



# **INTERCONNECTION FACILITIES STUDY REPORT**

**GEN-2021-051**

Published August 2025

By SPP Generator Interconnections Dept.

## REVISION HISTORY

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| DATE OR VERSION<br>NUMBER | AUTHOR | CHANGE DESCRIPTION             |
|---------------------------|--------|--------------------------------|
| August 20, 2025           | SPP    | Initial draft report issued.   |
| August 21, 2025           | SPP    | Revised to reflect AECl costs. |
| September 3, 2025         | SPP    | Final report issued.           |

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## SUMMARY

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### INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request GEN-2021-051 is for a 75 MW generating facility located in Henry County, MO. The Interconnection Request was studied in the DISIS-2021-001 Impact Study for ERIS/NRIS. The Interconnection Customer's requested in-service date is 9/1/2027.

The interconnecting Transmission Owner, Evergy (KCPL), 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 twenty-four (24) 3.6 MW Sungrow SG3600UD inverters for a total generating nameplate capacity of 75 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 161 kV transformation substation with associated 34.5 kV and 161 kV switchgear;
- One 161 kV/34.5 kV 51/68/85 MVA (ONAN/ONAF/ONAF) step-up transformer to be owned and maintained by the Interconnection Customer at the Interconnection Customer's substation;
- An Approximately <1 mile overhead 161 kV line to connect the Interconnection Customer's substation to the Point of Interconnection ("POI") at the 161 kV bus at existing Transmission Owner substation ("161kV Stilwell-Clinton 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 (\$) |
|---|--------------------------|-----------------------|------------------------------|
| <u>Transmission Owner's Stilwell to Clinton 161 kV Line GEN-2021-051 Interconnection (TOIF) (UID 157039): Interconnection upgrades and cost estimates needed to interconnect the following IC facility, GEN-2021-051 (75/Battery/Storage), into the Point of Interconnection (POI) at Stilwell to Clinton 161 kV Line. Estimated Lead Time: 18 Months</u> | \$0                      | 100.00%               | \$0                          |
| <b>Total</b>  | <b>\$0</b>               |                       | <b>\$0</b>                   |

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

| Non-Shared Network Upgrades Description | ILTCR | Total Cost Estimate (\$) | Allocated Percent (%) | Allocated Cost Estimate (\$) |
|---|-------|--------------------------|-----------------------|------------------------------|
| NA                                      |       |                          |                       |                              |
| <b>Total</b>                            |       | <b>\$0</b>               |                       | <b>\$0</b>                   |

**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 (\$) |
|---|------------|--------------------------|-----------------------|------------------------------|
| <u>Transmission Owner's Stilwell to Clinton 161 kV Line GEN-2021-050/051 Interconnection (DISIS-2021-001) (UID 157008): Interconnection upgrades and cost estimates needed to interconnect the following IC facility, GEN-2021-050/051 (200/75/Solar/Battery/Storage), into the Point of Interconnection (POI) at Stilwell to Clinton 161 kV Line. Estimated Lead Time: 18 Months</u> | Ineligible | \$112,911                | 27.27%                | \$30,794                     |
| <u>Transmission Owner's Build a new 50 MVAR cap bank at Viola 138 kV (UID 170643): Build a new 50 MVAR cap bank at VIOLA 138 kV. Estimated Lead Time: 48 Months</u>   | Eligible   | \$1,270,333              | 0.64%                 | \$8,169                      |
| <u>Transmission Owner's ARCHIE 5 to HSNVL 5 161 kV Ckt 1 Terminal Upgrade (UID 170642): Upgrade Terminal Equipment at ARCHIE 5 161 kV to achieve a minimum rating of 237 MVA. Estimated Lead Time: 36 Months</u>  | Eligible   | \$213,222                | 27.27%                | \$58,151                     |
| <u>Transmission Owner's 5SEDALA to SEDALIA5 161 kV Ckt 1 Terminal Upgrade (UID 170641): Upgrade Terminal Equipment on the 5SEDALA to SEDALIA5 161 kV line Ckt 1 to achieve a minimum rating of 297 MVA. Estimated Lead Time: 36 Months</u>  | Eligible   | \$164,479                | 11.37%                | \$18,697                     |
| <u>Transmission Owner's PHILL 7 to SIBLEY 7 345 kV Ckt 1 Terminal Upgrade (UID 170647): Upgrade Terminal Equipment at PHILL 7 345 kV to achieve a minimum rating of 760 MVA. Estimated Lead Time: 36 Months</u>   | Eligible   | \$233,358                | 3.38%                 | \$7,899                      |
| <u>Transmission Owner's Rebuild the ARCHIE 5 to G17-108-TAP 161 kV line Ckt 1 (UID 156851): Rebuild the ARCHIE 5 to G17-108-TAP 161 kV line Ckt 1 and Upgrade the Terminal Equipment to achieve a minimum rating of 470 MVA. Estimated Lead Time: 48 Months</u>   | Eligible   | \$52,683,955             | 27.27%                | \$14,368,351                 |
| <b>Total</b>  |            | <b>\$54,678,258</b>      |                       | <b>\$14,492,061</b>          |

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  |
|--|-------------------------|----------------------------|
| AECI/SWPA's Delaware - Monett 345 kV Ckt 1 New Line (UID 170106, 170567): New line from Monett 345 kV Substation to Delaware 345 kV substation with a summer emergency rating of 1792 MVA.   | \$0                     | TBD (36 Months Estimated)  |
| Transmission Owner's Rebuild the decommissioned Archie to G17-108-TAP 161 kV line (UID 156851): Rebuild the decommissioned Archie to G17-108-TAP 161 kV line to achieve a minimum rating of 280 MVA. A revised facility study will be needed to account for substation modification.   | \$0                     | TBD (48 Months Estimated.) |
| NEET's Line - Wolf Creek - Blackberry 345 kV (NTC 112509, 122598): "Build a new 345kV line from Wolf Creek to Blackberry with a summer emergency rating of 1792 MVA<br><br>Install terminal equipment at Wolf Creek and re-terminate Wolf Creek - Waverly 345 kV line to support 345kV line from Wolf Creek to Blackberry rated at 1792 MVA" | \$0                     | 7/15/2025                  |

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 (\$) |
|--|--------------------------|-----------------------|------------------------------|
| AECI’s NU02 Rebuild 26.5 mile long line from Morgan-Brookline 161 kV to 1192 ACSR, rated at 100C. Estimated Lead Time: 48 Months | \$20,352,000             | 3.33%                 | \$676,826                    |
| <b>Total</b>   | <b>\$20,352,000</b>      |                       | <b>\$676,826</b>             |

## CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 75 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) | \$0                     |
| Non-Shared Network Upgrade(s)                            | \$0                     |
| Shared Network Upgrade(s)                                | \$14,492,061            |
| Affected System Upgrade(s)                               | \$676,826               |
| <b>Total</b>   | <b>\$15,168,887</b>     |

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

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**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).



## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001  
GEN-2021-050  
GEN-2021-051**

**August 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-2021-001 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):

|                           |        |  |               |           |
|---------------------------|--------|--|---------------|-----------|
| Interconnection Expansion | 157008 | 161kV Stilwell -Clinton Line GEN-2021-050 / GEN-2021-051 Interconnection Expansion (NU) (EM) | \$ 112,911.00 | 18 Months |
| Interconnection           | 157038 | 161kV Stilwell -Clinton Line GEN-2021-050 Interconnection (TOIF) (EM)                        | \$ 0.00       | 18 Months |
| Interconnection           | 157039 | 161kV Stilwell -Clinton Line GEN-2021-051 Interconnection (TOIF) (EM)                        | \$ 0.00       | 18 Months |

## **161kV Stilwell-Clinton Line GEN-2021-050/GEN-2021-051 Interconnection Expansion (NU) (EM)**

### 161kV Substation

Network Upgrades for connecting to the Stilwell-Clinton 161kV line to accommodate Ranger Power LLC GEN-2021-050/GEN-2021-051 (200MW of Solar/75MW of Battery/Storage). This estimate assumes these gen-ties are sharing a gen tie with GEN-2017-108. Relay settings review/upgrade only. UID 157008

### Total Cost

The total cost estimate for this Interconnection Expansion is:

|       |         |                   |
|-------|---------|-------------------|
| \$    | 0       | Transmission Line |
| \$    | 112,574 | Substation        |
| \$    | 337     | AFUDC for each    |
| \$    | 0       | Contingency       |
| <hr/> |         |                   |
| \$    | 112,911 | 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     | 12-18 | Months |
| Procurement Time     | 12-18 | Months |
| Construction Time    | 12-18 | Months |
| <hr/>                |       |        |
| Total Project Length | 12-18 | Months |

### **161kV Stilwell-Clinton Line GEN-2021-050 Interconnection (TOIF) (EM)**

#### 161kV Substation

TOIF for connecting to the Stilwell-Clinton 161kV line to accommodate Ranger Power LLC GEN-2021-050 (200MW of Solar). This estimate assumes this gen-tie is sharing a gen tie with GEN-2017-108. Relay settings review/upgrade only. UID 157038

#### Total Cost

The total cost estimate for this TOIF is:

|       |   |              |
|-------|---|--------------|
| \$    | 0 | Transmission |
| \$    | 0 | Substation   |
| \$    | 0 | AFUDC        |
| \$    | 0 | Contingency  |
| <hr/> |   |              |
| \$    | 0 | 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     | 12-18 | Months |
| Procurement Time     | 12-18 | Months |
| Construction Time    | 12-18 | Months |
| <hr/>                |       |        |
| Total Project Length | 12-18 | Months |



## **161kV Stilwell-Clinton Line GEN-2021-051 Interconnection (TOIF) (EM)**

### 161kV Substation

TOIF for connecting to the Stilwell-Clinton 161kV line to accommodate Ranger Power LLC GEN-2021-051 (75MW of Battery/Storage). This estimate assumes this gen-tie is sharing a gen tie with GEN-2017-108. Relay settings review/upgrade only. UID 157039

### Total Cost

The total cost estimate for this TOIF is:

|       |   |                  |
|-------|---|------------------|
| \$    | 0 | Substation costs |
| \$    | 0 | AFUDC            |
| \$    | 0 | Contingency      |
| <hr/> |   |                  |
| \$    | 0 | Total            |

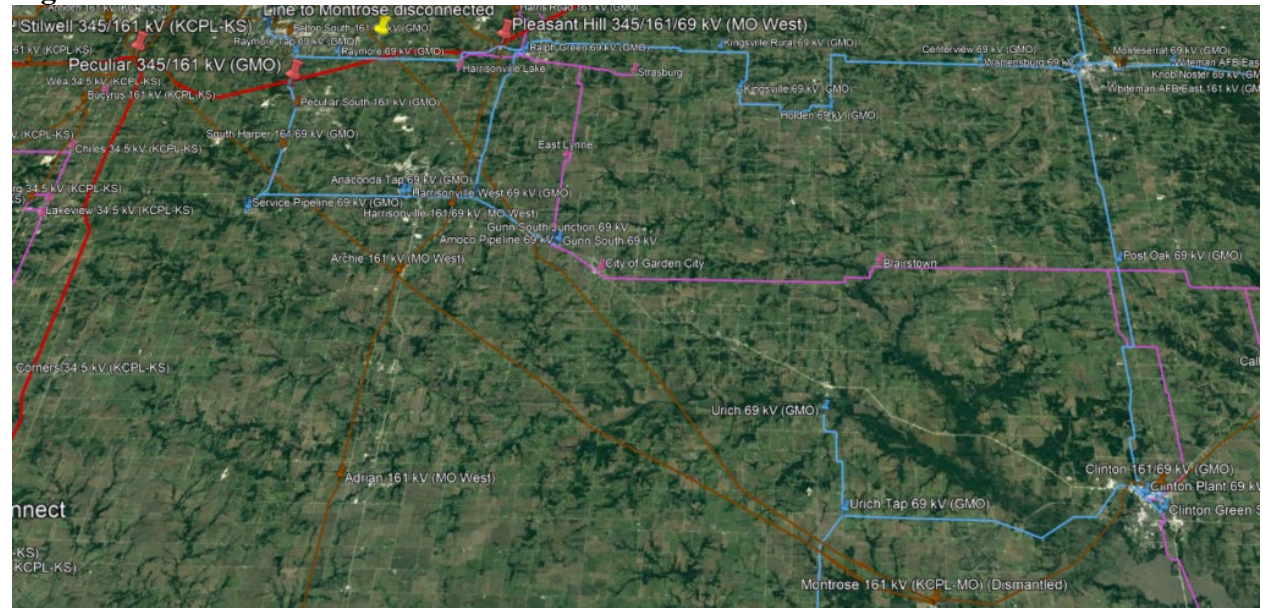
This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings 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     | 12-18 | Months |
| Procurement Time     | 12-18 | Months |
| Construction Time    | 12-18 | Months |
| <hr/>                |       |        |
| Total Project Length | 12-18 | Months |

**Figure 10 – Stilwell-Clinton 161kV Line**





## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001**

**Build a new 50 MVAR cap bank at  
Viola 138kV  
August 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-2021-001 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 |
|---------------|--------|---|---------------------|-----------------|
| Current Study | 170643 | Build a new 50 MVAR cap bank at Viola 138kV | \$ 1,270,333.00     | 48 Months       |

## **Build a new 50 MVAR cap bank at Viola 138kV**

### 138kV Substation

Network Upgrades to add a new 50 MVAR cap bank at Viola 138kV. This upgrade includes installation of a new 50 MVAR capacitor bank on the 138kV bus at Viola. UID 170643

### Total Cost

The total cost estimate for this Network Upgrade is:

|       |           |                   |
|-------|-----------|-------------------|
| \$    | 0         | Transmission Line |
| \$    | 1,161,332 | Substation        |
| \$    | 3,800     | AFUDC             |
| \$    | 105,201   | Contingency       |
| <hr/> |           |                   |
| \$    | 1,270,333 | 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     | 12-18 | Months |
| Procurement Time     | 48    | Months |
| Construction Time    | 48    | Months |
| Total Project Length | 48    | Months |

**Figure 1 –Viola 138kV substation**





## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001  
Archie-Harrisonville 161kV Ckt 1  
Terminal Upgrade to a minimum of 237  
MVA  
August 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-2021-001 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 |
|---------------|--------|---|---------------------|-----------------|
| Current Study | 170642 | Archie-Harrisonville 161kV Ckt 1 Terminal Upgrade to a minimum of 237 MVA | \$ 213,222.00       | 36 Months       |

## **Archie-Harrisonville 161kV Ckt 1 Terminal Upgrade to a minimum of 237 MVA**

### 161kV Substation

Network Upgrades to upgrade the Archie-Harrisonville 161kV Ckt 1 Terminal Upgrade to a minimum of 237 MVA. This upgrade includes replacing the wavetrap, tuner and associated equipment at the Archie 161kV substation. UID 170642

### Total Cost

The total cost estimate for this Network Upgrade is:

|       |         |                   |
|-------|---------|-------------------|
| \$    | 0       | Transmission Line |
| \$    | 212,584 | Substation        |
| \$    | 638     | AFUDC             |
| \$    | 0       | Contingency       |
| <hr/> |         |                   |
| \$    | 213,222 | Total             |

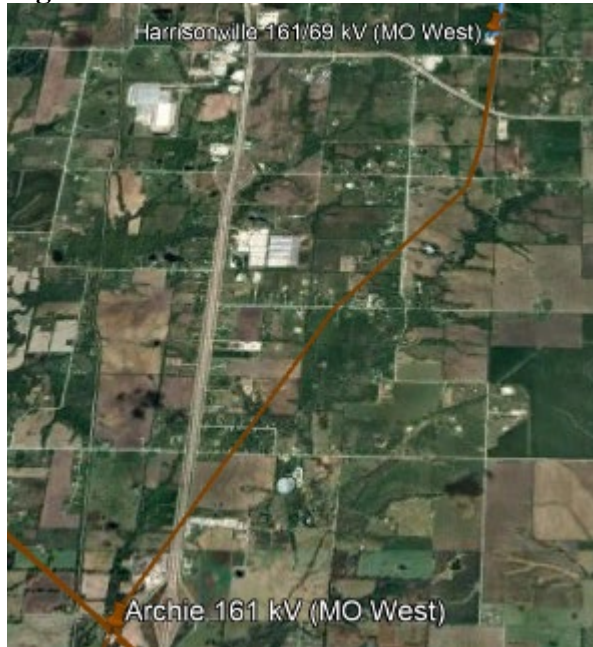
This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual settings 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     | 12-18 | Months |
| Procurement Time     | 24-36 | Months |
| Construction Time    | 24-36 | Months |
| <hr/>                |       |        |
| Total Project Length | 24-36 | Months |

**Figure 1 – Archie-Harrisonville 161kV Ckt 1**







## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001**

**Sedalia (AECI)-Sedalia West 161kV Ckt  
1 Terminal Upgrades to 297 MVA**

**August 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-2021-001 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 | 170641 | Sedalia (AECI)-Sedalia West 161kV Ckt 1 Terminal Upgrade to a minimum of 297 MVA | \$ 164,479.00       | 36 Months       |

## **Sedalia (AECI)-Sedalia West 161kV Ckt 1 Terminal Upgrade to a minimum of 297 MVA**

### 161kV Substation

Network Upgrades for to upgrade the Sedalia (AECI)-Sedalia West 161kV Ckt 1 to a minimum of 297 MVA. This upgrade includes an upgrade to the relay panel for R2-6 breaker at Sedalia West 161kV substation. UID 170641

### Total Cost

The total cost estimate for this Network Upgrade is:

|       |         |                   |
|-------|---------|-------------------|
| \$    | 0       | Transmission Line |
| \$    | 156,580 | Substation        |
| \$    | 410     | AFUDC             |
| \$    | 7,489   | Contingency       |
| <hr/> |         |                   |
| \$    | 164,479 | 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     | 12-18 | Months |
| Procurement Time     | 24-36 | Months |
| Construction Time    | 24-36 | Months |
| <hr/>                |       |        |
| Total Project Length | 24-36 | Months |

**Figure 1 – Sedalia West 161kV Sub**





## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001  
Pleasant Hill-Sibley 345kV Ckt 1  
Terminal Upgrade to a minimum of 760  
MVA  
August 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-2021-001 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 |
|---------------|--------|---|---------------------|-----------------|
| Current Study | 170647 | Pleasant Hill-Sibley 345kV Ckt 1 Terminal Upgrade to a minimum of 760 MVA | \$ 233,358.00       | 36 Months       |

## **Pleasant Hill-Sibley 345kV Ckt 1 Terminal Upgrade to a minimum of 760 MVA**

### 345kV Substation

Network Upgrades to upgrade Pleasant Hill-Sibley 345kV Ckt 1 Terminal Upgrade to a minimum of 760 MVA. This upgrade includes replacing a wavetrap at the Pleasant Hill 345kV substation. UID 170647

### Total Cost

The total cost estimate for this Network Upgrade is:

|       |         |                   |
|-------|---------|-------------------|
| \$    | 0       | Transmission Line |
| \$    | 222,359 | Substation        |
| \$    | 697     | AFUDC             |
| \$    | 10,300  | Contingency       |
| <hr/> |         |                   |
| \$    | 233,358 | 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.

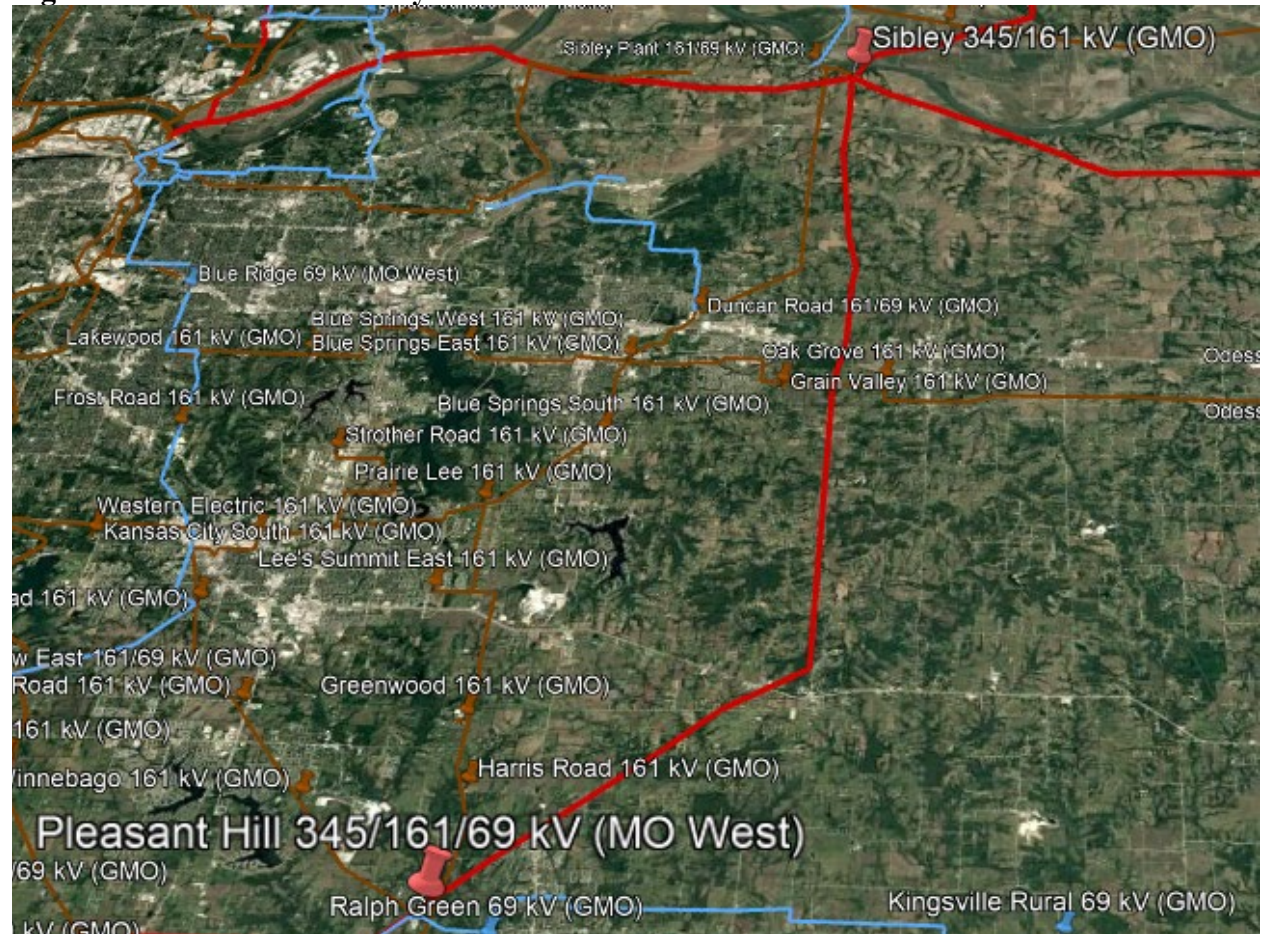


## Time Estimate

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

|                      |       |        |
|----------------------|-------|--------|
| Engineering Time     | 12-18 | Months |
| Procurement Time     | 24-36 | Months |
| Construction Time    | 24-36 | Months |
| Total Project Length | 24-36 | Months |

**Figure 1 – Pleasant Hill-Sibley 345kV Ckt 1**





## **Interconnection Facilities Study**

**Costs associated with  
DISIS-2021-001  
Rebuild the Archie-G17-108-Tap 161kV  
Ckt 1 to a minimum of 470 MVA  
August 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-2021-001 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 |
|---------------|--------|--|---------------------|-----------------|
| Current Study | 170648 | Rebuild the Archie-G17-108-Tap 161kV Ckt 1 to a minimum of 470 MVA | \$ 40,045,669.00    | 48 Months       |

## **Rebuild the Archie-G17-108-Tap 161kV Ckt 1 to a minimum of 470 MVA**

### 161kV Substation/Line

Network Upgrades to upgrade Archie-G17-108-Tap 161kV Ckt 1 to a minimum of 470 MVA. This upgrade includes rebuilding the Archie 161kV main bus to 4" aluminum, bus side disconnect switches for the three line terminals and all terminal equipment. For the line rebuild portion, the estimate includes 28.73 miles of the Archie-Montrose 161kV line, assuming 1192 ACSS/TW and OPGW will be installed on existing ROW. UID 170648

### Total Cost

The total cost estimate for this Network Upgrade is:

|               |                   |
|---------------|-------------------|
| \$ 38,485,823 | Transmission Line |
| \$ 1,451,579  | Substation        |
| \$ 108,267    | AFUDC             |
| \$ 0          | Contingency       |
| <hr/>         |                   |
| \$ 40,045,669 | 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     | 12-18 | Months |
| Procurement Time     | 48    | Months |
| Construction Time    | 48    | Months |
| <hr/>                |       |        |
| Total Project Length | 48    | Months |

**Figure 1 – Rebuild the Archie-G17-108-Tap 161kV Ckt 1**

