Interconnection Facilities Study

Costs associated with DISIS-2022-001 GEN-2022-006

October 2025

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-2022-001 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	158242	Neosho - N345 161 kV Substation GEN-2022-006 Interconnection (TOIF) (EKC)	$ 1,039,943.00	48 Months
Interconnection	158243	Neosho - N345 161 kV Substation GEN-2022-006 Interconnection (Non-Shared NU) (EKC)	$ 18,488,191.00	48 Months

Neosho - N345 161 kV Substation GEN-2022-006 Interconnection (TOIF) (EKC)

161kV Substation

TOIF for accommodating Evergy GEN-2022-006 (200MW of Solar) at a greenfield 161kV Substation on the Neosho-N345 161kV line. This estimate is the cost associated with the Transmission Owner Interconnection Facilities for a terminal at a new substation on the Neosho-N345 161kV line for GEN-2022-006. UID 158242

Total Cost

The total cost estimate for this TOIF is:

$	0	Transmission Line
$	950,316	Substation
$	3,110	AFUDC
$	86,517	Contingency
$	1,039,943	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	36-48	Months
Procurement Time	36-48	Months
Construction Time	36-48	Months
Total Project Length	36-48	Months

Neosho - N345 161 kV Substation GEN-2022-006 Interconnection (Non-Shared NU) (EKC)

161kV Substation

Network Upgrades to construct a greenfield 161kV ring bus substation on the Neosho-N345 161kV line to accommodate Evergy GEN-2022-006 (200MW of Solar). The transmission line estimates assume that the substation will be located directly adjacent to the existing line, with no additional easements required. Costs for relocating lines to eliminate crossing is included. UID 158243

Total Cost

The total cost estimate for this Network Upgrade is:

$	3,537,000	Transmission Line
$	13,598,599	Substation
$	53,888	AFUDC
$	1,298,704	Contingency
$	18,488,191	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

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Engineering Time	36-48	Months
Procurement Time	36-48	Months
Construction Time	36-48	Months
Total Project Length	36-48	Months

Figure 1 – Neosho-N345 161kV Line

Current Study

Costs associated with
DISIS-2022-001
Build a new EMPEC-Gen-2021-096
345kV Line 1 to 1180 MVA
October 2025

Introduction

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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
Current Study	170692	Build a new EMPEC-Gen-2021-096 345kV Line 1 to 1180 MVA	$ 97,742,347.00	56 Months

Build a new EMPEC-Gen-2021-096 345kV Line 1 to 1180 MVA

345kV Line

Network Upgrades to build a new 345kV line from Emporia Energy Center-Gen-2021-096 Line 1 to a minimum of 1180 MVA. This upgrade includes substation upgrades, for both GEN-2021-096 345kV substation and Emporia Energy Center 345kV and new line between the two substations. GEN-2021-096 345kV substation will be converted to a breaker and half configuration with a new rung for a new line terminal. Emporia Energy Center 345kV substation will add a new rung and a new line terminal for the additional line. The transmission line estimates include a 25 mile long greenfield 345kV circuit, built to a 3000 amp standard. New easements, routing study and KCC siting application will be required. UID 170692

Total Cost

The total cost estimate for this Network Upgrade is:

$	75,456,000	Transmission Line
$	20,255,654	Substation
$	286,349	AFUDC
$	1,744,344	Contingency
$	97,742,347	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

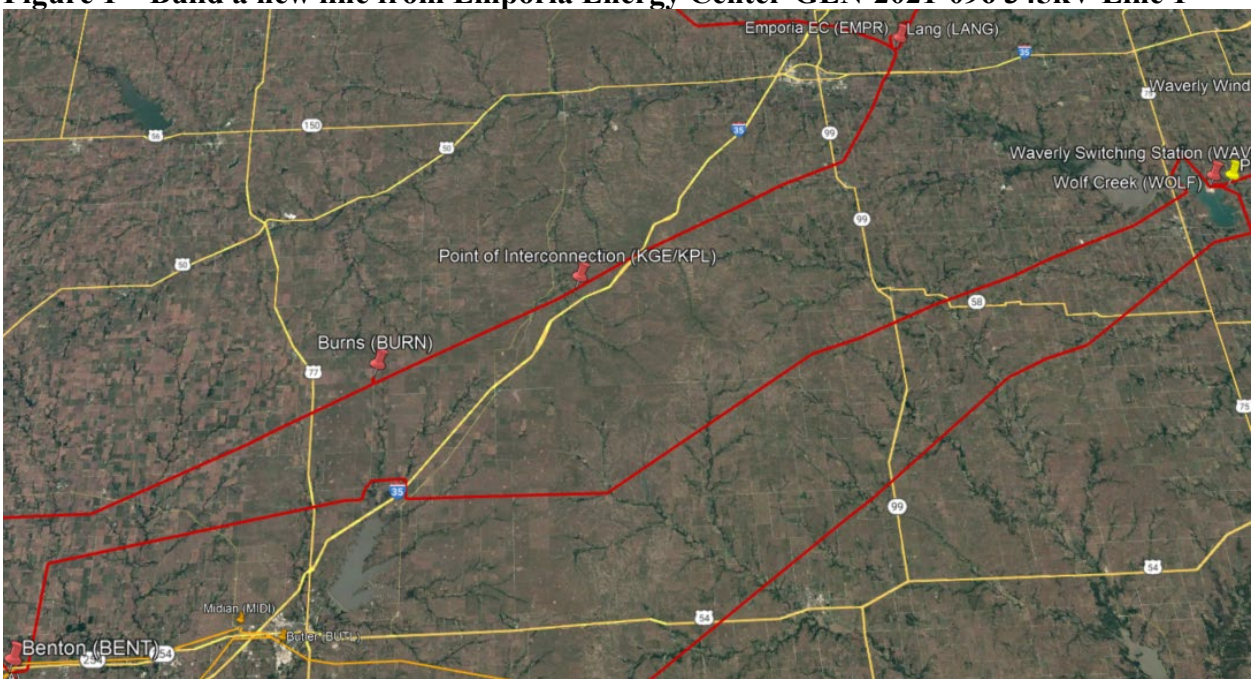
Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings cannot be assured.

Time Estimate

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

Engineering Time	48-56	Months
Procurement Time	48-56	Months
Construction Time	48-56	Months
Total Project Length	48-56	Months

Figure 1 – Build a new line from Emporia Energy Center-GEN-2021-096 345kV Line 1



Generation Interconnection Facilities Study

for

DISIS-2022-001 Network Upgrades
UID 170693

“Rebuild the RIV452 5 to G20-079-TAP 161kV Line 1 (EMDE)”

Created 10/28/2025

Introduction

At the request of Southwest Power Pool (SPP), The Empire District Electric Company (d/b/a Liberty) has compiled the following Facility Study for SPP to comply with the DISIS-2022-001 Network Upgrade study results.

Project Description

DISIS-2022-001 UID 170693 proposes to rebuild the 161kV line from Riverton Rams Sub 452 to the soon-to-be-installed G20-079 substation (Rainbow Springs) in southeast Kansas, including replacing any necessary terminal equipment, to meet a required minimum 650 MVA capacity in all seasons.

Liberty's Scope of Work

Liberty will rebuild and reconductor 5.47 miles of the 161kV line from bundled 795 ACSR to bundled 795 ACSS shown in Figure 1. Additionally, Liberty will replace two (2) 2000A circuit breakers and five (5) 2000A ganged disconnect switches with 3000A equipment at Riverton Rams Sub 452 shown in Figure 2, as well as replace two (2) 2000A circuit breakers and (5) 2000A ganged disconnect switches with 3000A equipment at the G20-079 (Rainbow Springs) substation.

Liberty reserves the right to specify the final acceptable configuration considering design practices, future expansion, and compliance requirements.

Interconnection Estimated Costs and Lead-Times

Total Cost & Lead-time	
Network Upgrades (NU) - Rebuild 5.47 miles of 161kV line with double-795 ACSS; (4) 161kV, 3000A breakers; (10) 161kV, 3000A switches	
Total	**$9,770,036**
Lead time	36 Months

Table 1 – Cost Estimate

Figure 1 – Impacted Transmission Line and Substations

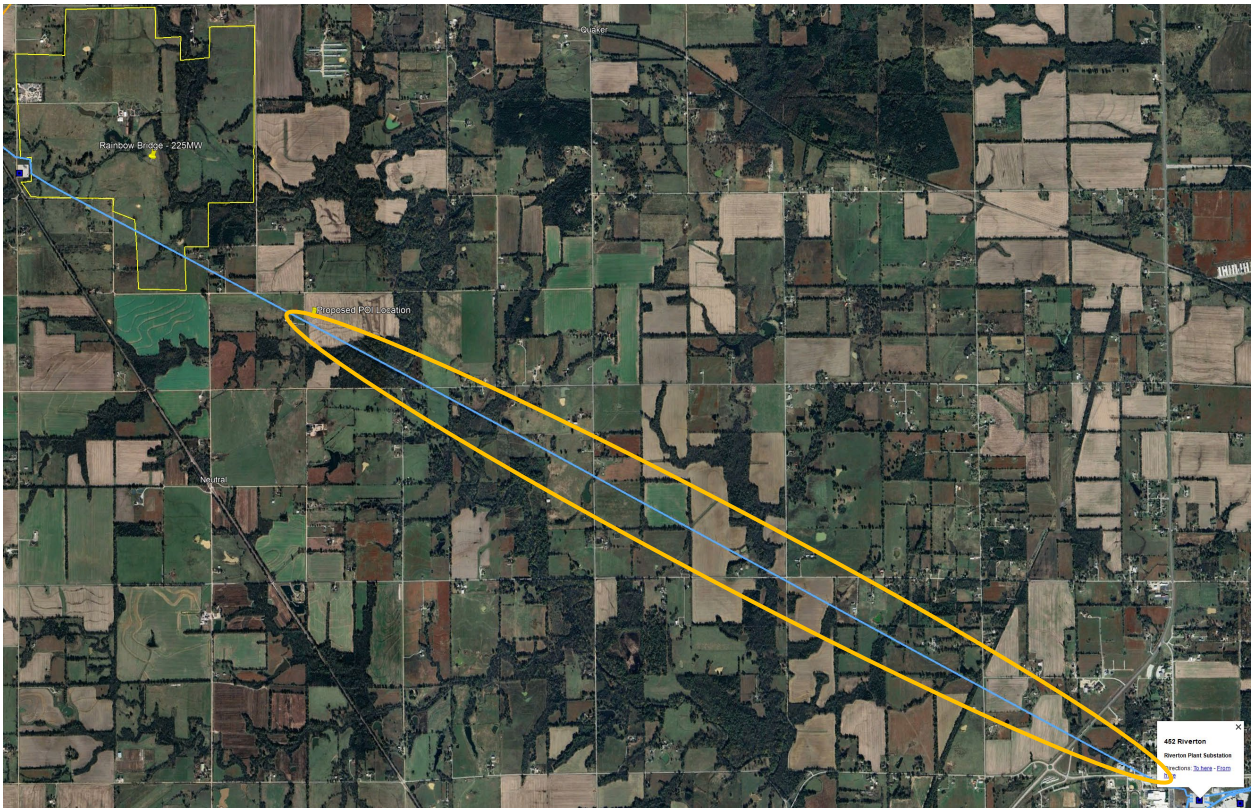


Figure 2 – Preliminary One-Line for Riverton Sub 452 and Rainbow Springs Sub 523