AEP will build and own the first transmission line structure outside of the 345 kV Wilkes station, to which AEP's transmission line conductor will attach. 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-2022-111 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 station) 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 345 kV Wilkes control house.

1.3 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 the generation and related facilities. Therefore, there are no additional short circuit upgrade costs associated with the DISIS-2022-001; GEN-2022-111 interconnection.

1.4 Stability Evaluation

- Based on the results of the DISIS-2022-001 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.

1.5 Interconnection Cost of Facilities Included in the Facilities Study:

Network Upgrades (Expanding existing ring bus station for GEN-2022-011)	$4,376,332
Transmission Owner Interconnection Facilities (TOIF)	$8,033,377
Total Cost	$12,409,709

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

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

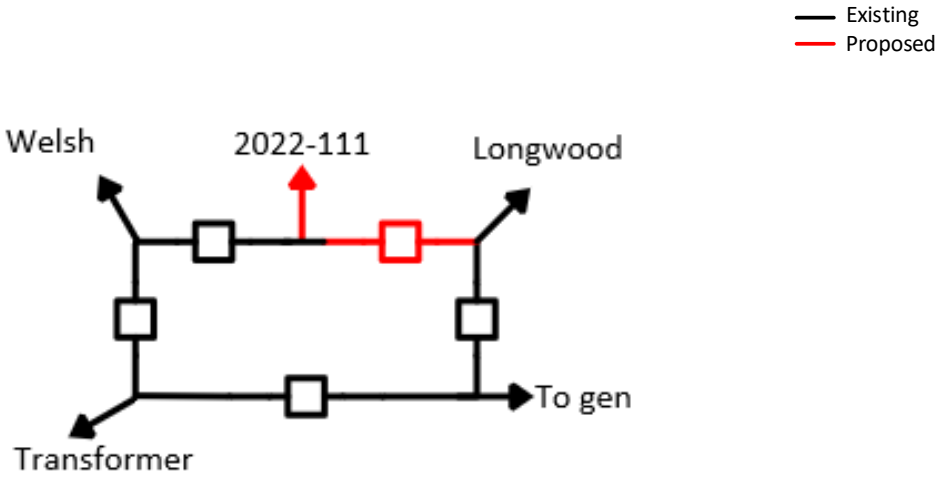


Figure 2: Point of Interconnection Maps

AEP Generation Interconnection

Facilities Study Report

for

DISIS-2022-001

Jefferson SW to Wilkes 138 kV Line Rebuild

Marion County, Texas

November 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-2022-001. 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).

Jefferson SW to Wilkes 138 kV

- Rebuild the approx. 11.1-mile line to achieve the desired 275 MVA summer emergency rating.

1.1 Project Description

Per the DISIS-2022-001 study request, AEP proposes to rebuild the Jefferson SW to Wilkes 138 kV line (Figure 1) in Marion County, Texas.

1.2 AEP's Scope of Work to Facilitate Interconnection

- To accommodate the desired summer emergency rating of 275 MVA requested for the Jefferson SW to Wilkes 138 kV line, an existing approx. 11.1-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 Jefferson SW to Wilkes 138 kV line.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.3 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-2022-001, UID 170702 interconnection.

1.4 Interconnection Cost of Facilities Included in the Facilities Study:

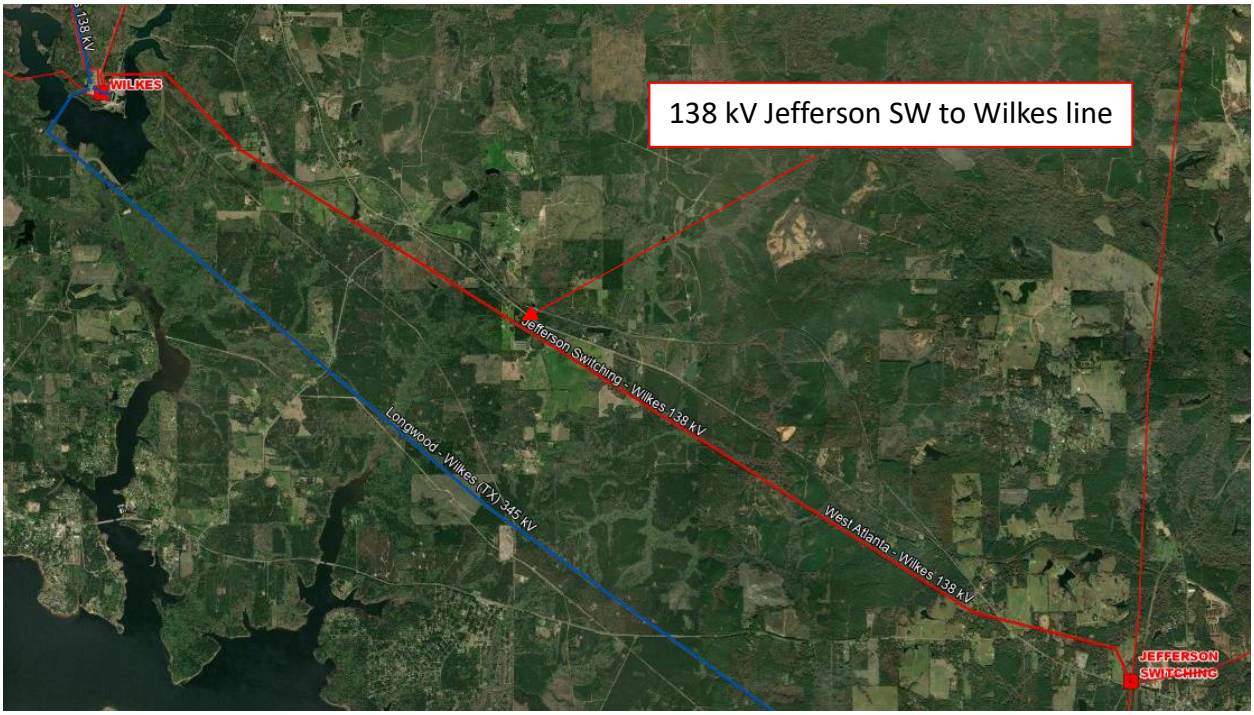
Rebuild the approx. 11.1-mile Jefferson SW to Wilkes 138 kV line	$28,5846,787
Total Cost	$28,5846,787

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

1.5 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-2022-001

Lone Star South to Wilkes 138 kV Line Rebuild

Marion County, Texas

November 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-2022-001. 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).

Lone Star South to Wilkes 138 kV

- Rebuild the approx. 11-mile line to achieve the desired 485 MVA summer emergency rating.

1.1 Project Description

Per the DISIS-2022-001 study request, AEP proposes to rebuild the Lone Star South to Wilkes 138 kV line (Figure 1) in Marion County, Texas.

1.2 AEP's Scope of Work to Facilitate Interconnection

- To accommodate the desired summer emergency rating of 485 MVA requested for the Lone Star South to Wilkes 138 kV line, an existing approx. 11-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 Lone Star South to Wilkes 138 kV line.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.3 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-2022-001, UID 170695 interconnection.

1.4 Interconnection Cost of Facilities Included in the Facilities Study:

Rebuild the approx. 11-mile Lone Star South to Wilkes 138 kV line	$31,889,839
Total Cost	$31,889,839

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

1.5 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-2022-001

Replace Longwood 345/138 kV Transformer

Caddo Parish, Louisiana

November 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-2022-001. 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).

Longwood 345/138 kV Transformer

- Upgrade the Longwood 345/138 kV auto to achieve a desired 580 MVA summer emergency rating

1.1 Project Description

Per the DISIS-2022-001 study request, AEP proposes to upgrade the Longwood 345/138 kV auto (Figure 1) in Caddo Parish, Louisiana.

1.2 AEP's Scope of Work to Facilitate Interconnection

- To accommodate the desired summer emergency rating of 580 MVA requested for the Longwood 345/138 kV auto, the existing 345/138 kV auto and associated equipment will be upgraded.
- The design and construction of the new equipment will meet all AEP specifications for transmission stations. AEP will own, operate, and maintain the Longwood 345/138 kV auto and associated equipment.
- It is understood that the Interconnection Customers are responsible for the cost of all of this work.

1.3 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-2022-001, UID 170697 interconnection.

1.4 Interconnection Cost of Facilities Included in the Facilities Study:

Upgrade the Longwood 345/138 kV Auto	$26,128,409
Total Cost	$26,128,409

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

1.5 Project Lead time

Project in-service date is projected to be 54 months after the issuance of Authorization to Proceed from the Interconnection Customer.

Figure 1