



Interconnection Facilities Study

**Costs associated with
DISIS-2023-001
GEN-2023-220 & GEN-2023-221**

September 2026

Introduction

This report summarizes the scope of the Interconnection Facilities Analysis for Network Upgrade(s) to determine costs related to the addition of the SPP-GI DISIS-2023-001 Interconnection Request(s). Evergy, as a TO, is receiving an unprecedented amount of GI interconnect requests. The cost estimates and interconnect information supplied are based on current system configuration. There are many cases of multiple GI's requesting POIs at the same substation. Ongoing changes in Evergy's transmission system configuration could affect the required system upgrades and costs necessary to meet any particular GI interconnect request in the future.

Southwest Power Pool Generation Interconnection Request:

Per the SPP Generator Interconnection Procedures (GIP), SPP has requested that Evergy perform an Interconnection Facilities Study (IFS) for Network Upgrade(s) in accordance with the Scope of Interconnection Facilities Study GIP Section 8.10 and the Interconnection Facilities Study Procedures in accordance with GIP Section 8.11 for the following Interconnection Request(s):

Upgrade Type	UID	Upgrade Name	DISIS Cost Estimate	DISIS Lead Time
Interconnection	159018	Emporia Energy Center - Swissvale 345 kV Line GEN-2023-220 Interconnection (TOIF) (Evergy)	\$ 1,958,092.00	56 months
Interconnection	159019	Emporia Energy Center - Swissvale 345 kV Line GEN-2023-220 & GEN-2023-221 Interconnection (Shared NU) (Evergy)	\$ 27,762,509.00	56 months
Interconnection	159020	Emporia Energy Center - Swissvale 345 kV Line GEN-2023-221 Interconnection (TOIF) (Evergy)	\$ 1,958,092.00	56 months

Emporia Energy Center - Swissvale 345 kV Line GEN-2023-220 Interconnection (TOIF) (Evergy)

345kV Substation

TOIF for accommodating GEN-2023-220 (250MW of Solar). This estimate is the cost associated with the Transmission Owner Interconnection Facilities for a greenfield substation on the Emporia Energy Center-Swissvale 345kV line, for the GEN-2023-220 line terminal. The estimate assumes there is an existing 345kV breaker-and-a-half (BAAH) substation with existing control enclosure. Estimate includes line steel and equipment, which includes three VT's, three CT's and dead end. Cost is for one 345kV line terminal. UID 159018

Total Cost

The total cost estimate for this Network Upgrade is:

\$	0	Transmission Line
\$	1,787,954	Substation

\$	5,856	AFUDC
\$	164,281	Contingency
\$	1,958,092	Total

This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings cannot be assured.

Time Estimate

Time estimates are based on current version of the project schedule and some processes of each category run concurrently.

Engineering Time	56	Months
Procurement Time	56	Months
Construction Time	56	Months
Total Project Length	56	Months

Emporia Energy Center - Swissvale 345 kV Line GEN-2023-220 & GEN-2023-221 Interconnection (Shared NU) (Evergy)

345kV Substation

Network Upgrade to construct a greenfield 345 kV breaker-and-a-half (BAAH) substation on the Emporia Energy Center (EEC)-Swissvale 345 kV transmission line to accommodate GEN-2023-220 (250 MW solar) and GEN-2023-221 (250 MW solar). The proposed substation will consist of two line terminals, two gen-tie terminals, six 345 kV breakers, and associated substation equipment. UID 159019

345kV Transmission

The transmission line estimates assume that new substation is adjacent to existing easement, and fiber is not required due to POI being approximately 14 miles from EEC. Taps will consist of (2) single spans. UID 159019

Total Cost

The total cost estimate for this Network Upgrade is:

\$	4,362,300	Transmission Line
\$	21,392,641	Substation
\$	83,038	AFUDC
\$	1,924,529	Contingency
\$	27,762,509	Total

This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study

Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings cannot be assured.

Time Estimate

Time estimates are based on current version of the project schedule and some processes of each category run concurrently.

Engineering Time	56	Months
Procurement Time	56	Months
Construction Time	56	Months
Total Project Length	56	Months

Emporia Energy Center - Swissvale 345 kV Line GEN-2023-221 Interconnection (TOIF) (Evergy)

345kV Substation

TOIF for accommodating GEN-2023-221 (250MW of Solar). This estimate is the cost associated with the Transmission Owner Interconnection Facilities for a greenfield substation on the Emporia Energy Center-Swissvale 345kV line, for the GEN-2023-221 line terminal. The estimate assumes there is an existing 345kV breaker-and-a-half (BAAH) substation with existing control enclosure. Estimate includes line steel and equipment, which includes three VT's, three CT's and dead end. Cost is for one 345kV line terminal. UID 159020

Total Cost

The total cost estimate for this Network Upgrade is:

\$	0	Transmission Line
\$	1,787,954	Substation
\$	5,856	AFUDC
\$	164,281	Contingency
\$	1,958,092	Total

This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings cannot be assured.

Time Estimate

Time estimates are based on current version of the project schedule and some processes of each category run concurrently.

Engineering Time	56	Months
Procurement Time	56	Months
Construction Time	56	Months
Total Project Length	56	Months

Short Circuit Ratio Assessment

A short circuit analysis was performed at the Point of Interconnection (POI) to determine the minimum system short circuit MVA and the corresponding Short Circuit Ratio (SCR). The results indicate that the proposed GSU transformer energization does not result in adverse impacts to the transmission system. Therefore, no mitigation is required for transformer energization impacts associated with the generating facilities.

Point of Interconnection (POI)	Minimum System Short Circuit (MVA)	Short Circuit Ratio (SCR)
Emporia Energy Center-Swissvale 345kV	3251.38	11.57

Figure 1 – Emporia Energy Center-Swissvale 345kV

