GEN-2024-SR17

SURPLUS SERVICE IMPACT STUDY

By SPP Generator Interconnection

Published on 05/14/2025

REVISION HISTORY

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05/14/2025		Original Version	

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EXECUTIVE SUMMARY

1898 & Co., a part of Burns & McDonnell, was retained by the Southwest Power Pool (SPP) to conduct the Surplus Interconnection Service Impact Study (Study) for GEN-2024-SR17. The purpose of the Study is to evaluate the use of Surplus Interconnection Service made available by GEN-2015-015 at its existing Point of Interconnection (POI) at the Roadrunner 138 kV substation in the Oklahoma Gas and Electric Company (OKGE) control area.

GEN-2024-SR17, the proposed Surplus Generating Facility (SGF), will connect to the Roadrunner 138 kV bus via the same bay connection. GEN-2015-015, the Existing Generating Facility (EGF), has an effective Generator Interconnection Agreement (GIA) with a POI capacity of 154.56 MW and is making 50 MW of Surplus Interconnection Service available. According to the SPP Open Access Transmission Tariff (SPP Tariff), the available Surplus Interconnection Service for the SGF is limited to the amount of Interconnection Service granted to the EGF at the same POI. Furthermore, Surplus Interconnection Service can only be accommodated without requiring Network Upgrades, except those specified in the SPP Tariff.

The proposed SGF configuration includes 23 x Tesla Megapack 3.84 MW Storage System Inverters, each rated at 4.4 MVA. While the SGF has a total generating capability of 88.32 MW/101.2 MVA, its injection at the POI must be limited to 50 MW at the POI. Combined generation from the SGF and EGF cannot exceed 154.56 MW at the POI. A Power Plant Controller (PPC) will be implemented as part of GEN-2024-SR17 to regulate and limit power injection as required. The dynamic model data for the GEN-2024-SR17 project is provided in Appendix A.

Information pertaining to the SGF and EGF configuration is shown in Table 1 below.

Table 1: EGF & SGF Configuration

Request	Interconnection Queue Capacity (MW)	Fuel Type	Point of Interconnection
GEN-2024-SR17 (SGF)	50	Battery Storage	Roadrunner 138 kV
GEN-2015-015 (EGF)	154.56	Wind	Roadrunner 138 kV

The detailed SGF configuration is captured in Table 2 below.

Table 2: SGF Interconnection Configuration

<table>
<tr><th>Facility</th><th colspan="2">Existing Generator Facility Configuration</th><th colspan="2">Surplus Generator Facility Configuration</th></tr>
<tr><td>Point of Interconnection</td><td colspan="2">Roadrunner 138 kV (515426)</td><td colspan="2">Roadrunner 138 kV (515426)</td></tr>
<tr><td>Configuration/Capacity</td><td colspan="2">64 x Siemens 2.415 MW wind turbines = 154.56 MW [dispatch]</td><td colspan="2">23 x Tesla Megapack 3.84 MW (Battery Storage) = 88.32 MW [dispatch]
Units are rated at 4.4 MVA, PPC to limit GEN-2024-SR17 to 50 MW at the POI
Total POI injection w/ GEN-2015-015 to 154.56 MW at the POI.</td></tr>
<tr><td>Generation Interconnection Line</td><td colspan="4">Length = 6.130 miles
R = 0.003225 pu
X = 0.023583 pu
B = 0.006790 pu
Rating A/B MVA = 190/257 MVA</td></tr>
<tr><td rowspan="2">Main Substation Transformer[1]</td><td>Gen 1:
X12 = 8.578% R12 = 0.1620%, X23 = 3.169% R23 = 0.060%, X13 = 12.378% R13 = 0.234%,</td><td>Gen 2:
X12 = 8.699% R12 = 0.1610%, X23 = 3.129% R23 = 0.058%, X13 = 12.448% R13 = 0.230%,</td><td>Gen 1:
Same as the EGF GEN 1 MSU.</td><td>Gen 2:
Same as the EGF GEN 2 MSU.</td></tr>
<tr><td colspan="2">Voltage = 138/34.5/13.8 kV (Wye Grounded/Wye Grounded/Delta),
Taps Available = 33 Taps
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Winding 3 Rate = 100 MVA,
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X2 = 6.574%, R2 = 0.582%,
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No Control Mode
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Rating MVA = 85.6 MVA</td><td>-
X2 = 7.20%, R2 = 0.7414%,
Voltage = 34.5/0.48 kV,
No Control Mode
Winding MVA = 109.28 MVA,
Rating MVA = 52.8 MVA</td><td>-
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X = 0.013410 pu
B = 0.032900 pu
Rating A/B MVA = 108.0/108.0 MVA</td><td>R = 0.001920 pu
X = 0.002310 pu
B = 0.000320 pu
Rating A/B/C MVA = N/A</td><td>R = 0.001760 pu
X = 0.002100 pu
B = 0.000290 pu
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<tr><td>Generator Dynamic Model[3] & Power Factor</td><td colspan="2">64 x Siemens 2.415 MW wind turbines (SWTGU2[3])
Leading: 0.95 Lagging: 0.95[4]</td><td colspan="2">23 x Tesla Megapack 3.84 MW (REGCBU1[3])
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<tr><td colspan="5">1) X and R based on Winding MVA, 2) All pu are on 100 MVA Base, 3) DYR stability model name, 4) From the GIA and Surplus Application</td></tr>
</table>

The scope of this study included reactive power analysis, short circuit analysis, and dynamic stability analysis. SPP determined that steady-state analysis was not required because the addition of the SGF does not increase the maximum active power output of 154.56 MW. In addition, the EGF was previously studied at maximum Interconnection Service under all necessary reliability conditions.

1898 & Co. performed the analyses using the study data provided for the SGF and the DISIS-2021-001 study models:

- 2025 Summer Peak (25SP)
- 2025 Winter Peak (25W)

All analyses were performed using the Siemens PTI PSS/E[1] version 34 software and the results are summarized below.
The results of the reactive power analysis using the 25SP model showed that the SGF project needed a 0.0305 MVAr shunt capacitor at the project substation to set the MVAr injection at the POI to zero. This is necessary to offset the capacitive effect on the transmission network caused by the project's transmission line and collector system during reduced generation conditions. The information gathered from the reactive power analysis is provided as information to the Interconnection Customer and Transmission Owner (TO) and/or Transmission Operator (TOP). The applicable reactive power requirements will be further reviewed by the TO and/or TOP.

The short circuit analysis was performed using the 25SP Scenario 2 stability model modified for short circuit analysis. The results from the short circuit analysis compared the 25SP base model with the EGF online and SGF not connected to the Scenario 2 study model (EGF and SGF online). The maximum contribution to three-phase fault currents in the immediate transmission systems due to the addition of the SGF was not greater than 0.653 kA. The maximum three-phase fault current level within 5 buses of the POI with the EGF and SGF generators online was 20.114 kA for the 25SP model. There were no buses with a maximum three-phase fault current over 40 kA. The maximum contribution to three-phase fault currents due to the addition of the SGF was about 7.202% and 0.758 kA. This bus is highlighted in Appendix B.

The dynamic stability analysis was performed using Siemens PTI PSS/E version 34 software for the two modified study models: 25SP and 25W, each with two dispatch scenarios. 75 fault events were simulated, which included three-phase faults and single-line-to-ground stuck breaker faults.

- Scenario 1: SGF at maximum assumed dispatch, 50.64 MW, and EGF disconnected.
- Scenario 2: SGF at maximum assumed dispatch at 50.64 MW, and EGF dispatched with the remaining 105.73 MW for a total combination of 156.37 MW at the generator buses.

[1] Power System Simulator for Engineering

There were no damping or voltage recovery violations attributed to the GEN-2024-SR17 surplus request observed during simulated faults. Additionally, the project was found to stay connected during the contingencies that were studied and, therefore, will meet the Low Voltage Ride Through (LVRT) requirements of FERC Order #661A.

The results of the dynamic stability for Scenario 1 and Scenario 2 showed several existing base case issues that were found in both the original DISIS-2021-001 model and the model with the Project included. Associated stability plots and existing DISIS base case issues are documented in Appendix C.

The results of the study showed that the Surplus Interconnection Service Request by GEN-2024-SR17 did not negatively impact the reliability of the Transmission System. There were no additional Interconnection Facilities or Network Upgrades identified by the analyses.

SPP has determined that GEN-2024-SR17 may utilize the requested 50 MW of Surplus Interconnection Service being made available by the EGF. The combined generation from both the SGF and the EGF may not exceed 154.56 MW at the POI.

The customer must install monitoring and control equipment as needed to ensure that the SGF does not exceed the granted surplus amount and to ensure that the combination of the SGF and EGF power injected at the POI does not exceed the EGF's Interconnection Service amount. The monitoring and control scheme may be reviewed by the TO and documented in Appendix C of the SGF GIA.

In accordance with FERC Order No. 827, both SGF and EGF will be required to provide dynamic reactive power within the range of 0.95 leading to 0.95 lagging at the high-side of the generator substation.

It is likely that the customer may be required to reduce its generation output to 0 MW in real-time, also known as curtailment, under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Nothing in this study should be construed as a guarantee of transmission service or delivery rights. If the customer wishes to obtain deliverability to final customers, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the customer.

SCOPE OF STUDY

1898 & Co., a part of Burns & McDonnell, was retained by the Southwest Power Pool (SPP) to conduct the Surplus Service Impact Study (Study) for GEN-2024-SR17, the Surplus Generating Facility (SGF). The Study aims to assess the SGF's impact on transmission system reliability and to determine any necessary additional Interconnection Facilities, in accordance with the SPP Generator Interconnection Procedures (GIP) outlined in Attachment V, Section 3.3 of the SPP Open Access Transmission Tariff (SPP Tariff).

The availability of Surplus Interconnection Service for the SGF is constrained by the Interconnection Service previously granted to the existing interconnection customer for the Existing Generating Facility (EGF) at the same Point of Interconnection (POI). Surplus Interconnection Service is only permissible to the extent it does not require additional Network Upgrades beyond those stipulated in the SPP Tariff. The scope of the Study depends on the specifications of both the EGF and SGF.

The criteria sections below outline the analyses performed within the Study's scope. All analyses were performed using the Siemens PTI PSS/E version 34 software. The results of each analysis are presented in the following sections.

REACTIVE POWER ANALYSIS

SPP requires that a reactive power analysis be performed on the requested configuration if it is a non-synchronous resource. The reactive power analysis determines the added capacitive effect at the POI caused by the project’s collection system and transmission line’s capacitance. A shunt reactor size was determined for the SGF to offset the capacitive effect and maintain zero (0) MVAr injection at the POI while the plant’s generators and capacitors were offline.

SHORT CIRCUIT ANALYSIS

SPP requires that a short circuit analysis be performed to determine the maximum available fault current requiring interruption by protective equipment with both the SGF and EGF online, along with the amount of increase in maximum fault current due to the addition of the SGF. The analysis was performed on two scenarios, with the EGF in service and SGF offline, and the modified model with both EGF and SGF in service.

STABILITY ANALYSIS

SPP requires that a dynamic stability analysis be performed to determine whether the SGF, EGF, and the transmission system will remain stable and within applicable criteria. Dynamic stability analysis was performed on two dispatch scenarios, the first where the SGF was online at 100% of the assumed dispatch with the EGF offline and disconnected, and the second which is determined to be the worst-case scenario based on a dispatch test described in the Stability Methodology and Criteria section. The stability analyses will identify any additional Interconnection Facilities and Network Upgrades necessary.

STEADY-STATE ANALYSIS

The steady-state (thermal/voltage) analyses may be performed as necessary to ensure that all required reliability conditions are studied. If the EGF was not studied under off-peak conditions, off-peak steady state analyses shall be performed to the required level necessary to demonstrate reliable operation of the Surplus Interconnection Service. If the original system impact study is not available for the Interconnection Service, both off-peak and peak analysis may need to be performed for the EGF associated with the request.

SPP determined that steady-state analysis was not required because the addition of the SGF does not increase the maximum active power output of 300 MW. In addition, the EGF was previously studied at maximum Interconnection Service under all necessary reliability conditions.

NECESSARY INTERCONENCTION FACILITIES & NETWORK UPGRADES

The SPP Tariff[2] states that the reactive power, short circuit/fault duty, stability, and steady-state analyses (where applicable) for the Surplus Interconnection Service will identify any additional Interconnection Facilities necessary. In addition, the analyses will determine if any Network Upgrades are required for mitigation. The Surplus Interconnection Service is only available up to the amount that can be accommodated without requiring additional Network Upgrades unless (a) those additional Network Upgrades are either (1) located at the Point of Interconnection substation and at the same voltage level as the Generating Facility with an effective GIA, or (2) are System Protection Facilities; and (b) there are no material adverse impacts on the cost or timing of any Interconnection Requests pending at the time the Surplus Interconnection Service request is submitted.

STUDY LIMITATIONS

The assessments and conclusions provided in this report are based on assumptions and information provided to 1898 & Co. by others. While the assumptions and information provided may be appropriate for the purposes of this report, 1898 & Co. does not guarantee that those conditions assumed will occur. In addition, 1898 & Co. did not independently verify the accuracy

[2] SPP Open Access Transmission Tariff Section 3.3.4.1

or completeness of the information provided. As such, the conclusions and results presented in this report may vary depending on the extent to which actual future conditions differ from the assumptions made or information used herein.

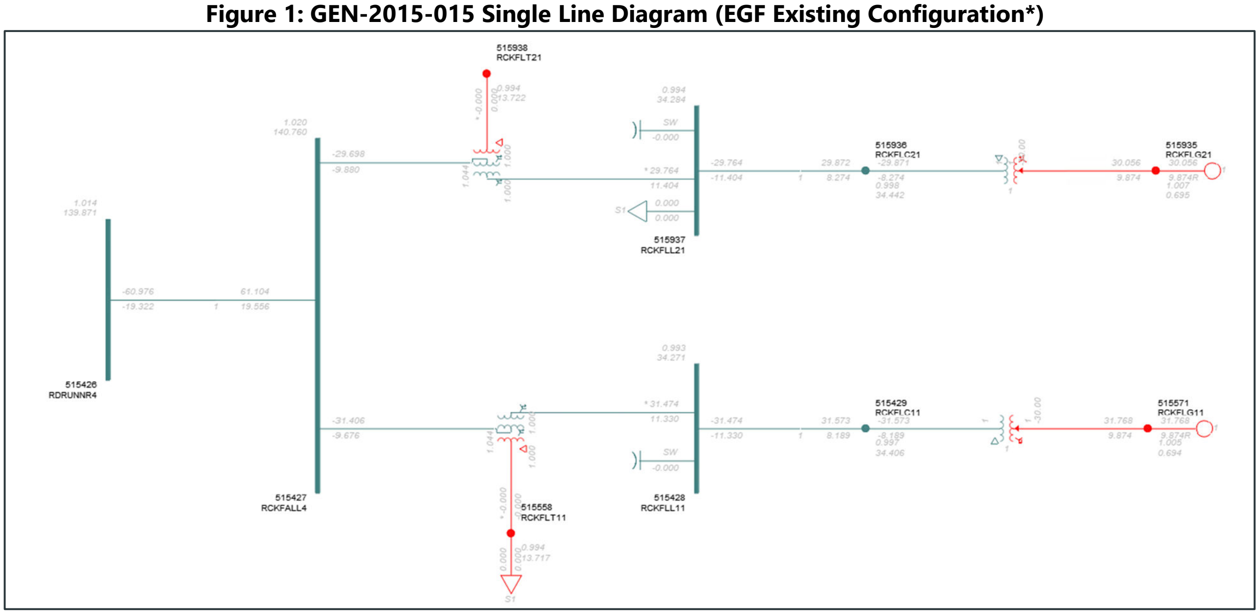
SURPLUS INTERCONNECTION SERVICE REQUEST

The Interconnection Customer has requested a Surplus Interconnection Service Impact Study (Study) for GEN-2024-SR17 to evaluate the Surplus Interconnection Service being made available by GEN-2015-015 at its existing Point of Interconnection (POI) at the Roadrunner 138 kV substation in the Oklahoma Gas and Electric Company (OKGE) control area.

GEN-2024-SR17, the proposed Surplus Generating Facility (SGF), will connect to the Roadrunner 138 kV POI bus via a separate bay connection. GEN-2015-015 (EGF) has a nameplate capacity of 154.56 MW and is making 50 MW of Surplus Interconnection Service available at its POI. Per the SPP Tariff the amount of Surplus Interconnection Service available to the SGF is limited by the amount of Interconnection Service granted to the EGF at the same POI. In addition, the Surplus Interconnection Service is only available up to the amount that can be accommodated without requiring additional Network Upgrades except those specified in the SPP Tariff.

At the time of the posting of this report, the EGF is an active existing generator at the same POI at Roadrunner 138 kV substation. GEN-2015-015 is a wind generation plant, has a maximum summer and winter queue capacity of 154.56 MW, and has Energy Resource Interconnection Service (ERIS) and Network Resource Interconnection Service (NRIS). The EGF was originally studied in the DISIS-2015-001 cluster study. Figure 1 shows the power flow model single line diagram for the EGF configuration.

Figure 1: GEN-2015-015 Single Line Diagram (EGF Existing Configuration*)



*based on the DISIS-2021-001 25SP stability models

The proposed SGF configuration consists of 23 x Tesla Megapack 3.84 MW Storage System Inverters, each rated at 4.4 MVA. While the SGF has a total generating capability of 88.32 MW, its injection at the POI must be limited to 154.56 MW. Combined generation from the SGF and EGF cannot exceed 154.56 MW at the POI. A Power Plant Controller (PPC) will be implemented as part of GEN-2024-SR17 to regulate and limit power injection as required.

The SGF and EGF information is shown in Table 3 below, and the proposed SGF configuration is captured in

Figure 2 and detailed in Table 4 .

Table 3: EGF & SGF Configuration

Request	Interconnection Queue Capacity (MW)	Fuel Type	Point of Interconnection
GEN-2024-SR17 (SGF)	50	Battery Storage	Roadrunner 138 kV
GEN-2015-015 (EGF)	154.56	Wind	Roadrunner 138 kV

Figure 2: GEN-2015-015 & GEN-2024-SR17 Single Line Diagram (EGF & SGF Configuration)

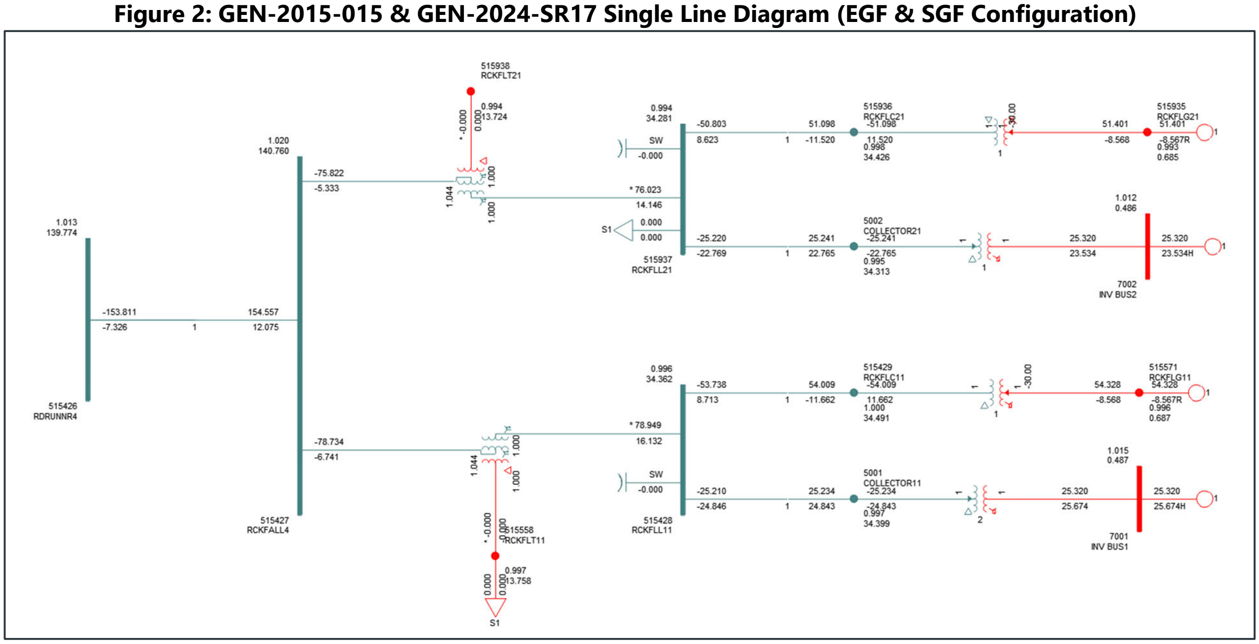


Table 4: SGF Interconnection Configuration

Facility	Existing Generator Facility Configuration		Surplus Generator Facility Configuration	
Point of Interconnection	Roadrunner 138 kV (515426)		Roadrunner 138 kV (515426)	
Configuration/Capacity	64 x Siemens 2.415 MW wind turbines = 154.56 MW [dispatch]		23 x Tesla Megapack 3.84 MW (Battery Storage) = 88.32 MW [dispatch] Units are rated at 4.4 MVA, PPC to limit GEN-2024-SR17 to 50 MW at the POI Total POI injection w/ GEN-2015-015 to 154.56 MW at the POI.	
Generation Interconnection Line	Length = 6.130 miles R = 0.003225 pu X = 0.023583 pu B = 0.006790 pu Rating A/B MVA = 190/257 MVA			
Main Substation Transformer[1]	**Gen 1:** X12 = 8.578% R12 = 0.1620%, X23 = 3.169% R23 = 0.060%, X13 = 12.378% R13 = 0.234%,	**Gen 2:** X12 = 8.699% R12 = 0.1610%, X23 = 3.129% R23 = 0.058%, X13 = 12.448% R13 = 0.230%,	**Gen 1:** Same as the EGF GEN 1 MSU.	**Gen 2:** Same as the EGF GEN 2 MSU.
	Voltage = 138/34.5/13.8 kV (Wye Grounded/Wye Grounded/Delta), Taps Available = 33 Taps Winding 1 Rate = 100 MVA, Winding 2 Rate = 100 MVA, Winding 3 Rate = 100 MVA, Winding MVA Base= 60 MVA,		Voltage = 138/34.5/13.8 kV (Wye Grounded/Wye Grounded/Delta), Taps Available = 33 Taps Winding 1 Rate = 100 MVA, Winding 2 Rate = 100 MVA, Winding 3 Rate = 100 MVA, Winding MVA Base= 60 MVA,	
Generator Step Up Transformer	- X2 = 6.574%, R2 = 0.582%, Voltage = 34.5/0.69 kV, No Control Mode Winding MVA = 85.6 MVA, Rating MVA = 85.6 MVA	- X2 = 6.574%, R2 = 0.582%, Voltage = 34.5/0.69 kV, No Control Mode Winding MVA = 85.6 MVA, Rating MVA = 85.6 MVA	- X2 = 7.20%, R2 = 0.7414%, Voltage = 34.5/0.48 kV, No Control Mode Winding MVA = 109.28 MVA, Rating MVA = 52.8 MVA	- X2 = 7.20%, R2 = 0.7414%, Voltage = 34.5/0.48 kV, No Control Mode Winding MVA = 109.28 MVA, Rating MVA = 52.8 MVA
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Generator Dynamic Model[3] & Power Factor	64 x Siemens 2.415 MW wind turbines (SWTGU2[3]) Leading: 0.95 Lagging: 0.95[4]		23 x Tesla Megapack 3.84 MW (REGCBU1[3]) Leading: 0.95 Lagging: 0.95[4]	

1) X and R based on Winding MVA, 2) All pu are on 100 MVA Base, 3) DYR stability model name, 4) From the GIA and Surplus Application

REACTIVE POWER ANALYSIS

The reactive power analysis was performed using the 25SP model to determine the capacitive charging effects due to the SGF during reduced generation conditions (unsuitable wind speeds, unsuitable solar irradiance, insufficient state of charge, idle conditions, curtailment, etc.) at the generation site, and to size shunt reactors that would set the project reactive power contribution to the POI to approximately zero.

METHODOLOGY AND CRITERIA

To determine the shunt reactor size required to compensate for the current charging attributed to the SGF collection system, all SGF components were switched offline and the EGF generator was switched offline while its other collector system elements remained in-service. A shunt reactor was tested at the project's collection substation 34.5 kV bus to set the MVAr injection at the POI to zero. All SGF components except for the generator were then switched online and an additional shunt reactor was tested at the project's collection substation 34.5 kV bus to set the MVAr injection at the POI to zero. The size of the shunt reactor is equivalent to the charging current value at unity voltage and the compensation provided is proportional to the voltage effects on the charging current (i.e., for voltages above unity, reactive compensation is greater than the size of the reactor).

RESULTS

The results from the analysis showed that the EGF needed an approximately 2.727 MVAr shunt reactor at the EGF substation, and the SGF needed an approximately 0.0305 MVAr shunt reactor at the SGF substation. For both the EGF and SGF, a 2.757 MVAr shunt reactor is needed to set the MVAr injection at the POI to zero. The final shunt reactor requirements are shown in Table 5. Figure 3 illustrates the shunt reactor size needed to set the POI MVAr to approximately zero with the EGF alone, and

Figure 4 illustrates the shunt reactor size needed to set the POI MVAr to approximately zero with the EGF and SGF online.

Table 5: Shunt Reactor Size for Reactive Power Analysis

Machine	POI Bus Number	POI Bus Name	Reactor Size (MVAr)
			25SP
GEN-2015-015 (EGF)	515426	Roadrunner 138 kV	2.7265
GEN-2024-SR15 (SGF)	515426	Roadrunner 138 kV	0.0305
GEN-2015-015 (EGF) & GEN-2024-SR15 (SGF)	515426	Roadrunner 138 kV	2.757

Figure 3: EGF Single Line Diagram (Shunt Sizes)

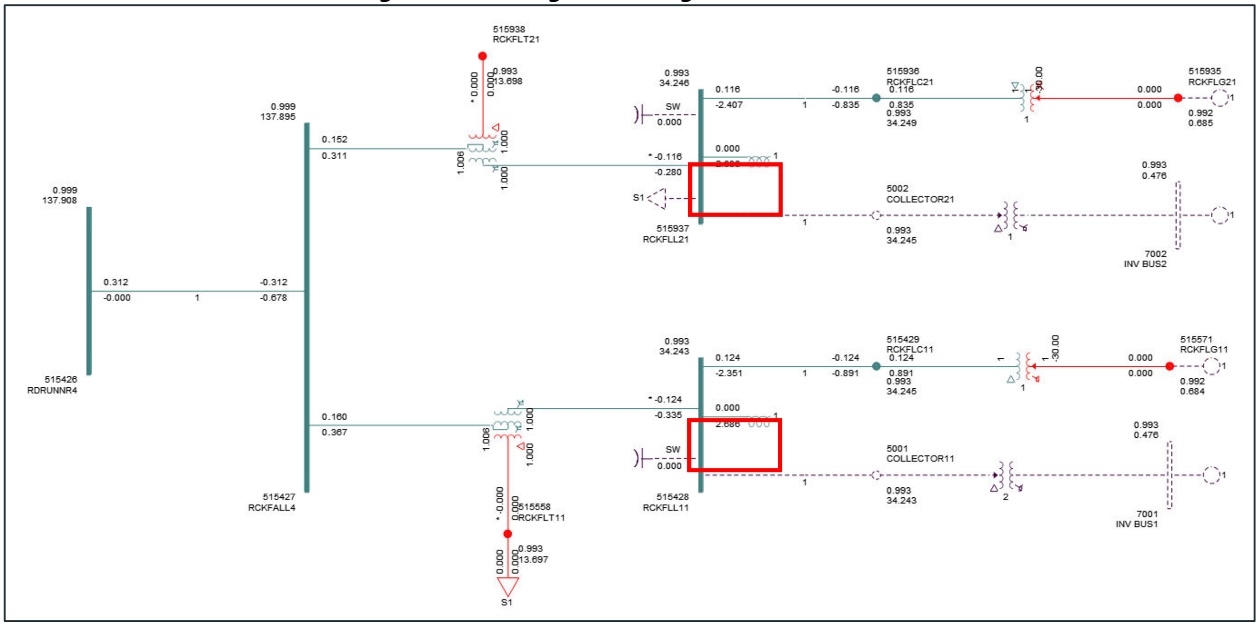
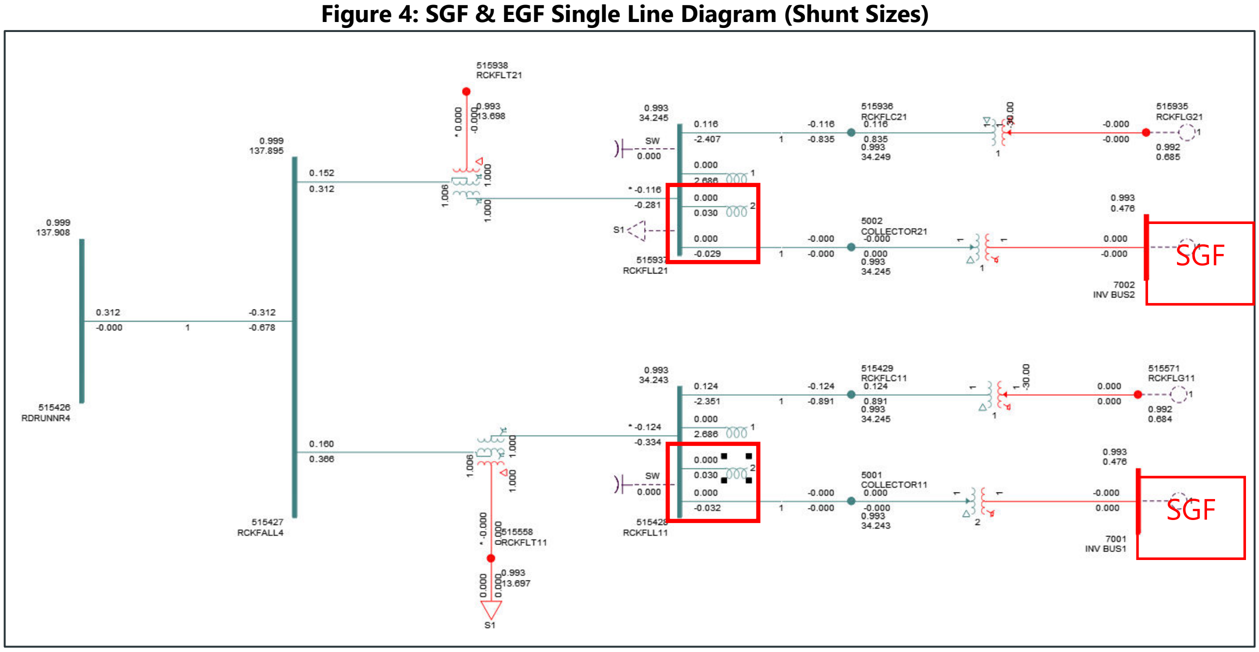


Figure 4: SGF & EGF Single Line Diagram (Shunt Sizes)



The information gathered from the reactive power analysis is provided as information to the Interconnection Customer and Transmission Owner (TO) and/or Transmission Operator (TOP). The applicable reactive power requirements will be further reviewed by the TO and/or TOP.

SHORT CIRCUIT ANALYSIS

A short circuit study was performed to determine the maximum available fault current requiring interruption by protective equipment with both the SGF and EGF online for each bus in the relevant subsystem, and the amount of increase in maximum fault current due to the addition of the SGF. The detailed results of the short circuit analysis are provided in Appendix B.

METHODOLOGY

The short circuit analysis included applying a 3-phase fault on buses up to 5 levels away from the 138 kV POI bus. The PSS/E "Automatic Sequence Fault Calculation (ASCC)" fault analysis module was used to calculate the fault current levels in the transmission system with and without the SGF online. The first scenario was studied with both the SGF and EGF in service. In the second scenario the SGF was disconnected while the EGF was online to determine the impact of the SGF.

1898 & Co. created a short circuit model using the 25SP DISIS-2021-001 stability study model by adjusting the SGF short circuit parameters consistent with the submitted data. The adjusted parameters used in the short circuit analysis are shown in Table 6 below. No other changes were made to the model.

Table 6: Short Circuit Model Parameters*

Parameter	7001 (BESS GEN 1)	7002 (BESS GEN 2)
R (pu)	0.0500	0.0500
X'' (pu)	0.2500	0.2500

*pu values based on Machine MVA Base

RESULTS

The results of the short circuit analysis compared the 25SP model with the EGF online and SGF offline to the Scenario 2 model with both the EGF and SGF online. The GEN-2024-SR17 POI bus fault current magnitudes for the comparison cases are provided in Table 7 showing a fault current of 9.712 kA with the EGF and SGF online. The addition of the SGF configuration increased the POI bus fault current by 0.653 kA.

Table 8 shows the maximum fault current magnitudes and fault current increases with the SGF project online.

The maximum fault current calculated within 5 buses of the POI was 20.114 kA for the 25SP model. There were no buses with a maximum three-phase fault current over 40 kA. The maximum contribution to three-phase fault currents due to the addition of the SGF was about 11.362% and 0.758 kA. This bus is highlighted in Appendix B.

Table 7: POI Short Circuit Comparison Results

Case	GEN-OFF Current (kA)	GEN-ON Current (kA)	kA Change	%Change
25SP	9.060	9.712	0.653	7.202%

Table 8: 25SP Short Circuit Comparison Results

Voltage (kV)	Max. Current (EGF & SGF) (kA)	Max kA Change	Max %Change
69	9.897	0.097	0.990%
115	N/A	N/A	0.000%
138	18.110	0.758	11.362%
230	N/A	N/A	0.000%
345	20.114	0.062	0.480%
Max	**20.114**	**0.758**	**11.362%**

DYNAMIC STABILITY ANALYSIS

The dynamic stability analysis was performed in accordance with SPP's Disturbance Performance Requirements[3] to identify the impact of the SGF project. The dynamic model data for the GEN-2024-SR17 project is provided in Appendix A, and existing base case issues and simulation plots can be found in Appendix C.

METHODOLOGY AND CRITERIA

The dynamic stability analysis was performed using models developed with the requested 23 x Tesla Megapack 3.84 MW inverters operating at 4.4 MVA each to model the SGF generating facility. This stability analysis was performed using Siemens PTI's PSS/E version 34.9.6 software.

The Project details were used to create modified stability models for this impact study based on the DISIS-2021-001 stability study models:

- 2025 Summer Peak (25SP),
- 2025 Winter Peak (25W)

In Scenario 1 the SGF is at 100% of the assumed dispatch (SGF = 50.64 MW) to inject 50 MW at the POI while the EGF generator was offline and disconnected. In Scenario 2 the SGF is at 100% of the assumed dispatch (SGF = 50.64 MW) while the EGF generator was dispatched to 105.73 MW to achieve a total of 154.56 MW at the POI. The study scenarios are shown in Table 9.

Table 9: Study Scenarios (Generator Dispatch MW)*

Scenario	GEN-2015-015 EGF (MW)	GEN-2024-SR17 SGF (MW)	EGF + SGF (MW)
1	0 (Offline)	50.64	50.64
2	105.73	50.64	156.37

*The MW amounts are as seen at the generator buses.

The power flow models and associated dynamic database were initialized (no-fault test) to confirm that there were no errors in the initial conditions of the system and the dynamic data. The following system adjustments were made to address existing base case issues that are not attributed to the surplus request:

- The PSSE dynamic simulation iterations and acceleration factor were adjusted as needed to resolve PSSE dynamic simulation crashes.

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[3] SPP Disturbance Performance Requirements: https://www.spp.org/documents/28859/spp%20disturbance%20performance%20requirements%20(twg%20approved).pdf

During the fault simulations, the active power (PELEC), reactive power (QELEC), and terminal voltage (ETERM) were monitored for the EGF and SGF and other current and prior queued projects in Group 5[4]. In addition, voltages of five (5) buses away from the POI of the SGF were monitored and plotted.

FAULT DEFINITIONS

1898 & Co. developed fault events as required for the Study for simulation on the study models. The fault events included three-phase faults and single-line-to-ground stuck breaker faults. Single-line-to-ground faults are approximated by applying a fault impedance to bring the faulted bus positive sequence voltage to 0.6 pu. 75 faults were simulated for the Study. The fault definitions can be found in Appendix D.

SCENARIO 1 RESULTS

Table 10 shows the relevant results of the fault events simulated for each of the modified models in Scenario 1.

Table 10: Scenario 1 Dynamic Stability Results (EGF = 0 MW, SGF = 50.64 MW)

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_514715_WOODRNG7-514714_WOODRNG4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514715_WOODRNG7-515875_REDNGTN7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514715_WOODRNG7-516010_PINTAIL7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514740_NUMAOGE2-515528_NARDINS2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514740_NUMAOGE2-515547_GRANTCO2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514754_KAYCOOP2-514752_TONKAWA2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514754_KAYCOOP2-514756_CHIKASI2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-514754_KAYCOOP2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-514757_CHIKASI4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-515509_SNCBLKT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514757_CHIKASI4-514756_CHIKASI2_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514757_CHIKASI4-514760_KILDARE4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514759_NEWKIRK4-515381_PECKHMT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514760_KILDARE4-514761_WHEAGLE4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514760_KILDARE4-514764_NWKRKAT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514761_WHEAGLE4-514743_OSAGE_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable

[4] Based on the DISIS-2021-001 Cluster Groups

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_514761_WHEAGLE4-515412_DMNCRKT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514764_NWKRKAT4-514759_NEWKIRK4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515381_PECKHMT4-514804_MIDLTNT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515426_RDRUNNR4-515569_MDFRDTP4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515426_RDRUNNR4-515581_COYOTE_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515476_HUNTERS7-514715_WOODRNG7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515509_SNCBLKT2-515528_NARDINS2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-515476_HUNTERS7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-515544_RENFROW4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-763421_G18-128-TAP_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-515543_RENFROW7_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-515547_GRANTCO2_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-520434_WAKTASW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-514740_NUMAOGE2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-515544_RENFROW4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-515638_HILLSDT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515569_MDFRDTP4-515544_RENFROW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515581_COYOTE-514757_CHIKASI4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515638_HILLSDT2-515501_KREMLNT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515638_HILLSDT2-515547_GRANTCO2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520432_BYRONTP4-520434_WAKTASW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520432_BYRONTP4-521200_DRIFTWD4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-515544_RENFROW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-520432_BYRONTP4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-520855_CLEOSW_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-521085_WAKITA_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_532798_VIOLA-532796_WICHITA7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_532798_VIOLA-533075_VIOLA_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_763421_G18-128-TAP-532798_VIOLA_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139019.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139020.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139021.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139022.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139023.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514803_SOONER-ConID-138949.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515476_HUNTERS7-ConID-138786.idv	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P4_CON-515476_HUNTERS7-ConID-138787.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515476_HUNTERS7-ConID-138788.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138917.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138918.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138919.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138920.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138910.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138911.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138912.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138888.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138889.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138890.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-514756_CHIKASI2.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-514760_KILDARE4.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-515476_HUNTERS7.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-515547_GRANTCO2.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-520434_WAKTASW4.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-514711_WAUKOTP4-ConID-OKGE-20.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-514827_CTNWOOD4-ConID-OKGE-34.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-520430_NOELSW-ConID-WFEC-59.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-520434_WAKTASW4-ConID-WFEC-64.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-532791_BENTON-ConID-Evergy-105.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-532791_BENTON-ConID-Evergy-106.idv	Pass	Pass	Stable	Pass	Pass	Stable

There were no damping or voltage recovery violations attributed to the GEN-2024-SR17 surplus request observed during the simulated faults. Additionally, the project was found to stay connected during the contingencies that were studied and, therefore, will meet the Low Voltage Ride Through (LVRT) requirements of FERC Order #661A.

Associated stability plots and existing DISIS base case issues are documented in Appendix C.

Scenario 2 ResultsTable 11 shows the relevant results of the fault events simulated for each of the modified models in Scenario 2.

Table 11: Scenario 2 Dynamic Stability Results (EGF = 105.73 MW, SGF = 50.64 MW)

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_514715_WOODRNG7-514714_WOODRNG4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514715_WOODRNG7-515875_REDNGTN7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514715_WOODRNG7-516010_PINTAIL7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514740_NUMAOGE2-515528_NARDINS2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514740_NUMAOGE2-515547_GRANTCO2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514754_KAYCOOP2-514752_TONKAWA2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514754_KAYCOOP2-514756_CHIKASI2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-514754_KAYCOOP2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-514757_CHIKASI4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514756_CHIKASI2-515509_SNCBLKT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514757_CHIKASI4-514756_CHIKASI2_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514757_CHIKASI4-514760_KILDARE4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514759_NEWKIRK4-515381_PECKHMT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514760_KILDARE4-514761_WHEAGLE4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514760_KILDARE4-514764_NWKRKAT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514761_WHEAGLE4-514743_OSAGE_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514761_WHEAGLE4-515412_DMNCRKT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_514764_NWKRKAT4-514759_NEWKIRK4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515381_PECKHMT4-514804_MIDLTNT4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515426_RDRUNNR4-515569_MDFRDTP4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515426_RDRUNNR4-515581_COYOTE_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515476_HUNTERS7-514715_WOODRNG7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515509_SNCBLKT2-515528_NARDINS2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-515476_HUNTERS7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-515544_RENFROW4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515543_RENFROW7-763421_G18-128-TAP_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-515543_RENFROW7_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-515547_GRANTCO2_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515544_RENFROW4-520434_WAKTASW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-514740_NUMAOGE2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-515544_RENFROW4_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515547_GRANTCO2-515638_HILLSDT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515569_MDFRDTP4-515544_RENFROW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515581_COYOTE-514757_CHIKASI4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515638_HILLSDT2-515501_KREMLNT2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_515638_HILLSDT2-515547_GRANTCO2_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_520432_BYRONTP4-520434_WAKTASW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520432_BYRONTP4-521200_DRIFTWD4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-515544_RENFROW4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-520432_BYRONTP4_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-520855_CLEOSW_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_520434_WAKTASW4-521085_WAKITA_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_532798_VIOLA-532796_WICHITA7_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_532798_VIOLA-533075_VIOLA_3Winding.idv	Pass	Pass	Stable	Pass	Pass	Stable
P1_763421_G18-128-TAP-532798_VIOLA_Ckt1.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139019.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139020.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139021.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139022.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514715_WOODRNG7-ConID-139023.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-514803_SOONER-ConID-138949.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515476_HUNTERS7-ConID-138786.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515476_HUNTERS7-ConID-138787.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515476_HUNTERS7-ConID-138788.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138917.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138918.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138919.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515543_RENFROW7-ConID-138920.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138910.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138911.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-515875_REDNGTN7-ConID-138912.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138888.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138889.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-516010_PINTAIL7-ConID-138890.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-514756_CHIKASI2.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-514760_KILDARE4.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-515476_HUNTERS7.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-515547_GRANTCO2.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-520434_WAKTASW4.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-514711_WAUKOTP4-ConID-OKGE-20.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-514827_CTNWOOD4-ConID-OKGE-34.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-520430_NOELSW-ConID-WFEC-59.idv	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P4_TO-520434_WAKTASW4-ConID-WFEC-64.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-532791_BENTON-ConID-Evergy-105.idv	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-532791_BENTON-ConID-Evergy-106.idv	Pass	Pass	Stable	Pass	Pass	Stable

There were no damping or voltage recovery violations attributed to the GEN-2024-SR17 surplus request observed during the simulated faults. Additionally, the project was found to stay connected during the contingencies that were studied and, therefore, will meet the Low Voltage Ride Through (LVRT) requirements of FERC Order #661A.

Associated stability plots and existing DISIS base case issues are documented in Appendix C.

NECESSARY INTERCONNECTION FACILITIES

This study identified the impact of the Surplus Interconnection Service request GEN-2024-SR17 on the transmission system reliability and any additional Interconnection Facilities or Network Upgrades necessary. The Surplus Interconnection Service is only available up to the amount that can be accommodated without requiring additional Network Upgrades unless (a) those additional Network Upgrades are either (1) located at the Point of Interconnection substation and at the same voltage level as the Generating Facility with an effective GIA, or (2) are System Protection Facilities; and (b) there are no material adverse impacts on the cost or timing of any Interconnection Requests pending at the time the Surplus Interconnection Service request is submitted.

INTERCONNECTION FACILITIES

This study did not identify any additional Interconnection Facilities required by the addition of the SGF.

NETWORK UPGRADES

This study did not identify any Network Upgrades required by the addition of the SGF. SPP will reach out to the TO and/or TOP to determine if there are any additional Network Upgrades that are either (1) located at the Point of Interconnection substation and at the same voltage level as the Generating Facility with an effective GIA, or (2) are System Protection Facilities.

SURPLUS INTERCONNECTION SERVICE DETERMINATION AND REQUIREMENTS

In accordance with Attachment V of the SPP Tariff, SPP shall evaluate the request for Surplus Interconnection Service and inform the Interconnection Customer in writing of whether the Surplus Interconnection Service can be utilized without negatively impacting the reliability of the Transmission System and without any additional Network Upgrades necessary except those specified in the SPP Tariff.

SURPLUS SERVICE DETERMINATION

SPP determined the request for Surplus Interconnection Service does not negatively impact the reliability of the Transmission System and no required Network Upgrades or Interconnection Facilities were identified.

1898 & Co. evaluated the impact of the requested Surplus Interconnection Service on the prior study results and determined that the requested SGF resulted in similar dynamic stability and short circuit analyses therefore the prior study steady-state results should not be negatively impacted.

SPP has determined that GEN-2024-SR17 may utilize the requested 50 MW of Surplus Interconnection Service being made available by GEN-2015-015.

SURPLUS SERVICE REQUIREMENTS

The amount of Surplus Interconnection Service available to be used is limited by the amount of Interconnection Service granted to the existing interconnection customer at the same POI. The combined generation from both the SGF and the EGF may not exceed 154.56 MW at the POI, which is the total Interconnection Service amount currently granted to the EGF.

The customer must install monitoring and control equipment as needed to ensure that the SGF does not exceed the granted surplus amount and to ensure that the combination of the SGF and EGF power injected at the POI does not exceed the EGF's Interconnection Service amount. The monitoring and control scheme may be reviewed by the TO and documented in Appendix C of the SGF GIA.

SPP will reach out to the TO and/or TOP to determine if there are any additional Network Upgrades that are either (1) located at the Point of Interconnection substation and at the same voltage level as the Generating Facility with an effective GIA, or (2) are System Protection Facilities.