GEN-2024-SR14

SURPLUS SERVICE IMPACT STUDY

By SPP Generator Interconnection

Published on 1/22/2025

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION	COMMENTS
1/22/2025		Original Version	

CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

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-SR14. The purpose of the Study is to evaluate the use of Surplus Interconnection Service made available by GEN-2023-GR4 at its existing Point of Interconnection (POI) at the Cunningham 115 kV substation in the Southwest Public Service (SPS) control area.

GEN-2024-SR14, the proposed Surplus Generating Facility (SGF), will connect to the Cunningham 115 kV POI bus via a separate bay connection. GEN-2023-GR4, the Existing Generating Facility (EGF), has an effective Generator Interconnection Agreement (GIA) with a POI capacity of 72 MW and is making 36 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 9 x Sungrow MVS5000-LV-US Storage System Inverters, each rated at 5.14 MVA. While the SGF has a total generating capability of 43.092 MW, its injection at the POI must be limited to 36 MW. Combined generation from the SGF and EGF cannot exceed 72 MW at the POI. A Power Plant Controller (PPC) will be implemented as part of GEN-2024-SR14 to regulate and limit power injection as required. The dynamic model data for the GEN-2024-SR14 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-SR14 (SGF)	36	Battery Storage	Cunningham 3 115 kV (527864)
GEN-2023-GR4 (EGF)	72	Solar	Cunningham 3 115 kV (527864)

The detailed SGF configuration is captured in Table 2 below.

Table 2: SGF Interconnection Configuration

Facility	SGF Configuration
Point of Interconnection	CUNNINHAM 3 115 kV (527864)
Configuration/Capacity	9 x Sungrow MVS5000-LV-US 4.491 MW (Battery Storage) = 43.092 MW [dispatch] Units are rated at 5.14 MVA, PPC to limit GEN-2024-SR14 to 36 MW at the POI Total POI injection w/ GEN-2023-GR4 to 72 MW at the POI
Generation Interconnection Line (Shared with the EGF and unchanged)	Length = 5.20 miles
	R = 0.009117 pu
	X = 0.030840 pu
	B = 0.003710 pu
	Rating MVA = 117 MVA
Main Substation Transformer[1]	X = 6.970%, R = 0.228% Winding MVA = 57 MVA Rating MVA = 95 MVA
Equivalent GSU Transformer[1]	Gen 1 Equivalent Qty: 9
	X = 8.966%, R = 0.780% Winding MVA = 46.3 MVA Rating MVA = 46.3 MVA
Equivalent Collector Line[3]	R = 0.000054 pu
	X = 0.000084 pu
	B = 0.000150 pu
Generator Dynamic Model[5] & Power Factor	9 x Sungrow MVS5000-LV-US 5.14 MVA[4] (REGCA1)[5] Leading: 0.891 Lagging: 0.891

1) X and R based on Winding MVA, 2) Rating rounded in PSS/E, 3) All pu are on 100 MVA Base, equivalent based on average derated MVA base provided by IC, 4) Average aggregated MVA provided by IC, 5) DYR stability model name

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 72 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-2018-002/2019-001 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.

[1] Power System Simulator for Engineering

The results of the reactive power analysis using the 25SP model showed that the SGF project needed a 1.47 MVAr shunt reactor at the project substation to reduce 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 stability model modified for short circuit analysis. The results from the short circuit analysis compared the 25SP model with the EGF online and SGF not connected to the SGF 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 0.31 kA. The maximum three-phase fault current level within 5 buses of the POI with the EGF and SGF generators online was 0.31 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 3.02% and 0.330 kA. These buses are 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. 118 fault events were simulated, which included three-phase faults and single-line-to-ground stuck breaker faults.

- Scenario 1: SGF at maximum assumed dispatch of 36 MW, and EGF disconnected.
- Scenario 2: SGF at maximum assumed dispatch at 36 MW, and EGF dispatched with the remaining 36 MW for a total combination of 72 MW.

There were no damping or voltage recovery violations attributed to the GEN-2024-SR14 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-2018-002/2019-001 model and the model with 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-SR14 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-SR14 may utilize the requested 36 MW of Surplus Interconnection Service being made available by the EGF. The combined generation from both the SGF and the EGF may not exceed 72 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 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 Orger 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-SR14, 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 where the SGF was online at 100% of the assumed dispatch and the EGF was picking up the remaining EGF capacity. 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 72 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.

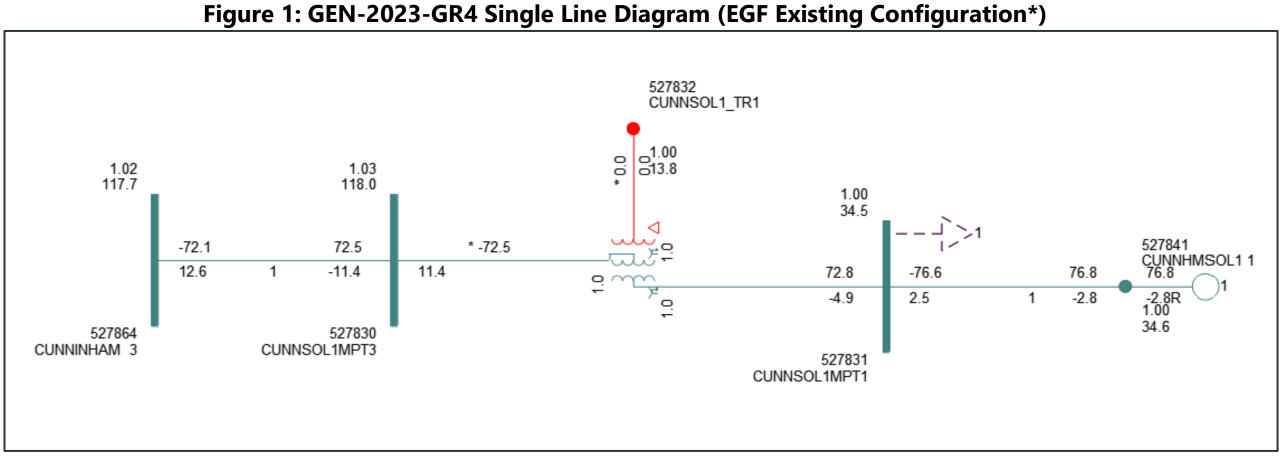
SURPLUS INTERCONNECTION SERVICE REQUEST

The Interconnection Customer has requested a Surplus Interconnection Service Impact Study (Study) for GEN-2024-SR14 to evaluate the Surplus Interconnection Service being made available by GEN-2023-GR4 at its existing Point of Interconnection (POI) at the Cunningham 115 kV substation in the Southwestern Public Service (SPS) control area.

GEN-2024-SR14, the proposed Surplus Generating Facility (SGF), will connect to the Cunningham 115 kV POI bus via a separate bay connection. GEN-2023-GR4 (EGF) has a nameplate capacity of 79.8 MW and is making 36 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 a replacement generator for the Cunningham Unit 1 with a POI at the Cunningham 115 kV substation that predates SPS's membership in SPP and as such does not have a Generation Interconnection Agreement (GIA). Figure 1 shows the power flow model single line diagram for the EGF configuration.

Figure 1: GEN-2023-GR4 Single Line Diagram (EGF Existing Configuration*)



*based on the DISIS-2018-002/2019-001 25SP stability models

The proposed SGF configuration consists of nine (9) Sungrow MVS5000-LV-US Storage System Inverters, each rated at 5.14 MVA. While the SGF has a total generating capability of 43.092 MW, its injection at the POI must be limited to 36 MW. Combined generation from the SGF and EGF cannot exceed 72 MW at the POI. A Power Plant Controller (PPC) will be implemented as part of GEN-2024-SR14 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

Request	Interconnection Queue Capacity (MW)	Fuel Type	Point of Interconnection
GEN-2024-SR14 (SGF)	36	Battery Storage	Cunningham 3 115 kV (527864)
GEN-2023-GR4 (EGF)	72	Solar	Cunningham 3 115 kV (527864)

Figure 2 and detailed in Table 4 below.

Table 3: EGF & SGF Configuration

Request	Interconnection Queue Capacity (MW)	Fuel Type	Point of Interconnection
GEN-2024-SR14 (SGF)	36	Battery Storage	Cunningham 3 115 kV (527864)
GEN-2023-GR4 (EGF)	72	Solar	Cunningham 3 115 kV (527864)

Figure 2: GEN-2023-GR4 & GEN-2024-SR14 Single Line Diagram (EGF & SGF Configuration)

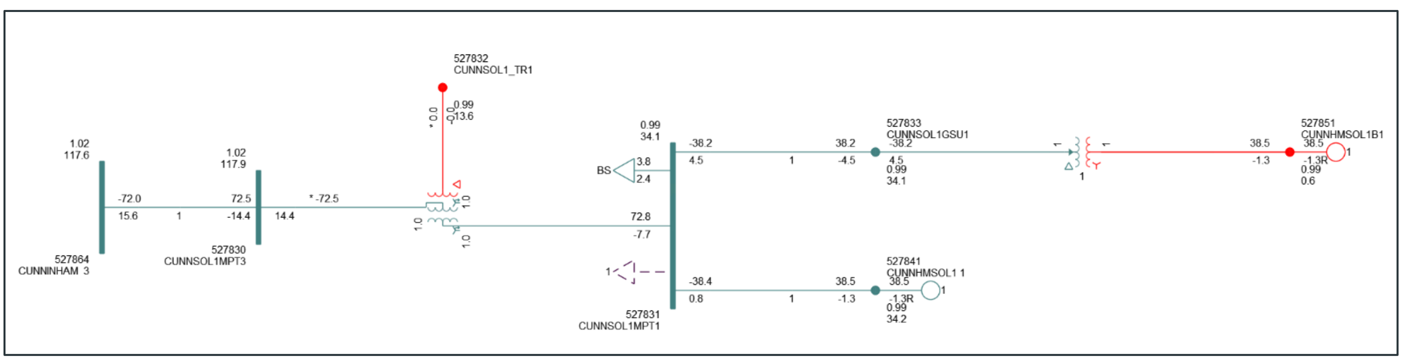


Table 4: SGF Interconnection Configuration

Facility	SGF Configuration
Point of Interconnection	CUNNINHAM 3 115 kV (527864)
Configuration/Capacity	9 x Sungrow MVS5000-LV-US 4.491 MW (Battery Storage) = 43.092 MW [dispatch] Units are rated at 5.14 MVA, PPC to limit GEN-2024-SR14 to 36 MW at the POI Total POI injection w/ GEN-2023-GR4 to 72 MW at the POI
Generation Interconnection Line (Shared with the EGF and unchanged)	Length = 5.20 miles
	R = 0.009117 pu
	X = 0.030840 pu
	B = 0.003710 pu
	Rating MVA = 117 MVA
Main Substation Transformer[1]	X = 6.970%, R = 0.228% Winding MVA = 57 MVA Rating MVA = 95 MVA
Equivalent GSU Transformer[1]	Gen 1 Equivalent Qty: 9
	X = 8.966%, R = 0.780% Winding MVA = 46.3 MVA Rating MVA = 46.3 MVA
Equivalent Collector Line[3]	R = 0.000054 pu
	X = 0.000084 pu
	B = 0.000150 pu
Generator Dynamic Model[5] & Power Factor	9 x Sungrow MVS5000-LV-US 5.14 MVA[4] (REGCA1)[5] Leading: 0.891 Lagging: 0.891

1) X and R based on Winding MVA, 2) Rating rounded in PSS/E, 3) All pu are on 100 MVA Base, equivalent based on average derated MVA base provided by IC, 4) Average aggregated MVA provided by IC, 5) DYR stability model name

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 reduce 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 reduce 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 reduce 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 1.25 MVAr shunt reactor at the EGF substation, and the SGF needed an approximately 0.22 MVAr shunt reactor at the SGF substation. For both the EGF and SGF, a 1.47 MVAr shunt reactor is needed to reduce 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 reduce the POI MVAr to approximately zero with the EGF alone, and Figure 4.

Table 5: Shunt Reactor Size for Reactive Power Analysis

Machine	POI Bus Number	POI Bus Name	Reactor Size (MVAr)
			25SP
GEN-2023-GR4 (EGF)	527864	CUNNINHAM 3	0.22
GEN-2024-SR14 (SGF)	527864	CUNNINHAM 3	0.22
GEN-2023-GR4 (EGF) & GEN-2024-SR14 (SGF)	527864	CUNNINHAM 3	1.47

Figure 3: EGF Single Line Diagram (Shunt Sizes)

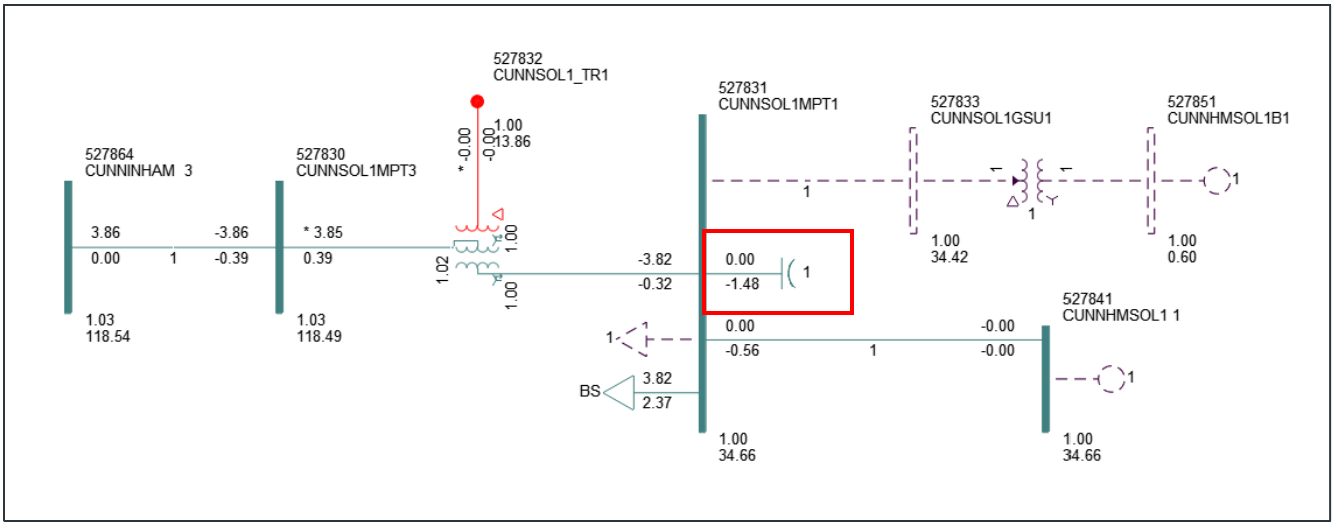
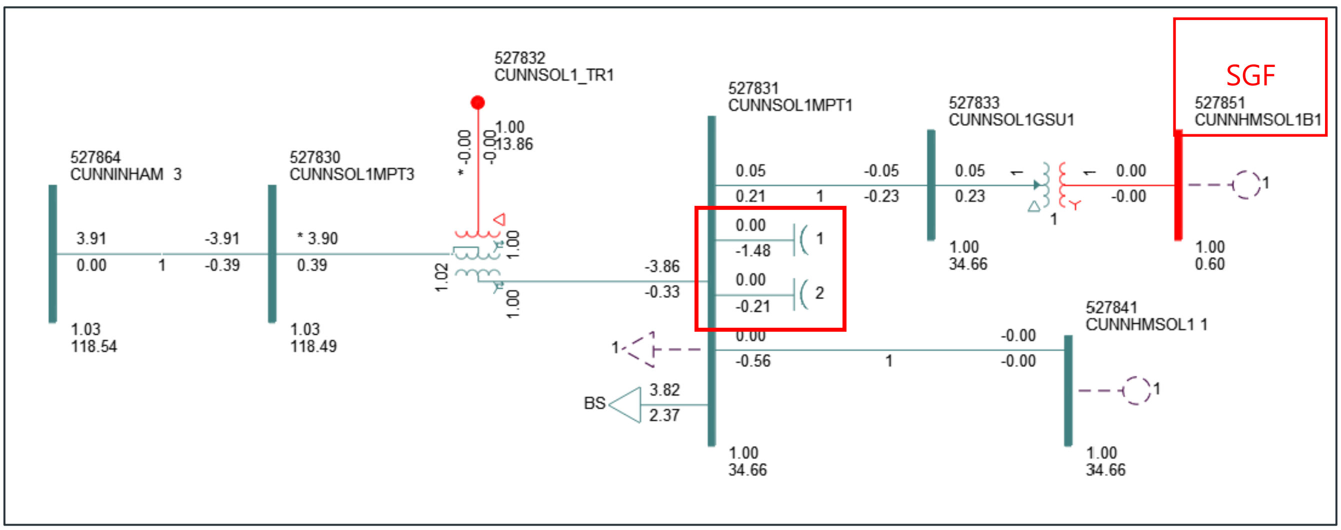


Figure 4: SGF & EGF Single Line Diagram (Shunt Sizes)



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 115 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-2018-002/2019-001 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	Value by Generator Bus#
	527851
Machine MVA Base	45.36
R (pu)	0.000
X'' (pu)	0.4058

*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 not connected to the stability in Scenario 1. In Scenario 2 both the EGF and SGF were online. The GEN-2024-SR14 POI bus fault current magnitudes for the comparison cases are provided in Table 7 showing a fault current of 29.93 kA with the EGF and SGF online. The addition of the SGF configuration increased the POI bus fault current by 0.312 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 34.19 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 3.019% and 0.330 kA. These buses are highlighted in Appendix B.

Table 7: POI Short Circuit Comparison Results

Case	EGF Only Current (kA)	SGF & EGF Current (kA)	kA Change	%Change
25SPP	29.62	29.93	0.31	1.05%

Table 8: 25SP Short Circuit Comparison Results

Voltage (kV)	Max. Current (EGF & SGF) (kA)	Max kA Change	Max %Change
69	9.997	0.003	0.065%
115	34.190	0.330	3.019%
230	20.833	0.050	0.245%
345	16.731	0.013	0.108%
Max	**34.190**	**0.330**	**3.019%**

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-SR14 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 9 x Sungrow MVS5000-LV-US inverters operating at 4.491 MW 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-2018-002/2019-001 stability study models:

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

In Scenario 1 the SGF is at 100% of the assumed dispatch (SGF = 40.40 MW) to inject 36 MW at the POI while the EGF generator was offline and disconnected. Scenario 2 was comprised of the SGF at 100% of the assumed dispatch (SGF = 38.46 MW) while the EGF generator picked up the remaining EGF capacity (EGF = 38.46 MW) to inject 72 MW at the POI. The study scenarios are shown in Table 9.

Table 9: Study Scenarios (Generator Dispatch MW)

Scenario	GREC 2 EGF (MW)	GEN-2024-SR1 SGF (MW)	EGF + SGF (MW)
1	0 (Offline)	40.40	40.40
2	38.46	38.48	76.92

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.

[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. 118 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 = 40.40 MW)

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_527793_EDDY_STH-527786_ATOKA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527793_EDDY_STH-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527793_EDDY_STH-528178_PECOS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527564_ROSWLL_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527711_EAGLE_CREEK311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527793_EDDY_STH_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527483_CHAVES_CNTY623000_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527793_EDDY_STH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527798_EDDY_NTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527802_EDDY_CNTY_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-528095_7-RIVERS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-599960_EPTNP-D6_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527802_EDDY_CNTY-527656_CROSSROADS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527802_EDDY_CNTY-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable

[4] Based on the DISIS-2018-002/2019-001 Cluster Groups

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_527802_EDDY_CNTY-527965_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527867_CUNNIGHM_S_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527891_HOBBS_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527891_HOBBS_INT_Ckt2	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528348_BUCKEYE_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528355_MADDOX_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528394_QUAHADA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528581_BYRD_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527865_CUNNIGHM_N-527799_EDDY_NORTH_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527865_CUNNIGHM_N-527963_POTASH_JCT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527864_CUNNINHAM_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527865_CUNNIGHM_N_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527894_HOBBS_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-527894_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528333_LE-WEST_SUB311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528355_MADDOX_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528413_TAYLOR_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528433_BENSING_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527028_INK_BASIN_Ckt1	Pass	Pass	Not Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527891_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527896_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-528604_ANDREWS_Ckt1	Pass	Pass	Not Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-526936_YOAKUM_345_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527656_CROSSROADS_CktBA	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527656_CROSSROADS_CktLX	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527894_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527965_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-528027_RDRUNNER_CktUC	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-528027_RDRUNNER_CktXA	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-527929_PCA_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-527962_POTASH_JCT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-528160_CARLSBAD_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-528394_QUAHADA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527962_POTASH_JCT-527963_POTASH_JCT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_527962_POTASH_JCT-527966_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527963_POTASH_JCT-527962_POTASH_JCT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527963_POTASH_JCT-528179_PECOS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527965_KIOWA-528185_N_LOVING_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528027_RDRUNNER-528015_PHANTOM_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528179_PECOS-528095_7-RIVERS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528179_PECOS-528178_PECOS_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_528317_ENRON_TP-528392_PEARLE_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528348_BUCKEYE_TP-528627_LE-TXACO_TP311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528353_MADDOXG23_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528392_PEARLE_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528491_MONUMENT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-762442_G18-004-TAP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528394_QUAHADA-527930_PCA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528394_QUAHADA-528399_LEA_NATIONL311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528399_LEA_NATIONL311500-528317_ENRON_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528491_MONUMENT-528498_W_HOBBS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528581_BYRD_TP-527864_CUNNINHAM_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528581_BYRD_TP-528505_LEA_ROAD_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528604_ANDREWS-528602_ANDREWS_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_528627_LE-TXACO_TP311500-528622_LE-SANANDRS269000_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_762442_G18-004-TAP-528449_W_BENDER_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527799_EDDY_NORTH	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527802_EDDY_CNTY	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527864_CUNNINHAM	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527865_CUNNIGHM_N	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527867_CUNNIGHM_S	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527891_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527894_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527896_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527962_POTASH_JCT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527963_POTASH_JCT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527965_KIOWA	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528027_RDRUNNER	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528355_MADDOX	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528394_QUAHADA	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108434	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108435	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108436	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P4_CON-526936_YOAKUM_345-ConID-108442	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527656_CROSSROADS-ConID-108421	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108422	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108423	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108424	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108440	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527965_KIOWA-ConID-108429	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527965_KIOWA-ConID-108441	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528027_RDRUNNER-ConID-108445	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528027_RDRUNNER-ConID-108447	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108430	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108431	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108432	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108443	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-129	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-130	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-131	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527656_CROSSROADS-ConID-SPS-109	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-114	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-115	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-116	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527896_HOBBS_INT-ConID-SPS-119	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527965_KIOWA-ConID-SPS-120	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527965_KIOWA-ConID-SPS-121	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-126	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-127	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-128	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-122	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-123	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-124	Pass	Pass	Stable	Pass	Pass	Stable

There were no damping or voltage recovery violations attributed to the GEN-2024-SR14 surplus request observed during the simulated faults. However, there were two (2) P1 faults that caused damping violations but were attributed to the EGF and not the SGF. 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 RESULTS

Table 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 = 38.46 MW, SGF = 38.46 MW)

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_527793_EDDY_STH-527786_ATOKA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527793_EDDY_STH-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527793_EDDY_STH-528178_PECOS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527564_ROSWLL_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527711_EAGLE_CREEK311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527793_EDDY_STH_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527798_EDDY_NTH-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527483_CHAVES_CNTY623000_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527793_EDDY_STH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527798_EDDY_NTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-527802_EDDY_CNTY_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-528095_7-RIVERS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527799_EDDY_NORTH-599960_EPTNP-D6_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527802_EDDY_CNTY-527656_CROSSROADS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527802_EDDY_CNTY-527799_EDDY_NORTH_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527802_EDDY_CNTY-527965_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527867_CUNNIGHM_S_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527891_HOBBS_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-527891_HOBBS_INT_Ckt2	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528348_BUCKEYE_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528355_MADDOX_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528394_QUAHADA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527864_CUNNINHAM-528581_BYRD_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527865_CUNNIGHM_N-527799_EDDY_NORTH_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527865_CUNNIGHM_N-527963_POTASH_JCT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527864_CUNNINHAM_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527865_CUNNIGHM_N_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527867_CUNNIGHM_S-527894_HOBBS_INT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-527894_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_527891_HOBBS_INT-528333_LE-WEST_SUB311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528355_MADDOX_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528413_TAYLOR_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527891_HOBBS_INT-528433_BENSING_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527028_INK_BASIN_Ckt1	Pass	Pass	Not Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527891_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-527896_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527894_HOBBS_INT-528604_ANDREWS_Ckt1	Pass	Pass	Not Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-526936_YOAKUM_345_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527656_CROSSROADS_CktBA	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527656_CROSSROADS_CktLX	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527894_HOBBS_INT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-527965_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-528027_RDRUNNER_CktUC	Pass	Pass	Stable	Pass	Pass	Stable
P1_527896_HOBBS_INT-528027_RDRUNNER_CktXA	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-527929_PCA_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-527962_POTASH_JCT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-528160_CARLSBAD_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527930_PCA-528394_QUAHADA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527962_POTASH_JCT-527963_POTASH_JCT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527962_POTASH_JCT-527966_KIOWA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527963_POTASH_JCT-527962_POTASH_JCT_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_527963_POTASH_JCT-528179_PECOS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_527965_KIOWA-528185_N_LOVING_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528027_RDRUNNER-528015_PHANTOM_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528179_PECOS-528095_7-RIVERS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528179_PECOS-528178_PECOS_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_528317_ENRON_TP-528392_PEARLE_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528348_BUCKEYE_TP-528627_LE-TXACO_TP311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528353_MADDOXG23_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528392_PEARLE_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-528491_MONUMENT_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528355_MADDOX-762442_G18-004-TAP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528394_QUAHADA-527930_PCA_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528394_QUAHADA-528399_LEA_NATIONL311500_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528399_LEA_NATIONL311500-528317_ENRON_TP_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P1_528491_MONUMENT-528498_W_HOBBS_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528581_BYRD_TP-527864_CUNNINHAM_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528581_BYRD_TP-528505_LEA_ROAD_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_528604_ANDREWS-528602_ANDREWS_3Winding	Pass	Pass	Stable	Pass	Pass	Stable
P1_528627_LE-TXACO_TP311500-528622_LE-SANANDRS269000_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P1_762442_G18-004-TAP-528449_W_BENDER_Ckt1	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527799_EDDY_NORTH	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527802_EDDY_CNTY	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527864_CUNNINHAM	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527865_CUNNIGHM_N	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527867_CUNNIGHM_S	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527891_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527894_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527896_HOBBS_INT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527962_POTASH_JCT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527963_POTASH_JCT	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-527965_KIOWA	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528027_RDRUNNER	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528355_MADDOX	Pass	Pass	Stable	Pass	Pass	Stable
P4_HOL-528394_QUAHADA	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108434	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108435	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108436	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-526936_YOAKUM_345-ConID-108442	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527656_CROSSROADS-ConID-108421	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108422	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108423	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108424	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527802_EDDY_CNTY-ConID-108440	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527965_KIOWA-ConID-108429	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-527965_KIOWA-ConID-108441	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528027_RDRUNNER-ConID-108445	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528027_RDRUNNER-ConID-108447	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108430	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108431	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108432	Pass	Pass	Stable	Pass	Pass	Stable
P4_CON-528185_N_LOVING-ConID-108443	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-129	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-130	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-526936_YOAKUM_345-ConID-SPS-131	Pass	Pass	Stable	Pass	Pass	Stable

Fault ID	25SPP			25WP		
	Voltage Violation	Voltage Recovery	Stable	Voltage Violation	Voltage Recovery	Stable
P4_TO-527656_CROSSROADS-ConID-SPS-109	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-114	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-115	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527802_EDDY_CNTY-ConID-SPS-116	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527896_HOBBS_INT-ConID-SPS-119	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527965_KIOWA-ConID-SPS-120	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-527965_KIOWA-ConID-SPS-121	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-126	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-127	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528027_RDRUNNER-ConID-SPS-128	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-122	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-123	Pass	Pass	Stable	Pass	Pass	Stable
P4_TO-528185_N_LOVING-ConID-SPS-124	Pass	Pass	Stable	Pass	Pass	Stable

There were no damping or voltage recovery violations attributed to the GEN-2024-SR14 surplus request observed during the simulated faults. However, there were two (2) P1 faults that caused damping violations but were attributed to the EGF and not the SGF. 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-SR14 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-SR14 may utilize the requested 36 MW of Surplus Interconnection Service being made available by GEN-2023-GR4.

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 72 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 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.